

# Level 2 Award, Certificate and Diploma in Proficiency in Food Manufacturing Excellence (1284)



## Qualification handbook for centres

1284-20 Award: 501/1755/5

1284-21 Certificate: 501/1756/7

1284-22 Diploma: 501/1757/9

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# Level 2 Award, Certificate and Diploma in Proficiency in Food Manufacturing Excellence (1284)

## Qualification handbook for centres

Qualification title	Number	QAN
Level 2 Award in Proficiency in Food Manufacturing Excellence	1284-20	501/1755/5
Level 2 Certificate in Proficiency in Food Manufacturing Excellence	1284-21	501/1756/7
Level 2 Diploma in Proficiency in Food Manufacturing Excellence	1284-22	501/1757/9

Version and date	Change detail	Section
1.1 Jan 2012	Amend rules of combination	Level 2 Diploma in Proficiency in Food Manufacturing Excellence (1284-22)
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# Contents

1	Introduction to the qualifications	7
2	Centre requirements	12
3	Course design and delivery	15
4	Assessment	16
5	Units	17
<b>Working with Others units</b>		<b>18</b>
Unit 201	Work effectively with others in food operations	19
Unit 202	Understand how to work effectively with others in food operations	21
Unit 203	Maintain product quality in food operations	23
Unit 204	Understand how to maintain product quality in food operations	25
Unit 205	Maintain workplace food safety standards in operations	27
Unit 206	Understand how to maintain workplace food safety standards in operations	29
Unit 207	Maintain workplace health and safety in food operations	31
Unit 208	Understand how to maintain workplace health and safety in food operations	33
Unit 209	Contribute to environmental safety in food operations	35
Unit 210	Understand how to contribute to environmental safety in food operations	37
Unit 211	Contribute to the maintenance of plant and equipment in food operations	39
Unit 212	Understand how to contribute to the maintenance of plant and equipment in food operations	41
Unit 213	Contribute to the development of product specifications in food manufacture	43
Unit 214	Understand how to contribute to the development of product specifications in food manufacture	45
Unit 215	Contribute to sustainable practice in food operations	47
Unit 216	Understand how to contribute to sustainable practice in food operations	49
<b>Tools and Techniques units</b>		<b>51</b>
Unit 217	Organise and improve work activities for achieving excellence in food operations	52
Unit 218	Understand how to organise and improve work activities for achieving excellence in food operations	54
Unit 219	Contribute to continuous improvement for achieving excellence in food operations	56
Unit 220	Understand how to contribute to continuous improvement for achieving excellence in food operations	58
Unit 221	Contribute to the measurement and collection of data for achieving excellence in food operations	60
Unit 222	Understand how to contribute to the measurement and collection of data for achieving excellence in food operations	62

<b>Unit 223</b>	<b>Contribute to the application of improvement techniques for achieving excellence in food operations</b>	<b>64</b>
<b>Unit 224</b>	<b>Understand how to contribute to the application of improvement techniques for achieving excellence in food operations</b>	<b>66</b>
<b>Unit 225</b>	<b>Undertake proactive plant maintenance in food operations</b>	<b>68</b>
<b>Unit 226</b>	<b>Understand how to undertake proactive plant maintenance in food operations</b>	<b>70</b>
<b>Unit 227</b>	<b>Contribute to the development of Standard Operating Procedures (SOP) in food operations</b>	<b>72</b>
<b>Unit 228</b>	<b>Understand how to contribute to the development of Standard Operating Procedures (SOP) in food operations</b>	<b>74</b>
<b>Unit 229</b>	<b>Reduce and manage conflict in achieving excellence in food operations</b>	<b>76</b>
<b>Unit 230</b>	<b>Understand how to reduce and manage conflict in achieving excellence in food operations</b>	<b>78</b>
<b>Unit 231</b>	<b>Contribute to compliance for achieving excellence in food operations</b>	<b>80</b>
<b>Unit 232</b>	<b>Understand how to contribute to compliance for achieving excellence in food operations</b>	<b>82</b>
<b>Unit 233</b>	<b>Contribute to problem diagnosis in food manufacture</b>	<b>84</b>
<b>Unit 234</b>	<b>Understand how to contribute to problem diagnosis in food manufacture</b>	<b>86</b>
<b>Unit 235</b>	<b>Contribute to problem resolution in food manufacture</b>	<b>88</b>
<b>Unit 236</b>	<b>Understand how to contribute to problem resolution in food manufacture</b>	<b>90</b>
<b>Achieving Food Manufacturing Excellence Knowledge units</b>		<b>92</b>
<b>Unit 237</b>	<b>Principles of HACCP Based Food Safety Systems</b>	<b>93</b>
<b>Unit 301</b>	<b>Principles of sustainability in food operations</b>	<b>95</b>
<b>Unit 238</b>	<b>Principles of workplace organisation techniques in food operations</b>	<b>97</b>
<b>Unit 302</b>	<b>Principles of improvement in food operations</b>	<b>99</b>
<b>Unit 303</b>	<b>Principles of continuous improvement techniques (Kaizen) in food operations</b>	<b>101</b>
<b>Unit 304</b>	<b>Principles of flow process analysis in food operations</b>	<b>103</b>
<b>Unit 305</b>	<b>Principles of Measurement System Analysis (MSA) in food operations</b>	<b>105</b>
<b>Unit 306</b>	<b>Principles of lead time analysis in food operations</b>	<b>107</b>
<b>Unit 307</b>	<b>Principles of basic statistical analysis in food operations</b>	<b>109</b>
<b>Unit 308</b>	<b>Principles of Taguchi Linear graphs in food operations</b>	<b>111</b>
<b>Unit 309</b>	<b>Principles of flexible production and manpower systems in food operations</b>	<b>113</b>
<b>Unit 310</b>	<b>Principles of Statistical Process Control procedures (SPC) in food operations</b>	<b>116</b>
<b>Unit 311</b>	<b>Principles of Design of Experiments (DOE) in food operations</b>	<b>119</b>
<b>Unit 312</b>	<b>Principles of Quality Function Deployment (QFD) in food operations</b>	<b>121</b>
<b>Unit 313</b>	<b>Principles of response surface methodology in food operations</b>	<b>123</b>
<b>Unit 314</b>	<b>Principles of Value Stream Mapping (VSM) in food operations</b>	<b>125</b>
<b>Unit 315</b>	<b>Principles of visual management systems in food operations</b>	<b>127</b>
<b>Unit 316</b>	<b>Principles of analysing and selecting areas for achieving excellence in food operations</b>	<b>130</b>
<b>Unit 317</b>	<b>Principles of Failure Modes and Effects Analysis (FMEA) in food operations</b>	<b>132</b>

<b>Unit 318</b>	<b>Principles of Six Sigma process mapping in food operations</b>	<b>134</b>
<b>Unit 319</b>	<b>Principles of Six Sigma methodology in food operations</b>	<b>136</b>
<b>Unit 320</b>	<b>Principles of Six Sigma metrics in food operations</b>	<b>138</b>
<b>Unit 321</b>	<b>Principles of a set-up reduction programme in food operations</b>	<b>140</b>
<b>Unit 322</b>	<b>Principles of mistake/error proofing (Poka Yoke) in food operations</b>	<b>142</b>
<b>Unit 323</b>	<b>Principles of a characteristic selection matrix in food operations</b>	<b>144</b>
<b>Unit 324</b>	<b>Principles of capability studies in food operations</b>	<b>146</b>
<b>Unit 325</b>	<b>Principles of multi-variance charts in food operations</b>	<b>148</b>
<b>Unit 326</b>	<b>Principles of hypothesis testing in food operations</b>	<b>150</b>
<b>Unit 327</b>	<b>Principles of Evolutionary Operations (EVOP) in food operations</b>	<b>152</b>
<b>Unit 328</b>	<b>Principles of central limit theorem and confidence intervals in food operations</b>	<b>154</b>
<b>Unit 329</b>	<b>Principles of Single Minute Exchange of Dies (SMED) in food operations</b>	<b>156</b>
<b>Appendix 1</b>	<b>Sources of general information</b>	<b>158</b>

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# 1 Introduction to the qualifications

This document contains the information that centres need to offer the following qualifications:

<b>Qualification title and level</b>	<b>City &amp; Guilds qualification number</b>	<b>Qualification accreditation number</b>	<b>Registration and certification</b>
Level 2 Award in Proficiency in Food Manufacturing Excellence	1284-20	501/1755/5	Consult the Walled Garden/Online Catalogue for last dates
Level 2 Certificate in Proficiency in Food Manufacturing Excellence	1284-21	501/1756/7	
Level 2 Diploma in Proficiency in Food Manufacturing Excellence	1284-22	501/1757/9	

These qualifications are designed for learners who are working in a food manufacture or supply chain environment and offer a sustainable Continuous Improvement Programme for the workplace. They offer learners the opportunity to develop skills and knowledge required to prove competence at work. They will also suit learners who are competent at core production and/or manufacturing activities and are looking for ways of developing existing skills and knowledge to support productivity.

For the first time, these qualifications offer food manufacturers a unique blend of change management/team working competencies and improvement tools and techniques. Change management sits at the heart of Lean manufacturing where communication, behaviour and team work perform together to create a sustainable continuous improvement culture. These qualifications also offer individuals the opportunity to develop their knowledge around the tools and techniques.

## 1.1 Qualification structure

The tables below indicate the rules of combination needed to achieve the **Level 2 Award, Certificate and Diploma in Proficiency in Food Manufacturing Excellence**.

	<b>Award</b>	<b>Certificate</b>	<b>Diploma</b>
Total credits required for qualification	10-12	27-36	37-67
Guided learning hours range (min-max)	32-86	107-216	162-278
Group A - Working with Others	4-6	12-18	17+
Group B - Tools and Techniques	4-6	12-18	17+
Group C - Achieving Food Manufacturing Excellence Knowledge	0-3	0-7	0-18

## Level 2 Award in Proficiency in Food Manufacturing Excellence (1284-20)

To achieve the full level 2 Award, learners must achieve a minimum of **10** credits, comprising of the following combination of credits from each of the three unit groups:

- Group A - minimum of 4 credits
- Group B - minimum of 4 credits
- Group C - it is not mandatory to take any units from Group C but up to 3 credits can be achieved.

Any further credit achieved up to 12 credits will be recorded with all the units that have been achieved towards the qualification.

## Level 2 Certificate in Proficiency in Food Manufacturing Excellence (1284-21)

To achieve the full level 2 Certificate, learners must achieve a minimum of **27** credits, comprising of the following combination of credits from each of the three unit groups:

- Group A - a minimum of 12 credits
- Group B - a minimum of 12 credits
- Group C - it is not mandatory to take any credits from Group C, but up to 7 credits can be achieved.

Any further credit achieved up to 36 credits will be recorded with all the units that have been achieved towards the qualification.

## Level 2 Diploma in Proficiency in Food Manufacturing Excellence (1284-22)

To achieve the full level 2 Diploma, learners must achieve a minimum of **37** credits, comprising of the following combination of credits from each of the three unit groups:

- Group A - minimum of 17 credits
- Group B - minimum of 17 credits
- Group C - it is not mandatory to take any units from Group C but up to 18 credits can be achieved.

Any further credit achieved up to 67 credits will be recorded with all the units that have been achieved towards the qualification

City & Guilds unit	Title	QCF unit number	Credit value	GLH	Level
<b>Group A</b>	<b>Working with Others</b>				
201	Work effectively with others in food operations	H/601/2896	2	15	2
202	Understand how to work effectively with others in food operations	K/601/2897	2	18	2
203	Maintain product quality in food operations	T/601/2899	2	5	2
204	Understand how to maintain product quality in food operations	H/601/2901	2	11	2
205	Maintain workplace food safety standards in operations	K/601/2902	2	16	2
206	Understand how to maintain workplace food safety standards in operations	M/601/2903	2	20	2
207	Maintain workplace health and safety in food operations	M/601/2917	2	4	2
208	Understand how to maintain workplace health and safety in food operations	T/601/2918	2	18	2
209	Contribute to environmental safety in food operations	A/601/2919	2	5	2

City & Guilds unit	Title	QCF unit number	Credit value	GLH	Level
210	Understand how to contribute to environmental safety in food operations	M/601/2920	2	11	2
211	Contribute to the maintenance of plant and equipment in food operations	T/601/2921	3	30	2
212	Understand how to contribute to the maintenance of plant and equipment in food operations	A/601/2922	3	20	2
213	Contribute to the development of product specifications in food manufacture	F/601/2923	3	25	2
214	Understand how to contribute to the development of product specifications in food manufacture	J/601/2924	2	14	2
215	Contribute to sustainable practice in food operations	L/601/2925	2	3	2
216	Understand how to contribute to sustainable practice in food operation	R/601/2926	2	14	2
<b>Group B</b>	<b>Tools &amp; Techniques</b>				
217	Organise and improve work activities for achieving excellence in food operations	Y/601/2927	3	13	2
218	Understand how to organise and improve work activities for achieving excellence in food operations	D/601/2928	3	14	2
219	Contribute to continuous improvement for achieving excellence in food operations	H/601/2929	3	14	2
220	Understand how to contribute to continuous improvement for achieving excellence in food operations	Y/601/2930	2	12	2
221	Contribute to the measurement and collection of data for achieving excellence in food operations	D/601/2931	3	14	2
222	Understand how to contribute to the measurement and collection of data for achieving excellence in food operations	H/601/2932	2	12	2
223	Contribute to the application of improvement techniques for achieving excellence in food operations	K/601/2933	3	12	2
224	Understand how to contribute to the application of improvement techniques for achieving excellence in food operations	M/601/2934	3	18	2
225	Undertake proactive plant maintenance in food operations	T/601/2935	3	14	2
226	Understand how to undertake proactive plant maintenance in food operations	A/601/2936	3	17	2
227	Contribute to the development of Standard Operating Procedures (SOP) in food operations	F/601/2937	3	12	2
228	Understand how to contribute to the development of Standard Operating Procedures (SOP) in food operations	J/601/2938	2	9	2

City & Guilds unit	Title	QCF unit number	Credit value	GLH	Level
229	Reduce and manage conflict in achieving excellence in food operations	F/601/2940	3	11	2
230	Understand how to reduce and manage conflict in achieving excellence in food operations	J/601/2941	3	11	2
231	Contribute to compliance for achieving excellence in food operations	L/601/2942	3	17	2
232	Understand how to contribute to compliance for achieving excellence in food operations	R/601/2943	2	11	2
233	Contribute to problem diagnosis in food manufacture	Y/601/2944	2	10	2
234	Understand how to contribute to problem diagnosis in food manufacture	D/601/2945	2	15	2
235	Contribute to problem resolution in food manufacture	H/601/2946	3	13	2
236	Understand how to contribute to problem resolution in food manufacture	K/601/2947	2	18	2
<b>Group C</b>	<b>Achieving Food Manufacturing Excellence Knowledge</b>				
237	Principles of HACCP Based Food Safety Systems	A/601/2631	1	8	2
238	Principles of workplace organisation techniques in food operations	M/601/2951	2	12	2
301	Principles of sustainability in food operations	L/601/2701	4	34	3
302	Principles of improvement in food operations	A/601/2953	3	16	3
303	Principles of continuous improvement techniques (Kaizen) in food operations	F/601/2954	3	15	3
304	Principles of flow process analysis in food operations	J/601/2955	3	19	3
305	Principles of Measurement System Analysis (MSA) in food operations	D/601/2959	3	16	3
306	Principles of lead time analysis in food operations	Y/601/2961	3	16	3
307	Principles of basic statistical analysis in food operations	H/601/2963	3	18	3
308	Principles of Taguchi Linear graphs in food operations	K/601/2964	3	18	3
309	Principles of flexible production and manpower systems in food operations	T/601/2966	4	25	3
310	Principles of Statistical Process Control procedures (SPC) in food operations	F/601/2968	3	21	3
311	Principles of Design of Experiments (DOE) in food operations	J/601/2969	3	16	3
312	Principles of Quality Function Deployment (QFD) in food operations	A/601/2970	4	21	3
313	Principles of response surface methodology in food operations	F/601/2971	3	17	3
314	Principles of Value Stream Mapping (VSM) in food operations	L/601/2973	3	18	3

City & Guilds unit	Title	QCF unit number	Credit value	GLH	Level
315	Principles of visual management systems in food operations	R/601/2974	3	19	3
316	Principles of analysing and selecting areas for achieving excellence in food operations	Y/601/2975	2	12	3
317	Principles of Failure Modes and Effects Analysis (FMEA) in food operations	D/601/2976	2	12	3
318	Principles of Six Sigma process mapping in food operations	H/601/2977	3	18	3
319	Principles of Six Sigma methodology in food operations	K/601/2978	3	17	3
320	Principles of Six Sigma metrics in food operations	M/601/2979	4	22	3
321	Principles of a set-up reduction programme in food operations	H/601/2980	4	22	3
322	Principles of mistake/error proofing (Poka Yoke) in food operations	K/601/2981	3	20	3
323	Principles of a characteristic selection matrix in food operations	M/601/2982	3	19	3
324	Principles of capability studies in food operations	A/601/2984	4	22	3
325	Principles of multi-variance charts in food operations	F/601/2985	3	17	3
326	Principles of hypothesis testing in food operations	J/601/2986	3	22	3
327	Principles of Evolutionary Operations (EVOP) in food operations	L/601/2987	3	22	3
328	Principles of central limit theorem and confidence intervals in food operations	Y/601/2989	3	20	3
329	Principles of Single Minute Exchange of Dies (SMED) in food operation	L/601/2990	3	22	3

## 1.2 Opportunities for progression

On completion of these qualifications candidates may progress into employment or to Level 3 qualifications in the same subject.

## 2 Centre requirements

This section outlines the approval processes for Centres to offer these qualifications and any resources that Centres will need in place to offer the qualifications including qualification-specific requirements for Centre staff.

There is **no** fast track approval provision for this qualification.

Existing centres wishing to offer this qualification must use the **standard** Qualification Approval Process.

### 2.1 Resource requirements

#### Physical resources and site agreements

It is acceptable for centres to use specially designated areas within a centre to assess, The equipment, systems and machinery must meet industrial standards and be capable of being used under normal working conditions.

#### Human resources

Staff delivering these qualifications must be able to demonstrate that they meet the following occupational expertise requirements. They should:

- be technically competent in the area for which they are delivering training and/or have experience of providing training. This knowledge must be at least to the same level as the training being delivered
- have recent relevant experience in the specific area they will be assessing
- be occupationally knowledgeable in the areas of [Food Manufacturing Excellence for which they are delivering training. This knowledge must be at least to the same level as the training being delivered
- have credible experience of providing training.

Centre staff may undertake more than one role, eg tutor and assessor or internal verifier, but must never internally verify their own assessments.

### 2.2 Assessors and internal verifiers

The following guidance is taken from the Improve Assessment Strategy for Proficiency Qualifications.

#### Occupational competence of assessors

The role of an assessor is a demanding and complex one, requiring a high degree of both interpersonal and organisational skills. They are required to make accurate and objective decisions as to whether the learner's performance meets the assessment requirements laid out in units of assessment.

For assessments to be considered valid, the assessor must meet the following requirements. Any assessments carried out by personnel who do not meet these requirements will be deemed a contribution to workplace testimony.

Assessors are required to:

- Provide current evidence of competence, knowledge and understanding in the areas to be assessed, to the satisfaction of the Awarding Organisation. This will normally be achieved through demonstrating competence in the roles which are to be assessed, which may be recorded in company training records. Alternatively, this can be demonstrated by relevant experience and continuing professional development which may include the achievement of qualifications relevant to the areas being assessed.
- Demonstrate competent practice in workplace assessment methods. They do not need to hold the assessor unit qualification A1, but must demonstrate understanding of the principles and practices of the assessment process. This may in part be demonstrated for example, by the outcomes of formal training in assessment techniques for company based training systems or qualifications, or for auditing against quality criteria for an externally audited quality standard. Assessors with previous unit achievement of A1, D32 and/or D33 satisfy requirements, provided evidence of continuous professional development has updated workplace assessment practice. Recognition of assessors in this way is only valid between a centre and an Awarding Organisation in respect of specific qualifications, and is not transferable to other bodies or qualifications.
- Demonstrate their continuing professional development to ensure they are up to date with work practices in their sector area of expertise and developments in the Proficiency Qualifications they assess.
- Have a full and current understanding of the units of assessment and requirements of the qualifications being assessed.
- Operate safely as an assessor in a food environment, therefore it is strongly recommended that a relevant food safety/hygiene qualification is achieved.

Assessors 'in training' who are not fully recognised as competent by Awarding Organisations may carry out assessment practice. For the period in training and working towards recognition, the assessor must have assessment activity monitored and signed off (countersigned) by a fully recognised and competent assessor. The 'in training' period should be limited to nine months and have clear development goals set for achieving recognition and competence.

### **Occupational competence of internal verifiers**

Approved centres appoint internal verifiers and their role is to ensure consistency and quality of assessment within the centre. The internal verifier will monitor assessment activities and provide feedback to assessors, coordinate standardisation and provide guidance to assessors.

For assessments and verification to be considered valid, the internal verifier must meet the following requirements:

- Demonstrate sufficient and current understanding of the qualifications to be internally verified, and know how they are applied in the sector area(s) concerned, to the satisfaction of the Awarding organisation. Relevant knowledge and understanding of the workplace areas to be sampled during verification is required. Relevant experience of working in or with the sector area(s) is preferable.
- Demonstrate competent practice in internal verification and assessment. They do not need to hold the unit qualification V1 but must be able to understand the principles and practices of internal verification. This may in part be demonstrated for example, by the outcomes of formal training in assessment and verification techniques for company based training systems or qualifications, or for auditing against quality criteria for an externally audited quality standard. Verifiers with previous unit achievement of V1 or D34 satisfy requirements, provided evidence of continuous professional development has updated verification practice. Recognition of internal verifiers in this way is only valid between a centre and an Awarding Organisation in respect of specific qualifications, and is not transferable to other bodies or qualifications.
- Demonstrate their continuing professional development to ensure they are up to date with work practices in their sector and developments in the qualifications they verify.
- Know where and when to access specialist sector advice, where additional specialist or technical knowledge relating to assessment and verification decisions is concerned.

- Operate safely as an internal verifier in a food environment, therefore it is strongly recommended that a relevant food safety/hygiene qualification is achieved.

Internal verifiers 'in training' who are not fully recognised as competent by Awarding Organisations may carry out verification practice. For the period in training and working towards recognition, the assessor must have verification activity monitored and signed off (countersigned) by a fully recognised and competent internal verifier. The 'in training' period should be limited to nine months and have clear development goals set for achieving recognition and competence.

### **Continuing professional development (CPD)**

Centres are expected to support their staff in ensuring that their knowledge remains current of the occupational area and of best practice in delivery, mentoring, training, assessment and verification, and that it takes account of any national or legislative developments.

## **2.3 Candidate entry requirements**

Candidates should not be entered for a qualification of the same type, content and level as that of a qualification they already hold.

There are no formal entry requirements for candidates undertaking these qualifications. However, centres must ensure that candidates have the potential and opportunity to gain the qualifications successfully.

### **Age restrictions**

These qualifications are not approved for use by candidates under the age of 16, and City & Guilds cannot accept any registrations for candidates in this age group.

### **Other legal considerations**

There are no legal considerations



## 3 Course design and delivery

### 3.1 Initial assessment and induction

Centres will need to make an initial assessment of each candidate prior to the start of their programme to ensure they are entered for an appropriate type and level of qualification.

The initial assessment should identify:

- Any specific training needs the candidate has, and the support and guidance they may require when working towards their qualifications. This is sometimes referred to as diagnostic testing.
- Any units the candidate has already completed, or credit they have accumulated which is relevant to the qualification[s] they are about to begin.

City & Guilds recommends that centres provide an induction programme to ensure the candidate fully understands the requirements of the qualifications they will work towards, their responsibilities as a candidate, and the responsibilities of the centre. It may be helpful to record the information on a learning contract.

### 3.2 Recommended delivery strategies

Centre staff should familiarise themselves with the structure, content and assessment requirements of the qualifications before designing a course programme.

Centres may design course programmes of study in any way which:

- best meets the needs and capabilities of their candidates
- satisfies the requirements of the qualifications.

When designing and delivering the course programme, centres might wish to incorporate other teaching and learning that is not assessed as part of the qualifications. This might include the following:

- literacy, language and/or numeracy
- personal learning and thinking
- personal and social development
- employability

Where applicable, this could involve enabling the candidate to access relevant qualifications covering these skills.

## 4 Assessment

### 4.1 Summary of assessment methods

For these qualifications, candidates will be required to complete the following assessments:

- a portfolio of evidence for **each** unit.

#### Time constraints

All portfolio evidence must be completed and assessed within the candidate's period of registration. Centres should advise candidates of any internal timescales for the completion and marking of individual assignments.

### 4.2 Recording forms

Candidates and centres may decide to use a paper-based or electronic method of recording evidence.

City & Guilds endorses several ePortfolio systems, including our own, **Learning Assistant**, an easy-to-use and secure online tool to support and evidence learners' progress towards achieving qualifications. Further details are available at: [www.cityandguilds.com/eportfolios](http://www.cityandguilds.com/eportfolios).

City & Guilds has developed a set of *Recording forms* including examples of completed forms, for new and existing centres to use as appropriate. *Recording forms* are available on the City & Guilds website.

Although it is expected that new centres will use these forms, centres may devise or customise alternative forms, which must be approved for use by the external verifier, before they are used by candidates and assessors at the centre. Amendable (MS Word) versions of the forms are available on the City & Guilds website.

### 4.3 Recognition of Prior Learning (RPL)

Evidence from past achievement may be included as evidence within assessment methods for these qualifications. Evidence of knowledge and understanding can be presented as supplementary evidence, provided it is a measurable assessed outcome of learning which links to outcomes detailed in the units of assessment and confirms current competence.

Assessors should make best use of all the assessment methods available to them in ensuring the most reliable and effective use is made of claims of prior learning and experience which relate to the individual learner's circumstances.

All learners, presenting evidence from past achievements, must also be able to demonstrate current competence.

## 5 Units

### Structure of units

The units in these qualifications are written in a standard format and comprise the following:

- City & Guilds reference number
- unit accreditation number (UAN)
- title
- level
- credit value
- unit aim
- relationship to NOS, other qualifications and frameworks
- endorsement by a sector or other appropriate body
- information on assessment
- learning outcomes which are comprised of a number of assessment criteria

# **Working with Others units**

## Unit 201

# Work effectively with others in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** H/601/2896

### Unit aim

This unit supports workforce development for those who work effectively with others in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to work effectively in a team
2. Be able to give and receive information to and from team colleagues
3. Be able to work with team colleagues to improve the way work is done

### Guided learning hours

It is recommended that **15** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit PL.2025 Work effectively with others in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, working effectively with others in food operations. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 201            Work effectively with others in food operations**

## Assessment criteria

### **Outcome 1    Be able to work effectively in a team**

The learner can

- 1.1 work with others to meet the objectives of the team, own objectives and the organisation's objectives
- 1.2 make suggestions to improve work activities
- 1.3 use initiative to assist team members
- 1.4 respond to suggestions made by colleagues for the organisation
- 1.5 deal with differences of opinion in ways that do not cause offence
- 1.6 respect colleagues from different ethnic and religious backgrounds in terms of their opinions and beliefs.

### **Outcome 2    Be able to give and receive information to and from team colleagues**

The learner can:

- 2.1 check the team have instructions for their work
- 2.2 demonstrate the team understand what is required of them to carry out work
- 2.3 actively seek information when necessary
- 2.4 advise others in the team using information that is up-to-date, relevant and accurate
- 2.5 provide information which will help team colleagues to achieve tasks.

### **Outcome 3    Be able to work with team colleagues to improve the way work is done**

The learner can:

- 3.1 inform the relevant person when tasks cannot be completed
- 3.2 suggest ways to improve the way work is organised
- 3.3 make suggestions about how work can be better organised.

## Unit 202

# Understand how to work effectively with others in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** K/601/2897

### Unit aim

This unit supports workforce development for those who understand how to work effectively with others, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know how to work effectively in a team
2. Know how to give and receive information to and from team colleagues
3. Know how to work with team colleagues to improve the way work is done

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National occupational Standard) knowledge unit PL.203K Understand how to work effectively with others in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when working effectively with others in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 202            Understand how to work effectively with others in food operations**

## Assessment criteria

### **Outcome 1    Know how to work effectively in a team**

The learner can:

- 1.1 state the objectives of the team, own objectives and the organisation's objectives
- 1.2 describe the importance and key features of the organisation's procedures relating to:
  - health and safety
  - food safety
  - environmental health
- 1.3 describe the organisation's grievance and disciplinary procedures
- 1.4 state the importance of developing and keeping good working relationships with colleagues in the team
- 1.5 describe how to deal with differences of opinion without causing offence
- 1.6 state the importance of showing respect for colleagues
- 1.7 demonstrate how to show respect to colleagues.

### **Outcome 2    Know how to give and receive information to and from team colleagues**

The learner can:

- 2.1 describe their own work responsibilities and when to ask for help
- 2.2 state who should be asked for help
- 2.3 state the importance of asking for help when it is needed
- 2.4 state the importance of sharing opinions and information when working in a team
- 2.5 state the importance of offering useful advice to team colleagues.

### **Outcome 3    Know how to work with team colleagues to improve the way work is done**

The learner can:

- 3.1 list different types of information that is important to teamwork
- 3.2 state the importance of communicating information to the relevant person
- 3.3 state the importance of referring unresolved difficulties to the appropriate person when team working.



**Level:** 2  
**Credit value:** 2  
**UAN:** T/601/2899

**Unit aim**

This unit supports workforce development for those who maintain product quality in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

**Learning outcomes**

There are **two** learning outcomes to this unit. The learner will:

1. Be able to conduct quality checks
2. Be able to communicate results of quality checks

**Guided learning hours**

It is recommended that **5** hours should be allocated for this unit, although patterns of delivery are likely to vary.

**Details of the relationship between the unit and relevant national standards**

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.101S Maintain product quality in food manufacture.

**Support of the unit by a sector or other appropriate body**

This unit is endorsed by Improve.

**Assessment**

This unit is designed to assess the skills of learners in the workplace, maintaining product quality in food operations. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 203          Maintain product quality in food operations**

### Assessment criteria

#### **Outcome 1    Be able to conduct quality checks**

The learner can:

- 1.1 carry out quality checks within limit of own authority
- 1.2 compare the results of quality checks to required standard
- 1.3 record the results of quality checks.

#### **Outcome 2    Be able to communicate results of quality checks**

The learner can:

- 2.1 record quality checks on correct documentation
- 2.2 communicate results of quality checks
- 2.3 check that all required records are accurate and complete.

## Unit 204

# Understand how to maintain product quality in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** T/601/2901

### Unit aim

This unit supports workforce development for those who understand how to maintain product quality, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know how to carry out quality checks
2. Know how to record and store information accurately
3. Know about the importance of communicating results

### Guided learning hours

It is recommended that **11** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.102K Understand how to maintain product quality in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when maintaining product quality in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 204            Understand how to maintain product quality                                  in food operations**

### Assessment criteria

#### **Outcome 1    Know how to carry out quality checks**

The learner can:

- 1.1 state the importance of carrying out quality checks
- 1.2 describe procedures to deal with non-conformance against the required standards
- 1.3 describe the limits of own authority when reporting quality checks.

#### **Outcome 2    Know how to record and store information accurately**

The learner can:

- 2.1 state why records should be kept securely
- 2.2 state the importance of maintaining accurate records.

#### **Outcome 3    Know about the importance of communicating results**

The learner can:

- 3.1 state the methods of communicating results of quality checks
- 3.2 describe the importance of working within own limits of responsibility.

## Unit 205

# Maintain workplace food safety standards in operations

**Level:** 2  
**Credit value:** 2  
**UAN:** K/601/2902

### Unit aim

This unit supports workforce development for those who maintain workplace food safety standards in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Be able to keep the workspace clean
2. Be able to maintain food safety

### Guided learning hours

It is recommended that **16** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit FS.103S Maintain workplace food safety standards in manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, maintaining workplace food safety standards in operations. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 205          Maintain workplace food safety standards in operations**

Assessment criteria

### **Outcome 1    Be able to keep the workspace clean**

The learner can:

- 1.1 keep work area clean and tidy
- 1.2 maintain tools, utensils and equipment in a hygienic condition
- 1.3 store tools, utensils and equipment correctly
- 1.4 keep ingredients and products in their assigned places.

### **Outcome 2    Be able to maintain food safety**

The learner can:

- 2.1 prevent product contamination and cross contamination
- 2.2 follow procedures for dealing with product contamination and cross contamination
- 2.3 follow procedures for substances that may cause allergic reactions
- 2.4 dispose of food waste and scrap according to procedures.

## Unit 206

# Understand how to maintain workplace food safety standards in operations

**Level:** 2  
**Credit value:** 2  
**UAN:** M/601/2903

### Unit aim

This unit supports workforce development for those who understand how to maintain workplace food safety, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know the importance of safe food handling practices
2. Know how to deal with pests and infestations
3. Know the importance of minimising the risks of contamination and food poisoning

### Guided learning hours

It is recommended that **20** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit FS.104K Understand how to maintain workplace food safety in manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when maintaining workplace food safety in manufacture. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 206            Understand how to maintain workplace food safety standards in operations**

### Assessment criteria

#### **Outcome 1    Know the importance of safe food handling practices**

The learner can:

- 1.1 outline the importance of food handling practices in maintaining food safety
- 1.2 describe how personal hygiene and behaviour affect food safety
- 1.3 explain the importance of treating and covering cuts, boils, skin infections and grazes
- 1.4 describe how to treat and cover cuts, boils, skin infections and grazes
- 1.5 explain the importance of cleaning and maintenance of the environment and equipment, and their impact on food safety
- 1.6 describe the importance of keeping food at specified temperatures
- 1.7 outline the causes of food spoilage and how to recognise it
- 1.8 describe what action to take in order to reduce food spoilage.

#### **Outcome 2    Know how to deal with pests and infestations**

The learner can:

- 2.1 describe the main type of pests and infestations and how they occur
- 2.2 describe how to prevent infestation
- 2.3 describe how to recognise infestations
- 2.4 outline the procedures to follow on discovering infestation.

#### **Outcome 3    Know the importance of minimising the risks of contamination and food poisoning**

The learner can:

- 3.1 describe the types of product contamination, cross contamination and food poisoning:
  - bacteria
  - chemicals
  - physical objects
  - substances that cause allergic reactions
- 3.2 describe how to prevent contamination and cross contamination from occurring
- 3.3 explain how food poisoning enters food and factors that affect its growth
- 3.4 describe the symptoms of food poisoning
- 3.5 describe how to prevent food poisoning from occurring.



## Unit 207

# Maintain workplace health and safety in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** M/601/2917

### Unit aim

This unit supports workforce development for those who operate safely in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to work within organisational safety limits
2. Be able to follow organisational emergency procedures
3. Be able to use personal protective equipment

### Guided learning hours

It is recommended that **4** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit HS.101S Maintain workplace and health and safety in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace when operating safely in food operations. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 207          Maintain workplace health and safety in food operations**

## Assessment criteria

### **Outcome 1    Be able to work within organisational safety limits**

The learner can:

- 1.1 follow operational requirements according to standard operating procedures (sop)
- 1.2 maintain responsible behaviour at work in line with company policies
- 1.3 work without causing risks or danger to self and others
- 1.4 carry out instructions according to safety notices, hazard and warning signs
- 1.5 report hazards, defects and faults to the relevant people
- 1.6 keep the workplace and work surfaces clean and clear of hazards
- 1.7 follow organisational procedures for reporting sickness, disease and health risks.

### **Outcome 2    Be able to follow organisational emergency procedures**

The learner can:

- 2.1 locate emergency escape routes and procedures
- 2.2 keep emergency escape routes clear of obstructions
- 2.3 use safety systems and alarms correctly
- 2.4 follow the specified procedures in an emergency.

### **Outcome 3    Be able to use personal protective equipment**

The learner can:

- 3.1 identify and locate suitable personal protective equipment necessary for work activities
- 3.2 use and wear personal protective equipment in accordance with organisational procedures
- 3.3 dispose of personal protective equipment after use.

## Unit 208

# Understand how to maintain workplace health and safety in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** T/601/2918

### Unit aim

This unit supports workforce development for those who understand workplace health and safety in food manufacture, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know the main safety risks and hazards in the working environment
2. Know the health and safety precautions and procedures in the workplace
3. Know the health and safety features of equipment and materials

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit HS.103K Understand workplace health and safety in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when understanding workplace health and safety in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 208                    Understand how to maintain workplace health and safety in food operations**

## Assessment criteria

### **Outcome 1    Know the main safety risks and hazards in the working environment**

The learner can:

- 1.1 describe how to define and identify health and safety hazards and risks in the workplace
- 1.2 list the main health risks in the workplace and steps that can be taken to control them
- 1.3 describe the most common causes of accidents in the work place and steps that help to prevent them
- 1.4 state the importance of safety notices and hazard warning signs
- 1.5 list the hazards, defects and faults that may arise in the workplace
- 1.6 state how to avoid or minimise the effects in the workplace of health and safety:
  - hazards
  - defects
  - faults
- 1.7 describe the range and care of personal protective equipment.

### **Outcome 2    Know the health and safety precautions and procedures in the workplace**

The learner can:

- 2.1 list the safety precautions required in the workplace
- 2.2 describe safe working practices and the importance of following them
- 2.3 describe how to contact and obtain help from colleagues with first aid qualifications
- 2.4 outline the the procedures that should be followed in different emergencies and why they should be followed
- 2.5 describe the importance of considering health and safety precautions when planning tasks
- 2.6 describe what might happen if tasks are planned without attention to health and safety precautions
- 2.7 state how to report accidents and incidents
- 2.8 describe the importance of reporting accidents and incidents following company procedures.

### **Outcome 3    Know the health and safety features of equipment and materials**

The learner can:

- 3.1 list the rules and hazards associated with particular equipment
- 3.2 state the reasons for using specified tools and equipment
- 3.3 describe why tools and equipment should be maintained and stored correctly
- 3.4 describe how to isolate faulty and defective equipment
- 3.5 outline the importance of adjusting workplace equipment to suit the individual
- 3.6 list the hazardous substances that are in the workplace
- 3.7 describe steps that should be taken to protect individuals from hazardous substances in the workplace
- 3.8 describe storage methods for materials and chemicals.

## Unit 209

# Contribute to environmental safety in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** A/601/2919

### Unit aim

This unit supports workforce development for those who contribute to environmental safety in food manufacture, in a food business. The unit is designed for use primarily by Operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There is **one** learning outcome to this unit. The learner will:

1. Be able to contribute to workplace environmental safety

### Guided learning hours

It is recommended that **5** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit HS.201S Contribute to environmental safety in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to environmental safety in food operations. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 209            Contribute to environmental safety in food operations**

Assessment criteria

## **Outcome 1    Be able to contribute to workplace environmental safety**

The learner can:

- 1.1 maintain environmentally safe working practices
- 1.2 take precautions to minimise environmental damage
- 1.3 identify any incidental damage and take prompt action to minimise it
- 1.4 report environmental incidents and actions taken in response of them to the relevant person
- 1.5 follow procedures to dispose of waste materials safely.

## Unit 210

# Understand how to contribute to environmental safety in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** M/601/2920

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to environmental safety, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised national occupational standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know how to comply with requirements
2. Know how to recognise environmental damage
3. Know how to work in a way that reduces environmental damage

### Guided learning hours

It is recommended that **11** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit HS.202K Understand how to contribute to environmental safety in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to environmental safety. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 210                    Understand how to contribute to environmental safety in food operations**

## Assessment criteria

### **Outcome 1    Know how to comply with requirements**

The learner can:

- 1.1 describe the reporting procedures for environmental incidents
- 1.2 outline the organisational and legislative requirements relating to environmental damage.

### **Outcome 2    Know how to recognise environmental damage**

The learner can:

- 2.1 describe the different types of environmental damage
- 2.2 outline the types of damage that may occur
- 2.3 explain the impact that damage can have on the environment, and what corrective actions can be taken.

### **Outcome 3    Know how to work in a way that reduces environmental damage**

The learner can:

- 3.1 explain how to choose the most suitable materials and equipment, given the nature of the work activity, and its potential impact on the environment
- 3.2 describe the different methods that can be used to minimise environmental damage
- 3.3 describe how to dispose of waste in ways that minimise the risk to the environment.



## Unit 211

# Contribute to the maintenance of plant and equipment in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** T/601/2921

### Unit aim

This unit supports workforce development for those who contribute to the maintenance of plant and equipment in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Be able to prepare for the maintenance of plant and equipment
2. Be able to carry out maintenance of plant and equipment

### Guided learning hours

It is recommended that **30** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit EM.1075 Contribute to the maintenance of plant and equipment in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to the maintenance of plant and equipment in food manufacture. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 211                    Contribute to the maintenance of plant and equipment in food operations**

## Assessment criteria

### **Outcome 1    Be able to prepare for the maintenance of plant and equipment**

The learner can:

- 1.1 access and interpret information and instructions
- 1.2 evaluate the impact of instructions on operations
- 1.3 ensure resources required are available and fit for use
- 1.4 prepare the work area in a manner which promotes effective and safe work practices
- 1.5 prioritise own work activities to achieve optimum productivity within the limits of own contribution
- 1.6 ensure that maintenance activities are correctly authorised
- 1.7 establish effective spoken and written communication with managers and colleagues
- 1.8 complete and process the necessary documentation.

### **Outcome 2    Be able to carry out maintenance of plant and equipment**

The learner can:

- 2.1 monitor and adhere to food safety, health and safety environmental procedures
- 2.2 ensure that maintenance activities are undertaken using correct tools, materials, equipment and techniques
- 2.3 identify defects and discrepancies in components and take the necessary corrective action
- 2.4 minimise the wastage of consumable items and other materials and dispose of non-reusable materials correctly
- 2.5 evaluate maintenance activities for effectiveness
- 2.6 make recommendations to relevant people about identified improvements
- 2.7 ensure that work which cannot be completed within the agreed schedule is recorded and reported to the relevant people
- 2.8 maintain effective spoken and written communication with your managers and colleagues
- 2.9 complete and process documentation
- 2.10 leave plant and equipment safe, tidy and fit for future use.

## Unit 212

# Understand how to contribute to the maintenance of plant and equipment in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** A/601/2922

### Unit aim

This unit supports workforce development for those who understand how to contribute to the maintenance of plant and equipment, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **four** learning outcomes to this unit. The learner will:

1. Know about preparing for maintenance
2. Know how to carry out maintenance
3. Know how to deal with maintenance issues and problems
4. Know how to complete maintenance procedures

### Guided learning hours

It is recommended that **20** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit EM.108K Understand how to contribute to the maintenance of plant and equipment in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to the maintenance of plant and equipment in food manufacture. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 212            Understand how to contribute to the maintenance of plant and equipment in food operations**

### Assessment criteria

#### **Outcome 1    Know about preparing for maintenance**

The learner can:

- 1.1 outline the importance of working to the health and safety and food safety standards
- 1.2 describe the activities that can be carried out within own limits of authority
- 1.3 list the equipment required for maintenance
- 1.4 describe the importance of meeting maintenance documentation requirements
- 1.5 outline how to make the plant or equipment safe before maintenance
- 1.6 describe how to access types of information to aid maintenance.

#### **Outcome 2    Know how to carry out maintenance**

The learner can:

- 2.1 outline how and when to carry out maintenance activities
- 2.2 describe how the tools and equipment selected are used to complete the tasks
- 2.3 describe how to communicate events and issues to relevant people
- 2.4 state the procedure for carrying out the maintenance event hygienically
- 2.5 describe how available information is used to aid the maintenance
- 2.6 state how to record an event in the maintenance log.

#### **Outcome 3    Know how to deal with maintenance issues and problems**

The learner can:

- 3.1 explain the importance of maintenance and implications for not carrying it out
- 3.2 explain why materials, tools and equipment must be fit for purpose, and how to deal with any defects
- 3.3 describe what to do if there are unexpected problems during maintenance
- 3.4 describe the effects different of types maintenance have on the operations
- 3.5 explain how planned maintenance can reduce downtime.

#### **Outcome 4    Know how to complete maintenance procedures**

The learner can:

- 4.1 explain the importance of minimising waste
- 4.2 outline how to dispose of waste safely and effectively
- 4.3 explain the importance of leaving plant and equipment safe, clean and tidy for future use
- 4.4 explain how to check the effectiveness of maintenance activities.

## Unit 213

# Contribute to the development of product specifications in food manufacture

**Level:** 2  
**Credit value:** 3  
**UAN:** F/601/2923

### Unit aim

This unit supports workforce development for those who contribute to developing product specifications in a food manufacturing business. The unit is designed for use primarily by food manufacturing operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to contribute to identifying criteria for product specifications
2. Be able to contribute to the development of draft criteria
3. Be able to contribute to confirming a final specification

### Guided learning hours

It is recommended that **25** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit PM.1125 Contribute to developing product specifications in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, when contributing to the development of production specifications in food manufacture. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 213                      Contribute to the development of product specifications in food manufacture**

### Assessment criteria

#### **Outcome 1    Be able to contribute to identifying criteria for product specifications**

The learner can:

- 1.1 take the opinions of relevant people into account when ascertaining the criteria required for the development of specifications
- 1.2 assess the products and processes, relevant information and influencing factors to determine the validity of the identified criteria
- 1.3 assess the validity of the proposed checking methods against the identified criteria.

#### **Outcome 2    Be able to contribute to the development of draft criteria**

The learner can:

- 2.1 assemble the criteria into a consistent order in a draft specification and submit it to the relevant people for comment
- 2.2 monitor the criteria used in specifications to check that they continue to be relevant to customer, product and process requirements
- 2.3 take action to deal with any discrepancies in line with the limits of own authority.

#### **Outcome 3    Be able to contribute to confirming a final specification**

The learner can:

- 3.1 agree which criteria will be incorporated into the final specification with relevant people
- 3.2 submit the final specifications in a suitable manner and format for the approval of relevant people.

## Unit 214

# Understand how to contribute to the development of product specifications in food manufacture

**Level:** 2  
**Credit value:** 2  
**UAN:** J/601/2924

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to the development of product specifications in a food business. The unit is designed for use primarily by Operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand how to identify and develop criteria
2. Understand the consultation process
3. Understand how to develop the specification

### Guided learning hours

It is recommended that **14** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit PM.114K Understand how to contribute to the development of product specifications in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to the development of product specifications in food manufacture. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 214            Understand how to contribute to the development of product specifications in food manufacture**

### Assessment criteria

#### **Outcome 1    Understand how to identify and develop criteria**

The learner can:

- 1.1 describe what criteria are used to develop specifications
- 1.2 state what criteria is needed and how to develop them for inclusion in specifications
- 1.3 explain how to assemble and assess criteria for inclusion for specifications.

#### **Outcome 2    Understand the consultation process**

The learner can:

- 2.1 explain how to consult with others and obtain their opinions
- 2.2 detail why it is important to consult others and state who to consult with about the development of specifications.

#### **Outcome 3    Understand how to develop the specification**

The learner can:

- 3.1 describe the specification formats
- 3.2 describe the processes and procedures for specification development
- 3.3 describe how to draft and submit specifications for approval
- 3.4 state the relevant statutory regulations and operational requirements and how they affect specifications development.



## Unit 215

# Contribute to sustainable practice in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** L/601/2925

### Unit aim

This unit supports workforce development for those who contribute to sustainable practice in a food environment. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There is **one** learning outcome to this unit. The learner will:

1. Be able to contribute to sustainability in a food environment

### Guided learning hours

It is recommended that **3** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit SF.119S Contribute to sustainable practice in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contribute to sustainable practice in a food operations. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 215            Contribute to sustainable practice in food operations**

## Assessment criteria

### **Outcome 1    Be able to contribute to sustainability in a food environment**

The learner can:

- 1.1 work according to the organisation's production specifications
- 1.2 assess own performance to identify possible efficiency improvements
- 1.3 report any opportunities to improve the efficiency of resource usage
- 1.4 report variations in resource usage and any actions taken in response
- 1.5 implement actions to improve the efficiency of resource usage
- 1.6 work to avoid and minimise waste.

## Unit 216

# Understand how to contribute to sustainable practice in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** R/601/2926

### Unit aim

This unit supports workforce development for those who contribute to sustainable practice in a food environment. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Know what the requirements are for sustainable practice in a food environment
2. Know how to contribute to sustainable practice within the organisation

### Guided learning hours

It is recommended that **14** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit SF.120K Understand how to contribute to sustainable practice in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, contributing to sustainable practice. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 216            Understand how to contribute to sustainable practice in food operations**

### Assessment criteria

#### **Outcome 1    Know what the requirements are for sustainable practice in a food environment**

The learner can:

- 1.1 state what is meant by sustainable food manufacture
- 1.2 describe how efficient energy usage supports sustainable food manufacture
- 1.3 list the social benefits of sustainable food manufacturing
- 1.4 state why it is important to work to the organisation's production specifications
- 1.5 describe the impact on resource usage and sustainability of not working to the organisation's production specifications.

#### **Outcome 2    Know how to contribute to sustainable practice within the organisation**

The learner can:

- 2.1 state how the efficient use of resources supports the economic sustainability of the organisation
- 2.2 describe each of the following as a resource, and the opportunities available for reducing their usage:
  - water
  - energy
  - transport
- 2.3 describe how the following support sustainable food manufacture:
  - efficient use of water
  - minimising waste
  - efficient use of transport
- 2.4 describe own responsibilities relevant to sustainable food manufacture
- 2.5 state how to assess own performance for opportunities to improve efficiency
- 2.6 describe why it is important to report incidences of inefficient resource usage.

# **Tools and Techniques units**

## Unit 217

# Organise and improve work activities for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** Y/601/2927

### Unit aim

This unit supports workforce development for those who organise and improve work activities in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to organise your own work activities
2. Be able to work effectively
3. Be able to communicate with others

### Guided learning hours

It is recommended that **13** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2015 Organise and improve work activities for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, organising and improving work activities for achieving excellence. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 217            Organise and improve work activities for achieving excellence in food operations**

## Assessment criteria

### **Outcome 1    Be able to organise your own work activities**

The learner can:

- 1.1 check understanding of own work objectives
- 1.2 plan the actions needed in order to meet own work objectives
- 1.3 prioritise own work activities
- 1.4 check that the resources required are available and suitable for use taking action if there is a problem
- 1.5 organise own workplace to ensure efficient work activity.

### **Outcome 2    Be able to work effectively**

The learner can:

- 2.1 work efficiently and safely according to standard operating procedures and visual controls
- 2.2 use shared resources efficiently and ensure that they are left in a fit state for others to use
- 2.3 identify where information, resources or equipment is missing or is in surplus, and where improvements to work activities can be made
- 2.4 work effectively to support the implementation of improvements
- 2.5 effectively maintain workplace organisation
- 2.6 maintain accurate, complete and up to date records.

### **Outcome 3    Be able to communicate with others**

The learner can:

- 3.1 keep your colleagues up to date and accurately informed on progress of work
- 3.2 make suggestions on ways to improve own work activities
- 3.3 support the maintenance of accurate visual controls
- 3.4 inform the appropriate person as soon as possible about any difficulties which may prevent or delay from completing own work objectives.

## Unit 218

# Understand how to organise and improve work activities for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** D/601/2928

### Unit aim

This unit supports workforce development for those who need to understand how to apply workplace organisation techniques for achieving excellence, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know about organising own work activities in food operations
2. Know how to use organisational techniques in food operations
3. Know how to check the progress and identify opportunities for improvement in food operations

### Guided learning hours

It is recommended that **14** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.202K Understand how to apply workplace organisation techniques for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when applying workplace organisation techniques for achieving excellence in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.



## **Unit 218            Understand how to organise and improve work activities for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1    Know about organising own work activities in food operations**

The learner can:

- 1.1 state own work objectives and how they fit with team objectives
- 1.2 describe why it is important to have a clear plan of what to do before starting work
- 1.3 outline how to read and interpret work instructions and standard operating procedure
- 1.4 describe how to plan, organise and prioritise own work activities.

#### **Outcome 2    Know how to use organisational techniques in food operations**

The learner can:

- 2.1 describe how to organise the workplace according to recognised techniques
- 2.2 state where useful information is stored in the workplace
- 2.3 outline why it is important to work efficiently and safely according to standard operating procedures
- 2.4 describe how to use visual controls.

#### **Outcome 3    Know how to check the progress and identify opportunities for improvement in food operations**

The learner can:

- 3.1 state how to check the progress of the application of organisation techniques
- 3.2 outline how opportunities for improvement can be identified
- 3.3 describe how improvements can impact on workplace performance
- 3.4 describe how to communicate effectively with others
- 3.5 outline why it is important to keep accurate, complete and up to date records.

## Unit 219

# Contribute to continuous improvement for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** H/601/2929

### Unit aim

This unit supports workforce development for those who contribute to continuous improvement in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to identify improvements in the workplace
2. Be able to share and communicate own ideas for improvement
3. Be able to agree, test and evaluate plan for improvements

### Guided learning hours

It is recommended that **14** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2055 Contribute to continuous improvement for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to continuous improvement for achieving excellence. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 219            Contribute to continuous improvement for achieving excellence in food operations**

## Assessment criteria

### **Outcome 1    Be able to identify improvements in the workplace**

The learner can:

- 1.1 identify and make positive suggestions about areas for improvement
- 1.2 gather accurate information about potential improvements
- 1.3 check that suggestions for improvement can be justified and are realistic.

### **Outcome 2    Be able to share and communicate own ideas for improvement**

The learner can:

- 2.1 share ideas for improvement with relevant people and react positively to feedback received
- 2.2 communicate finalised ideas in sufficient detail to enable further action to be agreed.

### **Outcome 3    Be able to agree, test and evaluate plan for improvements**

The learner can:

- 3.1 work with others to agree an effective action plan for putting improvement ideas into action
- 3.2 make a positive contribution to putting the plan into action
- 3.3 test and accurately check improvements to find out how effective they are before recommending further action
- 3.4 evaluate the effectiveness of improvements that have been introduced.

## Unit 220

# Understand how to contribute to continuous improvement for achieving excellence in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** Y/601/2930

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to continuous improvement for achieving excellence, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know about the importance of continuous improvement in food operations
2. Know about the resources and measures to support a continuous improvement activity in food operations
3. Know how to support and communicate continuous improvement activity in food operations

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.206K Understand how to contribute to continuous improvement for achieving excellence in a food environment..

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to continuous improvement for achieving excellence in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 220                    Understand how to contribute to continuous improvement for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1    Know about the importance of continuous improvement in food operations**

The learner can:

- 1.1 state which work area/food operations activity is to be considered for continuous improvement practice
- 1.2 outline the health, safety and hygiene requirements of the area in which the continuous improvement activity is to be carried out
- 1.3 state why continuous improvement is necessary and what the potential benefits are
- 1.4 describe the food operations activity considered for review
- 1.5 outline the importance of planning improvements.

#### **Outcome 2    Know about the resources and measures to support a continuous improvement activity in food operations**

The learner can:

- 2.1 state the required production/activity rate for the operations activity
- 2.2 outline the resources required by the operations activity
- 2.3 outline the potential sources of waste associated with the operations activity
- 2.4 state the measures available to control waste
- 2.5 state the improvement targets and objectives set for the work operation
- 2.6 state the role of standard operating procedures in contributing to continuous improvement.

#### **Outcome 3    Know how to support and communicate continuous improvement activity in food operations**

The learner can:

- 3.1 outline how own knowledge and experience can add value to the improvement process
- 3.2 describe how to support the identification of potential improvements
- 3.3 describe how to identify problems and opportunities for solving them
- 3.4 describe how to contribute to discussions and respond to possible disagreements in a positive and constructive manner
- 3.5 state the extent of own authority, and the person to report to in the event of problems that cannot be resolved
- 3.6 state how improvements are communicated in own work area
- 3.7 outline how to provide information to support the evaluation of improvement activities.

## Unit 221

# Contribute to the measurement and collection of data for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** D/601/2931

### Unit aim

This unit supports workforce development for those who contribute to the measurement and collection of data in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to contribute to planning for the measurement and recording of improvements
2. Be able to contribute to measurement and recording of improvements
3. Be able to contribute to collection and reporting of improvement data

### Guided learning hours

It is recommended that **14** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2085 Contribute to the measurement and collection of data for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to measuring and collecting data for achieving excellence. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 221                    Contribute to the measurement and collection of data for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1      Be able to contribute to planning for the measurement and recording of improvements**

The learner can:

- 1.1    contribute to selecting an improvement activity to be measured as required by the achieving excellence strategy
- 1.2    confirm the measurement objectives and plan with colleagues
- 1.3    contribute to the presentation of own plans for measurement of improvement activities clearly and accurately
- 1.4    confirm the resources necessary for the measurement activity.

#### **Outcome 2      Be able to contribute to measurement and recording of improvements**

The learner can:

- 2.1    detail activities of the improvement plan
- 2.2    gather reliable, relevant and valid evidence to further your understanding of the improvement activity
- 2.3    carry out measurements utilising knowledge of operations monitoring, trends and developments
- 2.4    complete the activities which are necessary to obtain measurements and maintain effective communication with those involved
- 2.5    accurately record and log your measurements.

#### **Outcome 3      Be able to contribute to collection and reporting of improvement data**

The learner can:

- 3.1    collect and update data from the relevant sources
- 3.2    remove out of date or irrelevant data promptly
- 3.3    collate data in a format which supports the achieving excellence requirements
- 3.4    assist in the reporting and presentation of own data to your colleagues
- 3.5    report in a way which is aligned to the achievement of the organisation's vision, aims and objectives for achieving excellence.

## Unit 222

# Understand how to contribute to the measurement and collection of data for achieving excellence in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** H/601/2932

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to the measurement and collection of data for achieving excellence, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know about the organisational vision and objectives for improvement in food operations
2. Know how to use data for improvement in food operations
3. Know how to communicate and record data for improvement in food operations

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.209K Understand how to contribute to the measurement and collection of data for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to the measurement and collection of data for achieving excellence in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.



## **Unit 222                    Understand how to contribute to the measurement and collection of data for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1    Know about the organisational vision and objectives for improvement in food operations**

The learner can:

- 1.1 outline the organisation's achieving excellence vision and key objectives
- 1.2 state why improvement is important to the organisation
- 1.3 outline the organisational improvement activities and their implementation plans
- 1.4 describe why it is important to review improvement activities.

#### **Outcome 2    Know how to use data for improvement in food operations**

The learner can:

- 2.1 describe why measurements and data are needed and how they are used
- 2.2 state where to find existing data and who is responsible for this
- 2.3 outline the importance of collecting and recording data accurately
- 2.4 describe how to carry out measurements and recording of data
- 2.5 outline how to gather reliable, relevant and valid evidence to inform measurements and data.

#### **Outcome 3    Know how to communicate and record data for improvement in food operations**

The learner can:

- 3.1 state how to record and log measurements using paper and electronic systems
- 3.2 outline how to use own organisation's data recording systems
- 3.3 describe how to assist a responsible person in the reporting/presenting of data
- 3.4 outline how to communicate measurements and data in way which assists understanding
- 3.5 state the limits of own authority, and reporting arrangements in the event of problems with measurements and data that cannot be resolved.

## Unit 223

# Contribute to the application of improvement techniques for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** K/601/2933

### Unit aim

This unit supports workforce development for those who contribute to the application of improvement techniques in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to identify opportunities for the application of improvement techniques
2. Be able to apply improvement techniques
3. Be able to obtain and provide feedback on application of improvement techniques

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2105 Contribute to the application of improvement techniques for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to applying improvement techniques for achieving excellence. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 223            Contribute to the application of improvement techniques for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1    Be able to identify opportunities for the application of improvement techniques**

The learner can:

- 1.1 identify opportunities and make positive suggestions about improvement techniques
- 1.2 gather initial information to inform potential application improvements
- 1.3 assess information and check that own suggestions can be justified and are realistic
- 1.4 secure approval for own contribution to application.

#### **Outcome 2    Be able to apply improvement techniques**

The learner can:

- 2.1 use improvement techniques within own work area
- 2.2 obtain all the information, documentation and resources required to use improvement techniques
- 2.3 identify any targets or key performance indicators which relate to the use of the improvement techniques
- 2.4 ensure that the use of improvement techniques are complementary to the requirements of the food safety management system
- 2.5 identify any deficiencies in documentation or resources required
- 2.6 make valid recommendations for changes to policy or procedures to support the application of improvement techniques
- 2.7 refer any issues outside the limit of own authority to a responsible person.

#### **Outcome 3    Be able to obtain and provide feedback on application of improvement techniques**

The learner can:

- 3.1 seek feedback on the value of own contribution to the application
- 3.2 check progress towards the achievement of targets or performance indicators
- 3.3 provide feedback on own contribution to application to the relevant person.

## Unit 224

# Understand how to contribute to the application of improvement techniques for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** M/601/2934

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to the application of improvement techniques for achieving excellence, in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know about the objectives and benefits of improvement techniques in food operations
2. Know how to use information and communication for improvement techniques in food operations
3. Know how to make recommendations and feedback improvement issues in food operations

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.211K Understand how to contribute to the application of improvement techniques for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to the application of improvement techniques for achieving excellence in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 224            Understand how to contribute to the application of improvement techniques for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1    Know about the objectives and benefits of improvement techniques in food operations**

The learner can:

- 1.1 outline the health, safety and food hygiene requirements of the area in which improvement techniques are being applied
- 1.2 state the purpose and objectives of the improvement techniques being applied
- 1.3 describe how improvement techniques can produce performance benefits and support or sustain food safety standards
- 1.4 state the company policy or protocol for applying improvement techniques.

#### **Outcome 2    Know how to use information and communication for improvement techniques in food operations**

The learner can:

- 2.1 outline what documentation is required to inform improvement techniques
- 2.2 outline the scope of information and data required to apply improvement techniques
- 2.3 describe the relationship between improvement techniques and standard operating procedures, quality and continuous improvement
- 2.4 state how improvement techniques and their application are communicated in own workplace.

#### **Outcome 3    Know how to make recommendations and feedback improvement issues in food operations**

The learner can:

- 3.1 state what the best method is for making recommendations
- 3.2 outline how to present recommendations to colleagues
- 3.3 state how best to give and receive feedback regarding own contribution to application of improvement techniques
- 3.4 describe the limits of own authority, and reporting arrangements in the event of problems that cannot be resolved.

## Unit 225

# Undertake proactive plant maintenance in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** T/601/2935

### Unit aim

This unit supports workforce development for those who undertake proactive plant maintenance in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to identify opportunities for proactive maintenance
2. Be able to undertake proactive maintenance
3. Be able to implement improvements to practice by proactive maintenance

### Guided learning hours

It is recommended that **14** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2125 Undertake proactive maintenance in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, undertaking proactive plant maintenance. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 225            Undertake proactive plant maintenance in food operations**

### Assessment criteria

#### **Outcome 1    Be able to identify opportunities for proactive maintenance**

The learner can:

- 1.1 identify and make positive suggestions about proactive maintenance needs
- 1.2 gather accurate information and data
- 1.3 assess plant condition and check that your suggestions can be justified and are realistic
- 1.4 secure approval for proactive maintenance activity.

#### **Outcome 2    Be able to undertake proactive maintenance**

The learner can:

- 2.1 use information and data effectively
- 2.2 carry out proactive maintenance using planned techniques
- 2.3 use relevant measures of plant effectiveness and other reliable information sources to inform improvement.

#### **Outcome 3    Be able to implement improvements to practice by proactive maintenance**

The learner can:

- 3.1 work with others to agree an effective action plan for improving plant effectiveness
- 3.2 make a positive contribution to putting the plan into action
- 3.3 ensure that action plan is completed and signed off.

## Unit 226

# Understand how to undertake proactive plant maintenance in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** A/601/2936

### Unit aim

This unit supports workforce development for those who need to understand how to undertake proactive plant maintenance in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know about the purpose and objectives of proactive maintenance
2. Know about the important role information and data play in proactive maintenance
3. Know how to identify and communicate improvements

### Guided learning hours

It is recommended that **17** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.213K Understand how to undertake proactive plant maintenance in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when undertaking proactive plant maintenance in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.



# **Unit 226                    Understand how to undertake proactive plant maintenance in food operations**

## Assessment criteria

### **Outcome 1    Know about the purpose and objectives of proactive maintenance**

The learner can:

- 1.1 outline how proactive maintenance forms part of organisational total productive maintenance systems
- 1.2 state the performance benefits and how proactive maintenance can support food safety standards
- 1.3 describe the importance of organisational procedures for undertaking proactive maintenance
- 1.4 outline the role:
  - standard operating procedures
  - food safety management procedures
  - and other food operational procedures
  - play in proactive maintenance activities.

### **Outcome 2    Know about the important role information and data play in proactive maintenance**

The learner can:

- 2.1 describe why it is necessary to calculate and interpret plant effectiveness measures
- 2.2 outline how proactive maintenance interacts with plant effectiveness measures and workplace organisation activities
- 2.3 describe the six losses and how they contribute to proactive maintenance
- 2.4 identify the value of chronic and sporadic loss
- 2.5 describe the difference between chronic and sporadic losses to food operations
- 2.6 outline the reporting arrangements for problems that cannot be resolved.

### **Outcome 3    Know how to identify and communicate improvements**

The learner can:

- 3.1 state how to choose plant items to undertake proactive maintenance activities
- 3.2 describe how process improvement techniques and activities contribute to proactive maintenance
- 3.3 outline how opportunities for improvement are typically identified
- 3.4 state how own knowledge and experience can add value to workplace improvement
- 3.5 outline how to communicate proactive maintenance activities and improvements in own work area.

## Unit 227

# Contribute to the development of Standard Operating Procedures (SOP) in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** F/601/2937

### Unit aim

This unit supports workforce development for those who contribute to the development of Standard Operating Procedures (SOP) in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to identify opportunities for SOP development
2. Be able to make recommendations for SOP development
3. Be able to obtain and provide feedback on SOP development

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2145 Contribute to the development of Standard Operating Procedures (SOP) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to the development of Standard Operating Procedures (SOP). It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 227            Contribute to the development of Standard Operating Procedures (SOP) in food operations**

### Assessment criteria

#### **Outcome 1    Be able to identify opportunities for SOP development**

The learner can:

- 1.1 identify opportunities and make positive suggestions about SOP development
- 1.2 gather initial information to inform potential development
- 1.3 assess information and check that your suggestions can be justified and are realistic
- 1.4 secure approval for contribution to SOP development.

#### **Outcome 2    Be able to make recommendations for SOP development**

The learner can:

- 2.1 collate information and data on current or similar operations
- 2.2 source and identify the requirements of the food safety management system
- 2.3 identify documentation, utilities, tools, equipment and resources required for the operation
- 2.4 use relevant measures of plant effectiveness and improvement to inform development
- 2.5 make valid recommendations for SOP development
- 2.6 refer any issues outside the limit of your authority to a responsible person
- 2.7 check and confirm that your recommendations meet all workplace requirements.

#### **Outcome 3    Be able to obtain and provide feedback on SOP development**

The learner can:

- 3.1 seek feedback on the value of your contribution to development
- 3.2 check the content of the new or updated sop against the information provided in feedback
- 3.3 provide feedback on your contribution to development to the relevant person.

## Unit 228

# Understand how to contribute to the development of Standard Operating Procedures (SOP) in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** J/601/2938

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to the development of standard operating procedures in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Know about the purpose and objectives of SOP
2. Know about the process of developing SOPs and how to communicate

### Guided learning hours

It is recommended that **9** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.215K Understand how to contribute to the development of Standard Operating Procedures (SOP) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to the development of standard operating procedures in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 228                    Understand how to contribute to the development of Standard Operating Procedures (SOP) in food operations**

### Assessment criteria

#### **Outcome 1    Know about the purpose and objectives of SOP**

The learner can:

- 1.1 state company policy or protocol for sop development
- 1.2 describe how own company structures and presents sop
- 1.3 identify the required documentation to inform sop
- 1.4 outline the relationship between sop, quality and continuous improvement
- 1.5 state how sop can produce performance benefits and support and/or sustain food safety standards.

#### **Outcome 2    Know about the process of developing SOPs and how to communicate**

The learner can:

- 2.1 identify the type of information and data required to develop SOP
- 2.2 state where to find SOP relating to your role
- 2.3 describe the importance of the eight wastes in food processes
- 2.4 state how to reduce or eliminate the eight wastes explaining their value in informing SOP development
- 2.5 outline how SOP developments are communicated
- 2.6 state how to present recommendations for SOP development.

## Unit 229

# Reduce and manage conflict in achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** F/601/2940

### Unit aim

This unit supports workforce development for those who reduce and manage conflict in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to take pre-emptive action to avoid conflict
2. Be able to deal with conflict
3. Be able to obtain support and complete conflict records

### Guided learning hours

It is recommended that **11** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2165 Reduce and manage conflict in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, reducing and managing conflict. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 229            Reduce and manage conflict in achieving excellence in food operations**

## Assessment criteria

### **Outcome 1    Be able to take pre-emptive action to avoid conflict**

The learner can:

- 1.1    communicate clearly the standards of work and behaviour expected of team members and individuals
- 1.2    assist team members and individuals understand how different members interface and support each other
- 1.3    identify and address any issues with organisational systems or procedures that are likely to give rise to conflict
- 1.4    identify potential conflict between team members or with individuals and take pre-emptive action to avoid these
- 1.5    encourage team members to resolve their own problems and conflicts themselves.

### **Outcome 2    Be able to deal with conflict**

The learner can:

- 2.1    take prompt action to deal with conflicts where team members or individuals are unable to resolve the conflicts themselves
- 2.2    show respect for members and individuals emotions in conflict and seek to manage negative emotions
- 2.3    investigate the causes of conflict, providing opportunities to present facts and perceptions about conflict
- 2.4    identify and agree how to resolve conflicts without apportioning blame
- 2.5    reinforce the goals, attitudes and behaviours expected of team members and individuals.

### **Outcome 3    Be able to obtain support and complete conflict records**

The learner can:

- 3.1    seek help from colleagues or specialists where appropriate
- 3.2    comply with regulatory and organisational requirements when resolving conflicts
- 3.3    maintain complete and confidential records of conflicts and their outcomes.

## Unit 230

# Understand how to reduce and manage conflict in achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** J/601/2941

### Unit aim

This unit supports workforce development for those who need to understand how to reduce and manage conflict in achieving excellence in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know how to communicate effectively
2. Know about company systems for dealing with conflict
3. Know about different ways of managing conflict

### Guided learning hours

It is recommended that **15** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.217K Understand how to reduce and manage conflict in achieving excellence in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when reducing and managing conflict in achieving excellence in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.



## Unit 230

# Understand how to reduce and manage conflict in achieving excellence in food operations

## Assessment criteria

### Outcome 1 Know how to communicate effectively

The learner can:

- 1.1 state the principles of effective communication
- 1.2 state how to apply effective communication
- 1.3 outline how to assist team members and individuals understand roles and support each another.

### Outcome 2 Know about company systems for dealing with conflict

The learner can:

- 2.1 state how to identify the causes of conflict
- 2.2 state the importance of identifying and agreeing with team members and individuals how to resolve conflicts
- 2.3 outline your company's policy and procedures for resolving conflicts
- 2.4 describe how to complete accurate records of conflicts
- 2.5 state the importance of maintaining confidential records of conflicts
- 2.6 outline when it is appropriate to seek help from colleagues or specialists
- 2.7 state how to identify and address systems and procedures that contribute to conflict.

### Outcome 3 Know about different ways of managing conflict

The learner can:

- 3.1 state the importance of identifying potential conflict situations and taking pre-emptive action to avoid these
- 3.2 state how to encourage team members and individuals to talk about work issues and potential conflict
- 3.3 describe the importance of giving team members and individuals opportunities to discuss problems affecting work
- 3.4 state the importance of taking prompt action to deal with conflicts as they arise
- 3.5 outline methods of dealing with conflicts
- 3.6 state the importance of acknowledging and showing respect for team members and individuals during conflict
- 3.7 state how to manage negative emotions of team members and individuals involved in conflict.

## Unit 231

# Contribute to compliance for achieving excellence in food operations

**Level:** 2  
**Credit value:** 3  
**UAN:** L/6010/2942

### Unit aim

This unit supports workforce development for those who contribute to compliance in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to comply with regulations in own work area
2. Be able to make recommendations for improving compliance
3. Be able to obtain and provide feedback on compliance

### Guided learning hours

It is recommended that **17** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit QI.2185 Contribute to compliance for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to compliance. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

# **Unit 231                    Contribute to compliance for achieving excellence in food operations**

## Assessment criteria

### **Outcome 1    Be able to comply with regulations in own work area**

The learner can:

- 1.1 identify the regulations which apply to own work area
- 1.2 access information about the regulations
- 1.3 use personal and protective clothing and equipment
- 1.4 follow all organisational procedures which apply to own work area
- 1.5 identify control hazards in the workplace
- 1.6 report potential risks and hazards to the responsible person
- 1.7 identify the learning needs of individuals that need support to meet compliance standards.

### **Outcome 2    Be able to make recommendations for improving compliance**

The learner can:

- 2.1 identify opportunities for improving compliance to meet organisational needs
- 2.2 source and identify the requirements of food safety management systems
- 2.3 collate information, data and resources to support potential improvements
- 2.4 make recommendations to management for improving compliance using measures of plant effectiveness and improvement
- 2.5 refer issues outside the limit of own authority to a responsible person
- 2.6 check and confirm that recommendations meet all workplace requirements.

### **Outcome 3    Be able to obtain and provide feedback on compliance**

The learner can:

- 3.1 seek feedback on the value of own contribution to compliance
- 3.2 check current compliance levels and targets
- 3.3 provide feedback on own contribution to compliance to the relevant person.

## Unit 232

# Understand how to contribute to compliance for achieving excellence in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** R/601/2943

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to compliance for achieving excellence culture in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Know about regulations
2. Know about organisational procedures for ensuring compliance in own work area
3. Know about workplace hazards

### Guided learning hours

It is recommended that **11** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.219K Understand how to contribute to compliance for achieving excellence culture in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to compliance for achieving excellence culture in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 232            Understand how to contribute to compliance for achieving excellence in food operations**

### Assessment criteria

#### **Outcome 1    Know about regulations**

The learner can:

- 1.1 state own responsibilities and others responsibilities under:
  - health and safety at work regulation and associated regulation
  - food safety regulation and associated regulation
- 1.2 state how to locate regulatory information and workplace procedures.

#### **Outcome 2    Know about organisational procedures for ensuring compliance in own work area**

The learner can:

- 2.1 detail the specific organisational procedures required within own work area:
  - health and safety
  - food safety
- 2.2 outline the process or product specific procedures that are customer focussed compliance requirements to meet internal or external standards
- 2.3 detail own company procedures for:
  - first aid
  - emergency fire and evacuation
  - safe lifting and handling
- 2.4 describe the best methods of formulating recommendations and how to present these to colleagues.

#### **Outcome 3    Know about workplace hazards**

The learner can:

- 3.1 describe how to identify a:
  - workplace hazard
  - dangerous occurrence
  - hazardous malfunction
- 3.2 detail own responsibilities to deal with hazards and reduce risk in the workplace
- 3.3 detail procedures for identifying and controlling risk by:
  - monitoring
  - inspection
  - assessment
  - reporting.

## Unit 233

# Contribute to problem diagnosis in food manufacture

**Level:** 2  
**Credit value:** 2  
**UAN:** Y/601/2944

### Unit aim

This unit supports workforce development for those who contribute to problem diagnosis in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to contribute to identifying problems
2. Be able to contribute to problem diagnosis
3. Be able to contribute to reporting problems

### Guided learning hours

It is recommended that **10** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit PO.125S Contribute to problem diagnosis in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to problem diagnosis in food manufacture. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 233            Contribute to problem diagnosis in food manufacture**

### Assessment criteria

#### **Outcome 1    Be able to contribute to identifying problems**

The learner can:

- 1.1 identify variations to normal operating conditions
- 1.2 contribute to the assessment of the impact of these problems
- 1.3 take the appropriate action to make sure you and your colleagues remain safe.

#### **Outcome 2    Be able to contribute to problem diagnosis**

The learner can:

- 2.1 contribute to determining the nature, cause and the effect of the problems
- 2.2 contribute to investigating the problems in a safe and cost-effective manner, with minimum delay or wastage.

#### **Outcome 3    Be able to contribute to reporting problems**

The learner can:

- 3.1 communicate problems to the appropriate person
- 3.2 complete and process all records of problems.

## Unit 234

# Understand how to contribute to problem diagnosis in food manufacture

**Level:** 2  
**Credit value:** 2  
**UAN:** D/601/2945

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to problem diagnosis in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Know how to contribute to identifying problems in your area of work
2. Know how to contribute to analysing and reporting problems within your work area

### Guided learning hours

It is recommended that **15** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit PO.126K Understand how to contribute to problem diagnosis in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to problem diagnosis in food manufacture. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.



## **Unit 234            Understand how to contribute to problem diagnosis in food manufacture**

### Assessment criteria

#### **Outcome 1    Know how to contribute to identifying problems in your area of work**

The learner can:

- 1.1 outline the importance of contributing to problem solving is important
- 1.2 detail how to recognise differences from specification
- 1.3 outline the relevant operating procedures
- 1.4 detail operating problems and their possible effect on other operations
- 1.5 state how to help investigate problems in a safe and cost-effective manner and why it is important to do so
- 1.6 state how to assist the team or individual define and verify the root cause of a problem.

#### **Outcome 2    Know how to contribute to analysing and reporting problems within your work area**

The learner can:

- 2.1 state how to use any relevant tools and test equipment
- 2.2 detail different methods can be used to gather evidence about problems
- 2.3 outline how to help analyse problems to determine their nature, cause and effects
- 2.4 detail lines and methods of effective communication and why it is important to use them
- 2.5 state documentation requirements and why it is important to meet them.

## Unit 235

# Contribute to problem resolution in food manufacture

**Level:** 2  
**Credit value:** 3  
**UAN:** H/601/2946

### Unit aim

This unit supports workforce development for those who contribute to problem resolution in a food business. The unit is designed for use primarily by operatives or team leaders and others who carry out these workplace activities. The aim of the unit is to determine competent performance to recognised National Occupational Standards.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Be able to contribute to identifying the causes of problems
2. Be able to contribute to implementing solutions to problems
3. Be able to contribute to reporting on action to be taken to resolve problems

### Guided learning hours

It is recommended that **13** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) skills unit PO.1275 Contribute to problem resolution in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the skills of learners in the workplace, contributing to problem resolution in food manufacture. It needs to be assessed on the job. The learner must be able to demonstrate their competent performance consistently over a period of time, to meet all of the assessment criteria. This will be achieved by at least two observations of performance in the workplace, and may be supported by witness testimony and other workplace evidence. Observations must ensure that the learner's working practice is at commercial speed and in compliance with standard operating procedures. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 235                    Contribute to problem resolution in food manufacture**

### Assessment criteria

#### **Outcome 1    Be able to contribute to identifying the causes of problems**

The learner can:

- 1.1 check and follow legal or regulatory requirements, hygiene, health and safety and environmental standards
- 1.2 check the available information and clarify or seek further information.

#### **Outcome 2    Be able to contribute to implementing solutions to problems**

The learner can:

- 2.1 contribute to selecting solutions which are effective in relation to operational requirements
- 2.2 help to ensure that the corrective actions determined meet with organisational requirements
- 2.3 contribute to putting into action the chosen solution to restore operating conditions safely and effectively
- 2.4 monitor operations to ensure that correct operating conditions are met and maintained
- 2.5 communicate the results of own actions to the appropriate person.

#### **Outcome 3    Be able to contribute to reporting on action to be taken to resolve problems**

The learner can:

- 3.1 contribute to the identification of needs for further work and report this to the relevant person in sufficient detail for action to be taken
- 3.2 make suggestions for avoiding the problem happening again and ways to improve operations to managers and colleagues
- 3.3 complete all records accurately and clearly, and process it promptly.

## Unit 236

# Understand how to contribute to problem resolution in food manufacture

**Level:** 2  
**Credit value:** 2  
**UAN:** K/601/2947

### Unit aim

This unit supports workforce development for those who need to understand how to contribute to problem resolution in a food business. The unit is designed for use primarily by operatives and others who carry out these workplace activities. The aim of the unit is to assess knowledge and understanding to recognised National Occupational Standards.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Know how to contribute to problems in your area of work and how to communicate to colleagues
2. Know how to contribute to identifying resolutions to problems

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit PO.128K Understand how to contribute to problem resolution in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the knowledge and understanding of learners in the workplace context, when contributing to problem resolution in food manufacture. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. It is recommended that this unit is taken with the relevant Occupational Skills Unit. The Improve Assessment Strategy for Proficiency Qualifications in Food and Drink sets out the overarching assessment requirements.

## **Unit 236            Understand how to contribute to problem resolution in food manufacture**

### Assessment criteria

#### **Outcome 1    Know how to contribute to problems in your area of work and how to communicate to colleagues**

The learner can:

- 1.1 state operating problems and their possible effect on other operations
- 1.2 detail the operating procedures
- 1.3 state why it is important to record and communicate problems
- 1.4 detail the lines and methods of effective communication and why it is important to use them.

#### **Outcome 2    Know how to contribute to identifying resolutions to problems**

The learner can:

- 2.1 outline factors to take into consideration when contributing to selecting solutions
- 2.2 state how to help:
  - recognise both temporary and permanent solutions, deciding which should be used
  - assess the impact of solutions on other operations
  - analyse problems in a systematic way
  - overcome problems and restore operations in an effective way
- 2.3 state how to monitor product integrity when overcoming problems and how they have been overcome
- 2.4 state how to evaluate the effectiveness of the solutions implemented.

# **Achieving Food Manufacturing Excellence Knowledge units**

**Level:** 2  
**Credit value:** 1  
**UAN:** A/601/2631

**Unit aim**

This unit supports workforce and/or vocational development for those who need to understand the principles of HACCP based food safety management systems, in food operations or animal feed production. The unit is designed for use primarily by food processing operatives and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

**Learning outcomes**

There are **three** learning outcomes to this unit. The learner will:

1. Know the purpose of a HACCP system
2. Know the features and terminology of HACCP
3. Know how a HACCP system is applied in the workplace.

**Guided learning hours**

It is recommended that **8** hours should be allocated for this unit, although patterns of delivery are likely to vary.

**Details of the relationship between the unit and relevant national standards**

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) FS.109K Understand food safety management procedures in manufacture

**Support of the unit by a sector or other appropriate body**

This unit is endorsed by Improve.

**Assessment**

This unit is designed to assess the understanding of learners on or off-the-job, in the workplace context, for understanding the principles of HACCP food safety management systems. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding.

# **Unit 237            Principles of HACCP Based Food Safety Systems**

Assessment criteria

## **Outcome 1    Know the purpose of a HACCP system**

The learner can:

- 1.1    state the need for HACCP systems
- 1.2    outline the requirements of a HACCP system.

## **Outcome 2    Know the features and terminology of HACCP**

The learner can:

- 2.1    describe the features of a HACCP system
- 2.2    outline the meaning of terms used in the HACCP system.

## **Outcome 3    Know how a HACCP system is applied in the workplace.**

The learner can:

- 3.1    outline how a HACCP plan is developed
- 3.2    describe an operative's responsibility within the HACCP system
- 3.3    state the importance of documenting, verifying and reviewing the HACCP system.



**Level:** 3  
**Credit value:** 4  
**UAN:** L/601/2701

**Unit aim**

This unit supports workforce and/or vocational development for those who need to understand the principles of sustainability, in a food environment or in a learning environment. The unit is designed for use primarily by managers and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

**Learning outcomes**

There are **four** learning outcomes to this unit. The learner will:

1. Understand the principles of sustainability
2. Understand factors affecting sustainability targets
3. Understand factors affecting support for sustainability targets
4. Understand the factors influencing the achievement of sustainability

**Guided learning hours**

It is recommended that **34** hours should be allocated for this unit, although patterns of delivery are likely to vary.

**Details of the relationship between the unit and relevant national standards**

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit SF.102K Principles of sustainability in a food environment.

**Support of the unit by a sector or other appropriate body**

This unit is endorsed by Improve.

**Assessment**

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of sustainability. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# Unit 301 Principles of sustainability in food operations

## Assessment criteria

### **Outcome 1 Understand the principles of sustainability**

The learner can:

- 1.1 outline the key principles of environmental sustainability in a food environment in relation to:
  - energy
  - waste
  - water usage
  - transportation
- 1.2 describe the relationship between sustainability and the three key elements of corporate social responsibility:
  - economic
  - social
  - environmental
- 1.3 describe the benefits of sustainability to the organisation and its stakeholders
- 1.4 summarise how sustainability impacts on all the component functions of an organisation.

### **Outcome 2 Understand factors affecting sustainability targets**

The learner can:

- 2.1 outline how to establish targets for sustainable development, including the use of benchmarking
- 2.2 explain how carbon currency data (carbon footprints) is used as an indicator of sustainability
- 2.3 explain the importance of liaising with national policy-makers to determine the influence of government targets and legal requirements on organisational sustainability.

### **Outcome 3 Understand factors affecting support for sustainability targets**

The learner can:

- 3.1 explain how continuous improvement supports sustainability
- 3.2 explain how to gain the commitment of stakeholders to the development of sustainable food production
- 3.3 outline how environmental management systems (EMS) are used to support sustainability in a food environment.

### **Outcome 4 Understand the factors influencing the achievement of sustainability**

The learner can:

- 4.1 summarise the influences which impact upon the achievement of sustainability
- 4.2 explain how to control the efficient use of resources within organisational activities to help achieve sustainability
- 4.3 explain how the actions of others within the supply chain can influence sustainability
- 4.4 explain the potential barriers to achieving sustainability and summarise ways these can be overcome
- 4.5 describe how to access sources of advice and guidance on achieving sustainability.

## Unit 238

# Principles of workplace organisation techniques in food operations

**Level:** 2  
**Credit value:** 2  
**UAN:** M/601/2951

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of workplace organisation techniques in food operations or in a learning environment. The unit is designed for use primarily by operatives and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the workplace arrangements and factors which influence improvement
2. Understand the workplace procedures and processes
3. Understand the impact of visual controls and authority in the workplace

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.203K Principles of workplace organisation techniques in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of workplace organisation techniques in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

## **Unit 238                    Principles of workplace organisation    techniques in food operations**

### Assessment criteria

#### **Outcome 1    Understand the workplace arrangements and factors which influence improvement**

The learner can:

- 1.1 outline the common techniques used to organise work and work areas including:
  - 5S
  - 5C
- 1.2 state the processes used to monitor performance and identify opportunities for improvement
- 1.3 describe how the properties of a food product and processing needs can influence improvement opportunities.

#### **Outcome 2    Understand the workplace procedures and processes**

The learner can:

- 2.1 outline the process of labelling for rapid identification, and how to access the related resources or equipment
- 2.2 define the purpose of standard operating procedures (SOP) and other approved documentation
- 2.3 describe the process used to evaluate and prioritise improvements for the workplace
- 2.4 describe process used to score and audit workplace organisation.

#### **Outcome 3    Understand the impact of visual controls and authority in the workplace**

The learner can:

- 3.1 assess the role of visual controls in workplace organisation
- 3.2 describe the techniques required to communicate information using visual controls including:
  - shadow boards
  - colour coding
  - line status systems
  - process control boards
  - performance charts
- 3.3 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

**Level:** 3  
**Credit value:** 3  
**UAN:** A/601/2953

**Unit aim**

This unit supports workforce and/or vocational development for those who need to understand the principles of improvement in food operations or in a learning environment. The unit is designed for use primarily by operatives and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

**Learning outcomes**

There are **three** learning outcomes to this unit. The learner will:

1. Understand improvement, its role and the opportunities for improvement
2. Understand how waste control can impact on improvement
3. Understand the impact of visual controls, the Deming Cycle and procedures

**Guided learning hours**

It is recommended that **16** hours should be allocated for this unit, although patterns of delivery are likely to vary.

**Details of the relationship between the unit and relevant national standards**

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.204K Principles of improvement in a food environment

**Support of the unit by a sector or other appropriate body**

This unit is endorsed by Improve.

**Assessment**

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of improvement in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# Unit 302 Principles of improvement in food operations

## Assessment criteria

### **Outcome 1 Understand improvement, its role and the opportunities for improvement**

The learner can:

- 1.1 outline the principles of improvement as they apply in food and drink manufacture or supply
- 1.2 detail the importance of process improvement to food and drink manufactures and suppliers
- 1.3 summarise the role of improvement techniques and their application in support of improvement including:
  - cellular manufacturing
  - total productive maintenance
  - structured problem solving
  - visual management
  - specialist techniques
- 1.4 detail the opportunities in the work area where improvements can be made.

### **Outcome 2 Understand how waste control can impact on improvement**

The learner can:

- 2.1 state why inventory control is important to waste reduction in the food industry
- 2.2 detail how and why food/drink processing can create waste at stages, including:
  - over production
  - over processing
  - transport and distribution
- 2.3 state the impact of waiting time on food waste
- 2.4 summarise how levels of operator skills and knowledge can impact on waste
- 2.5 describe how out of specification raw materials and products cause waste
- 2.6 outline how the effective utilisation of a workforce can reduce waste.

### **Outcome 3 Understand the impact of visual controls, the Deming Cycle and procedures**

The learner can:

- 3.1 summarise the methods used to visually communicate improvement information
- 3.2 describe the importance of understanding the activity under review, and how this will affect the quality of the problem solving process
- 3.3 state the role of the Deming Cycle (plan, do, check, act) in improvement activities
- 3.4 outline the purpose of standard operating procedures and specifications.

## Unit 303

# Principles of continuous improvement techniques (Kaizen) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** F/601/2954

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of continuous improvement techniques (Kaizen) in food operations or in a learning environment. The unit is designed for use primarily by manager, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the features, importance of Kaizen activity
2. Understand the criteria and requirements for Kaizen and problem solving
3. Understand how to interact with Kaizen activity

### Guided learning hours

It is recommended that **15** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.207K Principles of continuous improvement techniques (Kaizen) in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of continuous improvement techniques (Kaizen) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# Unit 303 Principles of continuous improvement techniques (Kaizen) in food operations

## Assessment criteria

### Outcome 1 Understand the features, importance of Kaizen activity

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence a Kaizen activity
- 1.2 summarise the main features of a Kaizen activity and the establishment of measurable improvements
- 1.3 evaluate the importance of encouraging people to identify continuous improvements
- 1.4 explain the evaluation of improvement ideas and selection of those that are to be pursued
- 1.5 explain the function of standard operating procedures and specifications
- 1.6 clarify the resources required to support production schedules and specifications
- 1.7 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### Outcome 2 Understand the criteria and requirements for Kaizen and problem solving

The learner can:

- 2.1 explain the criteria used to select an area/processing activity for Kaizen activity
- 2.2 explain the importance of understanding the food process and/or activity under review
- 2.3 summarise the requirements for the deployment of Kaizen, and the resources required by the activity
- 2.4 explain the importance of waste in Kaizen activity and why inventory control is important to waste reduction
- 2.5 explain how root cause analysis can support problem solving
- 2.6 explain how your knowledge of food processing activities can support your problem solving ability.

### Outcome 3 Understand how to interact with Kaizen activity

The learner can:

- 3.1 explain the application of the Deming cycle (plan, do, check, act)
- 3.2 explain how to engage the knowledge and experience of the people involved in the process in the development of improvement activities
- 3.3 explain how to separate facts and opinions about the food operations and how these affect improvement actions
- 3.4 explain the techniques used to visually communicate the work of the Kaizen activity to participants and others
- 3.5 explain how to use calculations for identifying the required production rate for a process
- 3.6 summarise the cycle time of a process
- 3.7 explain the techniques used to distribute work content to balance cycle times to the rate of customer demand, and how to visually represent it including:
  - line balance
  - process displays.



## Unit 304

# Principles of flow process analysis in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** J/601/2955

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of flow process analysis in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand a processing operation considered for flow process analysis
2. Understand flow process analysis mapping and value added features of process operations
3. Understand how to analyse and set action plans for improvement opportunities

### Guided learning hours

It is recommended that **19** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.250K Principles of flow process analysis in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of flow process analysis in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 304 Principles of flow process analysis in food operations**

## Assessment criteria

### **Outcome 1 Understand a processing operation considered for flow process analysis**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the process of analysis
- 1.2 describe a processing operation that is considered for flow process analysis
- 1.3 summarise how a processing operation in all its elements and activities of work is described
- 1.4 explain how waste is handled and controlled within a processing operation.

### **Outcome 2 Understand flow process analysis mapping and value added features of process operations**

The learner can:

- 2.1 clarify the symbols and abbreviations used for flow process analysis
- 2.2 explain how a process or deployment flowchart is mapped using the recognised symbols
- 2.3 evaluate what are classed as value added and non-value added activities within a process
- 2.4 justify the elements and activities in the process that are value added or non-value added.

### **Outcome 3 Understand how to analyse and set action plans for improvement opportunities**

The learner can:

- 3.1 analyse the potential opportunities for improvements within a processing operation
- 3.2 explain how data can be used to eliminate activities that do not add value to the process
- 3.3 explain how action planning is used to simplify the value added activities and eliminate the non-value added activities
- 3.4 summarise how action plans are constructed, including the payback matrix
- 3.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

## Unit 305

# Principles of Measurement System Analysis (MSA) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** D/601/2959

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Measurement System Analysis (MSA) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand a processing operation considered for analysis
2. Understand the selection and use of measurement systems
3. Understand the technical application of measurement system analysis

### Guided learning hours

It is recommended that **16** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.251K Principles of Measurement System Analysis (MSA) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Measurement System Analysis (MSA) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

## **Unit 305                    Principles of Measurement System Analysis (MSA) in food operations**

Assessment criteria

### **Outcome 1    Understand a processing operation considered for analysis**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the process of analysis
- 1.2 describe the processing operation that is being analysed
- 1.3 summarise why it is important to study measurement systems, to achieving an excellence strategy.

### **Outcome 2    Understand the selection and use of measurement systems**

The learner can:

- 2.1 explain how measurement systems are selected for analysis
- 2.2 diagnose possible sources of measurement systems variation
- 2.3 explain how measurement systems analysis is used in food operations
- 2.4 summarise how measurement systems analysis can be used in a Six Sigma improvement project.

## Unit 306

# Principles of lead time analysis in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** Y/601/2961

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of lead time analysis in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Understand a processing operation and information considered for analysis
2. Understand the creation of lead time profiles and the link with problem solving

### Guided learning hours

It is recommended that **16** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.252K Principles of lead time analysis in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of lead time analysis in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 306 Principles of lead time analysis in food operations**

## Assessment criteria

### **Outcome 1 Understand a processing operation and information considered for analysis**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the process of analysis
- 1.2 describe the processing operation that is being analysed
- 1.3 summarise the information required to create lead time profiles to support the achieving excellence strategy
- 1.4 summarise the information required to construct the lead time profiles, and where this information can be obtained.

### **Outcome 2 Understand the creation of lead time profiles and the link with problem solving**

The learner can:

- 2.1 explain the co-ordination and creation of lead time profiles
- 2.2 explain the co-ordination and creation of frequency charts
- 2.3 summarise the techniques used to communicate the information and results obtained by this process
- 2.4 evaluate the difference between lead time and cycle time
- 2.5 clarify how root cause analysis can support problem solving
- 2.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

## Unit 307

# Principles of basic statistical analysis in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** H/601/2963

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of basic statistical analysis in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand a processing operation and basic statistical techniques
2. Understand statistical terminology, curves and diagrams
3. Understand statistical calculation

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.253K Principles of basic statistical analysis in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of basic statistical analysis in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 307            Principles of basic statistical analysis in food operations**

## Assessment criteria

### **Outcome 1    Understand a processing operation and basic statistical techniques**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the process of analysis
- 1.2 describe the processing operation that is being analysed
- 1.3 explain how to use basic statistical techniques
- 1.4 justify why we need to use basic statistics
- 1.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2    Understand statistical terminology, curves and diagrams**

The learner can:

- 2.1 explain the meaning of 'variation', and how this can be detected with statistics
- 2.2 clarify how variation can affect a process
- 2.3 summarise why data points are important to statistics
- 2.4 explain the meaning of the terms 'population' and 'sample' when applied to basic statistics
- 2.5 describe what distribution curves will demonstrate and the properties of a normal curve
- 2.6 explain the creation and use of charts and diagrams in statistics.

### **Outcome 3    Understand statistical calculation**

The learner can:

- 3.1 explain how to calculate mean, median, mode, standard deviation, range and variance
- 3.2 explain the difference between descriptive and inferential statistics.



## Unit 308

# Principles of Taguchi Linear graphs in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** K/601/2964

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Taguchi Linear graphs in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand a processing operation considered for analysis
2. Understand Taguchi Linear terminology, graphs and sample size
3. Understand the application of Taguchi Linear graphs

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.254K Principles of Taguchi Linear graphs in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Taguchi Linear graphs in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 308 Principles of Taguchi Linear graphs in food operations**

## Assessment criteria

### **Outcome 1 Understand a processing operation considered for analysis**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the process of analysis
- 1.2 describe the processing operation that is being analysed
- 1.3 justify the creation of action plans to ensure that improvements are implemented
- 1.4 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand Taguchi Linear terminology, graphs and sample sizes**

The learner can:

- 2.1 explain how measurement systems are selected for analysis
- 2.2 clarify what is meant by the following terms: fold over, confounded, alias
- 2.3 explain how to produce Taguchi linear graph designs for a range of arrays
- 2.4 explain terminology including:
  - Alpha risk
  - Beta risk
  - population
  - sample
- 2.5 explain how suitable sample sizes are calculated.

### **Outcome 3 Understand the application of Taguchi Linear graphs**

The learner can:

- 3.1 explain why we need to use Taguchi Linear graph experimental design
- 3.2 summarise how Taguchi Linear graph experimental design is used in a Six Sigma improvement projects
- 3.3 explain how Taguchi Linear graph experiments are conducted
- 3.4 explain how to calculate mean, median, mode, standard deviation, range and variance
- 3.5 describe the calculation and graphical display of main effects and interactions
- 3.6 explain how suitable optimal conditions can be identified
- 3.7 describe how Taguchi Linear graph reports are created, and the information they should contain.

## Unit 309

# Principles of flexible production and manpower systems in food operations

**Level:** 3  
**Credit value:** 4  
**UAN:** T/601/2966

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of flexible production and manpower systems in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **four** learning outcomes to this unit. The learner will:

1. Understand the definition and benefits of the flexible production and manpower systems
2. Understand terminology and application of system components
3. Understand how to maximise effectiveness of systems and asset care
4. Understand system techniques and workplace layout

### Guided learning hours

It is recommended that **25** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.255K Principles of flexible production and manpower systems in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of flexible production and manpower systems in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

## Unit 309

# Principles of flexible production and manpower systems in food operations

## Assessment criteria

### **Outcome 1 Understand the definition and benefits of the flexible production and manpower systems**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence improvement activities
- 1.2 defines a flexible production and manpower system
- 1.3 explain the benefits of a flexible production and manpower system within food operations
- 1.4 summarise how waste can be reduced through the application of flexible production and manpower systems
- 1.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand terminology and application of system components**

The learner can:

- 2.1 explain the meaning of level schedules, load and capacity diagrams
- 2.2 explain how to calculate Takt time
- 2.3 explain the term 'standard work in progress'
- 2.4 justify the application of visually controlled systems and signals, based on the demand of subsequent processes
- 2.5 explain the application of skills matrices and consignment stocking
- 2.6 summarise the process of working practice simplification and the reduction of human error risk.

### **Outcome 3 Understand how to maximise effectiveness of systems and asset care**

The learner can:

- 3.1 explain the consequences of introducing a new improved part/process/material router
- 3.2 explain how root cause analysis can support problem solving
- 3.3 clarify how to maximise equipment effectiveness through stabilisation and optimisation
- 3.4 explain what asset care/best practice effectiveness review is
- 3.5 summarise the purpose of robust routine asset care and operation.

## **Outcome 4 Understand system techniques and workplace layout**

The learner can:

- 4.1 explain the appropriate techniques that provide value to the customer including:
  - push-pull systems
  - single piece flow
  - Just In Time (JIT)
  - Kanban
  - Autonomation
- 4.2 explain the techniques used to visually communicate the work done including:
  - level schedules
  - load and capacity diagrams
  - revised batch sizes
  - Takt time
- 4.3 describe the lay out of an effective workplace including:
  - cellular manufacturing incorporating
  - parallel lines
  - U-shaped cells.

## Unit 310

# Principles of Statistical Process Control procedures (SPC) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** F/601/2968

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of statistical process control procedures (SPC) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **four** learning outcomes to this unit. The learner will:

1. Understand the purpose and use of statistical process control
2. Understand performance and variation in statistical process control
3. Understand the use of data and control charts in statistical process control
4. Understand the normal statistical curve, statistical terms and process capability

### Guided learning hours

It is recommended that **21** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.256K Principles of statistical process control procedures (SPC) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of statistical process control procedures (SPC) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 310 Principles of Statistical Process Control procedures (SPC) in food operations**

## Assessment criteria

### **Outcome 1 Understand the purpose and use of statistical process control**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence statistical process control
- 1.2 summarise the purpose statistical process control
- 1.3 explain the techniques used as part of statistical process control
- 1.4 explain where and why statistical process control is used and the benefits it offers
- 1.5 clarify where process control fits within a continuous improvement environment
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand performance and variation in statistical process control**

The learner can:

- 2.1 explain the importance of process performance to customer satisfaction and process costs
- 2.2 clarify the importance of standardisation within a process operation
- 2.3 explain why process performance can only be determined when it is controlled
- 2.4 describe how process control can improve process performance
- 2.5 summarise the benefits of prevention and detection
- 2.6 explain common cause variation within food processing, and the impact it can have
- 2.7 explain special cause variation within food processing, and the impact it can have.

### **Outcome 3 Understand the use of data and control charts in statistical process control**

The learner can:

- 3.1 clarify how data is gathered and analysis techniques are used
- 3.2 explain how data can be used to communicate abnormalities within a process
- 3.3 summarise the main types of control charts used for SPC and their features and benefits including:
  - run charts
  - histograms
  - box plots
  - time series charts
  - Pareto diagrams
  - stem and leaf plots
- 3.4 explain the meaning of the terms 'population' and a 'sample'
- 3.5 explain what the measurements of central tendency and variability are.

## **Outcome 4 Understand the normal statistical curve, statistical terms and process capability**

The learner can:

- 4.1 explain what the properties of a normal curve of distribution are
- 4.2 explain the terms mean, median, mode, standard deviation, range and variance
- 4.3 explain process capability (Cp and Cpk) and how it is determined.



# Unit 311 Principles of Design of Experiments (DOE) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** J/601/2969

## Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Design of Experiments (DOE) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

## Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the purpose, importance and completion of DOE
2. Understand the techniques, data and terms used in the DOE
3. Understand the use of graphical displays and the design of arrays

## Guided learning hours

It is recommended that **16** hours should be allocated for this unit, although patterns of delivery are likely to vary.

## Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.257K Principles of Design of Experiments (DOE) in a food environment.

## Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

## Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Design of Experiments (DOE) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 311 Principles of Design of Experiments (DOE) in food operations**

## Assessment criteria

### **Outcome 1 Understand the purpose, importance and completion of DOE**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the design of experiment improvement technique
- 1.2 summarise the purpose of DOE as an improvement technique in food operations
- 1.3 clarify why DOE is used and how this can benefit an improvement project
- 1.4 explain the importance of determining the scope of an experiment
- 1.5 explain how to complete a DOE project
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the techniques, data and terms used in the DOE**

The learner can:

- 2.1 explain the tools and techniques used in the DOE
- 2.2 explain the data required to carry out the DOE
- 2.3 summarise how population and sample size are used in the DOE
- 2.4 explain the meaning of the terms Alpha risk and Beta risk
- 2.5 explain the meaning of a population and a sample in terms of the DOE.

### **Outcome 3 Understand the use of graphical displays and the design of arrays**

The learner can:

- 3.1 explain how to calculate Mean, Median, Mode, Standard Deviation, Range and Variance
- 3.2 clarify how graphical display can be used to show main effects and interactions
- 3.3 explain the design of Arrays linked to the design of interactions including:
  - full factorial
  - 2k factorial
  - fractional.

## Unit 312

# Principles of Quality Function Deployment (QFD) in food operations

**Level:** 3  
**Credit value:** 4  
**UAN:** A/601/2970

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Quality Function Deployment (QFD) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the advantages of QFD and the quality lever model
2. Understand how to plan QFD and how it relates to improvement techniques
3. Understand the phases of QFD, customer's requirements and matrices

### Guided learning hours

It is recommended that **21** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.258K Quality Function Deployment (QFD) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Quality Function Deployment (QFD) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# Unit 312 Principles of Quality Function Deployment (QFD) in food operations

Assessment criteria

## Outcome 1 Understand the advantages of QFD and the quality lever model

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the QFD technique
- 1.2 the advantages of using QFD to support the delivery of your achieving excellence strategy
- 1.3 the 'quality lever' and how QFD fits this model
- 1.4 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

## Outcome 2 Understand how to plan QFD and how it relates to improvement techniques

The learner can:

- 2.1 explain the terms 'house of quality' and 'voice of the customer'
- 2.2 describe how to develop and plan a QFD activity
- 2.3 explain how QFD relates to other improvement techniques including:
  - potential Failure Modes and Effects Analysis
  - design of experiments
  - value analysis
  - control plans
  - Pugh concept diagrams

summarise relevant tools and techniques as part of a QFD activity.

## Outcome 3 Understand the phases of QFD, customer's requirements and matrices

The learner can:

- 3.1 the four phases of QFD including necessary inputs and outputs for each phase including:
  - pre-planning
  - design deployment
  - process and production planning
  - managing deployment
- 3.2 clarify what the customer's requirements are within a QFD project, in terms of needs and expectations, features and functions
- 3.3 explain how to produce matrices for relationships, specifications, technical requirements and planning
- 3.4 explain how to score matrices within the QFD.

## Unit 313

# Principles of response surface methodology in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** F/601/2971

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of response surface methodology in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the use and working of response surface methodology
2. Understand data and statistical validity in response surface methodology
3. Understand response surface methodology terms and cost benefits

### Guided learning hours

It is recommended that **17** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.259K Principles of response surface methodology in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of response surface methodology in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 313 Principles of response surface methodology in food operations**

## Assessment criteria

### **Outcome 1 Understand the use and working of response surface methodology**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the application of response surface methodology
- 1.2 summarise the use of response surface methodology and how it can be used in a six sigma improvement project
- 1.3 explain how response surface methodology works
- 1.4 summarise the tools and techniques which can be associated with response surface methodology
- 1.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand data and statistical validity in response surface methodology**

The learner can:

- 2.1 summarise the data necessary to carry out a response surface methodology project
- 2.2 explain what constitutes a statistically valid sample size
- 2.3 explain the meaning of the terms population and a sample in response surface methodology activity.

### **Outcome 3 Understand response surface methodology terms and cost benefits**

The learner can:

- 3.1 explain what is meant by a method of steepest ascent
- 3.2 explain what is meant by the terms, coded variables and un-coded variables
- 3.3 describe what is meant by Alpha risk and Beta risk
- 3.4 explain how to calculate: Mean, Median, Mode, Standard Deviation, Range and Variance
- 3.5 summarise how to determine the cost benefits associated with response surface methodology.

## Unit 314

# Principles of Value Stream Mapping (VSM) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** L/601/2973

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of value stream mapping (VSM) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the processing activity and requirements for VSM
2. Understand VSM evaluation, targets and communication
3. Understand the techniques and procedures supporting VSM

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.262K Principles of value stream mapping (VSM) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of value stream mapping (VSM) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 314 Principles of Value Stream Mapping (VSM) in food operations**

## Assessment criteria

### **Outcome 1 Understand the processing activity and requirements for VSM**

The learner can:

- 1.1 explain the process used to select parts or materials for a value stream mapping activity
- 1.2 explain the characteristics of the food and the processing activity that can support the VSM activity
- 1.3 summarise the process used to set VSM objectives
- 1.4 clarify the resources and requirements of a VSM activity
- 1.5 explain the principles and processes essential to value stream mapping
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand VSM evaluation, targets and communication**

The learner can:

- 2.1 summarise the improvements that can be achieved using value stream mapping
- 2.2 explain how improvement opportunities can be evaluated
- 2.3 explain how to set quantifiable objectives and targets for the future state maps
- 2.4 summarise the techniques used to visually communicate information and results.

### **Outcome 3 Understand the techniques and procedures supporting VSM**

The learner can:

- 3.1 explain how root cause analysis can support problem solving
- 3.2 explain what system lead time and actual lead time are
- 3.3 explain Takt time and its application in support of VSM
- 3.4 summarise what constitutes value adding and non-value adding activities
- 3.5 clarify the purpose of standard operating procedures and specifications.



## Unit 315

# Principles of visual management systems in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** R/601/2974

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of visual management systems in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the processing activity and requirements for visual management systems
2. Understand the creation of the visual factory, and the business performance measures for visual management systems
3. Understand measurement techniques and the importance of monitoring arrangements for visual management systems

### Guided learning hours

It is recommended that **19** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.265K Principles of visual management systems in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of visual management systems in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 315 Principles of visual management systems in food operations**

## Assessment criteria

### **Outcome 1 Understand the processing activity and requirements for visual management systems**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence visual management systems
- 1.2 justify the criteria used to select an area/processing activity
- 1.3 explain the importance of understanding the food process/activity for which the visual management systems are being developed
- 1.4 explain the quality factors of the food/drink being processed and how these influence the selection of the visual management systems
- 1.5 summarise the factors to be considered when selecting a visual management system
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the creation of the visual factory, and the business performance measures for visual management systems**

The learner can:

- 2.1 summarise the information required to develop local visual management systems
- 2.2 explain how visual management systems are used to create 'the visual factory' including:
  - Kanban systems
  - card systems
  - colour coding
  - floor footprints
  - graphs
  - team boards
- 2.3 clarify how business performance measures are differentiated from local performance measures
- 2.4 explain the measures of performance in a lean business operation including:
  - health, safety and the environment
  - right first time
  - cost
  - responsiveness
  - process concerns and corrective actions
  - workplace organisation.

### **Outcome 3 Understand measurement techniques and the importance of monitoring arrangements for visual management systems**

The learner can:

- 3.1 explain the application of the measurement techniques required for communicating the visual management system including;
  - target versus actual
  - percentage right first time
  - Pareto analysis
  - bar charting
  - action plans
  - Paynter charts
- 3.2 summarise why it is important to monitor and maintain the effectiveness of visual management systems.

## Unit 316

# Principles of analysing and selecting areas for achieving excellence in food operations

**Level:** 3  
**Credit value:** 2  
**UAN:** Y/601/2975

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of analysing and selecting areas for achieving excellence in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Understand selection information and the analysis of graphical data
2. Understand the key features of the analysis

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.268K Principles of analysing and selecting areas for achieving excellence in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of analysing and selecting areas for achieving excellence in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 316 Principles of analysing and selecting areas for achieving excellence in food operations**

## Assessment criteria

### **Outcome 1 Understand selection information and the analysis of graphical data**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence the process of analysis
- 1.2 summarise the information required to conduct the activity
- 1.3 explain graphs and histograms are created
- 1.4 explain how graphical data is presented including:
  - pie charts
  - bar charts
- 1.5 explain how graphical data is analysed
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the key features of the analysis**

The learner can:

- 2.1 summarise the techniques used to communicate information and results
- 2.2 explain the difference between lead time and cycle time
- 2.3 explain how a bill of materials (BOM) structure is configured for each of the representative areas
- 2.4 clarify the origin/source of the resources within a chosen area
- 2.5 summarise the principles of evaluation linked to the selection of representative resources for a chosen area
- 2.6 explain how root cause analysis can support problem solving.

## Unit 317

# Principles of Failure Modes and Effects Analysis (FMEA) in food operations

**Level:** 3  
**Credit value:** 2  
**UAN:** D/601/2976

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Failure Modes and Effects Analysis (FMEA) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **two** learning outcomes to this unit. The learner will:

1. Understand the features and benefits the FMEA system
2. Understand FMEA terminology and use

### Guided learning hours

It is recommended that **12** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.271K Principles of Failure Modes and Effects Analysis (FMEA) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Failure Modes and Effects Analysis (FMEA) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements

# **Unit 317 Principles of Failure Modes and Effects Analysis (FMEA) in food operations**

Assessment criteria

## **Outcome 1 Understand the features and benefits the FMEA system**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence a failure modes and effects analysis
- 1.2 summarise the main features and benefits of carrying out a failure modes and effects analysis
- 1.3 explain the roles and responsibilities of the team needed to construct and update a failure modes and effects analysis
- 1.4 explain how System FMEA, Concept FMEA, Design FMEA and Process FMEA are used
- 1.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

## **Outcome 2 Understand FMEA terminology and use**

The learner can:

- 2.1 explain the significance of failure mode, failure effect and failure cause to food/drink processing
- 2.2 explain the rating scale used in failure modes and effects analysis projects, including the:
  - severity rating scale
  - occurrence rating scale
  - detection rating scale
- 2.3 explain how risk priority numbers (RPN) are calculation and how they are applied
- 2.4 explain the purpose of risk reduction and the approaches available
- 2.5 explain when to start a failure modes and effects analysis
- 2.6 explain what failure modes and effects analysis up-dating are.

## Unit 318

# Principles of Six Sigma process mapping in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** H/601/2977

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Six Sigma process mapping in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the use and benefits six sigma process mapping
2. Understand variables in six sigma process mapping
3. Understand role and responsibilities and value added activity in six sigma process mapping

### Guided learning hours

It is recommended that **18** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.276K Principles of Six Sigma process mapping in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Six Sigma process mapping in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.



# **Unit 318 Principles of Six Sigma process mapping in food operations**

## Assessment criteria

### **Outcome 1 Understand the use and benefits six sigma process mapping**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence six sigma process mapping
- 1.2 summarise how the application of six sigma process mapping meets your organisation's objectives set out in your achieving excellence strategy
- 1.3 explain the benefits of carrying out Six Sigma process mapping
- 1.4 summarise what a Six Sigma process map is and how it is constructed
- 1.5 how the Six Sigma process map integrates within a Six Sigma project
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand variables in six sigma process mapping**

The learner can:

- 2.1 explain what is meant by key process input variables (KPIVs) and key process output variables (KPOVs)
- 2.2 summarise the data collection points for the key process input variables and key process output variables
- 2.3 explain what the main types of key process input variables and key process output variables are in terms of being controllable, critical, noise, or standard operating procedures.

### **Outcome 3 Understand role and responsibilities and value added activity in six sigma process mapping**

The learner can:

- 3.1 justify the workplace role and responsibilities of a person best suited to create the six sigma process map
- 3.2 summarise the roles and responsibilities of suitable individuals within a food/drink process mapping team
- 3.3 explain the difference between a value added activity and non-value added activity.

## Unit 319

# Principles of Six Sigma methodology in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** K/601/2978

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Six Sigma methodology in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the use and benefits of six sigma process methodology
2. Understand six sigma methodology
3. Understand roles and responsibilities in six sigma methodology

### Guided learning hours

It is recommended that **17** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.277K Principles of Six Sigma methodology in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Six Sigma methodology in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 319 Principles of Six Sigma methodology in food operations**

## Assessment criteria

### **Outcome 1 Understand the use and benefits of six sigma process methodology**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence six sigma process methodology
- 1.2 explain the application of six sigma methodology in meeting the business objectives set out in your achieving excellence strategy
- 1.3 summarise the six sigma infrastructure and philosophy
- 1.4 explain the benefits that will arise from a six sigma project.

### **Outcome 2 Understand six sigma methodology**

The learner can:

- 2.1 explain the 'parts per million opportunities' goal of six sigma
- 2.2 explain how to calculate defects per million opportunities (DPMO)
- 2.3 summarise the five phases of six sigma that are applied to a project
- 2.4 explain the critical to quality characteristic (CTQC)
- 2.5 clarify how non-value added activity can serve as a roadblock for achieving Zero Defect
- 2.6 explain what an 'opportunity for defect' is
- 2.7 evaluate the relationship between key process input variables (KPIV) and key process output variables (KPOV), using the equation  $Y=f(x)$ .

### **Outcome 3 Understand roles and responsibilities in six sigma methodology**

The learner can:

- 3.1 summarise the roles and responsibilities of the key players in the six sigma process including:
  - Champion
  - Mentor
  - Master Black Belt
  - Black Belt
  - Green Belt
  - Yellow Belt
- 3.2 explain the extent of your own workplace authority, and to whom you should report in the event of problems that you cannot resolve.

## Unit 320

# Principles of Six Sigma metrics in food operations

**Level:** 3  
**Credit value:** 4  
**UAN:** K/601/2978

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of Six Sigma metrics in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding. .

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the use and benefits of six sigma metrics
2. Understand the utilisation of six sigma metrics
3. Understand data in six sigma metrics

### Guided learning hours

It is recommended that **22** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.278K Principles of Six Sigma metrics in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of Six Sigma metrics in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 320 Principles of Six Sigma metrics in food operations**

## Assessment criteria

### **Outcome 1 Understand the use and benefits of six sigma metrics**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence six sigma process metrics
- 1.2 summarise the main features and benefits of carrying out a six sigma metrics activity
- 1.3 explain the importance of using metrics to drive a six sigma project
- 1.4 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the utilisation of six sigma metrics**

The learner can:

- 2.1 explain how to calculate defects per million opportunities, defects per unit and rolled throughput yield
- 2.2 explain the utilisation of Z tables in the calculation of the sigma score
- 2.3 clarify the time period necessary to calculate a meaningful baseline
- 2.4 explain how to set realistic objectives and targets for the six sigma metrics activity
- 2.5 summarise how data is gathered for inclusion in a metric chart
- 2.6 explain how a six sigma metric chart is constructed
- 2.7 explain the relationship between 'parts per million', 'defects per million opportunities', Yrt and the sigma score.

### **Outcome 3 Understand data in six sigma metrics**

The learner can:

- 3.1 distinguish between variable and attribute data
- 3.2 explain why it is advantageous to transform attribute data into variable data
- 3.3 explain how to transform attribute data into variable data
- 3.4 clarify the significance of the 1.5S shift, and how it can be utilised to infer long-term metric values.

## Unit 321

# Principles of a set-up reduction programme in food operations

**Level:** 3  
**Credit value:** 4  
**UAN:** H/601/2980

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of a set-up reduction programme in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the implementation and resources for a set-up reduction programme
2. Understand the requirements and evaluation of a set-up reduction programme
3. Understand the communication and utilisation of a set-up reduction programme

### Guided learning hours

It is recommended that **22** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.283K Principles of a set-up reduction programme in a food environment

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of a set-up reduction programme in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

## **Unit 321 Principles of a set-up reduction programme in food operations**

### Assessment criteria

#### **Outcome 1 Understand the implementation and resources for a set-up reduction programme**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence a set-up reduction
- 1.2 explain the criteria used to select an area/processing activity for a set-up reduction activity
- 1.3 summarise the importance of understanding the food/drink process or activity under review
- 1.4 explain the qualities of the food/drink being processed and how these influence improvement opportunities
- 1.5 justify the people and resources needed to support the set-up reduction activity
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

#### **Outcome 2 Understand the requirements and evaluation of a set-up reduction programme**

The learner can:

- 2.1 explain the application of the Deming cycle (plan, do, check, act)
- 2.2 explain the structure and operational requirements of a set-up reduction activity
- 2.3 summarise the improvements to the set-up that can be achieved
- 2.4 explain how to evaluate improvement opportunities
- 2.5 describe how to set quantifiable objectives and targets for the improved set-up.

#### **Outcome 3 Understand the communication and utilisation of a set-up reduction programme**

The learner can:

- 3.1 explain the purpose of standard operating procedures (SOPs) and specifications and how useful they are to a set-up reduction activity
- 3.2 explain the techniques used to visually communicate improvement opportunities
- 3.3 clarify how root cause analysis can support problem solving
- 3.4 explain the difference between motion and work
- 3.5 explain the difference between value adding and non-value adding activities.

## Unit 322

# Principles of mistake/error proofing (Poka Yoke) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** K/601/2981

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of mistake/error proofing (Poka Yoke) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the benefits and requirements for mistake/error proofing activity
2. Understand the application of mistake/error proofing activity
3. Understand the utilisation of mistake/error proofing activity

### Guided learning hours

It is recommended that **20** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.286K Principles of mistake/error proofing (Poka Yoke) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of mistake/error proofing (Poka Yoke) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.



## **Unit 322 Principles of mistake/error proofing (Poka Yoke) in food operations**

### Assessment criteria

#### **Outcome 1 Understand the benefits and requirements for mistake/error proofing activity**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence a mistake/error proofing activity
- 1.2 summarise the main features and benefits of carrying out a mistake/error proofing activity
- 1.3 explain the difference between mistake/error proofing and prevention and detection
- 1.4 summarise the criteria used to select an area/processing activity for a mistake/error proofing activity
- 1.5 explain the importance of understanding the food/drink process or activity to which the mistake/error proofing activity is being applied
- 1.6 explain the qualities of the food being processed and how these influence the selection of the activity
- 1.7 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

#### **Outcome 2 Understand the application of mistake/error proofing activity**

The learner can:

- 2.1 explain how mistake/error proofing can lead to zero defects
- 2.2 clarify the relationship between errors and defects
- 2.3 summarise the different types and range of mistakes
- 2.4 explain how defects originate in products or processes
- 2.5 explain how the role of source inspection contributes to the reduction of defects
- 2.6 explain how mistake/error proofing (Poka yoke) tools are applied
- 2.7 justify the information contained in mistake/error proofing documentation
- 2.8 explain the analysis and charting methodology used for mistake/error proofing.

#### **Outcome 3 Understand the utilisation of mistake/error proofing activity**

The learner can:

- 3.1 explain the financial implications of mistake/error proofing projects
- 3.2 explain the relationship between mistake/error proofing and other continuous improvement processes
- 3.3 clarify how trials are used to measure the effectiveness of mistake/error proofing projects
- 3.4 explain the different types and range of mistake proofing devices used
- 3.5 summarise the roles and responsibilities of individuals within a mistake/error proofing team.

## Unit 323

# Principles of a characteristic selection matrix in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** M/601/2983

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of a characteristic selection matrix in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the requirements for a characteristic selection matrix
2. Understand the application of a characteristic selection matrix
3. Understand the utilisation of a characteristic selection matrix

### Guided learning hours

It is recommended that **19** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.297K Principles of a characteristic selection matrix in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of a characteristic selection matrix in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

## **Unit 323 Principles of a characteristic selection matrix in food operations**

### Assessment criteria

#### **Outcome 1 Understand the requirements for a characteristic selection matrix**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence a characteristic selection matrix
- 1.2 explain what a characteristic selection matrix is and why we need to produce them
- 1.3 identify who is best placed within the workplace to create a characteristic selection matrix
- 1.4 summarise the five step process used to generate a characteristic selection matrix
- 1.5 explain the meaning of the term 'customer' when producing a characteristic selection matrix
- 1.6 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

#### **Outcome 2 Understand the application of a characteristic selection matrix**

The learner can:

- 2.1 explain the key process output and input variables
- 2.2 clarify where the characteristic selection matrix appears in the quality function deployment matrix
- 2.3 distinguish between a characteristic selection matrix and a failure modes and effects analysis
- 2.4 explain the inter-relationship between six sigma process mapping and a characteristic selection matrix.

#### **Outcome 3 Understand the utilisation of a characteristic selection matrix**

The learner can:

- 3.1 explain the scoring of a characteristic selection matrix
- 3.2 explain how a process map links into a characteristic selection matrix
- 3.3 summarise how the results from a characteristic selection matrix can be utilised
- 3.4 explain how to prioritise a six sigma project team's focus.

## Unit 324

# Principles of capability studies in food operations

**Level:** 3  
**Credit value:** 4  
**UAN:** A/601/2984

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of capability studies in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the requirements and need for capability studies
2. Understand the application of capability studies
3. Understand the utilisation of capability studies

### Guided learning hours

It is recommended that **22** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.298K Principles of capability studies in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of capability studies in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 324 Principles of capability studies in food operations**

## Assessment criteria

### **Outcome 1 Understand the requirements and need for capability studies**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence capability studies
- 1.2 explain why we need to assess process capability, and how this affects a six sigma project
- 1.3 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the application of capability studies**

The learner can:

- 2.1 explain the meaning of the term sigma score ( $Z$ )
- 2.2 explain how the sigma score ( $Z$ ) is calculated and used to estimate the percentage outside of specification
- 2.3 clarify what  $C_p$  and  $C_{pk}$  are, and explain how are they calculated
- 2.4 how long-term capability is calculated from short term data
- 2.5 clarify the number of samples needed for a statistically valid short-term capability study.

### **Outcome 3 Understand the utilisation of capability studies**

The learner can:

- 3.1 explain the meaning of the terms a population and a sample
- 3.2 explain how to select an appropriate sample size
- 3.3 summarise how parts per million are calculated
- 3.4 explain how to calculate mean, median, mode, standard deviation, range, and variance
- 3.5 clarify how to perform rational sub-grouping.

## Unit 325

# Principles of multi-variance charts in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** F/601/2985

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of multi-variance charts in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the requirements and benefits of multi-variance charting
2. Understand the application of multi-variance charting
3. Understand the utilisation of multi-variance charting

### Guided learning hours

It is recommended that **17** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.299K Principles of multi-variance charts in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of multi-variance charts in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 325 Principles of multi-variance charts in food operations**

## Assessment criteria

### **Outcome 1 Understand the requirements and benefits of multi-variance charting**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence multi-variance charting
- 1.2 justify why we need to carry out multi-variance charting and the potential benefits to be gained
- 1.3 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the application of multi-variance charting**

The learner can:

- 2.1 explain how to construct a data demographics form
- 2.2 explain how to construct a multi-variance chart
- 2.3 explain how the chart is used to assess within-piece variation, piece-to-piece variation and time-to-time variation
- 2.4 summarise the amount of data required to draw statistically valid conclusions from the chart.

### **Outcome 3 Understand the utilisation of multi-variance charting**

The learner can:

- 3.1 explain the use of tools in the development of further conclusions including;
  - bar charts
  - box plots
  - histograms
  - stem and leaf diagrams
  - Pareto diagrams
  - time series charts
- 3.2 summarise the benefits of multi-variance analysis with respect to design of experiments (DOE).

## Unit 326

# Principles of hypothesis testing in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** J/601/2986

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of hypothesis testing in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the function and benefits of hypothesis testing
2. Understand samples and tests in hypothesis testing
3. Understand terminology in hypothesis testing

### Guided learning hours

It is recommended that **22** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.300K Principles of hypothesis testing in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of hypothesis testing in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.



# Unit 326 Principles of hypothesis testing in food operations

## Assessment criteria

### Outcome 1 Understand the function and benefits of hypothesis testing

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence hypothesis testing
- 1.2 summarise what hypothesis testing is
- 1.3 explain why hypothesis testing is used in food operations
- 1.4 explain how hypothesis testing can benefit a six sigma improvement project
- 1.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### Outcome 2 Understand samples and tests in hypothesis testing

The learner can:

- 2.1 explain why it is important to identify a suitable sample size
- 2.2 identify suitable sample sizes and explain how they are calculated
- 2.3 explain how hypothesis testing is conducted
- 2.4 summarise how to determine the correct statistic from tests including:
  - F-test
  - Chi-Square test
  - normality tests
  - Ttest
  - Levene's test
  - Bartlett's test
  - contingency tables
  - one way ANOVA.

### Outcome 3 Understand terminology in hypothesis testing

The learner can:

- 3.1 explain the meaning of the terms Alpha risk, Beta risk and Delta/Sigma ratio
- 3.2 distinguish between practical difference and statistical difference
- 3.3 explain how to calculate mean, median, mode, standard deviation, range and variance
- 3.4 distinguish between the terms population and sample
- 3.5 explain the terms null hypothesis and alternate hypothesis.

## Unit 327

# Principles of Evolutionary Operations (EVOP) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** L/601/2987

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of evolutionary operations (EVOP) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the benefits and use of EVOP
2. Understand the application of EVOP
3. Understand the utilisation of EVOP

### Guided learning hours

It is recommended that **22** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.301K Principles of evolutionary operations (EVOP) in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of evolutionary operations (EVOP) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 327 Principles of Evolutionary Operations (EVOP) in food operations**

## Assessment criteria

### **Outcome 1 Understand the benefits and use of EVOP**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence evolutionary operations
- 1.2 summarise the advantages and disadvantages of using EVOP
- 1.3 explain why EVOP is used as an improvement activity
- 1.4 explain how EVOP can be used to support improvements in food operations
- 1.5 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the application of EVOP**

The learner can:

- 2.1 explain what is meant by a cycle and a phase
- 2.2 summarise the data gathered during an EVOP activity
- 2.3 explain how EVOP is used in six sigma improvement projects
- 2.4 clarify how, why and when an EVOP should be re-run
- 2.5 explain what statistics should be calculated in applying EVOP
- 2.6 explain how to calculate measurements of central tendency and variation
- 2.7 clarify how sample size selection ensures the statistical validity of an experiment
- 2.8 explain the significance of delta/sigma ratio, alpha and beta risk to experiments.

### **Outcome 3 Understand the utilisation of EVOP**

The learner can:

- 3.1 explain how EVOP boards are created and used
- 3.2 explain how to complete cost/benefit analysis within EVOP
- 3.3 summarise how full factorial, 2k factorial and fractional factorial experiments are used
- 3.4 clarify how graphs are used to determine main effects and interactions
- 3.5 explain why it is important to identify suitable optimal conditions
- 3.6 clarify the use of action plans in helping to ensure optimum conditions are implemented.

## Unit 328

# Principles of central limit theorem and confidence intervals in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** Y/601/2989

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of central limit theorem and confidence intervals in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **three** learning outcomes to this unit. The learner will:

1. Understand the function of central limit theorem and confidence intervals
2. Understand the application of central limit theorem and confidence intervals
3. Understand the utilisation of central limit theorem and confidence intervals

### Guided learning hours

It is recommended that **20** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit QI.302K Principles of central limit theorem and confidence intervals in a food environment.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of central limit theorem and confidence intervals in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

## Unit 328

# Principles of central limit theorem and confidence intervals in food operations

## Assessment criteria

### **Outcome 1 Understand the function of central limit theorem and confidence intervals**

The learner can:

- 1.1 explain how the health, safety and hygiene requirements of a work area can influence central limit theorem and confidence intervals
- 1.2 explain what the central limit theorem is and how it can support improvement within food operations
- 1.3 describe why it is important to be clear about the levels of authority of personnel linked to problem resolution.

### **Outcome 2 Understand the application of central limit theorem and confidence intervals**

The learner can:

- 2.1 explain what is meant by the standard error of the mean
- 2.2 clarify how the central limit theorem can be used to reduce measurement error
- 2.3 explain the number of observations that must be made in order to estimate a population mean when the data is not normally distributed
- 2.4 explain how the standard error of the mean is calculated
- 2.5 distinguish between the standard error of the mean and sample size
- 2.6 explain how central limit theorem is used to reduce measurement system error.

### **Outcome 3 Understand the utilisation of central limit theorem and confidence intervals**

The learner can:

- 3.1 explain how to calculate mean, median, mode, standard deviation, range, variance, Cp and Cpk
- 3.2 explain how confidence intervals are calculated from the standard confidence interval equations
- 3.3 summarise the 'mean of means' principle.

## Unit 329

# Principles of Single Minute Exchange of Dies (SMED) in food operations

**Level:** 3  
**Credit value:** 3  
**UAN:** L/601/2990

### Unit aim

This unit supports workforce and/or vocational development for those who need to understand the principles of single minute exchange of dies (SMED) in food operations or in a learning environment. The unit is designed for use primarily by managers, technicians and others who carry out these workplace activities. It is also designed for those who plan to enter the food and drink industry or employees who wish to expand on their existing knowledge and understanding.

### Learning outcomes

There are **four** learning outcomes to this unit. The learner will:

1. Understand the SMED approach, objective and its contribution to Total Productive Maintenance
2. Understand a changeover operation and techniques considered for SMED analysis
3. Understand how to analyse and improve changeovers using SMED
4. Understand the potential benefits and added value of SMED

### Guided learning hours

It is recommended that **22** hours should be allocated for this unit, although patterns of delivery are likely to vary.

### Details of the relationship between the unit and relevant national standards

This unit of assessment relates directly to Improve Sector Performance Standard (approved as National Occupational Standard) knowledge unit PO.114K Understand how to control product changeovers in food manufacture.

### Support of the unit by a sector or other appropriate body

This unit is endorsed by Improve.

### Assessment

This unit is designed to assess the understanding of learners in the workplace context, for understanding the principles of single minute exchange of dies (SMED) in food operations. It can be assessed on or off the job. The learner must demonstrate their current knowledge and understanding, to meet all assessment criteria. Assessment methods appropriate to the needs of the learner must be used to generate satisfactory evidence of knowledge and understanding. The Improve Assessment Strategy sets out the overarching assessment requirements.

# **Unit 329 Principles of Single Minute Exchange of Dies (SMED) in food operations**

## Assessment criteria

### **Outcome 1 Understand the SMED approach, objective and its contribution to Total Productive Maintenance**

The learner can:

- 1.1 state the name of the person who developed SMED approach and method
- 1.2 define what the SMED approach aims to achieve in product changeovers
- 1.3 summarise the SMED objective
- 1.4 explain the integral relationship of SMED with Total Productive Maintenance (TPM) as one of the six major losses
- 1.5 outline the 4 analysis phases of SMED.

### **Outcome 2 Understand a changeover operation and techniques considered for SMED analysis**

The learner can:

- 2.1 explain how the health, safety and hygiene requirements of a work area can influence the process of SMED
- 2.2 describe a changeover operation that is considered for SMED analysis
- 2.3 summarise the eight techniques that should be considered in implementing SMED
- 2.4 distinguish between external set up and internal set up operations
- 2.5 explain why it is preferable to convert internal set up to external set up operations where possible
- 2.6 state the four conceptual stages which SMED improvement should pass through.

### **Outcome 3 Understand how to analyse and improve changeovers using SMED**

The learner can:

- 3.1 summarise the seven basic steps to reducing changeover using the SMED system
- 3.2 summarise the key elements within a changeover operation which would be essential to observe in a SMED analysis
- 3.3 explain why it is important to record all necessary data during a SMED analysis
- 3.4 explain why it is necessary to take into account parallel operations in carrying out SMED improvements
- 3.5 explain what the economic batch quantity ratio is and how this impacts on SMED activity and changeover efficiencies
- 3.6 describe why it is important to be clear about the levels of authority of personnel linked to SMED improvements.

### **Outcome 4 Understand the potential benefits and added value of SMED**

The learner can:

- 4.1 explain what the potential benefits are of using the SMED approach to changeover improvements
- 4.2 clarify what value added to normal line running operations can be gained from SMED activities.

## Appendix 1 Sources of general information

The following documents contain essential information for centres delivering City & Guilds qualifications. They should be referred to in conjunction with this handbook. To download the documents and to find other useful documents, go to the **Centres and Training Providers homepage** on [www.cityandguilds.com](http://www.cityandguilds.com).

**Centre Manual - Supporting Customer Excellence** contains detailed information about the processes which must be followed and requirements which must be met for a centre to achieve 'approved centre' status, or to offer a particular qualification, as well as updates and good practice exemplars for City & Guilds assessment and policy issues. Specifically, the document includes sections on:

- The centre and qualification approval process
- Assessment, internal quality assurance and examination roles at the centre
- Registration and certification of candidates
- Non-compliance
- Complaints and appeals
- Equal opportunities
- Data protection
- Management systems
- Maintaining records
- Assessment
- Internal quality assurance
- External quality assurance.

**Our Quality Assurance Requirements** encompasses all of the relevant requirements of key regulatory documents such as:

- Regulatory Arrangements for the Qualifications and Credit Framework (2008)
- SQA Awarding Body Criteria (2007)
- NVQ Code of Practice (2006)

and sets out the criteria that centres should adhere to pre and post centre and qualification approval.

**Access to Assessment & Qualifications** provides full details of the arrangements that may be made to facilitate access to assessments and qualifications for candidates who are eligible for adjustments in assessment.

The **centre homepage** section of the City & Guilds website also contains useful information such on such things as:

- **Walled Garden:** how to register and certificate candidates on line
- **Qualifications and Credit Framework (QCF):** general guidance about the QCF and how qualifications will change, as well as information on the IT systems needed and FAQs
- **Events:** dates and information on the latest Centre events
- **Online assessment:** how to register for e-assessments.



## Useful contacts

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### UK learners

General qualification information

T: +44 (0)844 543 0033

E: [learnersupport@cityandguilds.com](mailto:learnersupport@cityandguilds.com)

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### International learners

General qualification information

T: +44 (0)844 543 0033

F: +44 (0)20 7294 2413

E: [intcg@cityandguilds.com](mailto:intcg@cityandguilds.com)

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### Centres

Exam entries, Certificates, Registrations/enrolment, Invoices, Missing or late exam materials, Nominal roll reports, Results

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: [centresupport@cityandguilds.com](mailto:centresupport@cityandguilds.com)

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### Single subject qualifications

Exam entries, Results, Certification, Missing or late exam materials, Incorrect exam papers, Forms request (BB, results entry), Exam date and time change

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

F: +44 (0)20 7294 2404 (BB forms)

E: [singlesubjects@cityandguilds.com](mailto:singlesubjects@cityandguilds.com)

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### International awards

Results, Entries, Enrolments, Invoices, Missing or late exam materials, Nominal roll reports

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: [intops@cityandguilds.com](mailto:intops@cityandguilds.com)

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### Walled Garden

Re-issue of password or username, Technical problems, Entries, Results, e-assessment, Navigation, User/menu option, Problems

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

E: [walledgarden@cityandguilds.com](mailto:walledgarden@cityandguilds.com)

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### Employer

Employer solutions, Mapping, Accreditation, Development Skills, Consultancy

T: +44 (0)121 503 8993

E: [business@cityandguilds.com](mailto:business@cityandguilds.com)

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### Publications

Logbooks, Centre documents, Forms, Free literature

T: +44 (0)844 543 0000

F: +44 (0)20 7294 2413

If you have a complaint, or any suggestions for improvement about any of the services that we provide, email: [feedbackandcomplaints@cityandguilds.com](mailto:feedbackandcomplaints@cityandguilds.com)

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