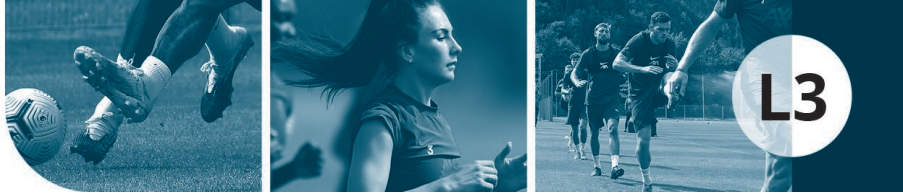
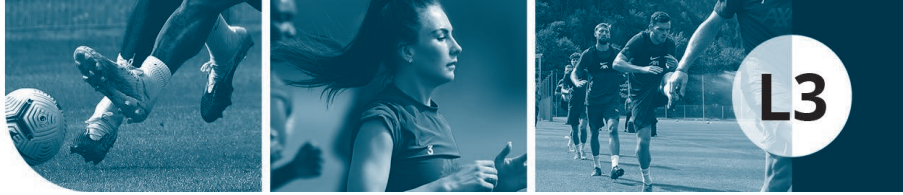
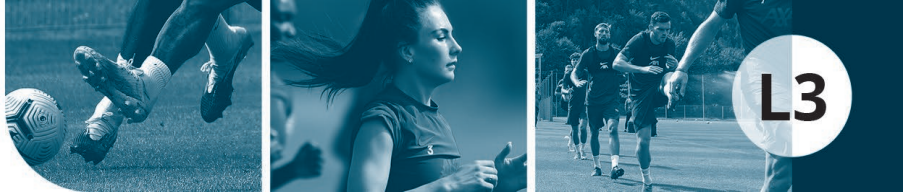


Unit title	Unit 3: Research Project in Sport
Guided learning hours	120
Number of lessons	60
Duration of lessons	2 hours
Links to other units	
• Unit 1: Health, Wellbeing and Sport • Unit 4: Ethics, Behaviours and Values • Unit 9: Nutrition for Physical Activity and Exercise • Unit 31: Influence of Technology in Sport and Physical Activity • Unit 34: Sport Development	

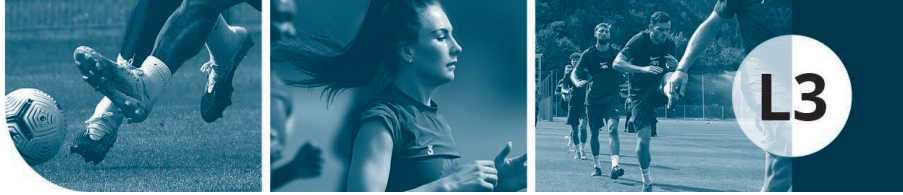
Key to learning opportunities			
AW	Assignment writing	**RS**	Revision session
GS	Guest speaker	**V**	Visit
IS	Independent study	**GW**	Group work



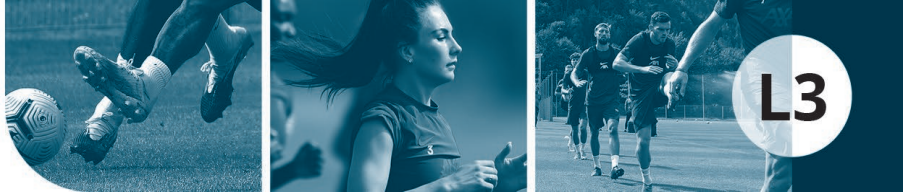
Lesson	Topic	Lesson type	Suggested activities	Resources
Learning aim A: Investigate different types of research methods and current trends in sports and exercise				
1	**Introduction** **A1:** Research purpose and methods • Types of research	GW	• **Tutor presentation:** outline the nature of the learning aims and the assessment task that learners will be expected to complete, using the specification, ensuring they understand relevant key terms from the specification. • **Tutor presentation:** introduce learners to the different types of research, their definitions and use by sports practitioners with clients. Quantitative, qualitative and mixed-methods research must be covered. • **Tutor-led discussion:** engage learners in a group discussion about different types of research and their use in sporting environments. Help learners to pull out the key points from the discussion. • **Paired activity:** ask learners to work online in pairs to investigate primary and secondary research and how they can use them in a sports science environment. For example, sports scientists, sports therapists and sports coaches use research to give them a better understanding of their clients' needs, expectations and outcomes. Learners could look for examples of how these types of research are used in a sport-specific role, e.g. a sports coach looking to improve a sprinter's performance. • **Plenary:** draw together the findings and ideas about the role of primary and secondary research in sports environments by emerging sports science practitioners.	Unit specification Presentation Computers for internet research
2–3	**A1:** Research purpose and methods	GW	• **Group activity:** groups to be split into qualitative group and quantitative group. Quantitative group are tasked with performing a fitness test protocol and asked to generate some data from	Research tasks



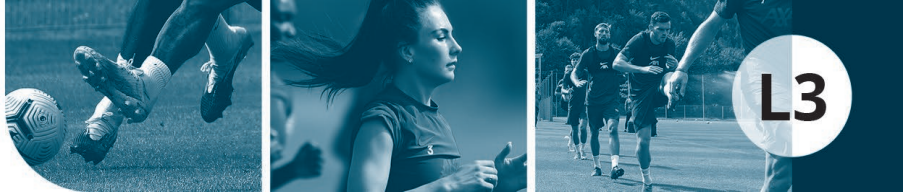
Lesson	Topic	Lesson type	Suggested activities	Resources
	• Types of research		within the group. The qualitative group will be given a questionnaire related to a sporting theme (such as student attitudes towards participation in sport and physical activity) and are tasked with collecting a set of views from a random selection of students. ○ Groups to feed back on their experiences, presenting their data. • **Tutor-led discussion:** engage learners in a group discussion about the different outcomes possible from the different types of research approach.	Facilities and equipment for fitness test Questionnaire example
4	**A1:** Research methods and purpose • Types of research	GS GW	• **Guest speaker:** invite in a guest speaker to discuss the different types of research they use within their role in the sports sector. The guest speaker could be, for example, a sports scientist, physiotherapist, sports therapist or nutritionist. • **Paired activity:** ask learners to work in pairs to review the content delivered by the speaker and to discuss the pros and cons of different types of research within the sports science industry.	Access to guest speaker
5	**A1:** Research methods and purpose • Research tradition • Deductive and inductive approaches	GW	• **Tutor presentation:** outline the concepts of deductive and inductive approaches to research. • **Paired activity:** ask learners to work in pairs to review a number of abstracts from sports-related research and determine whether the research is deductive or inductive. • **Group activities**: each group to research the definition and provide an overview back the group. ○ Research traditions to include:	Presentation Pre-prepared abstract examples Computers for internet research



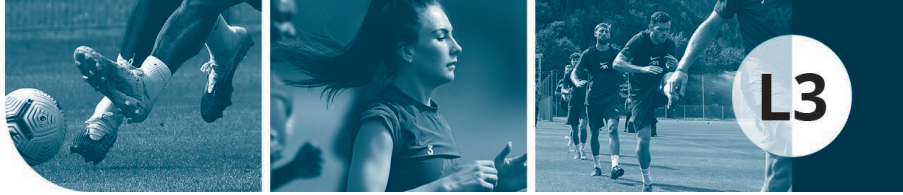
Lesson	Topic	Lesson type	Suggested activities	Resources
			▪ positivist ▪ Interpretative ▪ pragmatic ▪ causality. ○ Learners will present their findings to the whole group.	
6–7	**A2:** Literature search • Sources of literature	GW (GS)	• **Tutor presentation:** explain the purpose of a literature review within the research process. Discuss the different sources that are available to consult and refer to in the research process (peer-reviewed journal articles, theses and dissertations, conference literature, reports, textbooks, website and internet sources). • **Paired activity:** ask learners to work in pairs to review a range of sources of literature and discuss their relative worth within the research process. What are the most reliable sources and why? • **Group visit:** learners to be given a guided tour round the library facility, and shown where the relevant textbooks and journal articles are found for sports-related study. ○ The visit should also include how to access the library catalogue system and any online databases of literature sources as well as how to effectively search them to find relevant sources of information.	Presentation Access to library facility Computers for internet research Examples from a range of literature sources
8	**A2:** Literature search • Sources of literature	IS	• **Individual activity:** learners to undertake a research task where they are provided with a list of reference sources that they are asked to find using their (online) library search skills. Once they have found each reference source, they need to use the reference list to suggest at least two other reference sources that relate to the topic of the original source.	Research task Access to (online) library search



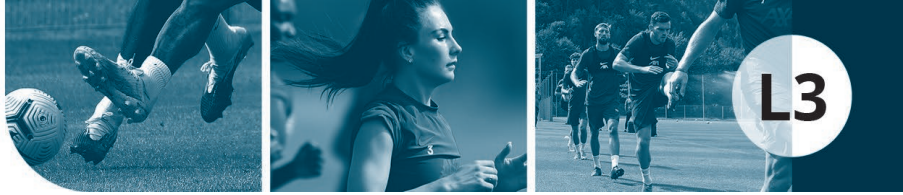
Lesson	Topic	Lesson type	Suggested activities	Resources
9–10	**A2:** Literature search • Referencing	GW	• **Tutor presentation:** the importance of referencing within the presentation of research. The session will cover the rationale behind the inclusion of citations, reference lists, and bibliographies • **Paired activity:** ask learners to work in pairs to review a range of sources of literature and identify the different referencing aspects included. Learners should discuss the nature of the referencing, the strengths and weaknesses of the sources and how useful they would be in developing knowledge of research in that area. • **Tutor-led discussion:** engage learners in a group discussion on how to cite reference sources correctly and how to write a correctly formulated reference for a bibliography utilising the Harvard system for each type of reference source (journals, books, dissertations, conference literature, websites, reports). Learners can be introduced to any referencing software packages to support his process. • **Paired activity:** ask learners to work in pairs to complete a series of correctly formulated references for a range of prepared reference sources (these could be from the research task in lesson 8). • **Plenary:** tutor-led discussion to review the reference attempts of learners and to clarify the correct processes.	Presentation Range of reference sources (journal articles, websites, textbooks, conference literature etc.)
11–12	**A2:** Literature search • Selection of literature	GW	• **Tutor-led discussion:** lead learners into a discussion about how to select appropriate reference sources to use in their research. ○ Consideration should be around making sure correct search terms are used, that a range of authors are used where possible and that the research is current.	Presentation Research topic areas



Lesson	Topic	Lesson type	Suggested activities	Resources
			○ The snowball technique of using reference sources to find new potential sources should also be introduced (as used in the research task in lesson 8). • **Paired activity:** provide some topic areas for research and ask learners to work in pairs to produce a list of reference sources that are annotated to explain how these were sourced and why they are relevant. ○ Learners to present their reference source lists back to the rest of the group. • **Plenary:** summarise learner experiences during the task.	Access to library andcomputers for internet research
13–14	**A3:** Review of literature • Assessing literature	GW	• **Tutor presentation:** a framework of how to assess a piece of research to determine whether it should be used in their own research. Provide a walk though example of how to apply the framework in the analysis of a quantitative research source and a qualitative source. ○ Areas to consider in this assessment framework should include; authors, vested interests of researchers, declared interests, date of publication, clear abstract, methods used to conduct the research across literature; time frames, populations included and excluded, sizes of samples, strengths and weaknesses of each selected piece of literature, common trends across the literature, generalised results, conclusions. • **Group activities:** get learners to work in small groups and apply the assessment framework questions to a series of reference sources and make a judgement to the appropriateness of the sources.	Presentation Range of reference sources (journal articles, websites, textbooks, conference literature etc.)



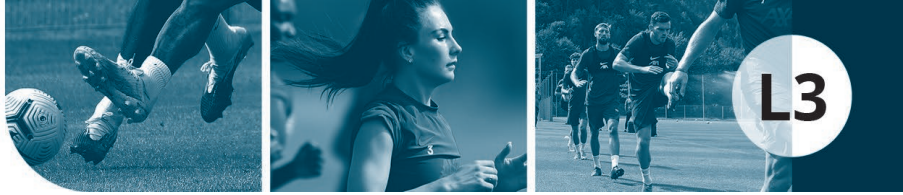
Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Plenary:** summarise learner experiences during the task and reinforce the key aspects of how to analyse a reference source.	
Learning aim B: Propose a research project in sport				
15–16	**B1:** Creating a proposal and forming research question, aim or hypothesis • Rationale • Research design	GW	• **Tutor presentation:** introduce learners to the importance of having a clear rationale as to why the proposed research could add value to the scientific knowledge in the area. • **Tutor-led discussion:** lead learners in a discussion about the range of benefits that sports-related research could have (to include areas such as performance enhancement, designs or use for sports technology, personal progression/improvement, contributing to knowledge and understanding, sports development). • **Tutor presentation:** learners should also be introduced to the concept of research design and how to match the most appropriate design to the type of study being proposed. Areas to cover should include: o a hypothesis and the null hypothesis o descriptive, such as a case study, naturalistic observation, survey o correlation, such as a case-control study or observation o experimental, such as field experiment, quasi-experiment. • **Group activities:** get learners to work in small groups and review a range of research studies, determining the rationale behind the research, their research design and the reasons for the design choice.	Presentation Computers for internet research



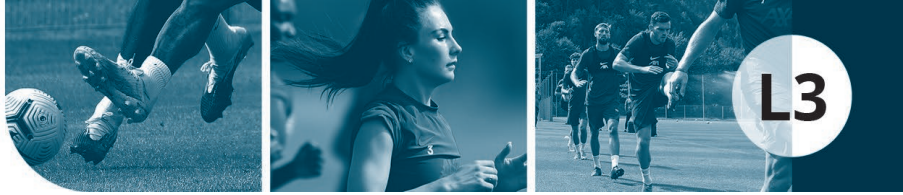
Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Plenary:** summarise learner experiences during the task and reinforce the key aspects.	

17–18	**B1:** Creating a proposal and forming research question, aim or hypothesis	GW
		IS
			• **Group activities:** produce a number of research activities (depending on group size) and arrange learners into groups to collect data as outlined in the brief. (This could be collecting field or lab-based fitness testing data using each other as subjects.)
			• On completion of this data collection exercise, the groups of learners will review the following in relation to their research activity.
			  ○ What could a research hypothesis be linked to in the testing undertaken?
			  ○ How could the data collection process be controlled?
			• Learners to present back to the group on how they would use the testing approach in their data collection to formulate a hypothesis.
			• **Plenary:** summarise learner experiences during the task and reinforce the key aspects linked to data collection.
				Data collection briefs
				Fitness testing equipment and testing environment

19	**B1:** Creating a proposal and forming research question, aim or hypothesis	GW	• **Tutor presentation:** learners should also be introduced to the different sampling techniques and how they could be applied to a variety of qualitative and quantitative approaches. • **Paired activity:** learners to work in pairs to review a range of research examples, focusing on the size, nature and selection of participants. Learners to consider the relevance of the sampling and the impact this may have on the validity of the outcomes.	Presentation Research papers for review
20	**B1:** Creating a proposal and forming research	IS	• **Tutor-led discussion:** discuss the impact of ethical issues in research within the sports environment, building on their feedback from the previous session.	Computers for internet research



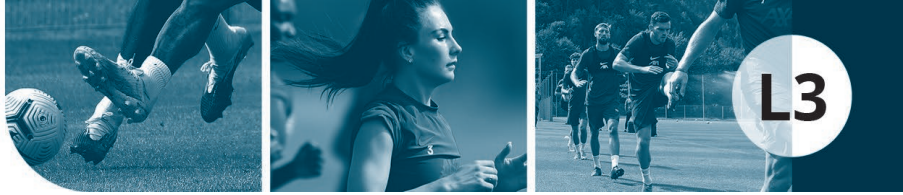
Lesson	Topic	Lesson type	Suggested activities	Resources
	question, aim or hypothesis • Research ethics		• **Individual activity:** ask learners to carry out internet research about ethical issues in research, as outlined by the British Association of Sport and Exercise Sciences (BASES) Code of Conduct. ○ Learners should make notes about ethical clearance, informed consent, confidentiality/data protection, safety of participants and the implications of not working ethically and legally. • **Plenary:** summarise learner experiences during the task and reinforce the key aspects linked ethics.	
21	**B1:** Creating a proposal and forming research question, aim or hypothesis • Risk assessment	GW	• **Tutor-led discussion:** discuss the importance and impact of health and safety on the quantitative research process**.** • **Paired activity:** learners to work in pairs to develop a fitness testing protocol in a chosen area. Learners to consider what risk there may be to participants, how they can mitigate these risks and provide sufficient information to participants so they understand these risks and provide informed consent. ○ Learners to provide feedback to the group on their protocol and risk assessment. • **Tutor-led discussion:** discuss the importance of participant health screening – why should it happen and what should be included.	
22	**B1:** Creating a proposal and forming research question, aim or hypothesis • Research ethics	GS	• **Guest speaker:** invite a guest speaker from the sport and exercise science field (from a local university) to come and provide some insight into how they approach research ethics, informed consent and managing health and safety.	Access to guest speaker



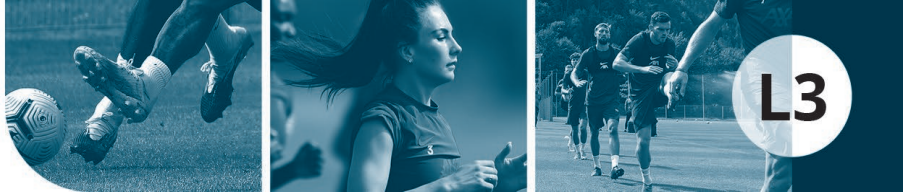
Lesson	Topic	Lesson type	Suggested activities	Resources

23–24	**B1:** Creating a proposal and forming research question, aim or hypothesis
	• Research design
		GW	• **Tutor-led discussion:** introduce learners to quantitative research designs and how they are used by the researcher in a sports science environment.
			• **Tutor presentation:** explain to learners the different types of quantitative research designs (experimental research design, cross-sectional survey design and longitudinal design).
			  ○ Give learners information about how these different designs are used in sports environments, their benefits and weaknesses for research purposes.
			  ○ It would be useful to show learners examples of the different types of quantitative design.
			• **Group activities:** learners to be split in groups to discuss the differences between field-based and lab-based research designs and the type of data they might produce.
			  ○ It would be useful if learners could undertake a field-based and lab-based equivalent test (e.g. VO2 max in the lab and the multi-stage fitness).
			• Groups to feed back on their findings and how the data may differ.
				Access to lab/field-based testing environment and equipment if relevant

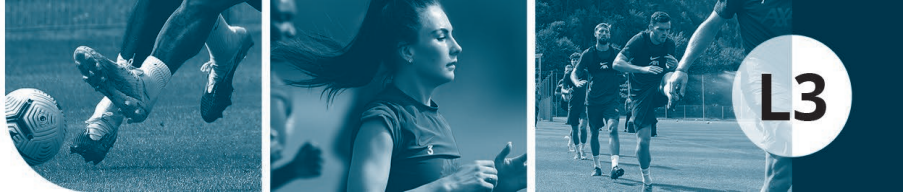
25–26	**B2:** Data collection for research • Techniques and types of data	GW	• **Tutor presentation:** learners should also be introduced to the different techniques used to collect data – qualitative, case studies and quantitative and the different classifications of data. • **Group activities:** learners to be split in three groups and each assigned a method of data collection. They must then visit the library/access online library resources and use their search techniques to find three examples of their assigned collection technique.	Presentation Access to library or computers to access online resources



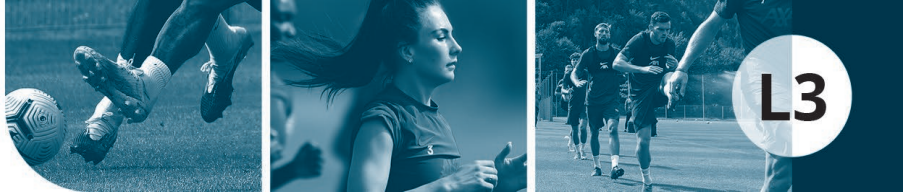
Lesson	Topic	Lesson type	Suggested activities	Resources
			• These examples will be presented back to the group, explaining the type of outcomes the type of research generates. • **Plenary:** summarise learner experiences during the task and reinforce the key aspects of each method of data collection.	
27–28	**B2:** Data collection for research • Techniques and types of data	GW	• **Group activities:** create a focus group environment with each group having a different focus area. Small groups need to spend time developing a set of questions to ask in relation to their focus area (hypothesis) to make sure their research objectives are met, then link up with another group to ask their questions, record responses and review the data. ○ This action will then be reciprocated with the group initially asking the questions becoming the focus group participants. • **Plenary:** review the focus group approach, its strengths and weaknesses and the type of research areas where the method could be applied.	Focus group research questions
29	**B2:** Data collection for research • Techniques and types of data	V	• **Visit:** this should be a visit to a sports college or university with a good sports science research area. For example: ○ a local university with a sports science research area ○ a sports club. ○ NB: The visit should allow learners to observe research in action and take part, where possible, in different research methods. Learners should be given access to journals, books, papers and theses.	Access to visit premises and transport
30–31	**B2:** Data collection for research	IS	• **Tutor presentation:** recap with learners the qualitative approach to research. Stress that it uses non-numerical data such as words, images or behaviours.	



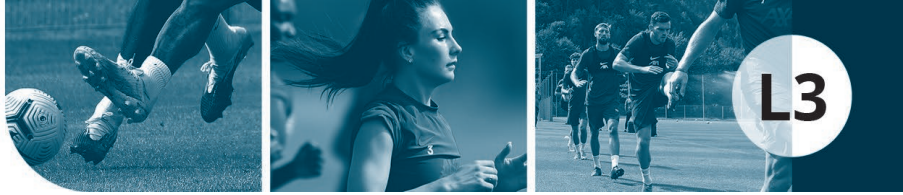
Lesson	Topic	Lesson type	Suggested activities	Resources
	• Techniques & and types of data		• What is the purpose of qualitative research and how is it used in sports science? Highlight its importance in ascertaining people's opinions, beliefs or emotions. • **Individual activity:** ask learners to develop a questionnaire that aims to capture the views on an emotive topic within sport, such as fast food market, salaries of top sports performers etc. o Administer this questionnaire to a sample of the group, collate the results and draw some conclusions. o Report findings back to the rest of the group along with the strengths and limitations of the method of data collection. • **Plenary:** summarise learner experiences during the task and reinforce the key aspects of qualitative research methodology.	
32–33	**B3:** Validity and reliability in research	GW	• **Group activity:** tutor to set up a classroom-based multiple trial test of accuracy (such as throwing an object at a target) using multiple subjects. o The conditions of the test will deliberately vary for the volunteers (that might include distance thrown, type of projectile, size of target). o The scores will be recorded and compared intra-personally and conclusions drawn from the results as to the skill/accuracy of the highest performing subjects etc. • **Tutor-led discussion:** lead learners in a discussion around the nature of the task, the instructions, methods etc., to highlight errors and inconsistencies that can have implications on the results. This being used to introduce and illustrate the key principles relating to reliability and validity.	Relevant materials for the group task Presentation



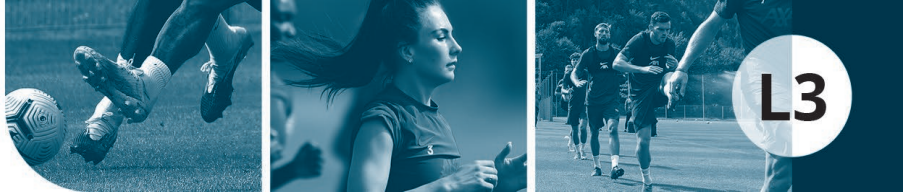
Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Tutor presentation:** learners should also be introduced to the key definitions when collecting data: validity (construct, criterion, concurrent, predictive, internal, external, ecological), precision, accuracy, reliability, triangulation of data, outliers and how this relates to the research methods used. • **Paired activity:** learners to review research papers (used in previous sessions) to comment on how the researchers had tried to control reliability and validity in their studies.	
34–35	**B3:** Validity and reliability in research	GW	• **Group activity:** learners to work through a battery of fitness tests, both as the researcher and the subject, and consider how the concepts of validity and reliability impact on results. ○ Tests such as sit and reach, sprint tests, jump tests should be undertaken, looking at the protocols involved, technique, how the results are measured (levels of accuracy), the use of normative data, field-based tests vs lab-based test. ○ Learners should be tasked to identify examples of different types of validity, e.g. internal validity, external validity, face validity and ecological validity. Also discuss different types of reliability, e.g. test-retest reliability, inter-observer reliability and internal consistency reliability. • **Plenary:** summarise learner experiences during the task and reinforce the key aspects of each method of data collection.	Access to testing environment and equipment Testing protocols
36	**B3:** Validity and reliability in research	GW	• **Tutor presentation:** review the application of reliability and validity to the quantitative research activity in the last sessions, then extend this to consider how this relates to qualitative research.	Previous questionnaire and focus group information



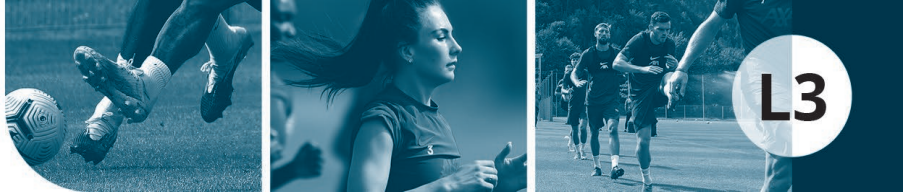
Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Group activity:** learners to reflect back on their questionnaire delivery and focus group activity from previous sessions and the results that were obtained. Learners to apply the principles of reliability and validity to these research activities and suggest how they could be improved/adapted to provide better results.	
37–39	Assessment of learning aims A and B	AW	• **Individual activity:** leaners spend six hours completing the Pearson Set Assignment for the unit. Learners to be given access to computers with internet access, textbooks, journals and magazines.	Pearson Set Assignment
Learning aim C: Apply investigation skills for a research project in sport				
40–41	**C1:** Applying research practice principles to an investigation • Project management • Professional behaviour	GW	• **Tutor presentation:** introduce learners to the principles of project management and how they relate to scientific investigations. This would be extended to include a discussion around the standards of professional behaviour from a researcher: ○ honesty, integrity and impartiality ○ punctuality ○ empathy and active listening ○ data protection and confidentiality. • **Paired activity:** ask learners to work in pairs to review a longitudinal study provided by the tutor. ○ They would need to consider how the lead researcher might have applied the project management theory to the study with specific consideration of: • managing participants • communication • keeping records of project milestones	Research outlines for a number of longitudinal research projects



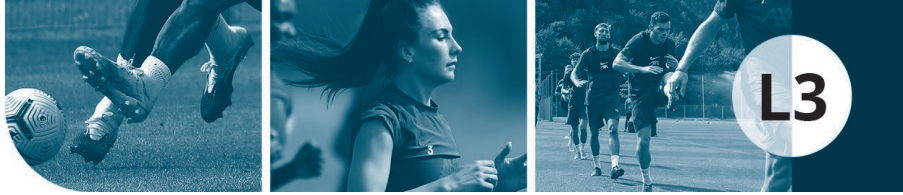
Lesson	Topic	Lesson type	Suggested activities	Resources
			• note taking • problem solving • scheduling and timekeeping • contingency and remedial actions. • Learners to present a summary of their study back to the group, along with their analysis of how they would have managed project.	
42–43	**C1:** Applying research practice principles to an investigation • Investigation practice	GW	• **Group activities:** learners split into groups to complete a lab-based practical data collection (as determined by the tutor, e.g. a Wingate bike sprint test to look at the effect of fatigue on sprint performance/power output). • **Individual or paired activity:** ask learners to use review the processes they undertook to produce the test results. Learners should consider: ○ selecting information and data from appropriate sources ○ use of relevant processes and methods ○ operation and maintenance of instrumentation, materials and equipment ○ risk assessments and management ○ recording results with accuracy and precision ○ checking data for accuracy ○ tallying results. • **Tutor-led discussion:** draw together the information learned from the individual activities.	Access to lab/field-based testing environment and equipment This could be a visit to a research
44	**C1:** Applying research practice principles to an investigation	GW	• **Tutor-led discussion:** review the implications of managing the quantitative research process and contrast against the management of qualitative research.	Previous questionnaire and



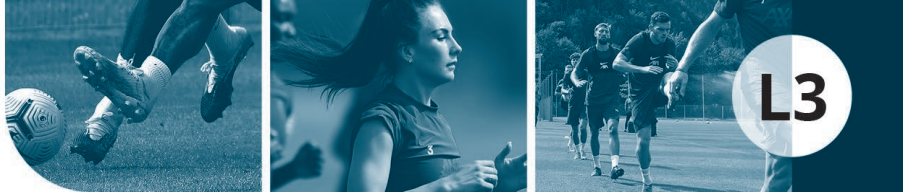
Lesson	Topic	Lesson type	Suggested activities	Resources
	• Investigation practice		• **Individual or paired activity:** ask learners to review the processes they undertook to produce the data in the questionnaire and focus group considering: ○ selecting information and data from appropriate sources ○ use of relevant processes and methods ○ risk assessments and management ○ recording results with accuracy and precision ○ checking data for accuracy ○ tallying results.	focus group information
Learning aim D: Draw conclusions from a research project in sport				
45	**D1** Interpreting data and information • Qualitative data analysis		• **Tutor presentation:** introduce learners to the principles of how to analyse quantitative data. Learners should be taken through the key aspects: ○ steps ○ organisation, coding – thematic, descriptive ○ in-vivo ○ pattern ○ validation ○ points of focus, e.g. content, attitude, actual versus hypothetical experience ○ types of qualitative analysis, e.g. content, narrative, discourse, framework, grounded. • **Tutor-led discussion:** around the pros and cons of qualitative research driven by the types of analysis that are possible. Introduce some examples of qualitative research, focusing on the	Presentation



Lesson	Topic	Lesson type	Suggested activities	Resources
			results and conclusions, to discuss the relevance and implications of these types of findings.	
46	**D1** Interpreting data and information	GS	• **Guest speaker:** Invite in a guest speaker who is involved in qualitative research to discuss their approaches to analysing their data.	Guest speaker from local college/university
47–48	**D1** Interpreting data and information • Data reduction and coding	GW	• **Tutor-led discussion:** introduce learners to the concept of data reduction in qualitative analysis (open, axial, selective coding). • **Paired activity:** provide learners with some example of qualitative responses (transcripts of an interview etc.) and task the pairs with applying the data reduction approaches. • **Group activities:** join with other groups to collate results and draw some conclusions from the interviews in relation to the research question. • **Plenary:** summarise learner experiences during the task and reinforce the key aspects of data reduction in qualitative research.	Qualitative research responses (interview transcripts, case studies etc.)
49–50	**D1** Interpreting data and information • Quantitative data analysis	GW	• **Tutor presentation:** introduce learners to the principles of how to analyse quantitative data. Learners should be taken through the key aspects: ○ organising data, quantitative data, e.g. range, rank order, frequency ○ calculation – mean, median, mode and standard deviation ○ visualising information – distribution curves and correlation ○ inferential statistics, correlation and association of information ○ meaning and relevance of statistics (percentage change, effect size).	Presentation Example quantitative data



Lesson	Topic	Lesson type	Suggested activities	Resources
			• **Paired activity:** provide learners with some data from quantitative research (this could be their own data collected from previous practical activities) and apply some of the analytical techniques to help draw some conclusions. o This would include calculating: o mean, median, mode and standard deviation o significant difference o correlation. • **Tutor-led discussion:** around the pros and cons of quantitative research driven by the types of analysis that are possible.	
51	**D1** Interpreting data and information	GW	• **Tutor presentation:** present how to interpret data in research papers**,** from across both qualitative and quantitative examples. Provide guidance on how to approach reading results sections – what do the data mean, what is the shorthand/abbreviations used, what do the tables/graphs/charts aim to show. • **Paired activity:** provide learners with a range of quantitative and qualitative research papers to focus on the results sections. Learners can apply the guidance on how to approach these sections and compare the type of data included to the data they have collected in their various practical data collection activities during the unit research – how is the raw data summarised and presented within the results section?	Presentation Research papers
52–53	**D2** Drawing conclusions **D3** Presenting information	GW	• **Tutor-led discussion:** around the importance of drawing conclusions from both quantitative and qualitative research. Consider the following aspects. o Interpreting data, finding patterns and relationships.	Example research papers



Lesson	Topic	Lesson type	Suggested activities	Resources
			○ Triangulating and member checking. ○ Relating data to original research question, aims or hypothesis. ○ Considering issues with the research that would impact validity, reliability, precision and accuracy. ○ Alternative readings and perspectives. • **Paired activity:** provide some example research papers and ask learners in their pairs to analyse the following: ○ how the papers are structured ○ the results and conclusions, to discuss the relevance and implications of the findings ○ how the results are presented – the use of diagrams. • **Plenary:** learners to feed back their thoughts on the papers. Tutor to summarise learner views and reinforce the key aspects of how research papers are structured and present their findings.	
54–60	Assessment of learning aims C and D	AW	• **Individual activity:** leaners spend 14 hours completing the Pearson Set Assignment for the unit. Learners to be given access to computers with internet access, textbooks, journals and magazines.	Pearson Set Assignment Computers for internet research and assignment completion

Pearson is not responsible for the content of any external internet sites. It is essential for tutors to preview each website before using it in class so as to ensure that the URL is still accurate, relevant and appropriate. We suggest that tutors bookmark useful websites and consider enabling learners to access them through the school/college intranet.