

# **Food Technologist Apprenticeship Assessment Plan**

# Food Technologist Apprenticeship

## Summary of Apprenticeship

The Food Technologist apprenticeship is an integrated programme of knowledge and skills acquisition, developed alongside core behaviours expected of a competent technologist working in a range of commercial settings. The award of the apprenticeship certificate will signify recognition of competence in the role. Apprentices will typically spend 24-30 months working towards the apprenticeship standard, with the end-point assessment completed in the final twelve weeks. Performance in the end-point assessment will determine the apprenticeship grade of fail, pass, merit or distinction.

There are no pre-requisite entry requirements for this programme. Apprentices without English and maths at level 2 must achieve level 2 English and maths prior to taking their end-point assessment.

Prior to the end-point assessment, apprentices will undertake a structured period of on-programme training to develop the knowledge, skills and behaviours required of the standard. Achievement of a Level 3 Diploma in Food Technology, which includes grading at pass, merit or distinction, is a pre-requisite to taking the end-point assessment.

The structured period of on-programme training may include additional non-mandated qualifications required to develop the knowledge, skills and behaviours required of the standard depending on individual requirements.

End-point assessment will be conducted by an independent assessment organisations (IAO). IAOs must be on the Skills Funding Agency's (SFAs) Register of Apprentice Assessment Organisations (RoAAO) for this standard.

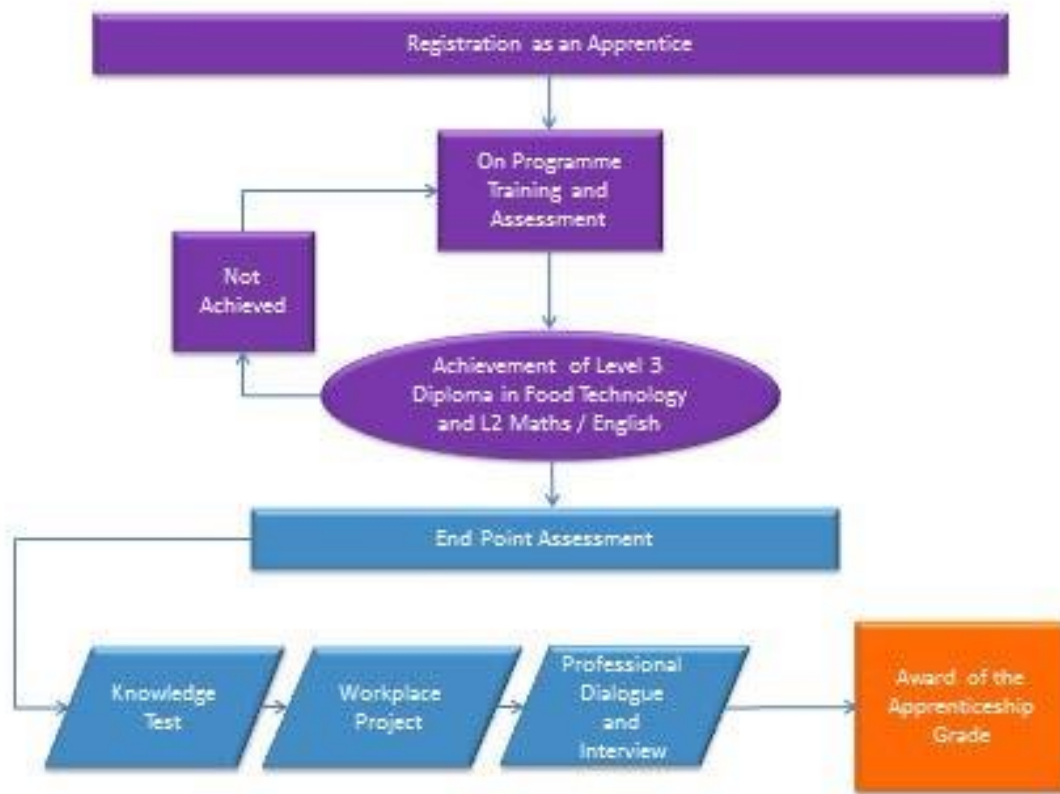
The end-point assessment will include three distinct components:

- A **written knowledge test** answered through a combination of multiple choice questions and short answer questions
- A work-based and job-related **workplace project and presentation**
- A **professional dialogue and interview**, which is undertaken after all other end-point assessment components have been successfully completed.

To achieve final certification, the apprentice must have completed and achieved a minimum of a pass in each end-point assessment component.

A pass in the end-point assessment will demonstrate that the apprentice can apply the knowledge, skills and behaviours required by the standard and will satisfy the requirements for the award of an apprenticeship certificate. Apprentices achieving a merit or distinction will be demonstrating performance above the requirements of the standard.

## Summary of Apprenticeship



## Grading and Weighting Overview

Assessment Method	Summary of Assessment	Assessed by	Grading	Weighting
Knowledge Test	<i>All knowledge will be assessed in the written knowledge test. The knowledge test will be drawn from all of the knowledge statements within the standard.</i>	Independent Assessment Organisation	Pass Merit Distinction	25%
Workplace Project and Presentation	<i>The workplace project is a substantial piece of work that will allow the apprentice to plan, implement and present an individual work-based project. The workplace project assesses the apprentice's ability to demonstrate their approach to data analysis and ability to present sound conclusions and recommendations. The apprentice will demonstrate a range of competencies appropriate to their own workplace setting.</i>	Independent Assessment Organisation	Pass Merit Distinction	55%
Professional Dialogue and Interview	<i>The professional dialogue and interview is a structured discussion between the apprentice and the independent assessor covering areas of the standard not assessed in the other end-point assessment components. A set of standardised competency based questions will be used.</i>	Independent Assessment Organisation	Pass Merit Distinction	20%

The apprentice must achieve a pass as a minimum in every individual end-point assessment component to achieve an overall pass and achieve the apprentice certificate.

## **Assessment Gateway**

Before the apprentice is judged ready to undertake the end-point assessment, they must have completed and achieved a pass as a minimum in the Level 3 Diploma in Food Technology and passed level 2 English and maths.

Judgement on whether the apprentice is ready for the end-point assessment should be by the employer who may wish to take advice from the learning provider.

## **End-Point Assessment**

### **End-Point Assessment Components**

#### ***Written Knowledge Test***

The knowledge test will be administered and marked by an assessor from the IAO. This written test should be taken as early as possible in the 12 week period of the end-point assessment. The knowledge test assesses the underpinning knowledge and understanding of the apprentice through multiple choice questions and short answer questions to industry scenarios when working as a Food Technologist. The questions will be presented in two sections, a core multiple choice question (MCQ) format (30 questions, 1 mark each) and a short answer section (5 questions, 6 marks each).

The assessment will be undertaken under controlled conditions within a 90 minute time limit (but not necessarily undertaken as an online or computer based test). Questions will draw from the stated knowledge elements of the standard.

All knowledge areas will be tested and MCQs drawn from all statements. Short answer questions must be drawn from the knowledge specified below:

- Fundamental understanding of Food Safety
- Basic principles of environmental legislation
- The basic principles of microbiology: common food pathogens and toxins, food hygiene
- Basic principles of food chemistry: composition of food, food nutrition
- How to carry out sensory analysis
- Use and purposes of food industry standards
- Internal and external audit processes used in food businesses

- How to interpret, analyse and manipulate data
- Principles of raw materials: specifications, supply, storage, handling and quality assurance
- The key principles of Continuous Improvement (CI) Management
- Management systems used in food businesses: Good Manufacturing Processes (GMP), Good Hygiene Practices (GHP), process flow and risk management
- Methods of pest control and pest prevention
- The functions and processes used in new and existing product development (NPD and EPD)
- The food supply chain from end to end, and relationships within it
- Appreciation of ethical issues in the food industry.

The knowledge test will result in a pass, merit or distinction grade and it will contribute 25% to the weighting of the final apprenticeship grade.

The grading threshold will be as set out in the table below:

Acceptable achievement – Pass	Good achievement - Merit	Outstanding achievement Distinction
>40 marks out of 60	>50 marks out of 60	>55 marks out of 60

Candidates achieving between 25 and 39 correct marks may resit the assessment on one further occasion within three months. It is expected that candidates achieving less than 25 correct marks will need to undertake a period of further learning and will not be allowed to retake the test until after completing a professional review of performance.

### ***Workplace Project and Presentation***

The workplace project is a substantial piece of work that will allow the apprentice to plan, implement and present an individual work-based project. The workplace project assesses the apprentice's ability to demonstrate their approach to data analysis, implementation of technical procedures and ability to present sound conclusions and recommendations.

The scope of the workplace project must cover, but need not be limited to:

1. Planning, Design and Organisation  
Planning and design of project programme of work including recognition of resource implications, risk assessment, Hazard Analysis Critical Control Points (HACCP) and other work-based customer and stakeholder requirements.
2. Project Implementation  
Competent implementation of project work, including recognition of safe working practices and recording of work and progress. Feedback of own reflection, and feedback from line manager or customer.

### 3. Results and Conclusions

Appropriate, timely and concise reporting of project work including data analysis and drawing conclusions via written and oral media.

Examples of the types of projects apprentices will typically undertake are outlined below:

#### Example 1:

- Use a range of assessment techniques and tools in relation to Quality and Food Safety
- Identify process improvements; cost reduction; existing product development
- Provide recommendations
- Present this back to technical manager
- Validating recommendations by conducting trial (examples include sensory analysis; changes to packaging; validating the process; verifying the process e.g. critical control points)
- Produce report

#### Example 2:

- Develop a product according to a brief
- Look at different ingredients and how they react
- Carry out appropriate sensory testing
- Cost the product
- Present findings and recommendations
- Carry out factory trial (machinery compatibility)
- Produce report

#### Example 3:

- Select a product or recipe
- Identify what the product or recipe is being tested for (e.g. factors affecting enzyme activity in food; effect of food processing on nutritional content; effect of food preparation on organoleptic qualities)
- Test the product or recipe (e.g. using different batches)
- Carry out shelf life testing
- Interpret the results of laboratory analysis
- Provide customer insight
- Produce report

**Example 4:**

- Review a process in line with a brief (e.g. equipment replacement, energy efficiency, introduction of new products)
- Assess the current capabilities
- Identify improvements
- Develop implementation plan
- Present findings and recommendations
- Produce report

The presentation on the workplace project will cover:

- Approach, methods, results, data analysis, drawing conclusions and recommendations
- Use of software packages and relevant tools to analyse and interpret data
- Liaison and support from others e.g. line manager, technical experts.

The independent assessor will have the opportunity to ask follow up questions following the presentation.

The apprentice must demonstrate the following knowledge, skills and behaviours while undertaking the workplace project and presentation:

**Knowledge**

- Food safety and health and safety
- How to collect, interpret and analyse data and complete documentation
- Understanding of a range of problem solving techniques, to include root cause analysis and investigation methods

**Skills**

- Use a range of IT systems to analyse and interpret data to identify trends and drive Continuous Improvement (CI)
- Implement, and maintain risk management systems
- Review and maintain technical procedures for food businesses
- Conduct sensory evaluation activities
- Provide and interpret management data and information (reports and presentations)
- Develop and maintain effective relationships with: customers, suppliers and colleagues
- Use problem solving techniques, to include root cause analysis and investigation methods
- Influence and negotiate with colleagues



**Behaviours**

- Safe working: ensures safety of self and others, food safe, challenges safety issues
- Ownership of work: accepts responsibility, is proactive, plans work
- Pride in work: integrity, aims for excellence, time management
- Problem solving: works to identify and ensure root causes of problems are resolved, demonstrating a tenacious approach
- Effective communication: in writing, visually and verbally
- Innovation: Demonstrates curiosity to foster new ways of thinking and working.

The scope of the workplace project must be agreed between the employer, apprentice and independent assessor. The apprentice will then plan, implement and produce a report as part of their normal work. Collaboration between employer and the learning provider is encouraged with mentoring support for the apprentice from both parties. A presentation based on the report will be presented to the independent assessor at the end of the 12 week end-point assessment period. The following requirements apply:

- The workplace project report must be no more than 3,000 words (excluding appendices)
- The report must be submitted to the independent assessor one week before the date of the presentation
- The presentation and Q&A will typically last 45 minutes and no more than one hour
- Presentations can take place in the workplace under controlled conditions or in assessment centres run by the IAOs. Wherever the presentation is undertaken it must take place in a room, free from distractions
- The outcomes will be documented using the IAO's standard documentation.

The workplace project and presentation will result in a pass, merit or distinction grade and it will contribute 55% to the weighting of the final apprenticeship grade.

The following table specifies the workplace project assessment criteria:

Project element	Acceptable achievement (1 point per statement)	Good Achievement (2 points per statement)	Outstanding Achievement (3 points per statement)
Project plan and approach	Project plan outlines realistic timescales and objectives and approach is clearly defined with consideration of resources and stakeholders	Project plan demonstrates approach and methodology has been well thought through/ carefully considered with realistic aims, objectives and timescales; demonstrates consideration of resources and risks	Project plan clearly defines approach and methodology, realistic and achievable aims objectives and timescales; and demonstrates careful consideration of all resources and possible stakeholders; full and accurate risk assessment is included
Technical procedures	Implements and reviews procedures in line with organisational procedures	Implements procedures effectively, in a logical and planned sequence, seeking ways to improve performance	Demonstrates effective improvement on current performance, suggesting, implementing and validating improvements to standards or ways of working
Risk management procedures	Accurately assesses risks and plans action to manage risk	Conducts thorough risk assessment and implements effective controls	Demonstrates a systematic approach to carrying out risk assessment, implementing effective risk management controls and communicating the results

Stakeholder liaison	Internal and external stakeholders identified and engaged	Demonstrated ability to communicate with internal and external stakeholders	Demonstrated ability to effectively influence all stakeholders, actively seek and listen to feedback
Data analysis	Structured data analysis using appropriate tools and techniques	Well-structured data analysis using appropriate statistical tools & techniques	Systematic data analysis using advanced statistical tools & techniques
Drawing conclusions & recommendations	Well-reasoned conclusions based on appropriate data analysis and basic recommendations made	Well-reasoned conclusions based on appropriate data analysis and logical recommendations for improvements made	Well-reasoned conclusions and sound/logical recommendations for future implementation linked to tangible business benefits
Presentation	Presentation is well laid out, neat and organised with clearly articulated objectives	Style and language used within the presentation is appropriate to the audience; laid out in a logical sequence with a clear start, middle and end	Uses an appropriate variety of techniques and tools within the visuals and narrative to maximise the impact of key points within the presentation
Delivery of presentation	Clear, articulate and accurate presentation of technical project elements and personal viewpoints within timescales allowed	Delivers presentation confidently; deals well with technical questioning; demonstrates effective listening skills	Dynamic and engaging presentation; adapts style to fully capture the attention of the audience using an appropriate selection and variation of presentation skills

Each element is scored one point for acceptable achievement, two points for good achievement and three points for exceptional achievement based on the assessment criteria given in the table above. For the workplace project and presentation to achieve a pass the apprentice must achieve a minimum score of eight points. Please see the table below for the scoring and grading rules which must be applied when allocating the grade for the workplace project and presentation:

Pass	Merit	Distinction
8-12 points	13-18 points	19-24 points

### ***Professional Dialogue and Interview***

The professional dialogue and interview is a structured discussion between the apprentice and the independent assessor. It is recommended that the independent assessor conducting the professional discussion is not the same person who assessed the workplace project. Apprentices can only undertake the interview component once a pass as a minimum has been achieved in each of the other two end-point assessment components.

The professional dialogue and interview will cover areas of the standard not assessed in the other end-point assessment components, that is:

#### **Skills**

- Carry out internal audits and participate in external audits
- Investigate and resolve problems, including customer complaints and quality issues
- Contribute to Continuous Improvement (CI)
- Act as a champion for the technical department within the wider business
- Carry out a product costing
- Support product trials

#### **Behaviours**

- Self-development: proposes objectives to support the business, seeks learning, drives the development of self and others
- Working in a team: builds good relationships with others, works collaboratively, contributes ideas and challenges appropriately
- Responsiveness to change: flexibility to changing working environment and demands
- Company/industry perspective: knowledge of company and food industry, acts as an ambassador.

The discussion must be appropriately structured to draw out the best of the apprentice's competence and excellence.

The professional dialogue and interview will be conducted in a 'controlled environment' i.e. a quiet room, away from the normal place of work. The interview will typically last 45 minutes and be no more than 60 minutes duration.

Independent assessors will select six questions from a bank of standardised competency based questions to ensure a consistent approach is adopted as well as ensuring all required areas of the standard are appropriately covered. The bank of competency based questions will focus on the knowledge, skills and behaviours that have not already been assessed in the other end-point assessment components, as shown above.

The professional dialogue and interview provides a basis for the independent assessor to make a holistic decision about the grade to be awarded for this component.

A structured brief and question bank will be developed by IAOs and independent assessors will be developed and trained in the art of professional discussions and reaching consistent judgement.

The professional dialogue and interview will result in a pass, merit or distinction grade and it will contribute 20% to the weighting of the final apprenticeship certificate.

All skills and behaviours assessed in the professional dialogue and interview must be satisfactorily achieved to pass this end-point assessment component. The grading criteria for the professional dialogue and interview are based on the assessment of behaviours:

Behaviour Statement	Acceptable achievement (Pass) – 1 point	Good achievement (Merit) – 2 points	Outstanding achievement (Distinction) – 3 points
Self-development:	Proposes objectives to support the business, seeks learning, drives the development of self and others	Takes ownership for learning and practising new skills/ techniques/tools; constantly seeks to improve own understanding and learn from others; shares knowledge and experiences with others	Proactively develops new skills; challenges and questions others to improve own understanding; encourages others to learn from experiences, supporting them when they make a mistake
Working in a team:	Builds good relationships with others, works collaboratively, contributes ideas and challenges appropriately	Builds excellent relationships with others, demonstrates knowledge and understanding of team goals	Contributes and willing to lead team based discussions/problem solving, puts team goals ahead of personal recognition

Responsiveness to change:	Demonstrates flexibility to changing working environment and demands	Demonstrates flexibility to get involved in different tasks; consistently reacts positively to changes and finds ways to support implementation	Looks to understand the reasons behind changes; constructively questions and challenges change; sets a positive example for others about change
Company/industry perspective:	Demonstrates knowledge of company and food industry, acts as an ambassador	Identified opportunities to improve own understanding of the company and wider food industry; sets an example to others	Proactively seeks to improve understanding of the company and wider food industry; actively seeks opportunities to promote the business

Each element is scored one point for acceptable achievement, two points for good achievement and three points for outstanding achievement based on the assessment criteria given in the table above. For the professional dialogue and interview, to achieve a pass the apprentice must achieve a minimum score of four points. Please see the table below for the scoring and grading rules which must be applied when allocating the grade for the professional dialogue and interview:

Pass	Merit	Distinction
4-6 points	7-10 points	11-12 points

### Apprenticeship Grading

The final decision on whether the apprentice has passed the end-point assessment lies solely with the independent assessor who will grade the apprenticeship according to the requirements set out in this plan. The assessor's decisions will be subject to moderation and verification by the IAO.

The apprenticeship grade will be based on the outcomes from the: knowledge test, workplace project and presentation and professional dialogue and interview.

Apprenticeship Grading
Knowledge test: awarded a pass mark and grade 25%
Workplace project and presentation: awarded a pass mark and grade 55%
Professional dialogue and interview: awarded a pass mark and a grade 20%

Each component of the end-point assessment is individually marked and awarded a pass, merit or distinction based on the guidance given in this assessment plan. To achieve a pass overall the candidate must achieve a minimum of a pass in each of the end-point assessment components: knowledge test, workplace project and presentation and professional dialogue and interview.

In order to achieve a grade above a pass candidates are required to achieve a minimum of merit or distinction in the practical observation and one of either the knowledge test and professional dialogue and interview (totalling 75% of the weighting). To achieve a distinction the individual must achieve more than a pass for all components. See summary in the table below.

Knowledge Test	Observation	Interview	Overall Grade
Pass	Pass	Pass	Pass
Pass	Pass	Merit	Pass
Pass	Pass	Distinction	Pass
Merit	Pass	Pass	Pass
Merit	Pass	Merit	Pass
Merit	Pass	Distinction	Pass
Distinction	Pass	Merit	Pass
Distinction	Pass	Distinction	Pass
Pass	Merit	Pass	Pass
Merit	Merit	Pass	Merit
Pass	Merit	Merit	Merit
Merit	Merit	Merit	Merit
Merit	Merit	Distinction	Merit
Distinction	Merit	Merit	Merit
Distinction	Merit	Distinction	Merit
Pass	Merit	Distinction	Merit
Distinction	Merit	Pass	Merit
Pass	Distinction	Pass	Pass
Merit	Distinction	Pass	Merit
Pass	Distinction	Merit	Merit
Merit	Distinction	Merit	Merit
Distinction	Distinction	Pass	Merit
Pass	Distinction	Distinction	Merit
Distinction	Distinction	Merit	Distinction
Merit	Distinction	Distinction	Distinction
Distinction	Distinction	Distinction	Distinction

If the apprentice does not achieve as a minimum a pass in any part of the end-point assessment and it has to be re-taken, the apprentice cannot be awarded a distinction. It is expected that a period of further learning will need to be undertaken if the apprentice has to re-take any part of the end-point assessment.

### **End-point Assessment – Summary of Roles and Responsibilities**

The employer, who may take advice from the qualification learning provider, will be responsible for signing off the apprentice as being ready to undertake end-point assessment.

End-point assessments will be conducted by an independent assessor working for an IAO on the SFA's RoAAO.

IAOs will be responsible for:

- Design of a question bank for the written knowledge test component
- Design of a workplace project in line with employer requirements and expectations
- Design of a bank of competency based questions for the professional dialogue and interview component.

The IAO will be required to employ suitably experienced assessment staff who are able to administer and assess in line with the requirements of the assessment plan.

The IAO will need to employ independent assessors who are capable of overseeing and undertaking these different elements of assessment:

- Review of any documentation from on-programme elements
- Administration and marking of the knowledge test
- Assessment of an apprentice's performance in the workplace project and presentation
- Leading and assessing the professional discussion and interview.

Independent assessors must be able to demonstrate they possess practical and up-to-date knowledge of current working practices appropriate to the sector in which they are carrying out assessment practice. They should hold or be working towards an assessor qualification. There are requirements to hold additional specialist training as required by the food and drink sector, which are detailed below:

Mandatory Requirements	Independent Assessors
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A minimum 5 years' relevant industry experience with a producer, food manufacturer or retailer	√
Qualified above the level they are assessing	√
Food Safety Level 4 qualification	√
HACCP Level 4 qualification	√
Current professional membership of a relevant professional body	√

## Internal Quality Assurance

Once assessment has been undertaken, the IAO will be responsible for:

- Moderation and verification of the knowledge test component
- Moderation and verification of assessor judgements of the workplace project component
- Moderation and verification of the assessor judgements of the professional dialogue and interview component
- Standardisation of assessment judgements
- Secure recording and storage of all assessment decisions
- Verification of achievement of apprenticeship certificate
- Administration of certification process

Moderation, verification and standardisation of the assessment judgements is part of the IAO's internal quality assurance system. The judgement of the independent assessor must be subject to moderation and verification by the IAO's quality assurance team.

The IAO will monitor the assessment process and verify the assessment judgements to ensure consistency across assessors and across employers. This must be performed on a risk basis, i.e. new or poorly performing assessors must have every element of every assessment quality assured, but established, high performing assessors can be quality assured on a sampling basis, with at least one assessment component being subject to either desk based or live internal quality assurance activity.

The IAO will run standardisation events for assessors at least every six months to ensure consistency in the practice of marking projects, knowledge tests and professional discussions.

An IAO will employ expert assessors, but must also have internal quality assurance mechanisms and staff to verify assessor decisions and to administer the awarding of the apprenticeship.

**External Quality Assurance**

External quality assurance for the food technologist apprenticeship will initially be undertaken by the Institute for Apprenticeships, whilst we are in conversation with Ofqual regarding them undertaking the role.

**Implementation**

The Food Technologist apprenticeship does not replace an existing apprenticeship framework. It is anticipated there will be 200 food technologist apprentices in the first year, and is expected to rise to 400 per year.

A Level 3 Diploma in Food Technology on-programme qualification, which includes pass, merit and distinction grading will be available for delivery from September 2016.

It is expected that the end-point assessment costs no more than 15% of the overall apprenticeship.