# Teaching adviceHealth and Movement Science Year 11–12

## Overview of teaching and learning

As stated in the *Health and Movement Science 11*–*12 Syllabus*, where appropriate, case studies, practical application, and research skills are to be integrated throughout student learning in the focus areas Health for Individuals and Communities and The Body and Mind in Motion, and the Collaborative Investigation and the Depth Studies.

### Practical application

Practical application allows students to develop a hands-on understanding of health and movement concepts and an understanding of how theory can be applied to real-life situations. Practical application opportunities enhance the development of students’ knowledge, understanding and skills. For example, students perform various movements such as jumping and catching whilst applying relevant biomechanical principles. Key learning takes place through the discussion of observations and measurements made, what they might mean, and how they might be interpreted or explained.

### Case studies

Use of a case study requires students to analyse a specific situation and discuss how the different components relate to the course concepts. A case study can refer to a real-life or hypothetical event, organisation, individual or group of people, and/or issue. In *Health and Movement Science 11*–*12* case studies can be used to explore, compare and contextualise health and movement concepts.

When exploring course concepts, case studies should reflect a variety of population groups (including Aboriginal and Torres Strait Islander people, people with disability and people from diverse cultural backgrounds), physical activities and sports, genders, and geographical locations. Case studies can include comparisons such as:

individuals and groups or communities

metropolitan and rural or remote groups

sedentary and physically active individuals

recreational participants and elite athletes.

Case studies provide students with opportunities to:

assess the application of health and movement concepts

question, analyse and interpret sources to draw conclusions.

There are different approaches to case studies. When creating a case study, consideration of the problem-solving model could inform teaching practice. For example, a problem-solving case study may ask students to critically examine an issue related to a specific individual or group, and then recommend and justify solutions to the issue, integrating theory and practice. A student may be asked to develop solutions to problems or recommendations for future action.

### General information about research skills, data collection and technology

The research skills required to undertake a Collaborative Investigation or a Depth Study are embedded in the content statements. In each focus area, opportunities have been identified for students to develop an understanding of research methodologies through practical application of content. Teachers may find other opportunities to embed and develop students’ research skills throughout the content. Where appropriate, opportunities should be provided for students to work collaboratively.

The research skills that students use include:

creating questions

collecting types of data, eg primary and secondary, qualitative and quantitative

using sources of data, eg on individuals and groups, print and digital

applying methods, eg interviews, surveys, focus groups

considering the reliability, validity and credibility of the research

using ethical practices

analysing results

using findings to draw conclusions.

Primary and secondary data collection, interpretation and analysis may provide a way for students to deepen their understanding of course concepts. Primary data collected from student involvement in practical activities may come from surveys, observations, experiments, questionnaires, focus groups and interviews. Headings provided to students can clarify how information can be organised.

Technology may also have a role in the collection and analysis of data, such as personal physical activity tracking devices, apps and digital recording devices.

Secondary data may come from books, journals, articles, webpages, blogs and podcasts, in the form of numerical data, visual evidence (computer-generated images, photographs, videos, drawings and models), and written or spoken accounts. Secondary data can be used for analysis and/or for comparisons to primary data.

Prior to requiring students to collect data, teachers should discuss the ethical principles of conducting research. This includes the concepts of:

informed consent

do no harm to the participants, researcher or community

the individual’s right to privacy.

Teachers need to ensure that data collection methods do not require individuals to disclose personal information about their health status or health behaviours. Data collection practices need to be consistent with school policies.

Teachers should make use of information and communications technology (ICT). As well as the capture and recording of data for analysis, ICT could also assist students to:

* collect, organise and analyse data
* interpret movements and/or movement techniques
* replicate laboratory activities
* communicate with others online to share ideas and discuss content
* present findings and ideas.

**Further information on how to conduct a research task or investigation**

#### Creating a research question

The research question is developed in the context of the selected area of research. The research question drives the investigation and so must be clear, focused, researchable and meaningful.

#### Developing a method(s) to collect data

Students may choose to undertake primary or secondary research, or a combination of both.

**Primary research** is a first-hand investigation where data can be gathered from surveys, interviews, focus groups, observations or experiments.

**Secondary research** is an investigation of existing information and data which is gathered by undertaking a literature review or secondary data analysis.

A combination of primary and secondary research will increase the validity and reliability of the research findings.

Students may need to be supported by providing sets of resources linked to the topic to reduce resource seeking requirements. Students can select the resources they wish to use from those identified by the teacher. Select resources that are accessible as well as ones with varying levels of text complexity to enable students to work independently to find the relevant information.

When collecting data, students should consider whether qualitative, quantitative or both types of data would support their research goal.

**Quantitative** data is any information that can be reduced to a set of numbers. It measures how many, how much or how often. It is presented in numerical value such as graphs and tables.

**Qualitative** data is information that is usually expressed in words and narratives. It considers the thoughts, feelings, opinions and/or experiences of individuals, groups or communities. It is presented in written text.

Examples include:

* survey, interview questions, focus groups
* discussing ethical considerations.

Ethical considerations in research are a set of moral principles that guide your research design and practices.

**Informed consent:** Participants in research must provide informed consent. The term consists of two elements that require consideration: informed and consent. Participants who take part in the research must understand what the research involves, including the purpose of the research, methods of data collection and how the data will be used. When participants consent to the research, they must do so voluntarily.

**Privacy:** Participants involved in research have a right to privacy. This means keeping information confidential and their identity anonymous. For confidentiality to be maintained in the research process, the participant’s identity, personal information and responses should not be disclosed to anyone outside of the research team unless otherwise agreed upon by the participant. Anonymity can be protected by not referring to participants’ identifiable characteristics in the research findings. To ensure the privacy of participant data, files collected should be stored safely and securely, with personal identity removed as soon as possible.

The nature of some research methods, such as focus groups, will make it difficult to guarantee confidentiality. During the informed consent process the researcher will need to explain to participants the need to respect each other’s confidential information.

**Integrity**: The researcher must maintain the integrity and trustworthiness of their conduct and of the data they produce. To do this, the researcher must keep complete and accurate records of all research, use reliable and valid research methods, present all findings honestly and accurately, maintain objectivity when conducting research, and where secondary sources are used, cite ownership appropriately.

**Respect:** The researcher must show respect for participants in their research. This includes voluntary participation and the right to change their mind and withdraw from the research at any time. Participants should be informed of new information that might emerge in the process of research, which may impact their participation in the research. Researchers must identify and assess potential risks of harm to their participants, including psychological, physical and social harm. Such risks may be more evident when exploring sensitive topics.

#### Discussing validity, reliability and credibility of data collection

Validity and reliability are concepts used to guide and assess the quality of research undertaken. They indicate how well a method or technique measures something. Validity refers to the appropriateness of a research methodology and reliability refers to the consistency of a measure. The credibility of data collection refers to the accuracy and trustworthiness of the data collected.

It is important to consider validity and reliability in the research design. Validity and reliability should be considered early in the planning stage of research when deciding the sample and research method. To produce valid results, the sample group must reflect the population you are researching. For example, if a student is researching young people’s meaning of health, then participants in their study should be between the ages of 12 and 24 (‘young people’ as defined by the Australian Institute of Health and Welfare) with a diverse range of backgrounds and experiences.

The method the student uses to collect their data must be appropriate and measurable for the research focus. For example, if a student is researching young people’s meaning of health, surveys or focus groups would be valid methods for collecting data, whereas observations or experiments would not be.

To produce reliable data, the method students use to measure their research focus should produce stable and consistent results when the test is repeated with the same sample group or conducted by another researcher. To achieve this, the method for gathering the sample group needs to be representative of its population. Probability sampling methods, such as random sampling, are those that randomly select a group from the total population and can be used to gather reliable and unbiased results.

When students are collecting secondary data they will need to evaluate the credibility of each source. Criteria that may support students in evaluating the credibility of secondary sources include, determining the currency of the source, its relevance to the research focus, the accuracy of the information presented and the credentials of the author.

Scaffolds, including checklists and questionnaires, can support students to evaluate the reliability, validity and credibility of data collection.

#### Presenting findings and drawing conclusions

Students need to present the findings of their research in a clear and logical format and one that conveys the main features of the findings. Consideration needs to be taken into the types of data the students have collected from their research. Tables and graphs are the most common form of presenting quantitative data. Tables are more detailed and show the actual values, whereas graphs are a visually attractive way of presenting data and are useful in showing relationships and trends. Written text is used to present qualitative data.

The presentation of findings in relation to the research question may be written, oral, visual or multimodal. Students should be given the flexibility to deliver their findings using their preferred mode of communication.

Suggestions for the mode of presentation delivery include, but are not limited to the following:

**Written report:** When presenting research, some form of a written report is necessary. The report should communicate the main features of the research in a clear and logical progression.

Written reports may include the following sequence: introduction, background information, methodology, results and discussion and conclusion.

Some students will benefit from access to a clear scaffold that outlines purpose, required steps to gather, collate and present information, including a checklist that can be ticked off

**Oral presentation:** An oral presentation provides the opportunity for students to address an audience about the findings of their research.

**Visual:** A visual presentation may include, but is not limited to, a poster or panel exhibit, slide show presentation or video presentation.

**Multimodal presentation:** A multimodal presentation uses two or more modes of communication, eg visual and written.

Drawing conclusions is the final step in the research process. The conclusion is where the student brings everything together from the research to formulate an answer to their research question or prove or disprove their research hypothesis. Students should report the most significant findings to support their conclusion to the research problem. Students will draw on their conclusions to then make recommendations for action or suggest directions for further research questions.