

Scheme of learning

T Level in Science
Employer Set Project: Task 1

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Programme title:	T Level in Science		Level:	3	Course code:	
Qualification title:	T Level				Qual number:	603/6989/9
Module title:	Employer Set Project (ESP)		Unit/Module ref:	Task 1: Research a strategy		
Planned delivery hours:	4–8 hrs	Mode of delivery and supporting rationale:	The ESP covers some of the key science concepts in biology, chemistry and physics, along with basic working practices in industry. Scientists and technicians working in science and science-related organisations must have a good understanding of core science concepts. A strong grasp of these concepts will enable learners to use and apply this knowledge and understanding in vocational contexts when studying all of the core science content. This scheme of learning focuses on ESP task 1: research a strategy. During task 1, learners complete a literature review responding to a brief and using the website list provided. On completion of the literature review, they complete an entry in the project diary, which they add to after tasks 2, 3 and 4. Mode of delivery A sequence of four lessons delivered in a classroom setting. Learners will require access to IT and paper-based resources throughout. Assessment objectives AO2: Apply core knowledge and skills to the development of a scientific project. AO4: Use English, mathematics and digital skills as appropriate. The following link provides a general guide to the structure of all T Level in Science ESPs.			
Number of expected sessions:	4					
Session duration:	1–2 hrs					
Number of weeks:	4					

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[sci-0001-00-tq-science-esp-core-skills-all-briefs-provider-guide.pdf \(qualhub.co.uk\)](#)

The following link provides information specific to the T Level in Science project brief related to the laboratory sciences occupational specialism. It is the specimen ESP.

[sci-0006-01-tq-science-esp-laboratory-sciences-project-brief.pdf \(qualhub.co.uk\)](#)

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1	CS2.1: Conduct a review of independently selected scientific literature and other appropriate primary and secondary sources ▪ reliability of sources (for example, peer	Skim and scan Introduction Learners should have some prior learning of the ESP task-based format and the role of the project brief. Task 1 deals with researching a strategy to meet this project brief (slides 3–5 in the ‘Skim and scan’ PowerPoint). Resources required ESP task 1.1: Skim and scan.pptx ESP task 1.1: Data types starter activity.docx ESP task 1.1: Skim and scan.docx Starter (slide 6)	CS2 CS5 CS6	Appropriate use of search engines GDC1: Use digital technology and media effectively GDC5: Be safe and responsible online Navigating online content refers to using menus, hyperlinks and

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	review, conflicts of interest, citations and impact factor)	What are the teaching and learning activities? How is the content being taught? How are key concepts being delivered so that the learners understand them and can apply them (retain the information)? How are English, maths and employability skills being developed? The teacher explains the differences between primary data and secondary data and between qualitative and quantitative data. The teacher suggests a range of scenarios, and learners define the data in each scenario as being primary, secondary, qualitative or quantitative data. Use the ESP task 1.1 data types worksheet as a starter activity to support this activity (slide 6 in the 'Skim and scan' PowerPoint). Define the aims needed to meet the criteria of task 1 (CS2) (slide 5 in 'Skim and scan' PowerPoint). Main activity Advantages and disadvantages of each type of data. This task will highlight to learners the advantages of quantitative over qualitative data. It will also highlight the appropriate use of primary and secondary data. Teacher-led discussion on reading for different purposes. The teacher will also define for the class the terms 'relevance' and 'reliability'.	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)? AO2 12/22 marks AO2 6/22 marks AO4 4/22 marks Formative assessment Identifying data types in starter, self-assessment. Peer assessment of plenary. Summative assessment Mark answers to skim and scan task, as these have definitive answers.	browser navigation controls such as back and forward buttons or bookmarks. Internet searches refers to a specific and clearly defined piece of information or content that might be required in a work or real-life context.

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		What are the teaching and learning activities? How is the content being taught? How are key concepts being delivered so that the learners understand them and can apply them (retain the information)? How are English, maths and employability skills being developed? Task 1 (slide 7) Consider the list of 23 websites (listed on slide 7) linked to plastic waste and judge their relevance and reliability based only on the web address. Consider domains, blogs, scientific journals and commercial sites. Select the three most useful and the three least useful websites. Add them to the worksheet table. This is linked to the specimen ESP: sci-0006-01-tq-science-esp-laboratory-sciences-project-brief.pdf (qualhub.co.uk) Task 2 (slide 8) Using slide 8, the teacher now asks learners to open the three most useful websites and justify their decision. They should also support their decision using evidence from the website. Repeat this task for the three least useful websites. Learners to record their thoughts on the worksheet and discuss whether the content was as expected. Task 3 (slide 9) Skim and scan Teacher-led discussion on how to skim and scan using slide 9 for skimming and slide 10 for scanning. Learners may	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)?	

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2	CS2.1: Conduct a review of independently selected scientific literature and other	Organising a literature review (using the template) Resources required ESP task1.2: Organising a literature review (using the template).pptx ESP task 1.2: Organising a literature review.docx	Summative assessment Collect in worksheet and assess against criteria for task 1.	GDC1: Use digital technology and media effectively GDC5: Be safe and responsible online

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	appropriate primary and secondary sources ▪ reliability of sources (for example, peer review, conflicts of interest, citations and impact factor)	Starter The teacher should ask learners to use the plenary questions from the previous lesson to complete another skim and scan activity but with a different pairing. Use slide 3 of the 'Organising a literature review' PowerPoint. This provides the teacher with an opportunity to recap the learning from the previous lesson. The teacher should then lead a discussion on the limitations of only using one source. Is the source biased? Is the source relevant? What data does the source refer to? Main activity (slide 4) Referring to slide 4 of the PowerPoint and using the worksheet, learners will use a template to do a mini literature review on hazards associated with staining techniques and histology. Task 1 (slide 5) Identify the keywords to use in the literature review. Refer to slide 5 and the worksheet. The keywords that should be identified are 'hazards', 'staining techniques' and 'histology'.	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)? Formative assessment Plenary discussions reflected on by class and teacher.	Navigating online content refers to using menus, hyperlinks and browser navigation controls such as back and forward buttons or bookmarks. Internet searches refers to a specific and clearly defined piece of information or content that might be required in a work or real-life context.

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3	CS2.1: Conduct a review of independently selected scientific literature and other appropriate primary and secondary sources ▪ correct use of a recognised referencing system (for example, Harvard, Vancouver or AMA in-text citation)	Referencing strategies Resources required ESP task 1.3: Referencing strategies.pptx ESP task 1.3: Referencing strategies.docx Starter (slide 4) Create a word cloud in Slido or poll Ev (https://www.polleverywhere.com/) to create a list of all types of reference material. These apps are free to use but may need to be added by an administrator. Expected answers • Journal article (PDF) • Book chapter report (PDF) • Report (PDF) • Webpage (online) • Blog (online) • News article (online) • Social media (online) Main activity Task 1 (slides 6–10)	Formative assessment Sharing ideas on types of referencing material. Self-assess by identifying mistakes in references and adding corrections. Peer-assess reports on use of references.	GDC1: Use digital technology and media effectively Using online polls and using search engines to find resources GDC2: Design, create and edit documents and digital media, including writing a report with a wide range of sources GDC3: Communicate and collaborate using online polls to share ideas and opinions

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		What are the teaching and learning activities? How is the content being taught? How are key concepts being delivered so that the learners understand them and can apply them (retain the information)? How are English, maths and employability skills being developed? This task gives learners experience of the different types of references which exist. For a given topic, learners find a reference from each of these example resource types. Use the slides on electric vehicles as an example. Learners could find resources about nanotechnology (or a topic selected by the teacher). Learners can assemble the references as small screen snips to provide a visual comparison of the different types of references. Examples are included in the PowerPoint provided. Teacher discussion (Slide 11) Discuss the importance of referencing, using the example of Ed Sheeran and the music copyright case study. Ed Sheeran settles Photograph copyright infringement claim - BBC News Expected teaching points include intellectual property, copyright, the legal ownership of content, the ability to compare primary and secondary data, ability to compare the methods used in secondary data to consider the validity of results, considering whether there is bias in the content if it is from, for example, a commercial or academic institution.	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)?	GEC1: Convey technical information to different audiences GEC2: Present information and ideas GEC4: Summarise information and ideas GEC5: Synthesise information

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		Discuss what should be included in a reference and why. Slido / Poll Ev could be used again to collect a word cloud of ideas. Expected teaching points include name of author, year it was written, the edition, title of the work and page number. Discuss the structure of a reference (slide 12–13). Illustrate the order to record each part of the reference. Discuss in-text citations and full references and why both are needed. Webpage: Author. Year. Title. [Online]. [Access date]. Available from: URL. Book: Family name, INITIAL(S). Year. <i>Title</i>. Edition (if not first edition). Place of publication: Publisher In-text citation (author, year) Expected teaching points include the full reference needed to be able to find the reference if any cross checking is		

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		What are the teaching and learning activities? How is the content being taught? How are key concepts being delivered so that the learners understand them and can apply them (retain the information)? How are English, maths and employability skills being developed? needed, and that the in-text citation alerts readers to the exact aspect which is being credited to that author. Task 2 (slides 14–16) Share examples of each type of reference. Provide references, including mistakes so that learners can identify them and add their own corrections (the slides include references with mistakes, followed by slides with the corrections). Task 3 (slide 17) Direct learners to write a short report on a given topic which they are not familiar with (nanotechnology). Use as many reference types as possible, add references as in-text citations and include a reference list. Plenary Peer-assess reports against criteria focused on the use of the Harvard referencing technique. Swap paragraphs with another learner to: 1. read the paragraph 2. check the in-text citations	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)?	

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		3. check that the reference list meets Harvard style referencing and includes a range of references 4. write a comment on the task to give feedback on what went well and suggest improvements.		
4	CS2.1: Conduct a review of independently selected scientific literature and other appropriate primary and secondary sources ▪ logically ordered discussion of themes, including how the literature	Structuring a review Resources required ESP task 1.4: Creating a literature review.ppt ESP task 1.4: Creating a literature review.docx Point, evidence, explain and link (PEEL) Starter (slides 4–5) Provide learners with an example paragraph from a literature review. Learners need to use highlighters to identify the main point, the supporting evidence, the explanation and the link to the overall context. Assess against example. Main point: single subject the paragraph is about. Supporting evidence: data or ideas extracted from the references.	Formative assessment Peer assessment of activities. Summative assessment Teachers assess paragraphs in tasks 2–4 against marking criteria.	GDC1: Use digital technology and media effectively by using a range of sources to find relevant information GDC5: Be safe and responsible online Using a range of websites to carry out research. GDC6: Controlling digital functions

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	papers relate to each other and to the project	What are the teaching and learning activities? How is the content being taught? How are key concepts being delivered so that the learners understand them and can apply them (retain the information)? How are English, maths and employability skills being developed? Explanation: the discussion which links the evidence to the main point. Link: the connection between the discussion and the project brief. Main Task 1 (slides 7–10) Learners are provided with paragraphs where a part of PEEL is missing. Identify what is missing and add to the article to improve it. Task 1a: Missing evidence Task 1b: Missing link Task 1c: Missing evidence Task 1d: Missing link Set the scene by providing learners with a brief for the ESP. Discuss how they need to refer back to this brief at every stage of the ESP. Brief (slide 11) Investigate the most suitable method that could be used to test for coeliac disease at home. Learners need to consider	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)?	GEC1: Convey technical information to different audiences GEC2: Present information and ideas GEC4: Summarise information and ideas GEC5: Synthesise information

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		What are the teaching and learning activities? How is the content being taught? How are key concepts being delivered so that the learners understand them and can apply them (retain the information)? How are English, maths and employability skills being developed? the reliability of the test and what materials would be needed in the kits. Task 2 (slides 11–12) Information on coeliac disease and testing Select two sources (use skills developed in lessons 1.1 and 1.2 to decide which sources to use). Support learners writing the review by using the grid. What is the main point? Include information from evidence, form an explanation and link back to the brief. Learners complete the grid in task 2 to support development of the review paragraph. For tasks 3 and 4, aim to progress from using the grid to write in extended prose. Task 3 (slides 13–14) Information on different kits Select two sources. What is the main point? Include information from evidence, form an explanation and link back to the brief. For this second opportunity, remove the grid and write in continuous prose. Task 4 (slides 15–16) Examples of different commercial kits	What have the learners learned and what skills have they gained? How are these reviewed or assessed (assessment methods include formative and summative)?	

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		Select three sources. What is the main point? Include information from evidence, form an explanation and link back to the brief. For this third opportunity, remove the scaffold grid and write in continuous prose. Include reference to cost of kits and technical specifications. Alternative brief (slides 17–18) Investigate the most suitable method that could be used to test water quality at home. You need to consider the reliability of the test and what materials would be needed in the kits. Task 2 (slide 19) Information on water quality and testing Select two sources (use skills developed in lessons 1.1 and 1.2 to decide which sources to use). Support learners writing the review by using the grid to complete the main point, information from evidence, form an explanation and link back to the brief. Learners complete the grid in task 2 to support the development of constructing the review paragraph. For tasks 3 and 4, aim to progress from using the grid to writing in extended prose.		

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		Task 3 (slide 20) Information on different kits Select two sources. What is the main point? Include information from evidence, form an explanation and link back to the brief. For this second opportunity, remove the grid and write in continuous prose. Task 4 Examples of different commercial kits Select three sources. What is the main point? Include information from evidence, form an explanation and link back to the brief. For this third opportunity, remove the scaffold grid and write in continuous prose. Include reference to cost of kits and technical specifications. Plenary Team quiz on Harvard referencing (slides 21–26) Questions found on accompanying PowerPoint. This activity assists with practising retrieval of lesson 3 content. Could be used as revision before the exam as a team or individual assessment.		

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