End-point assessment plan for Research Scientist apprenticeship standard

Apprenticeship standard reference number	Level of this apprenticeship standard
ST0759	7

Contents

Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Research Scientist apprenticeship standard. It is for end-point assessment organisations (EPAOs) who need to know how EPA for this apprenticeship must operate. It will also be of interest to Research Scientist apprentices, their employers and training providers.

Full time apprentices will typically spend 30 months on-programme (before the gateway) working towards the occupational standard, with a minimum of 20% off-the-job training. All apprentices must require and spend a minimum of 12 months on-programme.

The EPA period should only start, and the EPA be arranged, once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, all of the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPAO. Apprentices must have compiled a portfolio of evidence, which underpins the EPA professional discussion.

For level 3 apprenticeships and above apprentices without English and mathematics at level 2 must achieve level 2 prior to taking their EPA.

The EPA must be completed within an EPA period typically lasting three months, after the apprentice has met the EPA gateway requirements.

The EPA consists of two discrete assessment methods.

The individual assessment methods will have the following grades:

Assessment method 1: Project report, presentation and questioning

- distinction
- pass
- fail

Assessment method 2: Professional discussion underpinned by portfolio of evidence

- distinction
- pass
- fail

Performance in the EPA will determine the overall apprenticeship grades of:

- distinction
- pass
- fail

EPA summary table

On-programme (typically 30 months)	Training to develop the occupation standard's knowledge, skills and behaviours. Training towards English and mathematics Level 2, if required Compilation of portfolio of evidence
End-point assessment gateway	Employer is satisfied the apprentice is consistently working at, or above, the level of the occupational standard. English and mathematics Level 2, as a minimum Apprentices must have compiled a portfolio of evidence
End-point assessment (which will typically take 3 months)	**Assessment method 1:** Project report, presentation and questioning (based on work-based project), graded distinction, pass or fail **Assessment method 2:** Professional discussion underpinned by portfolio of evidence, graded distinction, pass or fail
Professional recognition	Aligns with recognition of Chartered Member by: • Royal Society of Biology • Royal Society of Chemistry • Institute of Physics

Length of end-point assessment period

The EPA (including all assessment methods) will typically be completed within three months of the first method of the end-point assessment commencing.

Order of assessment methods

The assessment methods can be delivered in any order. The result of one assessment method does not have to be known before an apprentice starts the next one.

EPA Gateway

The EPA period should only start once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, that is to say they are deemed to have achieved occupational competence. In making this decision, the employer may take advice from the apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the apprentice must have completed the following gateway requirements prior to beginning EPA:

- Achieved English and mathematics at level 2. For those with an education, health and care plan or a legacy statement the apprenticeships English and mathematics minimum requirement is Entry Level 3 and British Sign Language qualification are an alternative to English qualifications for whom this is their primary language.

- Portfolio of evidence

For the Professional Discussion, the apprentice will be required to submit:

- Professional competency, training and development portfolio of evidence. This should include :
    - research projects, training, development activities and performance reviews that the apprentice has undertaken during the apprenticeship period;
    - details of research projects undertaken which will include a high-level overview of the projects, key objectives and deliverables, dates and time periods for the projects and a detailed description of the activities of the apprentice in order to achieve the project deliverables;
    - details of the training undertaken which will include the title of the training course, dates and time period for the training, details of the training provider, a description of the training course content and the outcome (if applicable);

The portfolio should demonstrate how each work project and training activity helps to achieve the Knowledge, Skills and Behaviours (KSBs) set out in the occupational standard and include individual pieces of evidence to demonstrate competence against one or more KSBs.

Evidence sources may include evidence of work undertaken which may be supported by: client feedback, witness testimonies, employer/trainer feedback, training records, appraisal records, training course completion. This list is not definitive, other evidence sources are permissible however reflective accounts and self-evaluations are not allowed.

The portfolio of must contain at least one piece of evidence mapped clearly to each of the knowledge, skills and behaviours (KSBs) relating to this assessment method. Although each piece of evidence may map to more than one KSB, this will typically result in 15 pieces of evidence to cover all KSBs listed. The employer must sign off the portfolio of evidence, thereby authenticating it.

The portfolio of evidence itself is not assessed, it is used to inform the questioning for the professional discussion

Assessment methods

Assessment method 1: Project report, presentation and questioning (based on a pre-gateway work-based project)

The rationale for this assessment method is:

A Research Project takes years and not all projects experience a full life cycle, sometimes being abandoned for cost reasons or change of business strategy. A Research Scientist is one of a multi-disciplined team and therefore they do not control the timescale of the project. Therefore a project (or part project) cannot be designed or delayed to fit into the EPA timescale nor the specification of the EPAO as results can range from successful new recommendations on process, product or decommission. This cannot be predicted. The project report is designed to demonstrate the application of knowledge and skills as it would in the occupation. It collates the raw unsynthesised research findings and demonstrates analysis (statistical and scientific), synthesis, evaluation, literature review and produces recommendations for the business to consider. The report is a significant and complex project in itself and thoroughly tests both higher and lower order knowledge and skills.

Overview

Apprentices must produce a project report during the EPA period, which will be the basis of a presentation to the independent assessor, with follow up questioning immediately after the presentation.

As apprentices will be working on a wide variety of tasks and have varied responsibilities throughout the Research Project that they undertake, the employer will provide the title and scope for the Project Report to the apprentice prior to the EPA gateway. Following the gateway, the EPAO will confirm that the title and scope is appropriate, or will make an alternative suggestion, within 1 week of notification of the title.

The Project Report must be 4,000 to 4,400 words excluding tables, figures, references and annexes. The Project Report must be submitted to the EPAO three weeks after receiving notification of the project title from the EPAO. The assessor will have a further 2 weeks prior to the presentation and questioning components, to review the contents and prepare for the questioning component.

The scope and definition of the Project Report must include a summary of the stage covered by the project and an overview of the tasks as well as responsibilities undertaken by the apprentice.

The Project Report content must cover, but not be limited to, the following topics:

- Discussion of the tasks and responsibilities undertaken by the apprentice, and tasks must include monitoring, clinical trial management systems, and data collection/data management and reporting
- Discussion of risks and mitigations for the project and associated responsibilities
- Discussion of the research team structure and interactions during the project / tasks
- Records and data handling considerations
- Discussion of challenges and barriers observed and actions taken

- Lessons learned and best practices.

The Project Report must include (in addition to the 4,000 to 4,400 words) an annex containing a maximum of 10 pieces of evidence relating to the project. The evidence must be attributable to the apprentice, in part or in full. Evidence must be accompanied by a statement outlining the apprentice's contribution, signed by the apprentice and their employer. Example evidence could include meeting minutes, extracts from business strategy, key performance indicator dashboards, risk log and organisation charts.

The project report must be based on a real research project carried out in the employer's workplace as part of the apprentice's day to day activities. The employer must sign-off the project report, thereby authenticating it.

Typical project subjects could be:

- Process Improvement;
- Efficiency Improvement;
- Cost reduction;
- New Products; New Processes.

The presentation will be based on the project report and will cover the following:

- a summary of the project report;
- explanation of how and why specific techniques and criteria have been selected;
- improvements moving forward;
- recommendations;
- critical evaluation of the project.

The independent assessor will then draw out any further information using questions.

The presentation can be conducted either face-to-face or via online video conferencing. If using an online platform, EPAOs must ensure appropriate measures are in place to prevent misrepresentation and ensure the apprentice is not being aided in any way e.g. use of a 360 degree camera to allow the assessor to look around the round the room during the presentation.

The apprentice will have 2 weeks to complete and submit the presentation.

The assessor must holistically assess the project report, presentation and questioning against the KSBs as set out in Annex A, using the grading criteria.

Delivery

The presentation will last for 30 minutes and the questioning 30 minutes. The independent assessor has the discretion to increase the time of the presentation by up to 10% to allow the apprentice to complete their last point.

The independent assessor will ask a minimum of 12 questions at the end of the presentation.

The apprentice may deliver the presentation in a format of their choosing and the EPAO must ensure that they have access to the following:

· AV presentation equipment
· flip chart

· work products
· videos
· interactive demonstrations
· notes
· computer

The presentation will be conducted as follows:

The independent assessor will ask competency type questions based on the KSBs assigned to this method to ensure a consistent approach is adopted. The independent assessor may ask follow up questions to seek clarification where required. Assessment should take place against the knowledge and skills listed in the mapping section of this document. Independent assessors may use questions from the question bank and those generated themselves.

A structured specification and question bank must be developed by EPAOs. The question bank must be of sufficient size to prevent predictability and review it regularly (and at least once a year) to ensure that it, and its content, are fit for purpose. The specifications must be varied yet allow assessment of the relevant knowledge and skills.

Assessment Rules

The independent assessor must:
a. plan the assessment prior to it taking place;
b. ensure that the location for the assessment is appropriate;
c. ensure the presentation and questioning takes place in a room free from distractions with no other people present except those with prior approval from the EPAO;
d. ensure any special needs of the apprentice are taken into consideration in-line with the EPAO's Reasonable Adjustments Policy;
e. ensure that the apprentice understands the assessment process, the possible outcomes and how it is graded;
f. ensure that the apprentice is at ease;
g. ensure that the grading criteria and relevant documentation are to hand before commencing;
h. capture an audio record of the presentation and discussion;
i. document the outcomes using the EPAO's standard documentation;
j. collect all presentation materials from the apprentice;
k. ensure the apprentice is not informed of the outcome of the assessment at this stage;
l. confirm the specification has been fully covered and the rules have been followed;
m. make the final decision about the outcome of the assessment and recommend the grade;
n. send documentation to the EPAO within the agreed time.

The independent assessor will make all grading decisions.

Venue

EPAOs must ensure that the presentation and questioning elements are conducted in a suitable controlled environment in any of the following:

- employer's premises
- other suitable venue selected by the EPAO (e.g. a training provider)

The venue should be a quiet room, free from distraction and external influence. The EPAO is responsible for ensuring that the venue can facilitate the EPA.

Support material
EPAOs will produce the following material to support this assessment method:

Standard documentation for recording of assessment results.Assessment method 2: Professional discussion (underpinned by portfolio of evidence)

The rationale for this assessment method is:

A research scientist will be expected to be able to discuss their findings and results of research in a formal setting with confidence and be able to explain in detail their results. The professional discussion covers the KSBs that are not likely to naturally occur during the project and these KSBs are best evidenced in a professional discussion underpinned by a portfolio which allows the apprentice to demonstrate competence using real-life examples.Therefore, for this reason a professional discussion was decided as the most appropriate method for assessment as it will simulate the environments that they will be operating in.

Overview
This assessment will take the form of a professional discussion, which must be appropriately structured to draw out the best of the apprentice's competence and excellence and cover the KSBs assigned to this assessment method. It will focus on:

- the projects (other than that used for assessment method 1), training, development activities and performance reviews that the apprentice has undertaken during the apprenticeship period;
- details of the activities undertaken which will include a high-level overview of the activities, key objectives and deliverables, dates and time periods for the activities and a detailed description of the activities of the apprentice in order to evidence competency in the KSBs;
- details of the training undertaken which will include the title of the training course, dates and time period for the training, details of the training provider, a description of the content from the training course and the outcome (if applicable);
- The training and development portfolio should demonstrate how each work activity and training activity contributes to the achievement of the Knowledge, Skills and Behaviours (KSBs) set out in the apprenticeship standard.

End-Point Assessment Organisations (EPAOs) will receive a copy of the portfolio of evidence at the EPA gateway to provide sufficient time to review its content. EPAOs must provide guidance on what format the portfolio might take, including how it will be submitted. The content of the portfolio of evidence must be used to support the professional discussion.

The professional discussion can take place in any of the following:

- employer's premises
- a suitable venue selected by the EPAO (e.g. a training provider's premises)

Delivery

The independent assessors will conduct and assess the professional discussion.

The professional discussion must last for 60 minutes. The independent assessor has the discretion to increase the time of the professional discussion by up to 10% to allow the apprentice to complete their last answer. Further time may be granted for apprentices with appropriate needs, in-line with the EPAO's Reasonable Adjustments Policy.

The independent assessor will ask a minimum of 8 questions during the professional discussion. The independent assessor may ask follow up questions to seek clarification where required. Assessment should take place against the knowledge, skills and behaviours listed in mapping section of this document. Due to the level of this Standard, the answers for each of the 8 questions must be in enough detail to evidence depth of knowledge.

During the discussion, the independent assessor must use a minimum of 4 questions from the EPAO's question bank and 4 generated by the independent assessor.

The purpose of the professional discussion is to:

- clarify any questions the independent assessor has from their review of the Portfolio of evidence, this portfolio should be reviewed before the professional discussion takes place;
- explore aspects of the work, including how it was carried out, in more detail;
- require the apprentice to draw on their evidence to demonstrate the KSBs.

Requirements:

- Apprentices must receive appropriate notice of their professional discussion time. There should be a minimum 10 working days' notice of the time, date and venue.
- EPAOs must structure a series of topic areas for discussion based on the areas of the standard to be tested as detailed in the KSB mapping section of this document.
- The professional discussion must seek to assess the depth of understanding to determine performance against the grading criteria.
- Video conferencing can be used to conduct the professional discussion, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided in any way e.g. use of a 360 degree camera to allow the assessor to look around the round the room during the presentation.
- Audio record of the professional discussion must be captured.
- Independent assessors must assess the professional discussion using the grading criteria in this document.

The independent assessor must use the assessment tools and procedures that are set by the EPAO to record the professional discussion. The independent assessor will make all grading decisions.

The independent assessor will make all grading decisions.

Venue

The professional discussion should take place in a quiet room, free from distractions. The EPAO is responsible for ensuring that the venue can facilitate the EPA.

Other relevant information

A structured specification and question bank must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and the EPAO must review it regularly (and at least once a year) to ensure that it, and its content, are fit for purpose. The specifications, including questions relating to the underpinning knowledge, skills and behaviours, must be varied yet allow assessment of the relevant KSBs.

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

Independent assessors must be developed and trained by the EPAO in the conduct of professional discussions and reaching consistent judgement.

EPAOs will produce the following material to support this assessment method:

- Standard documentation for recording of assessment results.

Weighting of assessment methods

All assessment methods are weighted equally in their contribution to the overall EPA grade.

Grading

Assessment method 1: project report, presentation and questioning (based on pre-gateway work-based project)

KSBs	Name of grade	Grade descriptor
K1, S1, K4, S7,S4 (written and presentation skills only, see assessment method 2 for other aspects of S4), K5, K6, S2, B6	Distinction	**The apprentice meets all of the pass criteria and at least 5 of the following KSB distinction criteria:** **K1&S1** Evaluates the importance of strategic and scientific decision-making by drawing on relevant theory or literature and links this to a range of advanced, new and emerging practical and experimental skills. **K4** Critically evaluates all aspects of the research project undertaken and the identified adaptations and/or improvements. Describes the anticipated impact of these on future projects and the wider business in terms of colleagues and finance. **K5** Justifies the use of statistical analysis and numerical modelling techniques used explaining why the techniques used were most appropriate to the project. **K6** Explains the consequences of not following employer processes and not working in-line with GDPR **S2** Captures, analyses and critically evaluates data utilising a range of statistical tools or analytical techniques to draw logical conclusions **S4** Analyses, evaluates and compares complex data across a broad range of documentation and presents complex scientific information to an appropriate target audience with insightful discussion, including clear and comprehensive interpretation. **S7** Evidences sustained research of significant and relevant published literature with all key information cited. Presents intellectual insight and analyses, evaluates and compares complex data both within the research project and with the wider literature.

		B6 Explains how they have worked to, and met specific target timescales independently whilst prioritising tasks to meet business needs.
	Pass	**The apprentice meets all of the pass criteria:** **K1&S1** Makes strategic and scientific decisions based on a deep and systemic understanding of a named / recognised scientific subject (as found in an industrial setting), and demonstrates the use of a range of . advanced, new and emerging practical and experimental skills to support these decisions. **K4** Uses and explains research methodologies and scientific processes appropriate to the sector and applies these to form a hypothesis. Explains any unpredictability of the research project undertaken and any adaptations made as a result of new developments. **K5** Uses statistical analysis and numerical modelling techniques and explains how they were applied. Explains the application of this analysis clearly and coherently, including how data interpretation informed decisions against the goals and targets of the project and company objectives. **K6** Explains how they have handled data in the project in-line with GDPR and the employer's processes, including how to create a data management plan. **S2** Captures, analyses and critically evaluates data utilising at least one statistical tool or analytical technique to draw logical conclusions. **S4** Structures the project report clearly and includes critique of others' work across a range of documentation.Explains how best to present and communicate key content and messages, whilst respecting and acknowledging the value of alternative views. **S7** Uses research methodology based on current sources and presents intellectual insight and innovations suitable for internal and external stakeholders. **B6** Presents the research project plan and explains how deadlines were achieved and how the project fits into business objectives.
	Fail	Does not meet all of the pass criteria

Assessment Method 2: Professional Discussion (based on vocational competence, training and development portfolio)

KSBs	Name of grade	Grade descriptor
K2, S5, K3, B1, K8, B7, B3, B4, B5, S6, B2,K7, S3, S4 (part), S8	Distinction	**The apprentice meets all of the pass criteria and at least 5 of the following KSB distinction criteria:** **K2 & B1** Provides an example of when they have lead a process leading to the achievement of an organisational objective and how their project management skills had a positive impact on quality and cost. Can describe the leadership styles that exist in their workplace and can compare and contrast these with theory. **K3** Can cite best practice examples of risk management in research and compare and contrast these to practices in their own organisation, identifying possible opportunities for improvement. **K7** Can describe the implication of intellectual property rights and how they apply to specific projects. **K8** Describes an example of when they have coached or mentored colleagues, peers or team members and identifies the benefits of this. **S3**. Describes an analysis of the relevance of intellectual property on the outcome of the project and the impact this could have on the organisation. **S4,B1 & B4** Explains examples of when they have: a) contributed to the knowledge base and understanding of team members via clear interpersonal skills and effective communication including assertiveness and motivation, and the impact this had on the organistion b) taken personal responsibility and defended decisions in unpredictable professional situations. (In doing so they demonstrate a clear commitment to personal values of professionalism, ethical practice, inclusivity and ongoing personal development, together with a

		willingness to plan and manage effective change) **S5** Can describe examples of when they have adapted scientific strategy or delivery to consistently meet requirements. e.g. client, regulatory, ethical, geographic. **S8** Compares and contrasts a range of coaching and mentoring techniques and how each is selected to suit the situation and the person being coached / mentored. **B1** Compares and contrasts collaborative working techniques and how / why these should be selected. Draws on ideas and theories on team working to justify decisions on communication styles and working practices. **B2** Critically evaluates an example of when they have overcome a challenge despite set-backs whilst maintaining professionalism and how this has contributed to ongoing personal development. **B3&B5**. Describes best practice in safe, confidential and professional working practices relating to leadership and followership. Can describe personal achievements of professionalism and gaining trust of others. **B4** Describes successful management of the expectations of senior management, study sponsors, vendors, investigational sites and key opinion leaders and evaluates the most effective techniques to use with each. **B7** Explains the importance of CPD with regards to project planning and progress and the impact this has on themselves and the organisation.
	Pass	**The apprentice meets all of the pass criteria:** **K2 & B1** Describes where their role has contributed to the successful achievement of an organisational objective, and provides examples of when they have communicated effectively with a wide range of senior leaders across different departments. Demonstrates examples of advanced mixed media communication, such as presentations, report writing

		(technical and non-technical) negotiation and influencing. Describes examples of when they have provided leadership within a team of multi discipline specialists at different levels across the organisation, ensuring a shared vision and commitment to success. Describes examples of how their project management was used in their employer's environment with regard to quality, cost and time. Describes the employers organisational structure and where their own role fits. **K3** Explains current relevant national and international regulations needed to carry out their role, including the benefits of equality and diversity in the workplace. Explains how to identify, record, mitigate and manage risk and the impact of failure. **K7** Provides an example of where they have used market analysis tools (SWOT / PESTLE / feasibility studies) to assess the impact of the project on the business, including decisions made in terms of value for money. Describes the key aspects of intellectual property rights ans howthey apply to the role and specific projects. **K8** Describes the importance of continuing professional development and how to maintain their own specialist knowledge in an ever evolving environment. Provides examples of when they have effectively coached and mentored colleagues, peers or team members (including non-technical colleagues) to address identified skills gaps, using appropriate methods. **S3** Describes an example of where they have identified an issue involving intellectual property and the commercial demands of the business environment and its relevance to the outcome of the project and organisational impact.

		S4,B1 & B4 Explains how they have utilised interpersonal skills, communication and assertiveness to persuade, motivate and influence. Describes an example when they have discussed work constructively and objectively with internal and external stakeholders whilst managing expectations. **S5** Describes the key elements of effective project plans to manage scope, schedules, budget and risk. Describes examples of when they have organised resources, budgets, tasks and people and co-ordinated team activities to meet project requirements and quality processes. Describes how to adapt scientific strategy/delivery to be consistent with requirements. e.g. client, regulatory, ethical, geographic. **S6** Provides examples of when they have conceptualised, evaluated and analysed information to solve problems. **S8** Describes examples of when they have applied a range of coaching and mentoring techniques with colleague's peers and team members, selecting the correct method to suit the situation and the person being coached or mentored. **B2** Explains an example of when challenges have been overcome requiring resilience despite set-backs. **B3&B5**. Describes exmples of consistent, safe, confidential, ethical and professional working practices, keeping themselves safe, including examples of leadership and followership. **B4** Explains an example of when they have managed the expectations of senior management, study sponsors, vendors, investigational sites and key opinion leaders. **B7** Describes the importance of CPD backed up by planning and/or demonstrating intent, including relevant accreditations /licenses applicable to role.
	Fail	Does not meet all of the pass criteria

Overall EPA grading

All EPA methods must be passed for the EPA to be passed overall.

- Fail - Fail in at least one method
- Pass – At least a pass in both methods
- Distinction – Distinction in both assessment methods

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Project report, presentation and questioning	Professional discussion	Overall grading
Any	Fail	Fail
Fail	Any	Fail
Pass	Pass	Pass
Distinction	Pass	Pass
Pass	Distinction	Pass
Distinction	Distinction	Distinction

Roles and responsibilities

Role	Responsibility
Apprentice	• complete the on-programme element of the apprenticeship • prepare for and complete the EPA
Employer	• identify when the apprentice is ready to pass the gateway and undertake their EPA • notify the EPAO that the apprentice has passed the gateway
EPAO	As a minimum EPAOs should: • provide training and CPD to the independent assessors they employ to undertake the EPA • have no direct connection with the apprentice and no conflict of interest with, their employer or the training provider • have processes in place to conduct internal quality assurance and do this on a regular basis • organise standardisation events and activities in accordance with this plan's IQA section • organise and conduct moderation of independent assessors' marking in accordance with this plan • have, and operate, an appeals process • provide detailed feedback to the Apprentice and Employer on the outcome of the EPA and assessments
Independent assessor	As a minimum an Independent assessor should: • be independent of the apprentice, their employer and training provider(s) i.e. there must be no conflict of interest • hold or be working towards an independent assessor qualification, under the supervision of an experienced assessor e.g. A1 and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading • have the capability to assess the apprentice at this level • attend the required number of EPAOs standardisation and training events per year (as defined in the IQA section)
Training provider	As a minimum the training provider should: • work with the employer to ensure that the apprentice is given the opportunities to develop the KSBs outlined in the standard and monitor their progress during the on-programme period • advise the employer, upon request, on the apprentice's readiness for EPA prior to the gateway • plays no part in the EPA itself

Internal Quality Assurance (IQA)

Internal quality assurance refers to the requirements that EPA organisations must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPA organisations for this EPA must:

- Appoint independent assessors who have knowledge of the following areas:
- experience in scientific research in academia or industry within a relevant scientific subject area, including experience in data analysis and evaluation, data management, ethics, regulation and registration and research techniques as well as the scientific subject specific knowledge outlined in K1 on the knowledge section.
- recent relevant experience of the occupation/sector at least the same level as the apprentice gained in the last three years or significant experience of the occupation/sector.
- The assessor will have the following minimum skills, knowledge and occupational competence:
    - Independent assessors must hold, or be working towards a current UK qualification for workplace vocational assessors or a workplace competence assessor qualification.
    - Independent Assessors must be competent in the occupation they are assessing. This is shown through the individual having achieved a qualification at a level equivalent to or higher than the level of the apprenticeship standard being assessed; or by holding professional recognition at a level equivalent to or higher than the registration level of the apprenticeship standard being assessed. Individuals must be able to demonstrate they possess up-to-date knowledge of relevant current working practices and process safety or product quality regulations such as The Medicines and Healthcare Products Regulatory Agency (MHRA) or HSE the Control of Major Accident Hazards (COMAH) regulations appropriate to the sector in which they are carrying out assessment practice.
    - Maintain a continuous, up-to-date and accurate record of their CPD activities this should equate to at least 5 days CPD in the last year
    - Demonstrate that their CPD activities are of learning activities relevant to current or future practice
    - Seek to ensure that their CPD has benefited the quality of their practice
    - Seek to ensure that their CPD has benefited the users of their work
    - Present a written profile containing evidence of their CPD on request
    - There may be a requirement to hold additional specialist training or security clearance as required by the industry sector e.g. nuclear.
    - Individuals must complete an EPAO induction to demonstrate working knowledge of the apprenticeship standard and assessment methodology
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time.
- operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this standard and before they deliver an updated assessment method for the first time. Assessors must attend a standardisation session at least once per year.

Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take.In the event of a re-sit or re-take, the apprentice is permitted to use the same project title however the EPAO must ensure a different set of questions are used during the questioning element of the presentation.

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will be required to re-sit or re-take any failed assessment methods only.

Any assessment method re-sit or re-take must be taken during the EPA period, otherwise the entire EPA must be taken again, unless in the opinion of the EPAO exceptional circumstances apply outside the control of the apprentice or their employer.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to /distinction

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

Affordability

Affordability of the EPA will be ensured by using at least some of the following practice:

- using an employer's premises
- professional discussion can be done via remote means

Professional body recognition

The Royal Society of Biology, the Institute of Physics and the Royal Society of Chemistry have provided an expedited route for individuals to achieve Chartered status (Chartered Biologist, Chartered Chemist or Chartered Physicist) through this apprenticeship, as the apprenticeship is closely aligned to a number of the Chartered status competencies/attributes.

Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making reasonable adjustments for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this EPA plan.

Mapping of KSBs

PD – Professional Discussion underpinned by portfolio of evidence

P&P – Project Report, Presentation and questioning based on work-based project

KSB code	KSB statement	Methods mapped against
Knowledge		
K1	**Subject specific knowledge:** A deep and systemic understanding of a named / recognised scientific subject as found in an industrial setting, such as biology, chemistry or physics, found in the nuclear, food manufacture, pharmacology or energy production sectors, at a level that allows strategic and scientific decision making, while taking account of inter relationships with other relevant business areas / disciplines.	P&P
K2	**Management, leadership and effective communication:** Organisation objectives and where their role contributes to the success achievement of these objectives. How to communicate effectively with a wide range of senior leaders across different departments, up and down the supply chain, within their own team. Advanced mixed media communication, such as presentations, report writing (technical and non-technical) negotiation and influencing. Leadership within a team of multi discipline specialists at different levels across the organisation, ensuring a shared vision and commitment to success. Effective project management as used in their employer's environment with regard to quality, cost and time. The employers organisational structure and where their own role fits	PD
K3	**Ethics, regulation and registration**: All current relevant national and international regulations needed to carry out the role. This will include scientific regulation, health and safety and laboratory safe practice, anti-bribery and anti-corruption. Ethical scientific practice and the employer's processes and procedures surrounding professional conduct	PD

	How to identify, record, mitigate and manage risk. The impact of failure and how to manage risk on the business. The benefits of equality of diversity in the workplace.	
K4	**Research methodologies:** Methodologies appropriate to the sector and how to formulate and apply a hypothesis. Appropriate application of scientific process. The unpredictability of research projects and the need to adapt and adjust daily planning needs to accommodate new developments.	P&P
K5	**Data analysis and evaluation:** Statistical analysis techniques, numerical modelling techniques and how they are applied in context. How to interpret and categorise data to make informed and objective decisions against the goals and targets of the project. How to evaluate and interpret the data and associated analysis against company objectives.	P&P
K6	**Data management:** How to safely store and handle data in line with national and international data protection and cyber security regulations that apply to the role. How to manage and store data in line with employer processes and security approach. How to create an appropriate data management plan.	P&P
K7	**Entrepreneurial and enterprise:** How to consider a multi solution approach to the objective in the key stages of a project. Market analysis awareness (SWOT / PESTLE / feasibility studies) and how to assess the impact of the project on the business. Intellectual property rights as they apply to the role and specific projects.	PD

	Value for money and the ability to use market analysis to make go / no go decisions.	
K8	**Development of self and others:** The importance of continuing professional development and how to maintain their own specialist knowledge in an ever evolving environment. How to effectively coach and mentor colleagues, peers or team members to address identified skills gaps, using appropriate methods. How to upskill non-technical colleagues to enable them to complete their own role as needed.	PD
	Skills	
S1	**Scientific Knowledge**: Apply a range of advanced, new and emerging practical and experimental skills appropriate to the role (e.g. chemical synthesis, bio analysis, computational modeling).	P&P
S2	**Data Collection and Reporting:** Capture and evaluate data critically drawing a logical conclusion, e.g. Case Report Forms, Data Management Plans, Data Review Plans, edit checks and User Acceptance. Testing Plans.	P&P
S3	**Commercial and Business Issues:** Identify issues, including intellectual property and the commercial demands of the business environment. Understand the scientific objectives of work undertaken and its relevance to the organisation.	PD
S4	**Communication Skills:** Write extended reports and critique others' work across a range of documentation, e.g. protocols, consent forms and scientific reports. Deliver oral presentations and answer questions about their work and/or the work of their team. Utilise interpersonal skills, communication and assertiveness to persuade, motivate and influence.	P&P P&P PD

	Discuss work constructively and objectively with colleagues customers and others; respond respectfully to and acknowledge the value of alternate views and hypothesis	PD
S5	**Project Management and Leadership:** Generate effective project plans to include management of scope, schedules, budget and risk. Organise resources, budgets, tasks and people. Co-ordinate team activities to meet project requirements and quality processes. Adapt scientific strategy/delivery to be consistent with requirements. e.g. client, regulatory, ethical, geographic.	PD
S6	**Critical Thinking:** Conceptualise, evaluate and analyse information to solve problems	PD
S7	**Research and dissemination:** Frame research questions and methodology drawing from current sources e.g., literature and databases. They can produce intellectual insight and innovations in their own discipline to be shared with colleagues, peers and wider stakeholders internal and external to the business.	P&P
S8	**Developing others:** Apply a range of coaching and mentoring techniques with colleague's peers and team members, selecting the correct method to suit the situation and the person being coached / mentored.	PD
	Behaviours	
B1	**Team Working:** Collaboration, influence, and respect for others	PD
B2	**Flexibility and Adaptability:** Responsiveness to change, adjusting to different conditions, technologies, situations and environments.	PD
B3	**Integrity and Reliability:** Respect for the confidentiality of individuals and company information. An intrinsic ethical stance to all aspects of day to day activities**.** Reputation of trust internally and externally.	PD
B4	**Management of Expectations**	PD

	Of senior management, study sponsors, vendors, investigational sites and key opinion leaders.	
B5	**Accountability:** For self and others to ensure that actions are in the best interest of affected parties.	PD
B6	**Planning, Prioritisation and Organisation:** Effective time management	P&P
B7	**Continuing Professional Development (CPD):** Accountability of own and others development needs, undertaking CPD. Curiosity of science and proactively develops knowledge to ensure that scientific and business decisions are based on strong science.	PD