Level 7 Research Scientist KSB Mapping

Key	
K	Knowledge
S	Skill
B	Behaviour

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

KSB's	Grade Descriptor Pass	Pass Amplification	Grade Descriptor Distinction	Distinction Amplification
Subject specific knowledge Scientific Knowledge	(K1.1 & S1.1) 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.	(K1.1 & S1.1) The apprentice will need to evidence that they have both the subject knowledge of their industry e.g., finance, as well as that of their role pertaining to research science e.g., data analysis, in order to make the appropriate approaches and strategic decisions within the research project.	(K1.2 & S1.2) 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.	(K1.2 & S1.2) Apprentices should provide a reasoned conclusion which draws upon at least one theory or published paper relating to strategic or scientific decision making
Research methodologies	(K4.1) 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.	(K4.1) The apprentice will demonstrate a sound understanding of research methodologies and scientific processes in order to apply the appropriate approach to the research project. The apprentice will set out any unpredictability and limitations of the project. They will stipulate how they have adapted the project as they have gone along to mitigate against this and accommodate new developments.	(K4.2) 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.	(K4.2) The apprentice will clearly state at least one of their initial research questions or hypotheses related to the project. They will state one change or adaptation they made to their initial question during the course of their project. They will directly comment on how this

				change or adaptation might affect future projects and the wider business in terms of colleagues or finance.
Data analysis and evaluation	(K5.1) 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.	(K5.1) The apprentice will demonstrate how they have used statistical analysis and numerical modelling techniques to inform the decisions and/or recommendations they have made within the project. They must explain how these approaches were applied and how the information was interpreted in a clear and coherent manner.	(K5.2) Justifies the use of statistical analysis and numerical modelling techniques used explaining why the techniques used were most appropriate to the project.	(K5.2) The apprentice will justify their statistical analysis by listing at least two reasons why they chose to use the model used in the analysis. They will contrast this choice by noting one model they considered using, but did not.
Data management	(K6.1) 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.	(K6.1) The apprentice will evidence how national and international data protection and cyber security regulations – as well as their employers processes - have informed the storage and handling of data used within the research project, including the creation of a data management plan.	(K6.2) Explains the consequences of not following employer processes and not working in-line with GDPR.	(K6.2) The apprentice will explicitly state one precaution they took to ensure their data is stored in compliance with both GDPR and their employer's processes. They will then state a consequence were they not have to taken this precaution.
Data Collection and Reporting	(S2.1) Captures, analyses and critically evaluates data utilising at least one statistical tool or analytical technique to draw logical conclusions.	(S2.1) The apprentice will evidence the appropriate use of at least one statistical tool or analytical technique that enables them to analyse and critically evaluate the captured and gathered data in a manner that enables them to draw logical	(S2.2) Captures, analyses and critically evaluates data utilising a range of statistical tools or analytical techniques to draw logical conclusions.	(S2.2) The apprentice will list more than one statistical tools or analytical techniques used on the project. For each tool or technique, they will note an insight or conclusion that was

		conclusions that inform the research project.		made because this tool was used.
Communication Skills	(S4.1) 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.	(S4.1) The apprentice will demonstrate their ability to communicate any keys aspects of the project (including during the project and post-project) in a way that appropriately communicates the key content or messages. This will include how the report has been structured for the benefit of the recipients and how they have presented the information in oral presentations. The apprentice will also evidence how they critique the work of others across a range of appropriate documentation to inform the project whilst respecting and acknowledging the value of alternative views found within the aforementioned documentation and those of colleagues and stakeholders	(S4.2) 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.	(S4.2) The apprentice will present a data analysis that contextualises their findings by comparing insights from their project with any previous knowledge on the topic. They will explicitly say how their project either improves or modifies what was known before in a way that a colleague or stakeholder could re-iterate two key points of their presentation.
Research and dissemination	(S7.1) Uses research methodology based on current sources and presents intellectual insight and innovations suitable for internal and external stakeholders.	(S7.1) The apprentice will evidence how they have used current sources (eg literature and databases) to inform and frame the research questions and methodologies within the project. They will demonstrate how they can produce their own insight and innovations and how they can communicate this clearly	(S7.2) 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	(S7.2) The apprentice will list two or more published pieces of literature related to either the research question or methods of the project. For each piece of literature listed, they will highlight how information

		and appropriately to internal and external stakeholders.	within the research project and with the wider literature.	learned from the published literature led to a specific choice in their own project and how it affected the final outcome of the project.
Planning, Prioritisation and Organisation	(B6.1) Presents the research project plan and explains how deadlines were achieved and how the project fits into business objectives.	(B6.1) The apprentice will present to research project plan to demonstrate how they have managed their time effectively to hit project deadlines and to ensure the project fits in with any appropriate business objective timelines.	(B6.2) Explains how they have worked to and met specific target timescales independently whilst prioritising tasks to meet business needs.	(B6.2) The apprentice will detail how long they initially planned for each phase of the project. If they did not adhere to these initial estimations, they will explain either what other business activity took priority that altered this timeline or one insight they learned when planning a similar project in the future.

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

KSB's	Grade Descriptor Pass	Pass Amplification	Grade Descriptor Distinction	Distinction Amplification
Management, leadership and effective communication	(K2.1 & B1.1) 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. (K2.2 & B1.2) Demonstrates examples of advanced mixed media communication, such as presentations, report writing (technical and non-technical) negotiation and influencing. (K2.3 & B1.3) Describes examples of when they have provided	(K2.1 & B1.1) Apprentices should identify a specific organisational objective and make links as to how their work has contributed towards this. Apprentices may be limited in the contact they have with Senior Leaders, however there is still a requirement that they demonstrate they have communicated with them effectively. Communication does not necessarily mean direct conversations, meetings and emails; it may include indirect communication through things such as presentations, reports and updates. Apprentices must demonstrate that their communications span a range of senior leaders across more than one department. (K2.2 & B1.2) Apprentices should provide details of how they have presented complex information, theses and analyses in a compelling and convincing manner. They are able to consider and respond to alternative opinions or views, bringing peers and superiors in line with their	(K2.6 & B1.6) Provides an example of when they have led a process leading to the achievement of an organisational objective and how their project management skills had a positive impact on quality and cost. (K2.7 & B1.7) Can describe the leadership styles that exist in their workplace and can compare and contrast these with theory.	(K2.6 & B1.6) Apprentices should provide a brief, narrative example describing how they took the lead on a project and its positive impact on organisational goals. To do this, they first state the organisational goal. They subsequently indicate at least two possible choices that they had the autonomy to choose between. In deciding which choice to select, they provide one piece of information they acquired from communication with senior management that informed which choice they ultimately made. They finally detail the impact of this choice relating it to either outcome quality or cost. (K2.7 & B1.7) Apprentices will provide at least two examples of different leadership styles within their workplace. For each style, they will list one advantage and one disadvantage with each style.

Team Working	leadership within a team of multi discipline specialists at different levels across the organisation, ensuring a shared vision and commitment to success. (K2.4 & B1.4) Describes examples of how their project management was used in their employer's environment with regard to quality, cost and time. (K2.5 & B1.5) Describes the employers organisational structure and where their own role fits.	thinking, where appropriate. Examples of negotiation and influencing in respect of project work are also suitable (eg goals, deadlines, milestones, access to information and/or resources). (K2.3 & B1.3) 'Multi discipline specialists' could refer to different teams or departments, or it may refer to a group of individuals within a single team or group, each with their own specialisms. Leadership does not always mean direct line management responsibility over teams or individuals; it can refer to the demonstration of leadership skills and techniques to achieve a particular objective. (K2.4 & B1.4) Ideally, apprentices should have direct budget setting and management responsibilities for their project. Where this is not feasible or appropriate, apprentices may demonstrate effective use of resources and time savings, providing clear links between these activities and cost savings. (K2.5 & B1.5) The apprentice will show how their role fits with the overall structure of the organisation		

		and will show the breadth, where appropriate, of the various teams or departments that the apprentice may need to work/collaborate with.		
Ethics, regulation and registratio n	(K3.1) Explains current relevant national and international regulations needed to carry out their role, including the benefits of equality and diversity in the workplace. (K3.2) Explains how to identify, record, mitigate and manage risk and the impact of failure.	(K3.1) Regulations will vary depending upon the apprentice's role and the sector they work in. Apprentices should list and explain the relevant regulations, which may include things such as data security, health and safety or financial regulations. (K3.2) Apprentices must demonstrate that they understand their organisation's requirements and processes around risk management. Most organisations are expected to hold some form of risk register. Apprentices may refer to this and explain how they use it to identify and manage risk.	(K3.3) 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.	(K3.3) The apprentice will list at least two examples where they manged risk on their own project. For each example, they will highlight either how a current practice allowed them to mitigate risk or propose a new policy that could be adopted for future improvement. Examples could include data security, health and safety, or financial regulations.
Entrepren eurial and enterprise	(K7.1) 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. (K7.2) Describes the key aspects of intellectual property rights and	(K7.1) Apprentices may refer to their EPA project for the purposes of evidencing this descriptor. 'Market' is not confined to the private sector – it can include public or third sector organisations. (K7.2) Key aspects may include copyright, trademarks or patents. Apprentices must explain how they protect their own organisation's IPR and how they use external IPR	(K7.3) Can describe the implication of intellectual property rights and how they apply to specific projects.	(K7.3) The Apprentice can use an example from a project or day-today activities. The apprentice will explain who owns the intellectual property. They must specifically address the relationship between any

	how they apply to the role and specific projects.	lawfully and in line with their own organisation's processes and policy.		written reports and scientific materials.
Development of self and others	(K8.1) Describes the importance of continuing professional development and how to maintain their own specialist knowledge in an ever-evolving environment. (K8.2) 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.	(K8.1) Apprentices may refer to or include CPD plans. They should explain how they have/will adapt their CPD activities in line with external and internal changes throughout their career. (K8.2) Apprentices will provide **three or more examples** of when they have supported colleagues, peers or team members in a one-to-one or group setting to address specific skills gaps. Apprentices should explain why they selected that particular method for each example. 'Appropriate methods' may include, but are not limited to: • Coaching (eg GROW) • Active listening • Mentoring (giving advice based on your own knowledge/experience) • Group training sessions	(K8.3) Describes an example of when they have coached or mentored colleagues, peers or team members and identifies the benefits of this.	(K8.3) Apprentices will provide **four or more examples** of when they have supported colleagues, peers or team members in a one-to-one or group setting to address specific skills gaps. Apprentices should explain why they selected that particular method for each example. 'Appropriate methods' may include, but are not limited to: • Coaching (eg GROW) • Active listening • Mentoring (giving advice based on your own knowledge/experience) • Group training sessions Apprentices must explain the benefits of the support they have given If Apprentices give 1 more example to their 3 Pass examples and explain the

			benefits for all 4 examples they will cover both the Pass and Distinction criteria
Commercial and Business Issues	(S3.1) 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.	(S3.1) The apprentice will be aware of the other factors which impact upon the viability of a work-based project beyond its scientific merits. This may include, but is not limited to: - Financial/commercial viability Ethical considerations Intellectual property rights (eg the availability/cost of IP-restricted content and the bearing this has on overall financial viability) The apprentice must give a specific example of where they have identified these factors when planning or delivering a project. Apprentices could also cover K7.1 with the same piece of evidence	(S3.2) Describes an analysis of the relevance of intellectual property on the outcome of the project and the impact this could have on the organisation.	(S3.2) The apprentice will describe the risks associated with using publicly available, open-source software as part of the company's long-term infrastructure. They will describe one positive and one negative impact of using others' software as it pertains to risks in the business environment.

Communication Skills	(S4.1, B1.1 & B4.1) Explains how they have utilised interpersonal skills, communication and assertiveness to persuade, motivate and influence. (S4.2, B1.2 & B4.2) Describes an example when they have discussed work constructively and objectively with internal and external stakeholders whilst managing expectations.	(S4.1, B1.1 & B4.1) Examples could include how they have used their interpersonal skills to support with bringing people on board, ensuring tasks are completed on time, presenting sound arguments as to why something should be done a certain way etc. (S4.2, B1.2 & B4.2) Examples should come from internal and external stakeholders. External stakeholders could be • Different Government departments • Different legal entities within the same corporate structure • External regulators • Professional Bodies • Suppliers and partners	(S4.3, B1.3 & B4.3) 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 organisation 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)	(S4.3, B1.3, B4.3) The apprentice will provide two examples of interpersonal communication. In either or both examples, they will first describe the individuals involved in the example and any prior context information such as a collective goal. Using the context they provide, they will then describe one action they did to either persuade, motivate, or influence another individual and what the outcome of that action was. One example should refer to the contribution and documentation knowledge. The other should how they took personal responsibility in an unpredictable professional situation.
Team Working				
Management of Expectations				

Project Management and Leadership	(S5.1) Describes the key elements of effective project plans to manage scope, schedules, budget and risk. (S5.2) Describes examples of when they have organised resources, budgets, tasks and people and co-ordinated team activities to meet project requirements and quality processes. (S5.3) Describes how to adapt scientific strategy/delivery to be consistent with requirements. e.g. client, regulatory, ethical, geographic.	(S5.1)Apprentices need to show they have an understanding of the importance of effective project planning to ensure the success of their research project. (S5.2) Apprentices do not have to have direct line management or budget-setting responsibilities to achieve this pass descriptor. Apprentices need to provide evidence that they have organised and coordinated these activities; it is not necessary to have been involved in directly delivering all aspects of the project. (S5.3) Apprentices need to describe how and when to adapt their approach to workplace projects and tasks to take into account a range of requirements such as anonymising personal date due to GDPR, geographic implications on collection of data etc.	(S5.4) Can describe examples of when they have adapted scientific strategy or delivery to consistently meet requirements. e.g. client, regulatory, ethical, geographic.	(S5.4) Referring to project work or day-to-day activities , the Apprentice will give more than one example of choices they made that changed the scope of their work. Examples of this could be how the size and scope of the project depended on time or financial limits, the scope of the question they sought to investigate on their project, or specifics having to do with data collection and storage. To clearly communicate how this affected their choice, they also list how they could have changed their project had these constraints been different.
Critical Thinking	(S6.1) Provides examples of when they have conceptualised, evaluated and analysed information to solve problems.	(S6.1) Can clearly evidence their ability to demonstrate higher order thinking skills to solve problems. A useful tool for this is Blooms Taxonomy.		

		Apprentices can use one examples form their project and one form their workplace, Apprentices need to provide at least two examples and do not have to use Bloom Taxonomy.		
Developing others	(S8.1) 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.	(S8.1) The apprentice should give examples of how they have adapted their style to support the development of others. This does not mean they have to have formally coached or mentored someone but rather they can demonstrate how they have applied the various techniques associated with coaching and mentoring to develop others. Eg This could be through asking people open questions to help them come to their own conclusions rather than telling them what to do.	(S8.2) 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.	(S8.2) The apprentice should give at least one example of a way they could explain a complex topic to an individual on their team who does not share their technical background. For each example, they should note an advantage and disadvantage of choosing that way of communication.
Team Working	Collaboration, influence, and respect for others.		(B1.1) 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.	(B1.1) The apprentice will provide more than one working technique. For each technique listed, they should list an advantage and disadvantage of that technique. Each technique listed should be supported by an idea or theory as to why it should be chosen.

Flexibility and Adaptability	(B2.1) Explains an example of when challenges have been overcome requiring resilience despite setbacks.	(B2.1) Provides an example of how they have demonstrated resilience in the face of setbacks to overcome a challenge. This could include examples of how they have adapted to an unexpected change.	(B2.2) Critically evaluates an example of when they have overcome a challenge despite setbacks whilst maintaining professionalism and how this has contributed to ongoing personal development.	(B2.2) The apprentice will give an example of a challenge they faced during the course of their project or within their day to day work.. They will list two options they could have taken when they were made aware of the challenge and explain why they chose the option they did and what they imagined would have happened had they chosen the other option.
Integrity and Reliability		(B3.1 & B5.1) Provides examples of where they have been or could be accountable for themselves and others, either formally or informally, to ensure safe working practices and /or in the best interest of affected parties. This should include from the perspective of when following working practices and when leading others to do so (informally or formally).		
Accountability	(B3.1 & B5.1) Describes examples of consistent, safe, confidential, ethical and professional working practices, keeping themselves safe, including examples of leadership and followership.		(B3.1 & B5.1) 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.	(B3.1 B5.1) The apprentice will provide at least one example of when they were held accountable for a specific action as leader or follower. The example should give some indication of the magnitude and scope of the action and also note what would have happened were they to have not completed that action. This could include personal or business consequences.
Management of Expectations	(B4.1) Explains an example of when they have managed the expectations of senior management, study sponsors, vendors, investigational sites and key opinion leaders.	(B4.1)Apprentices should provide one example each for **any three** of the following: • Senior management • Study sponsors	(B4.2) Describes successful management of the expectations of senior management, study sponsors, vendors, investigational sites and key opinion leaders and	(B4.2) The apprentice should provide one example of managing expectations for any two of the following: • Senior management • Study sponsors

		(This could include Project or Programme sponsors, or Product Owners) • Vendors (This could include Data as a Service, Analytics and Software vendors) • Investigational sites (This could be the customer, users or the problem domain being investigated) • Key opinion leaders This could be the same person who is undertaking a different role, i.e. a Senior Manager who is also considered a key opinion leader. If this is the case, the Apprentices will need to provide individual examples for that person undertaking each separate role. Note – Re investigational sites, managing expectations could include ensuring that work is carried out within the legal, regulatory, organisational and ethical policies and constraints of the organisations involved.	evaluates the most effective techniques to use with each.	(This could include Project or Programme sponsors, or Product Owners) • Vendors (This could include Data as a Service, Analytics and Software vendors) • Investigational sites (This could be the customer, users or the problem domain being investigated) • Key opinion leaders This could be the same person who is undertaking a different role, i.e. a Senior Manager who is also considered a Key opinion leader. If this is the case the Apprentices will need to provide individual examples for that person undertaking each separate role. For each example, they should indicate how the determined which technique was most effective.
Continuing Professional Development (CPD)	(B7.1) Describes the importance of CPD backed up by planning and/or demonstrating intent, including relevant accreditations /licenses applicable to role.	(B7.1) The apprentice should be able to describe the how CPD is important to their role and why taking a planned approach to this is beneficial to them.	(B7.2) Explains the importance of CPD with regards to project planning and progress and the impact this has on themselves and the organisation.	(B7.2) The apprentice should be able to list at least two ways that engaging in CPD can benefit both themselves and their organization in regards to either project planning or progress. This

				means listing at least four benefits.