MATILDA

SPORT

AND
RECREATION

QCE UNITS 1 & 2

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DISCLAIMER

Any outdoor adventure activities can be dangerous. Participating in activities that are beyond your capabilities or when you do not have adequate experience, skill, regard to safety, or suitable equipment can result in serious injury or death. This workbook aims to provide you with information that can assist you to investigate, plan, perform and evaluate activities – as a student of Sport and Recreation – so you can undertake activities safely and with enhanced enjoyment.

The information in this workbook is provided on the basis that you and your teacher take responsibility for assessing the relevance of the information to your circumstances and needs. You use the information in this workbook at your own discretion and risk. You are responsible for the decisions you make, and you will be solely responsible for any damage or loss that results from such use.

FITNESS FOR SPORT AND RECREATION

Being fit can improve an individual's participation and performance in their chosen sport or physical recreation pursuit. Effectively training to improve fitness for a particular physical activity requires knowledge about the components of fitness, how our bodies respond to exercise, the different training methods, and how to organise, structure and schedule a training program.

In this unit, you will focus on the objectives and subject matter outlined in the diagram below.

The process you are following is called 'action research'. It means you are learning by doing. Action research is a cycle, not a one-way street. Using this unit, you will regularly revisit each step in the cycle.

ACTION RESEARCH » FITNESS FOR SPORT AND RECREATION

INVESTIGATE   PLAN   PERFORM   EVALUATE

— ACTIVITIES and STRATEGIES involved in FITNESS AND TRAINING to enhance OUTCOMES —
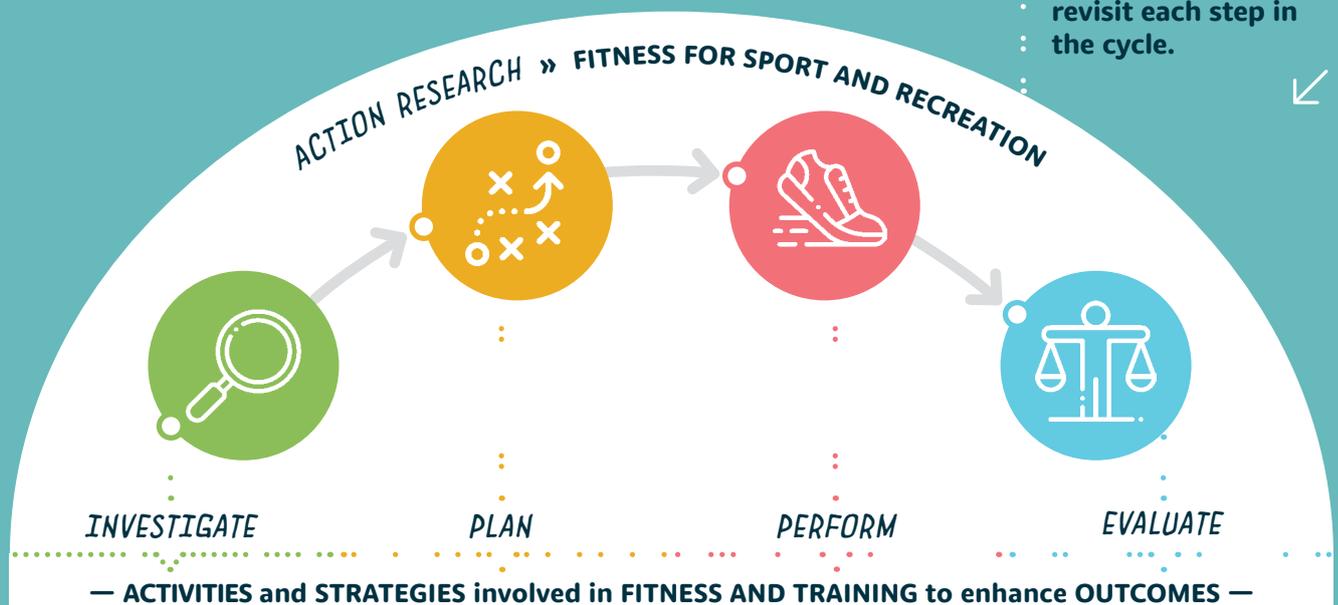
☑ **Learn by doing:** Actively participate in training sessions.

☑ **Document your findings:** Ask questions, search for evidence, make observations and reflect on activities.

☑ **Be curious:** Interview a volunteer or an employee from the fitness industry.

☑ **Outline details:** What, who, when, where are how?

☑ **Build a framework:** Use your investigations to inform your plan.

☑ **Test your plan:** Change your plan according to your findings.

☑ **Participate:** Bring to life the strategies you have investigated and planned.

☑ **Review:** Be prepared to adjust your plan and test your performance again.

☑ **Be flexible:** Performance is developmental and needs to be built over time.

☑ **Analyse:** Assess the strengths and limitations of your investigations, plans and performances.

☑ **Interpret:** Draw together these assessments to form a summary or an outcome.

☑ **Reflect:** Reflect to come to new understandings.

ASSESSMENT LOG

When you see this icon, it is a reminder to turn to the Assessment Log at the end of the relevant module to document your learning. By filling in the Assessment Log as you go, you are continually building towards the assessment. You can update your Assessment Log at any time as your understanding grows.

FOLIO OF WORK FOR MODULE 1:
FITNESS

Topics		Tasks	Activities and strategies	Completed (✓)
1	What is fitness?	**1.1:** What does 'being fit' mean?	**1.1:** Defining fitness	☐
		1.2: The components of fitness	**1.2:** Exploring the components of fitness	☐
		1.3: Fitness profiles	**1.3:** Creating a fitness profile	☐
2	Fitness tests	**2.1:** The specificity principle of fitness tests	**2.1:** Selecting the right fitness tests	☐
		2.2: Different fitness tests	**2.2:** Exploring different fitness tests	☐
		2.3: Fitness testing results	**2.3:** Reviewing your results	☐
3	How the body gets fit: The body's response to exercise	**3.1:** The body's short-term response to exercise	**3.1:** Observing short-term responses: Participate in the YMCA three-minute step test	☐
		3.2: The body's long-term adaptations	**3.2:** Researching long-term adaptations	☐
		3.3: Identifying intensity: Heart rate, rate of perceived exertion, and the talk test	**3.3:** Exploring heart rate	☐
4	Staying fit: Injury prevention	**4.1:** Technique	**4.1:** Teaching technique	☐
		4.2: Warm-ups	**4.2:** Investigating warm-ups	☐
		4.3: Cool-downs	**4.3:** Investigating cool-downs	☐
	Assessment	**Assessment Log 1: Project**	🔍 **Step 1:** Investigation Log	☐
			⊕ **Step 2:** Planning Log	☐
			👟 **Step 3:** Performance Log	☐
			⚖ **Step 4:** Evaluation Log	☐

FOLIO OF WORK FOR MODULE 2:
TRAINING

	Topics	Tasks	Activities and strategies	Completed (✓)
5	Training methods	**5.1:** Circuit training	**5.1:** Working out: Circuit training	☐
		5.2: Continuous training	**5.2:** Working out: Continuous training	☐
		5.3: Interval training	**5.3:** Working out: Interval training	☐
6	Training principles	**6.1:** Training principle: Specificity	**6.1:** Planning training that is specific	☐
		6.2: Training principles: Progression, overload and reversibility	**6.2:** Scaling up and scaling down	☐
		6.3: Training principle: Tedium	**6.3:** Planning training that has variety	☐
7	Exploring a training type: Resistance training	**7.1:** The elements of resistance training	**7.1:** Exploring resistance training	☐
		7.2: Plan, perform and evaluate a resistance training session	**7.2:** Creating a resistance training session	☐
8	Training sessions	**8.1:** Plan a training session	**8.1:** Planning a training session	☐
		8.2: Deliver a training session	**8.2:** Delivering a training session	☐
		8.3: Adapt a training session	**8.3:** Scaling up or scaling down	☐
9	Customising training sessions for different cohorts	**9.1:** Older adults	**9.1:** Exploring suitable training for older adults	☐
		9.2: Children	**9.2:** Exploring suitable training for children	☐
		9.3: Develop a training session for a specific cohort	**9.3:** Planning, performing and evaluating a training session for a specific cohort	☐
10	Where to from here?	**10.1:** The fitness industry in Australia	**10.1:** Researching the Australian fitness industry	☐
		10.2: Vocational pathways and employment opportunities in the fitness industry	**10.2:** Investigating employment opportunities and vocational pathways in the fitness industry	☐
		10.3: The soft skills of fitness professionals	**10.3:** Practising soft skills	☐
	Assessment	**Assessment Log 2: Performance**	**Step 1:** Investigation Log	☐
			Step 2: Planning Log	☐
			Step 3: Performance Log	☐
			Step 4: Evaluation Log	☐

PROJECT

The first assessment of this unit is a project. For this assessment, you will investigate, plan and perform (implement) a fitness activity or strategy. You will then evaluate the success of the activity or strategy.

Name of the fitness activity or strategy

_____

_____

_____

Conditions of the task

_____

_____

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_____

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_____

_____

Context

_____

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PERFORMANCE

The second assessment of this unit is a performance. For this assessment, you will plan and perform (implement) a fitness activity (for example, a training session). You will then evaluate the success of the activity.

Name of the fitness activity

Conditions of the task

Context

FITNESS

In this module, you will explore what being fit means and delve into the various components of fitness. You will also participate in different fitness tests, look at how physical activity affects the body, and learn how to stay fit by preventing injuries occurring.

PIRFAM FOR FITNESS

To evaluate activities and strategies related to fitness in this module, you will use the PIRFAM framework. In this module, the PIRFAM acronym stands for:

- **P**lanning
- **I**nstructions
- **R**elevance
- **F**eedback
- **A**djustments
- **M**otivation.

A good analysis of a fitness activity or strategy identifies the strengths and limitations of the activity or strategy according to each factor of the PIRFAM framework. You can also use the framework to improve your performance by applying each PIRFAM factor to your own activities and strategies. See Table 2 for an example of a completed PIRFAM evaluation for a fitness activity.

TABLE 1 > PIRFAM factors for fitness activities and strategies

PIRFAM factor	Examples of evaluation criteria
P Planning	» Were the goal/s of the fitness activity or strategy clearly explained? » Was the activity organised and well planned? » Was all the equipment set up before the activity started?
I Instructions	» Were the instructions clear? Were the instructions easy to hear and understand? » Was the information sufficiently detailed so you knew how to complete the activity properly? » Did the person running the activity explain and demonstrate the exercises to be completed?
R Relevance	» Was the activity or strategy relevant to the participants' fitness goals? » Did the activity or strategy target the relevant components of fitness? » Was the activity or strategy suitable for the target group (the participants)?
F Feedback	» Did the person running the activity provide positive and constructive feedback during the session to all the participants? » If any participants were not doing an exercise correctly, did the person running the activity give them tips on how to improve and otherwise help them to perform the movements correctly?
A Adjustments	» When a part of the activity or strategy did not work, did the person running the activity make adjustments? » If any participants could not complete any of the exercises, did the person running the activity customise the exercises to enable these participants to complete the session?

PIRFAM factor	Examples of evaluation criteria
M Motivation	» Was the communication positive from the person running the activity? » Were participants encouraged during the activity? » Was the activity boring? » What motivational strategies did the person running the activity use to encourage the participants to work at the required intensity? » Did anything have a *negative* impact on the participants' motivation to participate in the activity?

TABLE 2 > A sample PIRFAM evaluation of a fitness activity

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning	» All the equipment was set up before the activity started.	» The goal or purpose of the activity was not explained.
Instructions	» The verbal instructions were clear. » The verbal instructions explained all the exercises to be completed in the activity.	» The instructions did not include a demonstration of how to complete the exercises.
Relevance	» The activity was suitable for most of the participants.	» The activity did not target all the relevant components of fitness for the target group.
Feedback	» The person running the activity encouraged the participants.	» The person running the activity told the participants when they were not doing an exercise correctly but did not give them any tips on how to improve.
Adjustments		» Some participants could not complete one of the exercises and no alternative was offered.
Motivation	» Pump-up music was played, which helped the participants to feel motivated.	» The activity was a bit boring.

**Outcome
(an evaluation of the overall success of the fitness activity, drawing on the strengths and limitations listed above)**

Overall, the fitness activity was not successful. The activity had some strengths: all the equipment was set up and the verbal instructions given at the start of the activity were clear and easy to understand. However, the activity did not target all the relevant components of fitness for the target group and the person running the session did not help the participants to complete the exercises correctly. Also, not all the participants could do all the exercises and no adjustments were made to help them complete the session.

TOPIC 1 > WHAT IS FITNESS?

In general, fitness is the ability of a person to carry out a task. Physical fitness is important as it affects health and wellbeing. Being fit can also improve an individual's performance in their chosen sport or physical recreation pursuit.

In this topic, you will come up with a definition of 'fitness', examine the different components of fitness, and explore the fitness requirements of your chosen sport or physical recreation activity.

1.1 » What does 'being fit' mean?

Learning goal: To be able to define fitness

Different sports and physical recreation activities require different types of fitness; that is, different activities require the participants to move in different ways and to have different skills. For example, to play basketball, participants need to move quickly and with agility (all over the court in all different directions).

Defining fitness

1.1

ACTIVITY AND STRATEGY

PART A: IDENTIFY SKILLS AND MOVEMENTS

1 For each of the following sports or physical recreation activities, describe the skills and movements you need to perform.

a Surfing

Skills: _____

_____

Movements: _____

_____

b Tennis

Skills: _____

_____

Movements: _____

_____

c Rock-climbing

Skills: _____

_____

Movements: _____

_____

PART B: REFLECT ON FITNESS

2   Does being fit for one activity mean you are fit for another? Explain your answer.

_____

_____

_____

3   Make a statement about what fitness means.

_____

_____

_____

1.2 » The components of fitness

Learning goal: To understand that fitness is multi-dimensional and to be able to identify the main components of fitness

There are 11 components of fitness; each component is related either to health or skill (see Table 3 below). The participants of different sport and physical recreation activities need different components of fitness. For example, a tennis player needs agility to move around the court and aerobic fitness to play many games, whereas a weightlifter needs muscular strength, muscular endurance and balance to raise and hold heavy weights.

TABLE 3 > The components of fitness

Component of fitness	Health related or skill related	Definition
Body composition	Health related	The percentages of bone, muscle and fat in the body
Cardiorespiratory (aerobic) endurance	Health related	How well a body can use oxygen during prolonged exercise
Flexibility	Health related	The range of motion of the body's joints
Muscular endurance	Health related	The ability of a muscle to perform repetitive work over a prolonged period
Muscular strength	Health related	The capacity to apply force against resistance
Agility	Skill related	Being able to move your body quickly and easily while changing directions
Balance	Skill related	The ability to stay in control of the body's position
Coordination	Skill related	The ability to use the right muscle at the right time with proper intensity to achieve the required action
Power	Skill related	The ability to use strength in rapid, explosive muscle contractions

Component of fitness	Health related or skill related	Definition
Reaction time	Skill related	The time it takes to start an action or movement in response to a stimulus
Speed	Skill related	How quickly you can move your body in one direction

Exploring the components of fitness

1.2

ACTIVITY AND STRATEGY

PART A: MATCH THE COMPONENTS OF FITNESS

1 **a** For each component of fitness listed in the following tables, identify a sport or physical recreation activity that uses that component. Try not to use the same sport more than once.

b Provide an example of how each component of fitness is used in the sport you picked.

Some answers have been provided to help you.

HEALTH-RELATED COMPONENTS OF FITNESS		
Component of fitness	Sport or physical recreation activity	Example
Body composition		
Cardiorespiratory (aerobic) endurance		
Flexibility		
Muscular endurance		
Muscular strength		

SKILL-RELATED COMPONENTS OF FITNESS		
Component of fitness	Sport or physical recreation activity	Example
Agility		
Balance		
Coordination		
Power		*Being able to jump high to take a catch, or intercept the ball*
Reaction time	*Soccer*	
Speed		

PART B: REFLECT ON THE COMPONENTS OF FITNESS

2 Why are the first five fitness components in Table 3 related to health?

_____

_____

_____

3 Can fitness components developed for one sport transfer to another? Explain your answer.

_____

_____

_____

1.3 » Fitness profiles

Learning goal: To be able to identify the components of fitness required for a particular sport

A 'fitness profile' for a particular sport or physical recreation activity identifies the most important components of fitness for that activity. Fitness profiles can be very specific; two athletes on the same sporting team who play different positions may have different fitness profiles.

Example: A fitness profile for boxing

- **Top four components of fitness used in boxing:** Agility, muscular strength, speed, cardiorespiratory (aerobic) endurance
- **Why are these four components of fitness important for boxing?** A boxer needs to be able to move quickly to both strike their opponent and avoid being hit. They must have agility to change direction rapidly when moving around the ring. Their ability to apply strength and speed in their punches is an advantage. Aerobic endurance is needed to 'go the distance' and continue to move through the bout.

Creating a fitness profile

ACTIVITY AND STRATEGY

1.3

PART A: CREATE A FITNESS PROFILE

1   Participate in a sport or physical recreation activity of your choice for 20 minutes. Or watch footage of people participating in this activity.

My activity: _____

2   What are the top three components of fitness used in your chosen sport or physical recreation activity? Write these below. Identify why each component is important.

a   Fitness component one: _____

_____

_____

b   Fitness component two: _____

_____

_____

c   Fitness component three: _____

_____

_____

3 How would developing these three components of fitness improve a person's performance in your chosen activity?

_____

_____

_____

_____

_____

_____

PART B: CONSIDER ATHLETE X

4 Look at Athlete X's scores for four components of fitness.

ATHLETE X'S PROFILE			
Components of fitness scores (scored out of 100)			
Speed	79	Muscular strength	65
Agility	88	Power	83

a Name a sport you think Athlete X is suited to.

_____

b Why do you think Athlete X is suited to that particular sport?

_____

_____

_____

ASSESSMENT LOG

Now that you have finished Topic 1 (What is fitness?), turn to Assessment Log 1 at the end of this module. Start in Step 1 (Investigation Log). Fill in Section 1 (Components of fitness). You can update your Assessment Log at any time as your understanding grows.

ACTIVITY AND STRATEGY

1.3

TOPIC 2 > FITNESS TESTS

There are many reasons to test the fitness of individuals. The results of a fitness test can highlight physical strengths and weaknesses, and they can provide a baseline that can be used to set goals and measure progress.

A good fitness test follows the four principles of fitness testing:

- **Specificity:** A fitness test should evaluate the components of fitness that are relevant to the physical activity the individual participates in.
- **Validity:** A fitness test must measure the components of fitness accurately.
- **Objectivity:** A fitness test should be unbiased and free from the personal feelings or prejudice of the person conducting the test. Objective fitness tests produce consistent results for the same individual, regardless of who administers the test.
- **Reliability:** A fitness test should be reliable, which means it produces consistent results.

In this topic, you will participate in different fitness tests, practise selecting the right fitness testing for an individual's needs and evaluate the scores of fitness tests.

2.1 » The specificity principle of fitness tests

Learning goal: To be able to identify an appropriate fitness test for a fitness component

As we explored in Topic 1, the participants of different sport and physical recreation activities need different types of fitness because different physical activities use different fitness components (see Table 3 in Topic 1).

Good fitness tests are specific. That is, they test components of fitness that are relevant to the physical activity the individual participates in. For example, when testing the fitness of a long-distance runner, the test should assess their cardiorespiratory (aerobic) endurance and muscular endurance, rather than testing their speed and power.

Selecting the right fitness tests

ACTIVITY AND STRATEGY **2.1**

In this activity, you will investigate, plan and perform a fitness test that is relevant to a sport you play or a physical recreation activity you participate in.

PART A: IDENTIFY FITNESS COMPONENTS

1 Select a sport you play or a physical recreation activity you participate in.

_____

2 Identify two components of fitness that are important in the sport or physical recreation activity you selected in Question 1.

To do this, consider the movements that are frequently performed in the physical activity and refer to the components of fitness table (Table 3 in Topic 1).

_____

_____

PART B: INVESTIGATE FITNESS TESTS

3 Conduct some research to find four fitness tests that relate to the two fitness components you identified in Question 2. Describe these tests in the table below.

Hint: A good place to start your research is the Topend Sports website (https://mea.digital/UH_M1_z4p).

Fitness test	Name of the component of fitness that is tested

PART C: PLAN A FITNESS TEST

4 **a** Select one of the fitness tests from Question 3. In the table below, write a plan to conduct this test on a classmate.

NAME OF THE FITNESS TEST:	
Target fitness component/s	
Target group (who will be tested)	
Equipment needed	

ACTIVITY AND STRATEGY 2.1

TEST INSTRUCTIONS OR DIAGRAM

b Identify how you plan to score the fitness test. For example, for a 12-minute swim test, a person's score is the total distance they swam in 12 minutes.

c Conduct some further research to identify the ratings for the fitness test for your target group (for example, 16-year-old females). These ratings will give meaning to the test scores.

RATINGS				
Gender	Age	Weak	Normal	Strong
Male				
Female				

PART D: PERFORM A FITNESS TEST

Your teacher will ask some students to trial their planned fitness tests. This may be on an individual or a group of students.

PART E: EVALUATE A FITNESS TEST

5 After participating in or administering a fitness test, evaluate the testing session using the planning, instructions and relevance factors of the PIRFAM framework. Write your evaluation in the table on the opposite page.

a **Planning:** Was the test well planned? Was everything set up correctly?

b **Instructions:** Did the person conducting the test give clear instructions? Did they miss any key information about the test?

c **Relevance:** Did the test target a component of fitness?

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		

6 Recommend one change that could be made to the fitness testing session to make it more successful.

2.2 » Different fitness tests

Learning goal: To become familiar with three different fitness tests

In this topic, you will participate in three fitness tests that assess different components of fitness.

Exploring different fitness tests

In this activity, you will complete and reflect on three different fitness tests.

PART A: A SIT-UPS TEST

1 Follow the instructions in the table below to complete a sit-ups test.

INSTRUCTIONS
» Lie on your back with your hands on the back of your neck and your fingers clasped. Bend your knees less than 90 degrees and place your feet on the floor with your heels no further than 30 cm from your buttocks.
» Curl-up your torso until one of your elbows is in contact with your knees, then return to the starting position.
» Count the number of repetitions you can complete in 60 seconds.

RATINGS (THE NUMBER OF SIT-UPS COMPLETED IN 60 SECONDS)						
Gender	Age	Poor	Fair	Average	Good	Excellent
Males	16	<28	29–38	39–45	46–51	>61
Females	16	<20	21–30	31–36	38–43	>54

2 Complete the questions below to reflect on the sit-ups test.

a Identify one component of fitness that is assessed by this test.

_____

b What sports or physical recreational activities are relevant to this test?

_____

_____

_____

c What was your score? Was your performance in the test above or below your expectations?

_____

_____

_____

ACTIVITY AND STRATEGY

2.2

PART B: THE BEEP TEST

3 Follow the instructions in the table below to complete the beep test.

INSTRUCTIONS
» Run continuously between two lines 20 metres apart in time to recorded beeps.
» You start by standing behind one of the lines facing the second line, and begin running when instructed by the recording.
» After about one minute, a sound indicates that you should increase your speed as the beeps will be closer together. This continues each minute. The sound also indicates you have gone up a level.
» If you reach the line before the beep, you must wait for the beep before continuing.
» If you do not reach the line before the beep, you will be given a warning. You will be eliminated from the test after your second warning.
For more information about the beep test, visit the Topend Sports website: https://mea.digital/UH_M1_1jl.

RATINGS (THE LEVEL AND NUMBER OF 20-METRE 'SHUTTLES' COMPLETED)						
Gender	Age	Poor	Fair	Average	Good	Excellent
Males	16–17	5/1–6/8	6/9–8/2	8/3–9/9	9/10–11/3	>13/7
Females	16–17	4/2–5/6	5/7–7/1	7/2–8/4	8/5–9/7	>11/10

4 Complete the questions below to reflect on the beep test.

a Identify one component of fitness that is assessed by this test.

_____

b What sports or physical recreational activities are relevant to this test?

_____

_____

_____

c What was your score? Was your performance above or below your expectations?

_____

_____

_____

_____

2.2

ACTIVITY AND STRATEGY

PART C: THE STANDING LONG JUMP TEST

5 Follow the instructions in the table on the next page to complete the standing long jump test.

INSTRUCTIONS

» Stand with your feet parallel and shoulder-width apart. Your toes should be touching the starting line marked on the ground.

» Use a two-foot take-off and landing. You can swing your arms and bend your knees.

» Jump as far as possible, landing on both feet without falling backwards.

» You must jump from a standing start.

» The distance of how far you have jumped is taken from the back of the heels. Your score is the best of three jumps.

For more information about the standing long jump test, visit the Topend Sports website: https://mea.digital/UH_M1_oju.

RATINGS
(CENTIMETRES JUMPED)

Gender	Age	Poor	Fair	Average	Good	Excellent
Males	16	<165 cm	166–198 cm	199–213 cm	214–229 cm	>248 cm
Females	16	<124 cm	125–150 cm	151–165 cm	166–180 cm	>200 cm

6 Complete the questions below to reflect on the standing long jump test.

a Identify one component of fitness that is assessed by this test.

_____

b What sports or physical recreational activities are relevant to this test?

_____

_____

_____

c What was your score? Was your performance above or below your expectations?

_____

_____

_____

2.3 » Fitness testing results

Learning goal: To be able to assess the suitability of my fitness to participate in my chosen physical activity

Once testing has been completed, it is beneficial to analyse and evaluate your results to determine your personal fitness. This allows you to identify particular strengths and limitations in your fitness profile. Knowing these will help determine your suitability for specific activities or sports, or give you information on areas to improve through training to enhance performance.

Reviewing your results

In this activity, you will compile the results of the fitness tests you completed in Topic 2.2, review the results, and consider the implications for your performance in your chosen sport or physical recreation activity.

PART A: COMPILE YOUR RESULTS

1 Look back at the three fitness tests you completed in Activity and strategy 2.2. Write your responses to the following questions in the table below.

   a Record which component/s of fitness each test assessed.

   b Record your score for each test.

   c Identify whether your score indicates the component of fitness is a strength for you or a weakness.

   d Consider you result for each fitness component. What is the impact on your performance in your chosen sport or physical recreation activity?

MY FITNESS-TESTING PROFILE				
Test	Fitness component/s tested	Score	Strength or weakness	Impact on your performance or participation
The sit-ups test				
The beep test				
The standing long jump test				

PART B: REFLECT ON YOUR RESULTS

2 Name one strength of yours that was identified in the fitness testing.

_____

3 Name one weakness of yours that was identified in the fitness testing.

_____

ACTIVITY AND STRATEGY · **2.3**

4 Do the scores of the fitness tests indicate your fitness is suitable for the sport you play or the physical recreation activity you participate in?

_____

_____

_____

5 Considering your chosen physical activity and your fitness test scores, suggest a course of action you could take as a result of this information.

For example, starting a new training program for a fitness component, or maintaining your current levels of fitness, or doing nothing as the component of fitness you received a low score for is not relevant to your chosen physical activity.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

6 Sharpening the sword: How can improving what you are good at also improve your performance?

_____

_____

_____

_____

ASSESSMENT LOG

Now that you have finished Topic 2 (Fitness tests), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 2 (Fitness tests). You can update your Assessment Log at any time as your understanding grows.

TOPIC 3 > HOW THE BODY GETS FIT: THE BODY'S RESPONSE TO EXERCISE

When we exercise, our body responds immediately. If we continue to exercise over a period of time, our body responds through long-term adaptations. In this topic, you will learn about the body's short-term and long-term responses to exercise and how to identify how hard our bodies are working when we exercise.

3.1 » The body's short-term response to exercise

Learning goal: To be able to identify the changes that occur in the body when it begins moving

When we start to exercise, our body responds immediately to provide energy to the working muscles. The cardiovascular (heart), respiratory (lungs), energy and muscular systems all work together.

Some of the signs that our body is responding to exercise include:

- increased heart rate
- increased breathing rate
- increased body temperature.

Observing short-term responses: Participate in the YMCA three-minute step test

In this activity, you will complete the YMCA three-minute step test. This test measures the cardiorespiratory (aerobic) endurance component of fitness. Carrying out this test will allow you to see how your body immediately responds to exercise.

PART A: COMPLETE THE TEST

1 Before you start the test, fill in the table below.

THE YMCA THREE-MINUTE STEP TEST RECORD			
Name		Weight	
Age		Height	

ACTIVITY AND STRATEGY 3.1

ACTIVITY AND STRATEGY 3.1

2 Complete the YMCA three-minute step test. Your teacher will explain what to do.

Figure 1: The YMCA three-minute step test
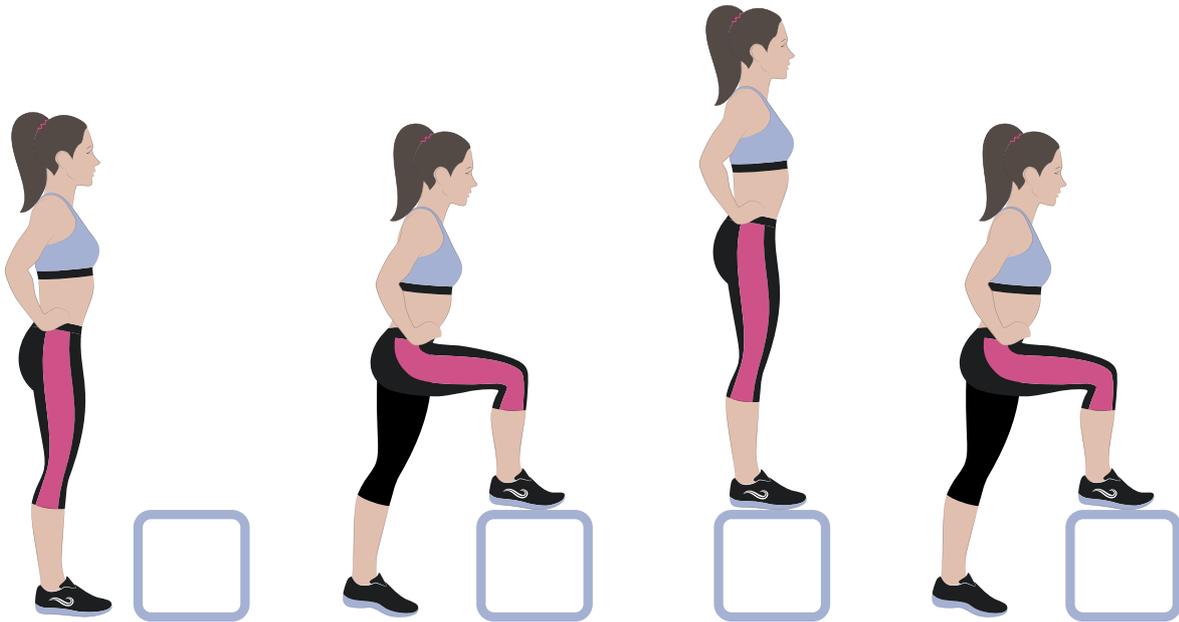
Source: iStock/Dmytro Bochkov

3 Within five minutes of completing the test, measure your heart rate and record it below. (Your teacher can show you how to measure your heart rate.)

Post-test heart rate: _____

4 Use Table 4 below to identify your score for the YMCA three-minute step test.

Score: _____

Table 4 > Scores for the YMCA three-minute step test

<table>
<tr><td></td><td></td><td colspan="7">Scores</td></tr>
<tr><td></td><td></td><td>Excellent</td><td>Good</td><td>Above average</td><td>Average</td><td>Below average</td><td>Poor</td><td>Very Poor</td></tr>
<tr><td rowspan="2">Heart rate</td><td>Men aged 18–25 years</td><td>50–76</td><td>79–84</td><td>88–93</td><td>95–100</td><td>102–107</td><td>111–119</td><td>124–157</td></tr>
<tr><td>Women aged 18–25 years</td><td>25–81</td><td>85–93</td><td>96–102</td><td>104–110</td><td>113–120</td><td>122–131</td><td>135–169</td></tr>
</table>

PART B: REFLECT ON THE TEST

5 In the table on the opposite page, describe the changes in your body you observed occurring during the YMCA three-minute step test. Provide a reason for each change.

3.1

ACTIVITY AND STRATEGY

CHANGES TO THE BODY		
Body's response	Observations	Reason for the change
Breathing		
Heart rate		
Temperature		
Skin colour		
Sweating		

6 Did having a clear explanation help the test run smoothly? Explain your answer.

7 Were there any problems in collecting the data?

8 How could the data collection process be improved by using technology?

_____

_____

_____

9 Think about the YMCA three-minute step test.

a What are the advantages of this test? (Consider the cost, equipment needed, skills tested, etc.)

_____

_____

_____

b What are the disadvantages of this test? (Consider reliability, fairness and validity.)

_____

_____

_____

3.2 » The body's long-term adaptations

Learning goal: To be able to identify the changes that occur in the body when it moves over a period of time

When we continue to exercise over a longer period of time (that is, training regularly for at least 30 days), our body changes or adapts to the exercise. These adaptations include increased bone density and stronger muscles.

Figure 2: The body's main long-term adaptions to exercise

Skeletal system: Increased bone density

Cardiovascular system: Increased size and strength of the heart; increased stroke volume (the amount of blood pumped out of the heart per beat); decreased resting heart rate; increased maximum cardiac output (the amount of blood pumped out of the heart in one minute)

Respiratory system: Increased strength of the respiratory muscles

Energy system: Increased production of energy by the aerobic energy system

Muscular system: Increased size and strength of muscles

Source: iStock/msan10

Researching long-term adaptations

1 Research how the different parts of the body adapt to physical activity over time.

3.3 » Identifying intensity: Heart rate, rate of perceived exertion, and the talk test

Learning goal: To be able to use different methods to identify the intensity of physical activity

You can measure the intensity of physical activity using a few different methods. These include estimating your heart rate, identifying your perceived exertion, and conducting the talk test.

Heart rate

A simple way to calculate your estimated maximum heart rate (MHR) is to subtract your age from 220. For example, the maximum heart rate for a 25-year-old person is 195 beats per minute (bpm).

To work out how hard you are working, use these common exercise intensity thresholds:

- **light** intensity exercise: 50–65% of MHR
- **moderate** intensity exercise: 65–80% of MHR
- **vigorous** intensity exercise: 80–100% of MHR.

Rate of perceived exertion

The rate of perceived exertion (RPE) is how hard you feel your body is working. It is a subjective measure but has been shown to be a fairly accurate indication of intensity.

Talk test

This is an informal way to assess the intensity of exercise. The idea is the harder you work, the heavier your breathing becomes, and the more difficulty you have talking.

TABLE 4 > Levels of exertion or intensity of exercise

Amount of effort				
Rate of perceived exertion (RPE) scale	Intensity descriptor	Heart rate range (aged based) Maximum heart rate (MHR)	Exertion descriptor	Talk test description
1	Light	50–65% of MHR	Resting	You are breathing normally. It is very easy to talk.
2			Somewhat light	Your rate of breathing increases slightly but it is still easy to talk.
3			Light	You notice your breathing. You can still talk fairly easily.
4	Moderate	65–80% of MHR	Medium	You are breathing more heavily but you do not hear yourself breathe.
5			Somewhat hard	You can hear yourself breathe but can still talk.
6			Medium hard	It is getting difficult to talk.
7	Vigorous	80–100% of MHR	Hard	You are breathing heavily. It is difficult to talk.
8			Very hard	Your breathing is laboured. It is very difficult to talk.
9			Gruelling	It is almost impossible to talk.
10			Maximum	You are breathing very heavily. You cannot talk. You may feel pain.

Note: The heart rate range may vary, depending on factors including age, physical abilities and individual fitness levels.

Exploring heart rate

3.3

ACTIVITY AND STRATEGY

PART A: CALCULATE YOUR HEART RATE

1 Calculate your maximum heart rate (MHR).

220 – _____ (your age) = _____ your MHR (bpm)

2 Calculate the following exercise intensity thresholds:

a 65% of MHR: 0.65 × _____ (MHR) = _____ bpm

b 80% of MHR: 0.80 × _____ (MHR) = _____ bpm

PART B: PERFORM DIFFERENT PHYSICAL ACTIVITIES

3 **a** Perform the eight activities in the table below. Each activity requires a different level of physical effort or intensity.

b For each activity, record the rate of perceived exertion, your heart rate, an exertion description, and conduct the talk test.

Activity	Rate of perceived exertion	Heart rate	Exertion description	Talk test
Resting				
Walking for 100 metres				
Jogging slowly for 200 metres				
Sprinting for 100 metres				
15 dips on a step or chair				
Shooting hoops for 2–5 minutes				
Shadow boxing for 1 minute				
Skipping with a rope for 1 minute				

PART C: REFLECT ON THE ACTIVITY

4 Place the activities in the table above in order from one to eight according to how much they increased your heart rate and breathing.

1 _____   5 _____

2 _____   6 _____

3 _____   7 _____

4 _____   8 _____

ACTIVITY AND STRATEGY

3.3

5 What is the relationship between speed of movement and heart rate?

_____

_____

_____

6 What is the relationship between the size of the body parts used in the exercise and heart rate?

_____

_____

_____

ASSESSMENT LOG

Now that you have finished Topic 3 (How the body gets fit: The body's response to exercise), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 3 (Identifying intensity of physical activity). You can update your Assessment Log at any time as your understanding grows.

TOPIC 4 > STAYING FIT: INJURY PREVENTION

Several strategies can be used to prevent injuries occurring, including using the correct technique, warming-up before physical activity and cooling-down after the activity is finished.

4.1 » Technique

Learning goal: To be able to instruct someone how to use the correct technique for a physical activity

'Technique' means the way we perform an action. Having good technique protects the body from being injured. Often sport and physical recreation activities require the body to move in ways that it is not used to, so individuals need guidance to move in the correct way.

Teaching technique

1 Work in pairs to complete this activity. Use the explain, show, instruct, cue method to teach your classmate how to correctly complete an exercise of your choice.

a Explain:
  i Tell your classmate the name of the exercise.
  ii Tell your classmate which area of the body, or which muscles, the exercise targets.

b Show:
  i Demonstrate the exercise at least five times while facing your classmate.
  ii Demonstrate the exercise again while standing side-on to your classmate, so they can see the correct form and body positions.

c Instruct:
  i Explain key aspects of the movement; for example, the position of hands, feet and shoulders, and the correct grip.

d Cue:
  i Give simple cues to direct movement.

2 Ask your partner to fill in the table below to give you some feedback on your performance as a teacher.

ACTIVITY AND STRATEGY · 4.1

CHANGES TO THE BODY		
Part	Rating out of five	Feedback
Explain		

ACTIVITY AND STRATEGY

4.1

Part	Rating out of five	Feedback
Show		
Instruct		
Cue		

4.2 » Warm-ups

Learning goal: To understand the role of warm-ups in preventing injuries and to be able to perform an effective warm-up

Warming-up before participating in physical activity is essential to prevent muscle and joint injuries. The purpose of a warm-up is to prepare the body for the session or game that the person is about to participate in. An effective warm-up consists of two key parts: moving the body and dynamic stretching.

How to warm-up:

- **exercise** or move your body for 5 to 20 minutes to increase your heart rate and therefore to increase the flow of blood and oxygen to your muscles; the exercises should gradually become harder or more intense
- complete **dynamic stretches** to mobilise the joints and muscles that will be used in the activity.

Many athletes use the RAMP warm-up to prepare their bodies for physical activity (see Table 5).

TABLE 5 > The RAMP warm-up

R	Raise	» Increase muscle temperature, core body temperature and blood flow
A	Activate	» Engage the muscles in preparation for the upcoming physical activity
M	Mobilise	» Practise the movement patterns that will be used during the upcoming physical activity
P	Potential	» Gradually increase the stress on the body by increasing the intesnity of the exercises in preparation for the upcoming physical activity

Investigating warm-ups

PART A: RESEARCH THE COMPONENTS OF AN EFFECTIVE WARM-UP

1 Research dynamic stretches and then answer the following questions.

a What are dynamic stretches?

_____

_____

_____

b Describe three dynamic stretches.

_____

_____

_____

_____

_____

_____

2 Identify three exercises that can help to raise heart rate and body temperature and increase blood flow.

_____

_____

_____

PART B: PARTICIPATE IN A WARM-UP

3 Your teacher will guide you through a warm-up before you participate in a training session.

PART C: EVALUATE A WARM-UP

4 Evaluate your teacher's warm-up, using three factors of the PIRFAM framework. Write your evaluation in the table on the next page.

Here are some tips to help you complete this task:

- **Planning:** If the warm-up did not include dynamic stretches, this is a limitation.
- **Instructions:** If your teacher's instructions for the warm-up were clear, this is a strength.
- **Relevance:** If the warm-up stretched muscles that were used in the physical activity you participated in, this is a strength.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		

5 What is one aspect of the warm-up your teacher could change to improve it?

_____

_____

_____

PART D: CREATE A WARM-UP

6 Working in small groups, create a RAMP warm-up for a physical activity of your choice. Write your answers to the following questions in the table on the opposite page.

   a Select a physical activity.

   b Which light exercise is needed to raise the heart rate, and the temperature of the muscles and the body overall?

   c Which muscle groups need to be activated and ready for your chosen physical activity?

d Which movement patterns need practising? Which joints need to be **mobilised** to prepare the body?

e How can you increase the energy and intensity of the exercises to have muscles working at a higher **potential**?

A WARM-UP FOR:

	Focus	Exercise	Instructions or cues
Raise			
Activate			
Mobilise			
Potential			

4.3 » Cool-downs

Learning goal: To understand the role of cool-downs in preventing injuries and to be able to perform an effective cool-down

Cooling-down after training or competition is often undervalued and overlooked. However, cooling-down after participating in physical activity is essential to prevent muscle and joint injuries. The purpose of a cool-down is to help the body recover from physical activity, and it can help a person recover faster in preparation for future exercise.

How to cool-down:

- complete **light exercise** for 5–20 minutes to slowly bring the heart rate and body temperature back to normal
- complete **static stretches** to relax muscles and prevent tears
- use **breathing** – slow and deep – to calm the mind.

Investigating cool-downs

4.3

PART A: RESEARCH THE COMPONENTS OF AN EFFECTIVE COOL-DOWN

1 Research static stretches and then answer the following questions.

a What are static stretches? How are they different to dynamic stretches?

_____

_____

_____

b Describe three static stretches.

_____

_____

_____

_____

_____

_____

2 Identify three light exercises that are appropriate to a cool-down.

_____

_____

_____

PART B: PARTICIPATE IN A COOL-DOWN

3 After participating in a physical activity organised by your teacher, complete a cool-down run by your teacher.

PART C: EVALUATE A COOL-DOWN

4 Evaluate your teacher's cool-down, using three factors of the PIRFAM framework. Write your evaluation in the table on the opposite page.

Here are some tips to help you complete this task:

- **Planning:** If the cool-down included light exercises and static stretches, this is a strength.
- **Instructions:** If your teacher's instructions for the cool-down were confusing, this is a limitation.
- **Relevance:** If the cool-down stretched muscles that were used in the physical activity you participated in, this is a strength.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		

5 Give your teacher one recommendation to improve their cool-down

_____

_____

_____

PART D: REFLECT ON COOLING-DOWN

6 What impact did the cool-down have on your heart rate?

_____

_____

_____

ACTIVITY AND STRATEGY

4.3

7 How did the slow and deep breathing affect your mood?

_____

_____

_____

8 Why is it important to devote some time to stretching muscles after exercising?

_____

_____

_____

ASSESSMENT LOG

Now that you have finished Topic 4 (Staying fit: Injury prevention), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 4 (Preventing injuries). You can update your Assessment Log at any time as your understanding grows.

ASSESSMENT LOG 1: PROJECT

The first assessment of this unit is a project. For this assessment, you will investigate, plan and perform (implement) a fitness activity or strategy. You will then evaluate the success of the activity or strategy.

Steps	Requirements
Steps 1 and 2: Investigate and plan	**Investigate and plan** an activity or strategy that enhances fitness for sport and recreation by: » coming up with an idea for a fitness activity or strategy » developing a detailed plan for a fitness activity or strategy » identifying and explaining the purpose of the fitness activity or strategy.
Step 3: Perform	**Perform** (implement) your planned activity or strategy to enhance fitness for sport and recreation by: » organising equipment and preparing the space » delivering your planned fitness activity or strategy.
Step 4: Evaluate	**Evaluate** your implemented activity or strategy related to fitness for sport and recreation by: » evaluating personal performance and success in achieving your determined purpose » evaluating strategies used to enhance outcomes in fitness for sport and recreation » evaluating the observed outcomes related to fitness for sport and recreation.

Note that a filled-in Assessment Log does not meet the QCAA's assessment specifications for direct assessment evidence. An Assessment Log may provide indirect assessment evidence only.

STEP 1: INVESTIGATION LOG

- **Your Investigation Log is a record of all the evidence you have gathered in Module 1: Fitness.**
- **Look back at the activity and strategy tasks in this module to determine how you would like to plan and perform your activity or strategy.**
- **All the information in this module can be used in your Investigation Log.**
- **The relevant activity and strategy tasks are indicated in each section of the following table.**
- **You should also find other relevant information to support your choices; for example, do some research and draw from your own previous experiences.**

Section 1: Components of fitness

Relevant task from this module	Activity and strategy 1.2
Which **health-related components of fitness** will your fitness activity or strategy target? (Tick)	☐ Body composition ☐ Cardiorespiratory (aerobic) endurance ☐ Flexibility ☐ Muscular endurance ☐ Muscular strength
Which **skill-related components of fitness** will your fitness activity or strategy target? (Tick)	☐ Agility ☐ Balance ☐ Coordination ☐ Power ☐ Reaction time ☐ Speed

Evidence for this selection

I selected these components of fitness because …	My previous experiences and research have shown that …

Section 2: Fitness tests

Relevant tasks from this module	Activity and strategy 2.1, 2.2 and 2.3
Identify four **fitness tests** that are relevant to the components of fitness being targeted in your fitness activity or strategy.	Test 1: _____ Test 2: _____ Test 3: _____ Test 4: _____

If conducting a fitness test is your activity, what strengths do you want to show and what limitations do you want to avoid when you perform this fitness activity?

Strengths	Limitations

Section 3:
Identifying intensity in physical activity

Relevant task from this module	Activity and strategy 3.3
Which **method/s** will you use to measure or identify the intensity of your fitness activity? (That is, how hard the participants of your activity are working.) (Tick)	☐ Measuring heart rate ☐ Identifying the rate of perceived exertion ☐ Conducting the talk test

Evidence for this selection

I selected these method/s because …

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

My previous experiences and research have shown that …

_____
_____
_____
_____
_____
_____
_____
_____
_____

Section 4:
Preventing injuries

Relevant tasks from this module	Activity and strategy 4.1, 4.2 and 4.3
What **techniques** do you need to show the participants of your fitness activity?	_____ _____ _____ _____ _____ _____
Describe the **warm-up** you will run before your fitness activity.	_____ _____ _____ _____ _____ _____

Section 4:
Preventing injuries (continued)

Describe the **cool-down** you will run before your fitness activity.

What strengths would you like to incorporate in your warm-up and cool down?

What limitations would you like to avoid in your warm-up and cool-down?

Your Planning Log is a place to develop a draft of your assessment plan.
Use your Investigation Log to help you complete your Planning Log.

My fitness activity or strategy		
Participants (target group)		
Description of fitness activity or strategy		
Components of fitness targeted in the activity or strategy (tick)	Health-related	☐ Body composition ☐ Cardiorespiratory (aerobic) endurance ☐ Flexibility ☐ Muscular endurance ☐ Muscular strength
	Skill related	☐ Agility ☐ Balance ☐ Coordination ☐ Power ☐ Reaction time ☐ Speed
Duration of the activity		
Layout of the activity area		

Equipment	

List any **techniques** that you will need to demonstrate to the participants	

Description of the **warm-up**	

Description of the **cool-down**	

Intensity (tick) (How hard do you want the participants of your fitness activity to work?)	☐ Light ☐ Moderate ☐ Vigorous

Measuring intensity (tick) How will you check that the participants are working at the right intensity?	☐ Heart rate ☐ Rate of perceived exertion ☐ Talk

STEP 3: PERFORMANCE LOG

In this step, you will implement your plan and deliver your fitness activity or strategy!

Notes and reminders:

What do you need to remember to be successful in your performance?

_____

_____

_____

_____

_____

_____

_____

STEP 4: EVALUATION LOG

After implementing your plan and delivering your fitness activity or strategy, use the PIRFAM template below to evaluate the success of your fitness activity or strategy.

Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning	

Strengths	Limitations
Instructions	
Relevance	
Feedback	
Adjustments	
Motivation	

Outcome
(an evaluation of the overall success of the fitness activity or strategy, drawing on the strengths and limitations listed above)

TRAINING

In this module, you will participate in a range of different training types to learn and evaluate their value in the development of fitness for sports and recreational pursuits. You will investigate training principles and the way they can be applied to programs to enhance outcomes for participants. You will also examine the barriers and enablers that may impact our engagement in these activities.

PIRFAM FOR TRAINING

To evaluate fitness activities, such as training sessions, you will use the PIRFAM framework. In this module, the PIRFAM acronym stands for:

- **P**lanning
- **I**nstructions
- **R**elevance
- **F**eedback
- **A**djustments
- **M**otivation.

A good analysis of a training session identifies the strengths and limitations of the session according to each factor of the PIRFAM framework. You can also use the framework to improve your performance by applying each PIRFAM factor to your own sessions. See Table 7 for an example of a PIRFAM evaluation of a training session.

TABLE 6 > PIRFAM factors for fitness training sessions

PIRFAM factor		Examples of evaluation criteria
P	Planning	» Were the goal/s of the training session clearly explained? » Was the session organised and well planned? » Was all the equipment set up before the session started?
I	Instructions	» Were the trainer's instructions clear? Were the instructions easy to hear and understand? » Did the trainer provide enough detailed information so you knew how to complete the session properly? » Did the trainer explain and demonstrate the exercises that were to be completed in the session? » Did the trainer tell the participants how many repetitions or sets were to be completed for each of the exercises? » Did the trainer explain what intensity was needed for each exercise, and how much rest time there should be between the exercises?
R	Relevance	» Were the exercises relevant to the training goals the trainer explained at the start of the session? » Did the exercises target the relevant components of fitness? » Were the exercises suitable for the participants (that is, the target group)?
F	Feedback	» Did the trainer provide positive and constructive feedback during the session to all the participants? » If any participants were not doing an exercise correctly, did the trainer give them tips on how to improve and otherwise help them to perform the movements correctly?

PIRFAM factor	Examples of evaluation criteria
A Adjustments	» When a part of the session did not work, did the trainer adjust or adapt the exercises? (For example, the number of reps to be completed or the required intensity of the exercises.) » If any participants could not complete any of the exercises, did the trainer customise the exercises to enable these participants to complete the session?
M Motivation	» Was the trainer's communication positive? » Did the trainer try to engage and encourage all the participants during the session? » Was the session boring? » What motivational strategies did the trainer use to encourage the participants to work at the required intensity? » Did anything have a *negative* impact on the participants' motivation to participate in the session?

TABLE 7 > A sample PIRFAM evaluation of a fitness training session

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning	» The training session was organised and well planned. » The equipment for the warm-up and the main exercises were set up before the session started. » All the equipment was in the correct place.	» The trainer had not planned a cool-down. » The training goal of the session was not explained at the start of the session.
Instructions	» The trainer's instructions were clear. » The instructions explained all the exercises in the session. » The trainer specified the number of reps and sets to be completed for each exercise.	» The order of the exercises meant that some students were waiting for others to finish. » There was very little rest time between sets.
Relevance	» The exercises were suitable for most participants.	» The trainer asked the participants to complete the exercises many times, which overly fatigued some people.
Feedback		» The trainer told the participants when they were not doing an exercise correctly but did not give them any tips on how to improve.
Adjustments	» The original weights were replaced with lighter weights to maintain the speed of movement.	» Some participants could not complete the skipping exercise and no alternative was offered.

	Strengths	Limitations
Motivation	» The trainer used a countdown as the work intervals progressed (10 seconds, 5 seconds, etc.), which was effective in increasing the participants' motivation.	» Some of the trainer's comments undermined the participants' efforts, which was de-motivating for some of the participants.

Outcome
(an evaluation of the overall success of the session, drawing on the strengths and limitations listed above)

Overall, the fitness training session was successful as all the participants got a good work out, the trainer's instructions were clear, and everyone knew how many reps and sets to complete. The session was also well organised with a warm-up activity planned and all the equipment set up before the session started. Although there were a few glitches in the planning of the session, these did not detract from the participants' ability to participate in the work out. One limitation was that the trainer pushed some participants too hard in asking them to complete many reps with very little rest time between sets. The trainer also needs to work on making sure their feedback and comments are constructive and motivating.

TOPIC 5 > TRAINING METHODS

For those trying to improve their fitness, different training methods can be used to target different components of fitness. The different training methods include circuit, continuous, interval, resistance, plyometric and mobility training.

Plyometric training is a series of exercises that use speed and force of different movements to build muscular strength. **Mobility training** combines exercises that increase the range of movement, stabilisation and control within joints and surrounding muscles.

In this topic, you will explore three training methods: circuit training, continuous training and interval training. Resistance training is covered in detail in Topic 7.

5.1 » Circuit training
Learning goal: To be able to identify the merits of circuit training

Circuit training is a training method where participants rotate through different exercises that target different muscle groups or movements. Participants complete a set exercise for a certain number of repetitions or a set time, moving from one exercise station to the next, with short rest periods between stations.

Circuit training:
- can enhance cardiovascular fitness, muscular endurance and muscular strength
- is a form of interval training
- is useful for groups as equipment can be shared between participants at different times
- is time-efficient as participants can move through stations quickly
- can be customised to target general or specific fitness.

Working out: Circuit training

In this activity, you will complete and then evaluate a circuit training workout.

PART A: COMPLETE THE WORKOUT

1 Follow your teacher's instructions and complete a circuit training workout.

PART B: EVALUATE THE WORKOUT

2 When you have finished the workout, evaluate the session using the PIRFAM framework. Look back to Table 6 at the start of this module to help you complete this task. Write your evaluation in the table below.

You may use the information in this evaluation to inform the planning of your assessment later in the term.

CIRCUIT TRAINING WORKOUT	
Strengths (things that worked)	**Limitations** (things that did not work or were missing)
Planning		
Instructions		
Relevance		

ACTIVITY AND STRATEGY

5.1

ACTIVITY AND STRATEGY (5.1)

	Strengths	Limitations
Feedback		
Adjustments		
Motivation		

Outcome
(an evaluation of the overall success of the workout,
drawing on the strengths and limitations listed above)

PART C: REFLECT ON THE WORKOUT

3 How did changing exercises around the circuit affect your motivation?

4 Which components of fitness could be targeted by this type of training?

_____

_____

_____

5 What effect did changing exercises have on muscle fatigue or breathing intensity?

_____

_____

_____

5.1 ACTIVITY AND STRATEGY

5.2 » Continuous training

Learning goal: To be able to identify the merits of continuous training

Continuous training is one of the simplest and most popular forms of training. This is due to its accessibility. Continuous training is designed to increase and maintain the intensity of movement to place a demand on the body.

Guidelines to continuous training:

- measure your heart rate or intensity (pick a pace and maintain it)
- work at a moderate intensity (60–80% of MHR)
- train for at least 20 minutes
- train three to five times a week.

Some good continuous training activities include walking, cycling, rowing and jogging. A possible disadvantage of continuous training is that some people will find it boring to do one activity for a long time.

Working out: Continuous training

In this activity, you will complete and then evaluate a continuous training session.

PART A: COMPLETE THE SESSION

1 Follow your teacher's instructions and complete a continuous training session.

PART B: EVALUATE THE SESSION

2 When you have finished the session, evaluate the workout using the PIRFAM framework. Look back to Table 6 to help you complete this task. Write your evaluation in the table on the next page.

You may use the information in this evaluation to inform the planning of your assessment later in the term.

5.2 ACTIVITY AND STRATEGY

ACTIVITY AND STRATEGY

5.2

CONTINUOUS TRAINING SESSION	
Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		
Feedback		
Adjustments		

Strengths	Limitations

Motivation

Outcome
(an evaluation of the overall success of the session,
drawing on the strengths and limitations listed above)

PART C: REFLECT ON THE SESSION

3 Were you able to maintain the same intensity over the duration of the session.
Explain your answer.

_____

_____

4 Research how you can achieve the best outcome from a continuous training session.

_____

_____

5 Which components of fitness are developed by this type of training?

_____

_____

6 What are the positives and negatives of doing the one activity continuously for
an extended period of time?

_____

_____

5.3 » Interval training

Learning goal: To be able to identify the merits of interval training

Interval training involves periods of high-intensity training that increase the heart rate, followed by a short rest period to allow the body to recover. This training method is often used as a time-efficient way to gain some health-related benefits by placing a great deal of strain on the heart, lungs and muscles.

Guidelines to interval training:

- choose several different exercises:
  - use whole-body movements or work large muscle groups; for example, sprinting, cycling on a stationary bike, or doing burpees or squat jumps
  - use low-skill exercises to avoid injuring yourself when you are tired
- choose a time when you can work at maximum or high intensity (for example, 20 seconds)
- choose a rest time that allows you to partially recover
- repeat for several sets
- train two to three times a week
- train for a shorter time than continuous training.

A possible disadvantage of interval training is that high to maximum intensity is not suitable for everyone.

TABLE 8 > Examples of interval training

Workout	Work:rest interval	Sets or rounds	Time	Notes
Tabata	20:10 seconds	8	4 minutes	» Intensity should be very high.
Sprint	30 seconds: 4 minutes	4–6	20–30 minutes	» There is a large rest period because of the effort used when sprinting.
1:1	30:30 seconds	10	10 minutes	» This is easy to organise. » Intervals can be made longer or shorter depending on the intensity of the activity.

Working out: Interval training

ACTIVITY AND STRATEGY 5.3

In this activity, you will complete and then evaluate an interval training session.

PART A: COMPLETE THE SESSION

1 Follow your teacher's instructions and complete an interval training session.

PART B: EVALUATE THE SESSION

2 When you have finished the session, evaluate the workout using the PIRFAM framework. Look back to Table 6 at the start of this module to help you complete this task. Write your evaluation in the table below.

You may use information from this evaluation to inform the planning of your assessment later in the term

INTERVAL TRAINING SESSION		
	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		
Feedback		

5.3

ACTIVITY AND STRATEGY

	Strengths	Limitations
Adjustments		
Motivation		

Outcome
(an evaluation of the overall success of the session,
drawing on the strengths and limitations listed above)

PART C: REFLECT ON THE SESSION

3 Was your heart rate consistent throughout the session or did it change?

4 What was your maximum heart rate during the session?

5 What was your average heart rate for the session?

6 When you raise your heart rate, which components of fitness are improved?

_____

_____

_____

7 Research other benefits of raising your heart rate.

_____

_____

_____

_____

_____

_____

8 Describe the level of muscle fatigue you experienced in the session.

_____

_____

_____

9 What is the relationship between intensity and the rest time needed?

_____

_____

_____

PART D: SUMMARY OF TRAINING METHODS AND EFFECTS

10 a Consider the requirements of each training method. Rate each factor in the table below from one (little to none required) to five (a lot required).

Factors	Circuit training	Continuous training	Interval training
	Rating (circle)		
Equipment	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Cost	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Skill	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Time	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Motivation	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

ACTIVITY AND STRATEGY

5.3

5.3

ACTIVITY AND STRATEGY

b Considering your answers to Question 10a, what barriers and enablers are there to people using each training method?

_____

_____

_____

_____

_____

_____

_____

_____

11 Think about the components of fitness (see Topic 1.2). Which components of fitness were developed by each training method?

Training method	Components of fitness
Circuit training	
Continuous training	
Interval training	

ASSESSMENT LOG

Now that you have finished Topic 5 (Training methods), turn to Assessment Log 2 at the end of this module. Start to fill in Step 1 (Investigation Log). Fill in Section 1 (Training methods). You can update your Assessment Log at any time as your understanding grows.

TOPIC 6 > TRAINING PRINCIPLES

Every fitness training program should be designed around the five principles – or 'golden rules' – of training. Training programs that follow these principles help the participants to reach their potential, increase their fitness, and improve their performance in their chosen sport or physical recreation activity.

Use the SPORT acronym to help you remember the five principles of training:

- **S**pecificity
- **P**rogression
- **O**verload
- **R**eversibility
- **T**edium.

In this topic, you will examine each of the five principles of training.

6.1 » Training principle: Specificity

Learning goal: To understand the principle of specificity as it relates to fitness training

For training to be effective, it must be specific. That is, an individual's training must be tailored specifically to the sport (or even the position) they play. The program must work and develop the major muscle groups, and movements they use when playing that sport; focus on the relevant components of fitness; and use the right energy system (for example, a sprinter should not run three kilometres in training).

Planning training that is specific

PART A: IDENTIFY TRAINING REQUIREMENTS

Watch some footage of a game of tennis and then answer the following questions.

1 Components of fitness:

   a Identify three components of fitness that are important for tennis players.

   b Describe an exercise that develops one of the components of fitness you identified in Question 1a.

2 Muscle groups:

   a Which muscle groups should a tennis player work on in training?

6.1

ACTIVITY AND STRATEGY

b Describe an exercise that develops one of the muscle groups you identified in Question 2a.

_____

_____

3 Movements:

a Identify three movement that individuals perform when playing tennis.

_____

_____

b Describe an exercise that works one of the movements you identified in Question 3a.

_____

_____

PART B: PLAN A SPECIFIC TRAINING SESSION

4 Using your answers to Part A, design a short, four-step circuit training session for a tennis player. Write your plan in the table below.

TRAINING SESSION PLAN FOR A TENNIS PLAYER				
Circuit exercise	What to do	Duration	Rest	Technique cues

Circuit exercise	What to do	Duration	Rest	Technique cues

6.2 » Training principles: Progression, overload and reversibility

Learning goal: To understand the principles of progression, overload and reversibility as they relate to fitness training

Overload principle of training

For training to be effective, a body needs to be put under more stress than what is normal (that is, what the body does in everyday life). This is the **overload principle** of training.

Progression principle of training

When we train, our bodies adapt to the exercise. Therefore, to keep making progress (for example, to continue to get stronger, faster and more flexible, or better at performing the movements that the training is focusing on), we need to continually make our training more challenging. This is the **progression principle** of training.

FITT principles

Many trainers use the FITT principles (see Table 9) to help them create fitness training sessions. This model can also be used to help you scale up training as it describes four ways in which additional stress can be applied to make training more challenging.

TABLE 9 > The FITT principles

FIIT principles		Explanation	Example
	Frequency	How often sessions are completed per week	» 2–3 times a week » >5 a week
	Intensity	How hard a person works during the session	» 60–70% of maximum heart rate (MHR)
	Time	How long sessions go for	» 20 minutes » 45 minutes
	Type	The type or method of training	» Circuit training » Continuous training » Interval training

The scaling up of training needs to be balanced: the training needs to be hard enough so the body is not plateauing but it is not so challenging that injuries occur. An increase of 10 per cent is appropriate.

Scaling up and scaling down

6.2

PART A: SCALING UP A TRAINING PROGRAM

1   Examine the training program in the table below. What changes can you make to scale up the current training program?

Current training program		Scaled-up training program	
Activity	**FITT principles**	**Activity**	**FITT principles**
Cycling	» **Frequency:** Twice a week » **Intensity:** Moderate (cycling on flat terrain) » **Time:** 30 minutes » **Type:** Continuous (10-kilometre bike ride)	Cycling	» Frequency: _____ » Intensity: _____ » Time: _____ » Type: _____
Strength training	» **Frequency:** Three times a week » **Intensity:** Moderate (75% of MHR) » **Time:** Three sets of eight reps per exercise » **Type:** Resistance	Strength training	» Frequency: _____ » Intensity: _____ » Time: _____ » Type: _____

PART B: SCALING DOWN A TRAINING PROGRAM

To prevent injury and burnout, it is important to include a '**deloading week**' in a training program. In a deloading week, an individual scales down their workout by 30 per cent. This allows their body to recover a little without reversing its adaptations. Generally, deloading takes place after eight weeks of a training program.

2   What changes can you make to scale down the current training program in the table below to make it suitable for a deloading week?

Current training program		Scaled-down training program	
Activity	**FITT principles**	**Activity**	**FITT principles**
Cycling	» **Frequency:** Twice a week » **Intensity:** Moderate (cycling on flat terrain) » **Time:** 30 minutes » **Type:** Continuous (10-kilometre bike ride)	Cycling	» Frequency: _____ » Intensity: _____ » Time: _____ » Type: _____
Strength training	» **Frequency:** Three times a week » **Intensity:** Moderate (75% of MHR) » **Time:** Three sets of eight reps per exercise » **Type:** Resistance	Strength training	» Frequency: _____ » Intensity: _____ » Time: _____ » Type: _____

Reversibility

If a person stops or significantly reduces their training, the adaptations that the body makes in response to exercise will be reversed. This can occur when, for example, a person is injured. So when they resume training, the person needs to go back a few steps and build back up to where they were before they stopped.

6.3 » Training principle: Tedium

Learning goal: To understand the principle of tedium as it relates to fitness training

An activity is tedious when it is boring and has little variety. Tedium in fitness training refers to the mental element of training. Conversely, a training program that has variety not only helps prevent participants becoming bored and unmotivated, it can also prevent injuries (from muscles and joints being overused).

To avoid tedium, training plans need to have variety. There can be variety in many aspects of training including:

- the training method (circuit, continuous, interval, resistance, plyometric or mobility)
- the training setting (for example, inside or outside)
- the intensity of the training (light, moderate or vigorous)
- training individually or in a group or team.

The training plan in Table 10 below has variety in many aspects of the training.

TABLE 10 > A sample training plan

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Game day	Rest and recover	» Resistance training » Moderate intensity » Muscular strength (upper body)	» Mobility training » Light intensity » Flexibility	» Interval training » Vigorous intensity » Cardiorespiratory (aerobic) endurance	» Plyometric training » Vigorous intensity » Speed » Power » Muscular strength (lower body)	Rest and recover

Planning training that has variety

1 Select a sport or physical recreation activity that you are familiar with. Write the name of this activity in the table on the next page.

2 Complete a three-week training plan for your selected physical activity. Write your plan in the table. For each training day, identify the training method and intensity. Also note which components of fitness you will target (see Topic 1.2) on each day. Make sure your plan has variety.

ACTIVITY AND STRATEGY 6.3

6.3

ACTIVITY AND STRATEGY

TRAINING PLAN

NAME OF THE ACTIVITY:

Week 1

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Week 2

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

ASSESSMENT LOG

Now that you have finished Topic 6 (Training principles), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 2 (Training principles). You can update your Assessment Log at any time as your understanding grows.

TOPIC 7 > EXPLORING A TRAINING TYPE: RESISTANCE TRAINING

Resistance training is very popular. This type of training aims to develop muscular strength, muscular endurance and hypertrophy (muscular growth). Muscular strength and endurance are health-related components of fitness. An increase in muscular strength, endurance and size comes from overloading a particular muscle group through resistance. This could be from lifting weights or using a resistance band. The exertion against an external force causes some damage to the muscle tissue, and as the body repairs, it increases in strength, endurance and size. Because of this process, muscular improvement is achieved over time.

Building muscle through resistance training can protect joints from injury and improve your ability to do everyday activities, which is particularly important as we get older. It can also improve your performance in sport and physical recreation activities that rely on muscular strength.

In this topic, you will learn about the core elements of resistance training and participate in a resistance training session.

7.1 » The elements of resistance training

Learning goal: To be able to identify the core elements of resistance training

The core elements of resistance training are:

- the **exercise** selected (for example, doing chin-ups or squats, or lifting barbells)
- the type of **weight or resistance** (for example, a hand weight, fixed weight, body weight or resistance band)
- the number of repetitions (**reps**); one rep is one complete movement of the specific exercise (for example, one squat or one push-up)
- the number of **sets**; a set is a group of repetitions performed without resting (for example, doing 10 arm curls twice is two sets)
- the speed of movement (the **tempo**)
- the amount of time between sets (the **rest**); the length of the rest often depends on the intensity of the exercise
- the **frequency** of the training sessions.

A resistance training plan will include the details of most or all elements for each exercise. For example, a plan may state: Lateral dumbbell raises, 3 x 10 reps at 9 kg, two minutes. This means three sets of 10 lateral dumbbell raises with a nine-kilogram weight with two minutes rest between sets.

Exploring resistance training

7.1

ACTIVITY AND STRATEGY

PART A: RESEARCH RESISTANCE TRAINING

1 Research resistance training and then answer the questions below.

a What are the main effects of resistance training on the body?

_____

_____

_____

b Why are periods of planned rest important to improve muscular strength?

_____

_____

_____

c How can we train muscular endurance rather than muscular strength?

_____

_____

_____

PART B: PARTICIPATE IN A RESISTANCE TRAINING SESSION

2 Participate in a resistance training session organised by your teacher. In this session, you will complete different exercises. Record the reps, sets, tempo and rest for each exercise in the table below.

Exercise	Reps	Sets	Tempo	Rest

PART C: EVALUATE A RESISTANCE TRAINING SESSION

3 Evaluate your teacher's resistance training session, using the planning, instructions, feedback and adjustments factors of the PIRFAM framework. Look back to Table 6 at the start of this module to help you complete this task. Write your evaluation in the table below.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Feedback		
Adjustments		

ACTIVITY AND STRATEGY

7.1

> **Outcome**
> (an evaluation of the overall success of the session,
> drawing on the strengths and limitations listed above)

_____

4 What is one aspect of the resistance training session your teacher could change to improve it?

_____

_____

PART D: REFLECT ON RESISTANCE TRAINING

5 When lifting a heavy weight, is there _more_ or _less_ muscle force and contraction needed for each movement?

_____

_____

_____

6 How does the weight lifted affect the number of repetitions you could complete?

_____

_____

_____

7 How does the weight affect the time it takes to complete the movement?

_____

_____

_____

7.2 » Plan, perform and evaluate a resistance training session

Learning goal: To be able to plan and perform a successful resistance training session

Creating a resistance training session

PART A: PLAN A SESSION

1 What is the goal of the resistance training session? (Will the session focus on developing muscular strength, muscular endurance and/or hypertrophy?)

2 Which muscle groups do you want to target in your session?

3 What will be the duration of your training session? (How long will it go for?)

4 At what intensity do you want the participants of your training session to work? Light or moderate or vigorous? (See Table 4 in Topic 3.)

5 Answer the questions below in the training program table on the next page.

   a Identify three exercises that train the muscle groups you identified in Question 1.

   b How many reps should be completed for each exercise?

   c How many sets should be completed for each exercise?

   d At what tempo should the exercises be completed?

   e How much rest is required between the sets?

   f What equipment will you need for your session?

   g Think of feedback you can give the participants of your session.

ACTIVITY AND STRATEGY

7.2

ACTIVITY AND STRATEGY 7.2

TRAINING PROGRAM			
Exercise	Sets	Tempo	Rest
Equipment required			
Examples of feedback you can give to the participants			

PART B: PERFORM A TRAINING SESSION

6 Perform the training session you planned in Part A. Work with your teacher to make the arrangements for this activity.

PART C: EVALUATE A TRAINING SESSION

7 Evaluate the training session you performed in Part B. Write your evaluation in the table below. Look back to Table 6 at the start of this module to help you complete this task.

Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning	

	Strengths	Limitations
Instructions		
Relevance		
Feedback		
Adjustments		
Motivation		

ACTIVITY AND STRATEGY

7.2

7.2

ACTIVITY AND STRATEGY

Outcome
(an evaluation of the overall success of the training session,
drawing on the strengths and limitations listed above)

8 Identify one change you would make to your training session to make it more successful.

ASSESSMENT LOG

Now that you have finished Topic 7 (Exploring a training type: Resistance training), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 3 (Resistance training). You can update your Assessment Log at any time as your understanding grows.

TOPIC 8 > **TRAINING SESSIONS**

In this topic, you will use what you have learned in this unit to plan a training session and deliver it to your peers. After you have delivered your session, you will evaluate the planning and performance of your session.

8.1 » Plan a training session

Learning goal: To be able to plan a training session where exercises are appropriately sequenced

In a typical fitness training session, you will complete different exercises. The sequence in which you do the exercises is important. You can alternate between working muscle groups to allow some recovery and maintain intensity, or you can overload the same muscle groups to increase the intensity of the session.

Planning a training session

1 Fill in the table below to create a circuit training plan. The exercises could include:

- bodyweight squats
- burpees
- shuttle runs
- lunges
- kettlebell swings
- star jumps
- bear crawls
- sit-ups.

ACTIVITY AND STRATEGY 8.1

TRAINING SESSION PLAN				
Circuit exercise	What to do	Duration	Rest	Technique cues

8.1 ACTIVITY AND STRATEGY

Circuit exercise	What to do	Duration	Rest	Technique cues

8.2 » Deliver a training session

Learning goal: To be able to guide participants through the training session you planned in Topic 8.1

When it comes to delivering a successful training session, practise makes perfect! Look back to Table 6 at the start of this module; this table includes important information about delivering a successful training session.

Delivering a training session

8.2 ACTIVITY AND STRATEGY

1 Deliver the training session you planned in Topic 8.1.

2 After you have delivered your training session, evaluate the workout using the PIRFAM framework. Write your evaluation in the table below.

Strengths (things that worked)	Limitations (things that did not work or were missing)

Planning

	Strengths	Limitations
Instructions		
Relevance		
Feedback		
Adjustments		
Motivation		

8.2

ACTIVITY AND STRATEGY

> **Outcome**
> (an evaluation of the overall success of the session,
> drawing on the strengths and limitations listed above)

3 Suggest two modifications to your training plan. Explain how each modification could improve your session.

4 Suggest one modification to your performance in the training session.
Explain how the modification could enhance your session.

5 Identify the enablers and barriers to a person participating in your circuit training session.

8.3 » Adapt a training session

Learning goal: To be able to identify suitable changes to a training session

Good trainers not only evaluate the strengths and limitations of their planning and performance but they also use what they learn in their evaluation to improve their performance and the overall outcome of their training sessions.

Scaling up or scaling down

1 Fill in the 'Adapted training session plan' below. Revise the exercises you used for the training session you planned and delivered in Topics 8.1 and 8.2. Either scale-up or scale-down the exercises, depending on the participants' fitness levels.

For example, to scale-up a lunge, make it a jumping lunge. To scale down a lunge, make it a walking lunge.

ADAPTED TRAINING SESSION PLAN				
Circuit exercise	What to do	Duration	Rest	Technique cues

ASSESSMENT LOG

Now that you have finished Topic 8 (Training sessions), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 4 (Training sessions). You can update your Assessment Log at any time as your understanding grows.

TOPIC 9 > CUSTOMISING TRAINING SESSIONS FOR DIFFERENT COHORTS

To customise training sessions for particular groups of people, you need to take into account the unique characteristics and needs of different groups. By adapting exercises, equipment and programs to suit different populations, you can help promote overall health and wellbeing, improve fitness levels, and achieve specific fitness goals.

In this topic, you will explore customising training sessions for older adults and children and you will plan a training session for a particular cohort.

9.1 » Older adults

Learning goal: To be able to customise a training session so it is suitable for older adults

As individuals age, their bodies become more vulnerable to injuries and their metabolism slows, which makes maintaining muscle mass and bone density more difficult. Therefore, fitness training for older adults should focus on balance, flexibility and strength while minimising the risk of injury. Examples of suitable exercises that could be included in training sessions for older adults are resistance training, low-impact aerobics and stretching.

Exploring suitable training for older adults

ACTIVITY AND STRATEGY — 9.1

1 Create a list of sport and physical recreation activities favoured by older people.

2 Select one of the sport and physical recreation activities you identified in Question 1. Which components of fitness are used in this activity?

3 Which method/s of training are suitable for older adults? Explain your answer.

_____

_____

_____

_____

_____

4 Plan a training session for a group of older adults. Write your plan in the table below.

TRAINING SESSION FOR OLDER ADULTS				
Exercises	What to do	Duration	Rest	Technique cues

9.2 » Children

Learning goal: To be able to customise a training session so it is suitable for children

Fitness training sessions for children should emphasise the development of motor skills, coordination and balance while also promoting the growth of strong bones and muscles. The exercises should be tailored to suit the age group, and should be engaging and enjoyable, featuring activities such as running, jumping and participating in games and competitions.

Exploring suitable training for children

9.2

ACTIVITY AND STRATEGY

PART A: RESEARCH A COHORT

1 Which sport and physical recreation activities do children favour?

_____

_____

2 Select one of the sport and physical recreation activities you identified in Question 1a. Which components of fitness are used in this activity?

_____

_____

_____

_____

3 Which method/s of training are suitable for children? Explain your answer.

_____

_____

_____

_____

PART B: PERFORM AND EVALUATE A TRAINING SESSION

4 Participate in a training session run by your teacher that has been designed for children.

PART C: EVALUATE A TRAINING SESSION

5 After completing the training session in Part B, evaluate your teacher's session using the PIRFAM framework. Write your evaluation in the table on the next page. Look back to Table 6 at the start of this module to help you complete this task.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		
Feedback		
Adjustments		

9.2

ACTIVITY AND STRATEGY

Motivation

Strengths	Limitations

Outcome
(an evaluation of the overall success of the session,
drawing on the strengths and limitations listed above)

6 Was the session suitable for children? Explain your answer.

7 Propose one recommendation to you teacher on how they can improve their training session to make it more successful.

9.3 » Develop a training session for a specific cohort

Learning goal: To be able to customise a training session so it is suitable for a particular cohort

Planning, performing and evaluating a training session for a specific cohort

PART A: PLAN A TRAINING SESSION

1 Select a group of people you would like to plan a training session for (for example, school-aged children).

2 Plan a 15-minute training session that is suitable for the group you selected in Question 1. Write your plan in the table below.

TRAINING SESSION PLAN

PARTICIPANTS:

Component/s of fitness targeted (tick)		Training method (tick)	Intensity (tick)
Health related	**Skill related**		
☐ Body composition ☐ Cardiorespiratory (aerobic) endurance ☐ Flexibility ☐ Muscular endurance ☐ Muscular strength	☐ Agility ☐ Balance ☐ Coordination ☐ Power ☐ Reaction time ☐ Speed	☐ Circuit training ☐ Continuous training ☐ Interval training	☐ Light ☐ Moderate ☐ Vigorous

PROGRAM

Exercise	Reps	Sets	Tempo	Instruction cues

ACTIVITY AND STRATEGY 9.3

9.3

ACTIVITY AND STRATEGY

Exercise	Reps	Sets	Tempo	Instruction cues

Layout of the training area	

Equipment	

PART B: PERFORM A TRAINING SESSION

3 Perform the training session you planned in Part A. Work with your teacher to make the arrangements for this activity.

PART C: EVALUATE A TRAINING SESSION

4 Evaluate the training session you performed in Part B. Write your evaluation in the table below. Look back to Table 6 at the start of this module to help you complete this task.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		

	Strengths	Limitations
Instructions		
Relevance		
Feedback		
Adjustments		
Motivation		

9.3

ACTIVITY AND STRATEGY

> ## Outcome
> (an evaluation of the overall success of the training session,
> drawing on the strengths and limitations listed above)

5   Identify one change you would make to your training session to make it more
successful.

_____

_____

_____

ASSESSMENT LOG

Now that you have finished Topic 9 (Customising training sessions for different cohorts), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 5 (Customising a training session). You can update your Assessment Log at any time as your understanding grows.

TOPIC 10 > WHERE TO FROM HERE?

The experiences, skills and knowledge about fitness and training that you have learnt in this unit can transfer to a broad range of settings, including elite sport, community sport, school sport, personal training and group exercise in community fitness sectors. There is also a broad range of jobs in the fitness industry, including as trainers and fitness advisors.

In this topic, you will research the fitness industry in Australia and identify employment opportunities and vocational pathways in this sector.

10.1 » The fitness industry in Australia

Learning goal: To learn about the fitness industry in Australia

The fitness industry in Australia is a dynamic and thriving sector that encompasses a wide range of businesses, products and services related to health, fitness and wellness. The industry includes fitness advisors and personal trainers facilitating group fitness classes and individual workouts at a range of fitness facilities including gyms and community centres. The industry also includes nutrition and supplement providers, athletic apparel and equipment manufacturers.

The industry has been experiencing steady growth in recent years, driven by increasing awareness of the importance of physical fitness and wellness, and the growing popularity of new fitness trends and technologies.

Researching the Australian fitness industry

PART A: RESEARCH THE FITNESS INDUSTRY

1 Research the fitness industry in Australia and then answer the questions in the table below.

AUSTRALIA'S FITNESS INDUSTRY	
Questions	Answers
What is the approximate number of registered fitness businesses in Australia?	
Approximately how many people does the fitness industry employ?	
What is the approximate economic value of the fitness industry in Australia?	

ACTIVITY AND STRATEGY 10.1

ACTIVITY AND STRATEGY · **10.1**

Questions	Answers
What are the five most popular community recreation activities for school-aged children (aged 5–18)?	
What are the five most popular community recreation activities for men and women aged 18–35?	

PART B: PARTICIPATE IN A FITNESS ACTIVITY

2   Participate in a fitness activity organised by your teacher.

3   After participating in the activity, evaluate the session using the PIRFAM framework. Look back to Table 6 at the start of this module to help you complete this task. Write your evaluation in the table below.

NAME OF THE FITNESS ACTIVITY:

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		

	Strengths	Limitations
Relevance		
Feedback		
Adjustments		
Motivation		

10.2 » Vocational pathways and employment opportunities in the fitness industry

Learning goal: To be able to identify vocational pathways and employment opportunities in the fitness industry

The key pathways to getting a job in the fitness industry in Australia is to complete an Australian Vocational Education and Training (VET) qualification. VET courses provide the practical skills and knowledge to help you in the workplace. You can complete a VET course while you are at school, which can provide credit towards your Queensland Certificate of Education and support your transition from school to employment or higher education.

Investigating employment opportunities and vocational pathways in the fitness industry

10.2

ACTIVITY AND STRATEGY

PART A: INVESTIGATE EMPLOYMENT IN THE FITNESS INDUSTRY

1 Research employment in the fitness industry in Australia, then answer the following questions.

a What are three benefits of working in the fitness industry?

_____

_____

_____

b Identify three challenges experienced by fitness professionals.

_____

_____

_____

c What is a sole trader in the fitness industry?

_____

_____

_____

d What is the name of Australia's fitness industry body? What does this organisation do?

_____

_____

_____

_____

_____

e Identify three jobs in the fitness industry. A good place to start is looking at the courses offered by the Australian Institute of Fitness (https://mea.digital/UH_M2_csm).

_____

_____

_____

PART B: INVESTIGATE VOCATIONAL PATHWAYS IN THE FITNESS INDUSTRY

Many jobs in the fitness industry require you to have a qualification. Two of these qualifications are the Certificate III in Fitness and the Certificate IV in Fitness.

2 Compare a Certificate III in Fitness (visit https://mea.digital/UH_M2_1ke) and a Certificate IV in Fitness (visit https://mea.digital/UH_M2_wtf). Write your comparison in the table on the next page.

	Certificate III in Fitness	Certificate IV in Fitness
Course code		
Qualification description (What roles and duties can someone with this qualification carry out?)		
Course entry requirements		
Number of core units		
Number of elective units		

3 What are three differences between the two courses?

a Key difference one: _____

_____

_____

b Key difference two: _____

_____

_____

ACTIVITY AND STRATEGY

    c Key difference three: _____

_____

_____

4 How many QCE points are earned by completing each course?

    a Certificate III in Fitness: _____

    b Certificate IV in Fitness: _____

10.3 » The soft skills of fitness professionals

Learning goal: To understand what soft skills are and the importance of fitness professional having these types of skills

Hard skills are technical or specific abilities that are related to a particular job or industry. These skills are usually learned through education, training and on-the-job experience.

A person's **soft skills** are how their work, their interpersonal skills and their personal qualities that enable them to work effectively with others and to adapt to different situations.

For a fitness professional to be successful in their role, it is important they have soft skills; these skills relate to them being able to:

- communicate
- be positive
- show leadership
- be flexible
- show compassion and feel empathy
- problem-solve
- be organised and manage their time.

Practising soft skills

ACTIVITY AND STRATEGY

PART A: PARTICIPATE IN A TEAM CHALLENGE

1 Participate in the team challenge described below.

The no-hands cup-stacking team challenge

Equipment (per group):
- 10 cups (paper or plastic)
- 1 rubber band
- String

Instructions:
- Count how many students are in your group and tie that number of strings to a single rubber band.
- Each student in the group holds the end of one of the pieces of string attached to the rubber band.
- Working together as a group, use this device to pick up the cups (by pulling the rubber band apart and then bringing it back together over the cups) and place them on top of one another to build a pyramid.

PART B: REFLECT ON THE TEAM CHALLENGE

2   How did this activity require you to work as a team?

_____

_____

_____

3   How did communication help you to complete the task?

_____

_____

_____

4   What are some examples of feedback the group used?

_____

_____

_____

5   Did a particular student take on a leadership role? How did they do this?

_____

_____

_____

ACTIVITY AND STRATEGY   **10.3**

ASSESSMENT LOG 2: PERFORMANCE

The second assessment of this unit is a performance. For this assessment, you will plan and perform (implement) a fitness activity (for example, a training session). You will then evaluate the success of the session.

Steps	Requirements
Steps 1 and 2: Investigate and plan	**Investigate and plan** a fitness activity by: » coming up with an idea for a fitness activity » developing a detailed plan for a fitness activity » identifying and explaining the purpose of the fitness activity.
Step 3: Perform	**Perform** (implement) your planned fitness activity by: » organising equipment and preparing the space » delivering the planned fitness activity.
Step 4: Evaluate	**Evaluate** your implemented fitness activity by: » evaluating personal performance and success in achieving your purpose » evaluating strategies used to enhance outcomes in fitness for sport and recreation » evaluating the observed outcomes related to fitness for sport and recreation.

Note that a filled-in Assessment Log does not meet the QCAA's assessment specifications for direct assessment evidence. An Assessment Log may provide indirect assessment evidence only.

For this performance task, you are not required to submit evidence of your investigation work. However, you will need to research and investigate your assessment topic to complete the planning phase of the task. The Investigation Log is included to assist you to fill in the Planning Log.

STEP 1: INVESTIGATION LOG

- Your Investigation Log is a record of all the evidence you have gathered in Module 2: Training.

- Look back at the activity and strategy tasks in this module to determine how you would like to plan and perform your fitness activity.

- All the information in this module can be used in your Investigation Log.

- The relevant activity and strategy tasks are indicated in each section of the following table.

- You should also find other relevant information to support your choices; for example, do some research and draw from your own previous experiences of fitness activities.

Section 1:
Training methods

Relevant tasks from this module	Activity and strategy 5.1, 5.2 and 5.3
Which **training method** will you use in your fitness activity? (Tick)	☐ Circuit training ☐ Continuous training ☐ Interval training

Evidence for this selection

I selected this training method because …	My previous experiences and research have shown that …
_____ _____ _____ _____	_____ _____ _____ _____

Section 2:
Training principles

Relevant tasks from this module	Activity and strategy 6.1, 6.2 and 6.3
Training principle: Specificity How will you make sure your fitness activity is specific and relevant to the participants?	_____ _____ _____ _____ _____
Training principles: Progression, overload and reversibility How could you scale up or scale down your fitness activity? How could you build back up if your training is reversed?	_____ _____ _____ _____ _____
Training principle: Tedium What variety is there in your fitness activity?	_____ _____ _____ _____ _____

Section 3:
Resistance training

Relevant tasks from this module	Activity and strategy 7.1 and 7.2

Evidence for this selection

I selected to use resistance training in my fitness activity because …	My previous experiences and research have shown that resistance training …

Section 4:
Training sessions

Relevant tasks from this module	Activity and strategy 8.1, 8.2 and 8.3

Strengths I would like to incorporate in my fitness activity	Limitations I would like to avoid in my fitness activity

Section 5:
Customising a training session

Relevant tasks from this module	Activity and strategy 9.1, 9.2 and 9.3
Who are the **participants** of your fitness activity?	
What **strategies** will you use to **customise** your fitness activity so it is suitable for the participants?	

Section 5:
Customising a training session (continued)

Evidence for this selection

I customised my fitness activity this way because …	My previous experiences and research have shown that …

STEP 2: PLANNING LOG

Your Planning Log is a place to develop a draft of your assessment plan.
Use your Investigation Log to help you complete your Planning Log.

Fitness activity plan

Participants of the fitness activity:

Components of fitness targeted in the fitness activity (tick)		Training method (tick)	Intensity (tick)	Duration
Health-related	**Skill related**			
☐ Body composition ☐ Cardiorespiratory (aerobic) endurance ☐ Flexibility ☐ Muscular endurance ☐ Muscular strength	☐ Agility ☐ Balance ☐ Coordination ☐ Power ☐ Reaction time ☐ Speed	☐ Circuit training ☐ Continuous training ☐ Interval training	☐ Light ☐ Moderate ☐ Vigorous	

Program

Exercise	Reps	Sets	Tempo	Instruction cues

Exercise	Reps	Sets	Tempo	Instruction cues

Layout of the training area	
Equipment	
How can you change the intensity of the exercises if needed during the session?	

STEP 3: PERFORMANCE LOG

In this step, you will implement your plan deliver your fitness activity!

Notes and reminders:

What do you need to remember to be successful in your performance?

_____

_____

_____

_____

_____

_____

_____

STEP 4: EVALUATION LOG

After running your fitness activity, use the PIRFAM template below to evaluate the success of your session.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		

	Strengths	Limitations
Instructions		
Relevance		
Feedback		
Adjustments		
Motivation		

Outcome
(an evaluation of the overall success of the fitness activity, drawing on the strengths and limitations listed above)
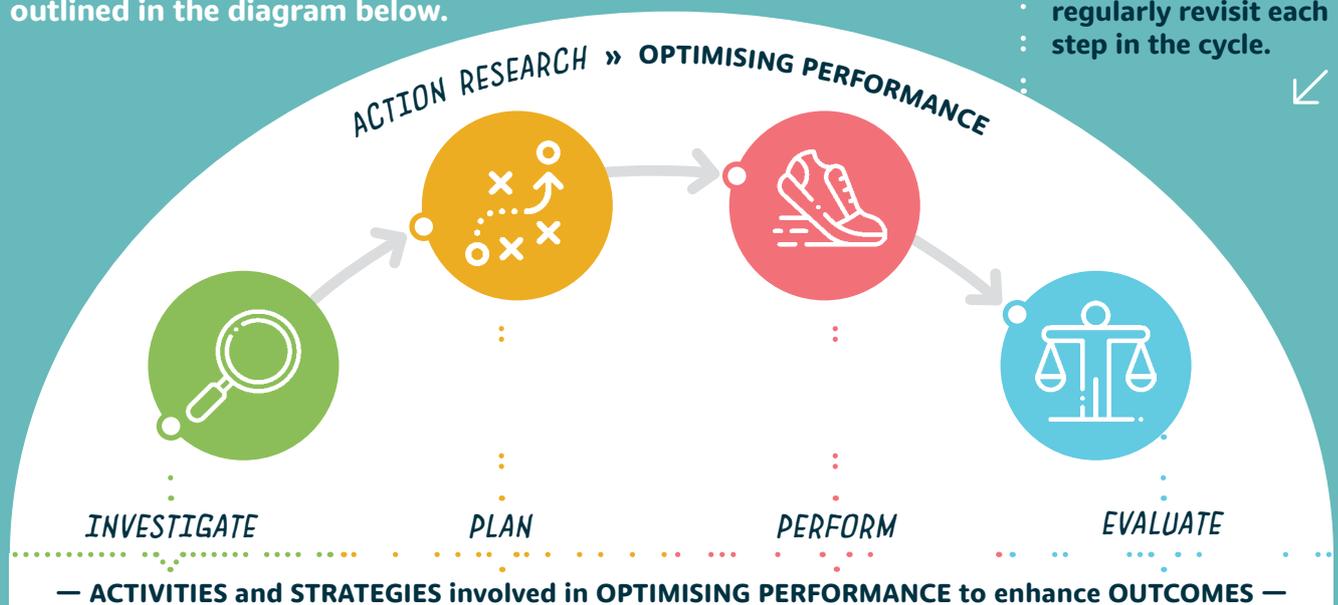
OPTIMISING PERFORMANCE

Optimising an athletic performance means improving that performance so the athlete reaches their maximum potential and achieves the best possible result.

Apart from physical training, for a person to perform at their best, many aspects of their development need to be considered, including their mental skills, nutrition, and how their injuries are treated and managed. These critical aspects of performance require specialist knowledge.

The experiences, skills and knowledge related to how to optimise an athletic performance can be applied to a range of settings, including elite sport, community-based sport and fitness activities.

In this unit, you will focus on the objectives and subject matter outlined in the diagram below.

The process you are following is called 'action research'. It means you are learning by doing. Action research is a cycle, not a one-way street. Using this unit, you will regularly revisit each step in the cycle.

ACTION RESEARCH » OPTIMISING PERFORMANCE

| INVESTIGATE | PLAN | PERFORM | EVALUATE |

— ACTIVITIES and STRATEGIES involved in OPTIMISING PERFORMANCE to enhance OUTCOMES —

INVESTIGATE	PLAN	PERFORM	EVALUATE
☑ **Learn by doing:** Actively participate in mental skills training, sports medicine scenarios, and meal preparation. ☑ **Document your findings:** Ask questions, search for evidence, and make observations. ☑ **Be curious:** Trial a variety of strategies and observe others.	☑ **Outline details:** What, who, when, where and how? ☑ **Build a framework:** Use your investigations to inform your plan. ☑ **Test your plan:** Change your plan according to your findings.	☑ **Participate:** Bring to life the strategies you have investigated and planned. ☑ **Review:** Be prepared to adjust your plan and test your performance again. ☑ **Be flexible:** Performance is developmental and needs to be built over time.	☑ **Analyse:** Assess the strengths and limitations of your investigations, plans and performances. ☑ **Interpret:** Draw together these assessments to form a summary or an outcome. ☑ **Reflect:** Come to new understandings.

ASSESSMENT LOG

When you see this icon, it is a reminder to turn to the Assessment Log at the end of the relevant module to document your learning. By filling in the Assessment Log as you go, you are continually building towards the assessment. You can update your Assessment Log at any time as your understanding grows.

FOLIO OF WORK FOR MODULE 1:
NUTRITION AND MENTAL SKILLS

Topics		Tasks		Activities and strategies		Completed (✓)
1	Being your best	**1.1:**	The factors that contribute to optimum performance	**1.1:**	Explore the factors that contribute to optimum performance	☐
		1.2:	Ability, skill and technique	**1.2:**	Explore the skill equation	☐
		1.3:	Fitness and optimum performance	**1.3:**	Investigate the components of fitness	☐
2	Nutrition for life	**2.1:**	The main food groups	**2.1:**	Investigate what you eat	☐
		2.2:	Macronutrients	**2.2:**	Identify macronutrients in the food you eat	☐
		2.3:	Micronutrients	**2.3:**	Identify micronutrients in the food you eat	☐
3	Using food to optimise performance	**3.1:**	Nutrition information	**3.1:**	Investigate nutrition information panels	☐
		3.2:	Eating before a game to optimise performance	**3.2:**	Design a pre-game snack	☐
4	Fuelling and refuelling to optimise performance	**4.1:**	Fuelling to optimise performance	**4.1:**	Investigate the impact of food on performance – Part A	☐
		4.2:	Evaluating pre-game foods	**4.2:**	Investigate the impact of food on performance – Part B	☐
		4.3:	Refuelling to promote recovery	**4.3:**	Explore the impact of food on recovery	☐
5	Performance psychology	**5.1:**	Motivation	**5.1:**	Determine your level of motivation	☐
		5.2:	Goal setting	**5.2:**	Set SMART goals	☐
		5.3:	Relationships with others	**5.3:**	Relationship building	☐
6	Mental skills	**6.1:**	Positive self-talk	**6.1:**	Practise positive self-talk	☐
		6.2:	Mental imagery	**6.2:**	Practise using mental imagery	☐
		6.3:	Managing moods	**6.3:**	Get in the zone	☐
	Assessment	**Assessment Log 1: Project**		**Step 1:** Investigation Log		☐
				Step 2: Planning Log		☐
				Step 3: Performance Log		☐
				Step 4: Evaluation Log		☐

FOLIO OF WORK FOR MODULE 2:
SPORTS MEDICINE AND FIRST AID

Topics		Tasks		Activities and strategies		Completed (✓)
7	Administering basic life support	**7.1:**	Basic life support	**7.1:**	Practise administering basic life support	☐
		7.2:	The chain of survival	**7.2:**	Investigate the chain of survival	☐
8	Principles of injury management	**8.1:**	Managing an injured athlete	**8.1:**	Investigate injury management	☐
		8.2:	Soft-tissue injuries	**8.2:**	Practise treating soft-tissue injuries	☐
9	Sports medicine protocols	**9.1:**	Concussion protocols	**9.1:**	Create a return-to-sport flowchart	☐
		9.2:	The blood rule	**9.2:**	Investigate the blood rule	☐
		9.3:	Performance-enhancing drugs and supplements	**9.3A:**	Investigate anti-doping rule violations	☐
				9.3B:	Investigate drug-testing protocols	☐
				9.3C:	Investigate supplements	☐
10	Injury prevention strategies: Before game day	**10.1:**	Pre-exercise screening	**10.1:**	Investigate pre-exercise screening	☐
		10.2:	Joint stability exercises	**10.2:**	Investigate joint stability	☐
		10.3:	Preventive strapping	**10.3:**	Practise joint-strapping techniques	☐
		10.4:	Stretching and flexibility	**10.4:**	Practise stretching	☐
11	Injury prevention strategies: Game day	**11.1:**	Protective equipment	**11.1:**	Investigate protective equipment	☐
		11.2:	Warming-up	**11.2:**	Investigate warm-ups	☐
		11.3:	Cooling-down	**11.3:**	Investigate cool-downs	☐
12	Recovery strategies	**12.1:**	Recovering from games and training	**12.1:**	Investigate a recovery strategy	☐
		12.2:	Recovering from an injury	**12.2:**	Develop a return-to-play timeline	☐
		12.3:	Sports massage therapy	**12.3:**	Investigate sports massage therapy techniques	☐
13	Where to from here?	**13.1:**	Employment opportunities	**13.1:**	Investigate employment opportunities	☐
		13.2:	Vocational pathways	**13.2:**	Investigate vocational pathways	☐
		13.3:	Sports trainers	**13.3:**	Complete an injury report	☐
✋		**Assessment Log 2: Performance**		🔍 **Step 1:** Investigation Log		☐
				📋 **Step 2:** Planning Log		☐
				👟 **Step 3:** Performance Log		☐
				⚖️ **Step 4:** Evaluation Log		☐

PROJECT

The first assessment of this unit is a project. For this assessment, you will investigate, plan and perform (implement) a strategy to improve performance in a physical activity. You will then evaluate the success of the strategy.

Name of the strategy

Conditions of the task

Context

ASSESSMENT ② PREVIEW »
PERFORMANCE

The second assessment of this unit is a performance. For this assessment, you will plan and perform (implement) a strategy to improve performance in a physical activity. You will then evaluate the success of the strategy.

Name of the sport

Conditions of the task

Context

NUTRITION AND MENTAL SKILLS

There are many strategies that can be used to improve an athlete's performance and to help them achieve the best possible results in their chosen sport. Two critical aspects related to an athlete's performance are nutrition and mental skills. In this module, you will learn about nutrition and how to fuel and refuel to optimise performance. You will also plan, test and evaluate several nutrition-related strategies.

The mental skills section of this module focuses on how you can develop your mental skills to increase motivation and optimise performance. You will explore key reasons for low motivation and investigate strategies that specifically target each reason, including goal setting, relationship building, self-talk, and using mental imagery.

PIRFAM FOR STRATEGIES TO OPTIMISE PERFORMANCE

To evaluate strategies to optimise athletic performance, you will use the PIRFAM framework. In this module, the PIRFAM acronym stands for:

- **P**lanning
- **I**nstructions
- **R**elevance
- **F**eedback
- **A**djustments
- **M**otivation.

A good evaluation of a strategy to optimise athletic performance identifies the strengths and limitations of the strategy according to each factor of the PIRFAM framework. See Table 2 for an example of a completed PIRFAM evaluation.

TABLE 1 > PIRFAM factors for strategies to optimise athletic performance

PIRFAM factor		Examples of evaluation criteria
P	Planning	» The strategy was well planned.
I	Instructions	» The explanation of the strategy was clear, detailed, and not missing any information.
R	Relevance	» The strategy was relevant to the athlete's needs.
F	Feedback	» Feedback from the athlete was considered in the selection and creation of the strategy.
A	Adjustments	» The strategy included possible adjustments to better target the athlete.
M	Motivation	» The strategy successfully increased the athlete's motivation.

TABLE 2 > An example of a completed PIRFAM evaluation of a strategy (a dietician's review of an athlete's diet and creation of a new meal plan) to optimise athletic performance

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning	» The review of the athlete's diet identified different macronutrients and micronutrients.	» The dietician's new meal plan could have been better aligned to the Australian Guide to Healthy Eating.
Instructions	» The dietician clearly explained the flaws in the athlete's diet (for example, the athlete was not eating enough carbohydrates).	» The dietician's new meal plan was not sufficiently detailed; the athlete did not understand exactly which foods they needed to eat.
Relevance	» In the new meal plan, the decision to increase the intake of carbohydrates was relevant to the endurance athlete's needs.	» In the new meal plan, there was a reduction in some macronutrients that the athlete needs. » The new meal plan included too many sugary foods; these carbohydrates do not provide the long-term energy that an endurance athlete needs.
Feedback	» The dietician provided clear feedback on the athlete's original diet.	
Adjustments	» The dietician changed the original diet to increase the athlete's intake of carbohydrates.	» The dietician included the wrong type of carbohydrates (sugary foods rather than grains and cereals) in the new meal plan.
Motivation	» The athlete noticed a slight improvement in the initial stages of their athletic performances as a result of the increased sugar intake. This increased their motivation to persist with the new meal plan.	» The athlete did not notice any improvements in the later stages of their athletic performances. This decreased their motivation to persist with the new meal plan.

Outcome
(an evaluation of the overall success of the strategy, drawing on the strengths and limitations listed above)

Overall, this strategy to optimise athletic performance was not successful. The strengths of the strategy – which included the dietician providing the athlete with clear feedback on their original diet and identifying the macronutrients and micronutrients in the diet – were greatly outweighed by the strategy's limitations. The aspects of the strategy that did not work included the lack of detailed information in the new meal plan, which meant the athlete did not know exactly which foods to eat in which portions. However, most concerningly, the new meal plan reduced some macronutrients that the athlete needs and included the wrong type of carbohydrate; sugary foods do not provide the long-term energy that the athlete needs. This was reflected in the athlete not noticing any improvement in the later stages of their athletic performance.

TOPIC 1 >   BEING YOUR BEST

Many different factors contribute to a person performing at their best in their chosen physical activity, that is, to reach their optimum athletic performance. In this topic, you will examine the different components of fitness and explore some of the other factors required for a person to perform at their best, including ability, skill and technique.

1.1 »   The factors that contribute to optimum performance

Learning goal: To investigate the different factors that contribute to a person performing at their best

Explore the factors that contribute to optimum performance

1 a Think about a time when you gave your best performance in a game. Why did you perform at your best on that day?

_____

_____

_____

b Share your answer to Question 1a with the class.

2 a After everyone has shared their answers to Question 1a, work as a class to fill in the mind map below.

Factors contributing to optimum performance
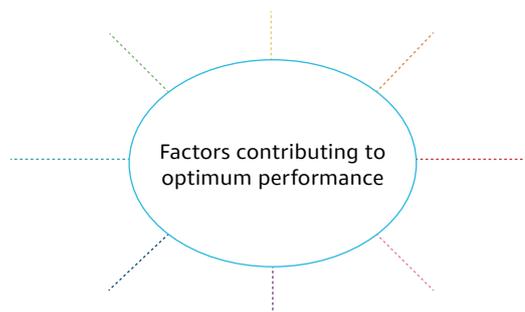
b Examine the mind map you have created. Review the connections and interrelated ideas that contribute to optimum performance. Discuss these ideas as a class.

ACTIVITY AND STRATEGY

1.2 » Ability, skill and technique

Learning goal: To be able to distinguish between ability, skill and technique and to understand that these three factors all contribute to optimum performance

The terms 'ability', 'skill' and 'technique' are often used interchangeably; however, these terms have different meanings:

- A person's **ability** is their capacity to perform a skill. We all differ in the strength of our abilities. Our ability is generally considered to be part of our genetic makeup.
- A **skill** is a learned behaviour. Skills generally have a pre-determined goal or outcome. Skilled behaviour tends to be consistent and produce similar results in performance of the skill. The performance of those who are skilled is smooth and requires minimal energy to complete.
- **Technique** is our way of doing things. It is *how* we perform a skill. It describes how we move. To optimise performance, we must have the necessary technique or techniques and choose the correct one to use in any specific situation.

Ability, skill and technique all contribute to optimum performance.

Explore the skill equation

1 Think about your own performance in a sport or physical recreation activity.

    a Rate your most recent performance in this activity by giving yourself scores out of 10 for skill, ability and technique.

ACTIVITY NAME:

Skill	Ability	Technique
/10	/10	/10

    b Identify the strengths you have and the limitations you would like to improve on to achieve your optimum performance. Discuss your findings with your teacher.

Strengths of your performance	Limitations of your performance

ACTIVITY AND STRATEGY · **1.2**

1.3 » Fitness and optimum performance

Learning goal: To be able to identify the main components of fitness

In general, 'fitness' is the ability of a person to carry out a task. Being fit undoubtedly helps a person to perform at their best. Different sports and physical recreation activities require different types of fitness. In this topic, you will explore the different components of fitness.

Components of fitness

There are 11 components of fitness; each component is related to either health or skill (see Table 3 below). The participants of different sports and physical recreation activities need to focus on different components of fitness. For example, a tennis player needs agility to move around the court and aerobic fitness to play many games, whereas a weightlifter needs muscular strength, muscular endurance and balance to raise and hold heavy weights.

TABLE 3 > The components of fitness

Component of fitness	Health related or skill related	Definition
Body composition	Health related	The percentages of bone, muscle and fat in the body
Cardiorespiratory (aerobic) endurance	Health related	How well your body can use oxygen during prolonged exercise
Flexibility	Health related	The range of motion of the body's joints
Muscular endurance	Health related	The ability of a muscle to perform repetitive work over a prolonged period
Muscular strength	Health related	The capacity to apply force against resistance
Agility	Skill related	Being able to move your body quickly and easily while changing directions
Balance	Skill related	The ability to stay in control of the body's position
Coordination	Skill related	The ability to use the right muscle at the right time with proper intensity to achieve the required action
Power	Skill related	The ability to use strength in rapid, explosive muscle contractions
Reaction time	Skill related	The time it takes to start an action or movement in response to a stimulus
Speed	Skill related	How quickly you can move your body in one direction

Investigate the components of fitness

PART A: MATCH THE COMPONENTS OF FITNESS

1 **a** For each component of fitness listed in the following tables, identify a sport or physical recreation activity that uses that component. Try not to use the same sport more than once.

b Provide an example of how each component of fitness is used in the sport you picked.

HEALTH-RELATED COMPONENTS OF FITNESS		
Component of fitness	Sport or physical recreation activity	Example
Body composition		
Cardiorespiratory (aerobic) endurance		
Flexibility		
Muscular endurance		
Muscular strength		

1.3

ACTIVITY AND STRATEGY

SKILL-RELATED COMPONENTS OF FITNESS		
Component of fitness	Sport or physical recreation activity	Example
Agility		
Balance		
Coordination		
Power		
Reaction time		
Speed		

PART B: REFLECT ON THE COMPONENTS OF FITNESS

2 Why are five fitness components in Table 3 related to health?

_____

_____

_____

3 Can fitness components developed for one sport transfer to another? Explain your answer.

_____

_____

_____

TOPIC 2 > NUTRITION FOR LIFE

'Nutrition' is the study of nutrients (vitamins, minerals, proteins, fats, water and carbohydrates) in food and how the body uses them and how they influence your health. In this topic, you will investigate the five food groups and learn about macronutrients and micronutrients.

2.1 » The main food groups

Learning goal: To be able to determine the servings of food groups in your diet

The Australian Guide to Healthy Eating identifies five food groups that should be eaten as part of a healthy diet. The five food groups and their serving sizes are described in Table 4.

TABLE 4 > The five food groups

Food group	Examples of food	Serving size
Grains	Wheat, oats, rice, rye, barley, quinoa and corn	» 1 slice of bread » ½ cup of pasta or rice or oats
Vegetables and legumes/beans	The leaves, roots, flowers, stems and shoots of plants	» 75 grams or 1 cup of leafy green vegetables » ½ cup of other types of vegetables
Fruits	Apples, bananas, pineapples, grapes, mangoes, pears, apricots, pawpaws, plums, cantaloupes and berries	» 150 grams of fruit » 1 piece of fruit (for example, an apple or a banana) » 1 cup of diced fruit
Dairy	Milk, yoghurt and cheese (reduced fat)	» 1 cup of milk » 2 slices of cheese » ¾ cup of yoghurt
Lean red meat and poultry, fish, eggs, tofu, nuts and seeds	Beef, lamb, pork, chicken, prawns, almonds, peanuts and sunflower seeds	» 65 grams of red meat » 80–100 grams of white meat » 2 eggs » 85 grams of tofu » 30 grams of nuts or seeds

Figure 1: The Australian Guide to Healthy Eating

Australian Guide to Healthy Eating

Enjoy a wide variety of nutritious foods
from these five food groups every day.

Drink plenty of water.

Grain (cereal) foods,
mostly wholegrain
and/or high cereal
fibre varieties

Muesli

Polenta

Quinoa

Fettuccine

Penne

Wheat flakes

Vegetables and
legumes/beans

Red kidney
beans

Red lentils   Chickpeas

Red kidney
beans

Lentils

Mixed nuts

Chickpeas

Lean meats and
poultry, fish, eggs,
tofu, nuts and seeds
and legumes/beans
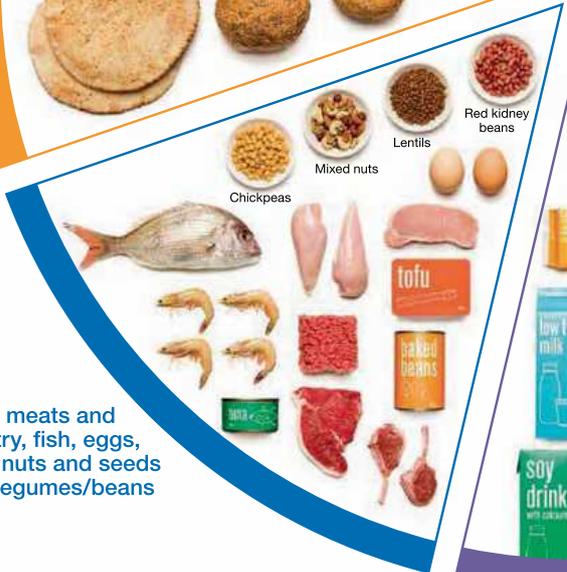
Fruit

Milk, yoghurt, cheese and/or
alternatives, mostly reduced fat

Use small amounts

Only sometimes and in small amounts

Source: National Health and Medical Research Council (representing the Commonwealth of Australia)

The Australian Guide to Healthy Eating (Figure 1) also describes the foods that should be eaten in small amounts or eaten rarely:

- vegetable oils and butter (eaten in small amounts)
- sugary drinks, alcohol, lollies, chocolate, sweets (for example, cakes and biscuits), processed meat, processed snacks (for example, savoury biscuits), cream, fast food (eaten rarely and in small amounts).

A healthy diet includes food that is mostly from the five food groups, in the proportions suggested by the Australian Guide to Healthy Eating, and includes little to no junk food. The guide also outlines the recommended number of serves per day for each food group (see Table 5).

TABLE 5 > The recommended number of serves per day for each food group for adolescents aged 14–18 years

	Grains	Vegetables and legumes/ beans	Fruits	Dairy	Lean red meat and poultry, fish, eggs, tofu, nuts and seeds	Additional serves for more active individuals
14–18 boys	7	5.5	2	3.5	2.5	0–5
14–18 girls	7	5	2	3.5	2.5	0–2.5

Investigate what you eat

ACTIVITY AND STRATEGY 2.1

1 **a** In the table below, write a food diary for the last two days. Include all the food *and* liquid you have consumed.

   b Use the information in this topic to determine how many serves of each food group you have eaten on each day.

MY FOOD DIARY	
Day one	Day two
Breakfast	
Morning tea	

2.1

ACTIVITY AND STRATEGY

	Day one	Day two
Lunch		
Afternoon tea		
Dinner		
Dessert		

NUMBER OF SERVES OF EACH FOOD GROUP

	Day one	Day two
Grains		
Vegetables and legumes/beans		
Fruits		
Dairy		
Lean red meat and poultry, fish, eggs, tofu, nuts and seeds		
Food that should be eaten rarely or in small amounts		

2.1

ACTIVITY AND STRATEGY

After completing your food diary, answer the following questions.

2 Compare your food diary to Table 5.

  a Did you eat too much food from any group? Which food group?

  _____

  _____

  b Did you not eat enough food from any group? Which food group?

  _____

  _____

3 How can you improve your diet so it better aligns with the Australian Guide to Healthy Eating?

  _____

  _____

  _____

  _____

2.2 » Macronutrients

Learning goal: To be able to determine the macronutrients in different foods

There are six types of nutrients in what we eat and drink, three of these are macronutrients and three are micronutrients (see Table 6). It is important to understand which nutrients are in the foods we eat when trying to optimise athletic performance, as each nutrient affects our bodies differently.

TABLE 6 > The six types of nutrients

	The six types of nutrients		
Macronutrients	Carbohydrates	Proteins	Fats
Micronutrients	Vitamins	Minerals	Water

Macronutrients

The three types of macronutrients are carbohydrates, proteins and fats:

- **Carbohydrates** are our main source of energy. They are mostly found in grain foods and in some starchy vegetables (for example, potatoes). **Sugar** is a type of carbohydrate. **Fibre** is a type of carbohydrate that helps to keep the heart and gut healthy.

- **Proteins** help to build, maintain and repair tissue such as muscle. Proteins are found in lean meat, legumes, nuts and dairy.

- **Fats** are essential to our diet as they help with many bodily functions, including brain function. Excess fat is stored in our bodies and contributes to weight gain. **Unsaturated fats** are beneficial to our bodies when eaten in small amounts as part of a balanced diet. **Saturated fats** are not beneficial and should be avoided or eaten rarely.

Identify the macronutrients in the food you eat

ACTIVITY AND STRATEGY

2.2

1 Select three of the meals you wrote in your food diary in Activity and strategy 2.1. Write these meals in the table below.

2 For each meal, determine which **macronutrients** are in the meal and circle the approximate level of each nutrient. You may need to complete research to complete this task.

Meals	Macronutrients		
	Carbohydrates	Proteins	Fats
_____ _____ _____ _____	None Low Medium High	None Low Medium High	None Low Medium High
_____ _____ _____ _____	None Low Medium High	None Low Medium High	None Low Medium High
_____ _____ _____ _____	None Low Medium High	None Low Medium High	None Low Medium High

3 After completing the table, determine which of the three meals is the healthiest. Explain your answer. A healthy meal should have:

- a low to high amount of carbohydrates (and low amounts of sugar)
- a low to medium amount of **protein**
- low amounts of unsaturated **fats** and no saturated fats.

_____

_____

_____

_____

_____

2.3 » Micronutrients

Learning goal: To be able to determine the micronutrients in different foods

Micronutrients

The three types of micronutrients are vitamins, minerals and water:

- **Vitamins** are necessary for the healthy functioning of our bodies and are commonly found in fruits and vegetables. Examples of vitamins are Vitamin C and Vitamin D.
- **Minerals** are essential for many bodily functions and are found in all the food groups. Examples of important minerals are:
  - **iron:** helps move oxygen around the body
  - **calcium:** builds strong and healthy bones and teeth
  - **magnesium:** helps our body absorb oxygen and produce energy
  - **zinc:** helps repair tissue and protects the body against diseases.
- **Water** helps to regulate body temperature, digest food, transport nutrients around the body, and remove waste products from the body.

Identify the micronutrients in the food you eat

ACTIVITY AND STRATEGY 2.3

1 Select three of the meals you wrote in your food diary in Activity and strategy 2.1. Write these meals in the table below.

2 For each meal, determine which **micronutrients** are in the meal. You may need to complete research to complete this task.

Meals	Micronutrients		
	Vitamins	Minerals	Water

3 Review the list of micronutrients from your analysis of the meals. Are the essential vitamins, minerals and water present in adequate quantities?

Note your findings below.

_____

_____

_____

_____

ACTIVITY AND STRATEGY 2.3

ASSESSMENT LOG

Now that you have finished Topic 2 (Nutrition for life), turn to Assessment Log 1 at the end of this module. Start to fill in Step 1 (Investigation Log). Fill in Section 2 (Strategy to improve performance: Eat a healthy diet). You can update your Assessment Log at any time as your understanding grows.

TOPIC 3 > USING FOOD TO OPTIMISE PERFORMANCE

Eating a healthy diet that aligns to the Australian Guide to Healthy Eating and includes the correct balance of macronutrients and micronutrients for the physical activities you participate in will help you train hard, stay healthy and injury free, and perform at your best.

In this topic, you will learn how to identify key information on nutrition information panels and how to use this information to prepare food that will help to optimise your athletic performance.

3.1 » Nutrition information

Learning goal: To be able to identify nutrition information on nutrition information panels

When learning how to use food to optimise athletic performance, a key skill is being able to understand the nutrition information panels on packaged food. Being able to read these panels allows athletes to make sure they are consuming the right nutrients in the right quantities to optimise their performance.

Nutrition information panels provide information about the average quantities of nutrients in food. In Australia, all packed food must have a nutrition information panel, except for items such as herbs, spices, tea and coffee.

Nutrition information panels must include the average quantity of:

- energy (usually shown in kilojoules)
- protein
- fat
- saturated fat
- carbohydrates
- sugars
- sodium.

A nutrition information panel must also include any other nutrients that are mentioned on the food's packaging; for example, a food that claims to be a 'good source of fibre' must have dietary fibre included on the panel. Generally, if a beneficial nutrient is not included on the panel, it is not included in the food in high quantities.

Figure 2 on the opposite page explains the information on nutrition information panels.

Figure 2: Understanding nutrition information panels

HOW TO UNDERSTAND FOOD LABELS

What to look for…

Don't rely on health claims on labels as your guide. Instead learn a few simple label reading tips to choose healthy foods and drinks, for yourself. You can also use the label to help you lose weight by limiting foods that are high in energy per serve.

Nutrition Information

Servings per package – 16
Serving size – 30g (2/3 cup)

	Per serve	Per 100g
Energy	432kJ	1441kJ
Protein	2.8g	9.3g
Fat		
Total	0.4g	1.2g
Saturated	0.1g	0.3g
Carbohydrate		
Total	18.9g	62.9g
Sugars	3.5g	11.8g
Fibre	6.4g	21.2g
Sodium	65mg	215mg

Ingredients: Cereals (76%) (wheat, oatbran, barley), psyllium husk (11%), sugar, rice, malt extract, honey, salt, vitamins.

Total Fat ▶
Generally choose foods with less than **10g per 100g.**

For milk, yogurt and icecream, choose less than **2g per 100g.**

For cheese, choose less than **15g per 100g.**

Saturated Fat ▶
Aim for the lowest, per 100g. **Less than 3g per 100g is best.**

Other names for ingredients high in saturated fat: Animal fat/oil, beef fat, butter, chocolate, milk solids, coconut, coconut oil/milk/cream, copha, cream, ghee, dripping, lard, suet, palm oil, sour cream, vegetable shortening.

Fibre ▶
Not all labels include fibre. Choose breads and cereals with **3g or more per serve**

Ingredients ▲
Listed from greatest to smallest by weight. Use this to check the first three ingredients for items high in saturated fat, sodium (salt) or added sugar.

◀ 100g Column and Serving Size
If comparing nutrients in similar food products **use the per 100g column.** If calculating how much of a nutrient, or how many kilojoules you will actually eat, use the per serve column. But check whether your portion size is the same as the serve size.

Energy
Check how many kJ per serve to decide how much is a serve of a 'discretionary' food, which has 600kJ per serve.

Sugars
Avoiding sugar completely is not necessary, but try to avoid larger amounts of added sugars. If sugar content per 100g is more than 15g, check that sugar (or alternative names for added sugar) is not listed high on the ingredient list.

Other names for added sugar: Dextrose, fructose, glucose, golden syrup, honey, maple syrup, sucrose, malt, maltose, lactose, brown sugar, caster sugar, maple syrup, raw sugar, sucrose.

◀ Sodium (Salt)
Choose lower sodium options among similar foods. **Food with less than 400mg per 100g are good, and less than 120mg per 100g is best.**

Other names for high salt ingredients:
Baking powder, celery salt, garlic salt, meat/yeast extract, monosodium glutamate, (MSG), onion salt, rock salt, sea salt, sodium, sodium ascorbate, sodium bicarbonate, sodium nitrate/nitrite, stock cubes, vegetable salt.

Source: National Health and Medical Research Council (representing the Commonwealth of Australia)

Investigate nutrition information panels

PART A: PRACTISE IDENTIFYING NUTRITION INFORMATION

1 **a** Select two foods that have nutrition information panels. These foods can be from your lunch or be provided by your teacher. You can also find the nutrition information panels for many foods online. Write the names of the foods you have chosen in the table below.

b Use the information in the two nutrition information panels for the foods you have selected to fill in the table below.

NUTRITION INFORMATION (PER 100 GRAMS)		
	FOOD ONE:	FOOD TWO:
Energy (kJ)		
Protein (g)		
Fats		
Total (g)		
Saturated (g)		
Carbohydrates		
Total (g)		
Sugars (g)		
Dietary fibre (g)		
Sodium (g)		

PART B: PRACTISE INTERPRETING NUTRITION INFORMATION

Use the information you identified in the table above – and any additional information on the two nutrition information panels of your selected foods – to answer the following questions.

2 Identify the total weight of the food in the packet.

a Food one: _____

b Food two: _____

3 Identify the weight of one serving.

a Food one: _____

b Food two: _____

4 In the table below, tick which food, per 100 grams, provides the *most* energy and the *most* amount of each nutrient.

	FOOD ONE:	FOOD TWO:
Energy		
Protein		
Carbohydrates (total)		
Dietary fibre		

5 In the table below, tick which food, per 100 grams, provides the *most* of each nutrient.

	FOOD ONE:	FOOD TWO:
Fat (total)		
Fat (saturated)		
Sugars		
Sodium		

3.1 ACTIVITY AND STRATEGY

3.2 » Eating before a game to optimise performance

Learning goal: To be able to prepare food that meets the requirements of a good pre-game snack

Many athletes eat before the start of a game to help them perform at their best. A good pre-game snack contains carbohydrates to give the athlete energy and a small amount of protein to prevent the athlete feeling hungry during the game.

Design a pre-game snack

In this activity, you will use what you have learnt so far in this module to prepare a suitable pre-game snack for a particular physical activity. A peer will evaluate your food.

PART A: DETERMINE AN ATHLETE'S NEEDS

The first step in designing an appropriate pre-game snack is determining what the athlete needs. These requirements need to be based on the physical activity the athlete is about to perform.

3.2 ACTIVITY AND STRATEGY

ACTIVITY AND STRATEGY 3.2

1 Select a sport, fitness activity or physical recreation activity that you participate in. Fill in the table below to describe your selected physical activity.

PHYSICAL ACTIVITY:

Duration of the physical activity	Intensity of the physical activity		
_____ minutes	Low	Medium	High

2 Use the outline of the physical activity in Question 1 to determine the nutrient requirements of a good pre-game snack for your selected activity. Circle these requirements in the table below.

NUTRIENT REQUIREMENTS				
Carbohydrates	Proteins	Fats	Sugars	Saturated fats
None	None	None	None	None
Low	Low	Low	Low	Low
Medium	Medium	Medium	Medium	Medium
High	High	High	High	High

PART B: IDENTIFY THE INGREDIENTS FOR YOUR PRE-GAME SNACK

Now you know which nutrients you need to include in your pre-game snack, you need to identify which ingredients have these nutrients. The following questions will help you select the right ingredients for your pre-game snack.

3 **a** Name the nutrients that you need to include in **high or medium amounts** in your pre-game snack.

_____

b Which food groups are these nutrients commonly found in?

_____

_____

4 **a** Name the nutrients that you need to **avoid** or include in **low amounts** in your pre-game snack.

_____

b Which food groups are these nutrients commonly found in?

_____

_____

_____

Ideally, your pre-game snack should be something you want to eat. Making sure you will enjoy your pre-game snack is just as important as ensuring it meets the nutritional requirements you identified.

5 Consider the food groups you identified in Questions 3b and 4b. What are your favourite foods in these food groups?

_____

_____

_____

_____

_____

6 In the table below, write a list of foods or ingredients that are high in carbohydrates and high in proteins that you think you will enjoy eating.

High-carbohydrate foods or ingredients	High-protein foods or ingredients

PART C: WRITE A RECIPE FOR YOUR PRE-GAME SNACK

Now that you have a list of the ingredients you could include in your pre-game snack, you need to create or find a recipe.

7 Write a recipe for your pre-game snack in the following table. Depending on your experience with cooking, you may be able to create your own recipe, or you may need to find a recipe with the ingredients you want to include. Ask your teacher what facilities and equipment you will be able to use.

MY PRE-GAME SNACK:

Ingredients

ACTIVITY AND STRATEGY 3.2

Instructions

PART D: PREPARE YOUR PRE-GAME SNACK

8 Follow your recipe and prepare your pre-game snack.

9 After you have prepared your snack, reflect on how accurate your instructions were and make any necessary changes. Identify the strengths and limitations of your instructions in the table below.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Instructions		

3.2

PART E: EVALUATE A PEER'S SNACK

10 Work with a partner to evaluate each other's pre-game snacks. Write your evaluation of your partner's snack in the table below.

Here are some tips for completing this evaluation:

- **Planning:** It is a strength if the planned amount of nutrients in the snack matches the athlete's pre-game requirements (for example, high in carbohydrates and proteins).

- **Instructions:** Limitations include if the instructions were not easy to follow, if a couple of steps were missed, or not all the ingredients were listed.

- **Relevance:** Check that the nutrients in the snack match the athlete's requirements. To do this, use the nutrition panel calculator on the website of Food Standards Australia New Zealand (https://mea.digital/UJ_M1_aau).

- In the **outcome** section, mention whether the snack has the necessary nutrients and whether it was enjoyable to eat.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		
Instructions		
Relevance		

3.2

ACTIVITY AND STRATEGY

> **Outcome**
> (an evaluation of the overall success of the snack,
> drawing on the strengths and limitations listed above)

PART F: REFLECT

After receiving your peer's evaluation, complete the questions below.

11 Did your snack provide the appropriate amount of nutrients for a pre-game snack? Explain your answer.

12 Was your snack enjoyable to eat? Why or why not?

13 Do you think your snack would benefit your performance in your chosen physical activity? Why or why not?

14 What is something you would change about your snack?

ASSESSMENT LOG

Now that you have finished Topic 3 (Using food to optimise performance), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Start to fill in Section 3 (Strategy to improve performance: Manage energy levels). You can update your Assessment Log at any time as your understanding grows.

TOPIC 4 > FUELLING AND REFUELLING TO OPTIMISE PERFORMANCE

One critical aspect of optimising performance is fuelling and refuelling, that is, what to eat and when to eat it to positively impact athletic performance and to promote recovery. In this topic, you will learn about how consuming macronutrients before physical activity – and the timing of this consumption – can positively and negatively impact athletic performance.

4.1 » Fuelling to optimise performance

Learning goal: To be able to determine which foods to consume before a game or other physical activity to optimise athletic performance

At an elite level, athletes choose what they eat based on how the food will benefit their performance. The foods they choose to eat, and when they choose to eat them, are based on many factors, including:

- the length and intensity of the performance
- the amount of time between eating and performing
- whether the athlete is aiming to build, maintain or lose muscle mass
- whether the athlete is trying to address any nutritional deficits
- the athlete's personal food preferences.

Table 7 outlines the three types of macronutrients and how they can impact athletic performance.

TABLE 7 > How macronutrients can impact athletic performance

Macronutrients	Types of foods	How the macronutrient can positively impact athletic performance	How the macronutrient can negatively impact athletic performance	Energy timing
Carbohydrates	Grains and starchy vegetables, such as potatoes	» Carbohydrates are the main source of energy in our diet. » The energy in carbohydrates can be used quickly. » The fibre in carbohydrates can benefit heart and gut health.	» Sugar is linked to high blood pressure, weight gain and diabetes. » Sugar can lead to energy slumps. » Refined grains lack vitamins and minerals.	» Sugar provides high amounts of energy in the first 30 minutes, followed by an energy slump. » Carbohydrates provide the highest level of energy one hour after consumption.
Proteins	Lean meats, legumes, nuts and dairy	Proteins help to build, maintain and repair tissue, such as muscles.	Proteins need to be consumed with other macronutrients due to proteins not having a variety of vitamins and minerals.	Proteins provide the highest levels of energy two to four hours after consumption.

Macronutrients	Types of foods	How the macronutrient can positively impact athletic performance	How the macronutrient can negatively affect athletic performance	Energy timing
Fats	Fatty meats, nuts, oils, fast food	Unsaturated fats provide long-lasting energy, support cells to function, and help your body absorb nutrients.	Saturated fats can raise cholesterol and increase the risk of heart disease and stroke.	Low amounts of energy are provided over time with the highest amount provided 8–10 hours after consumption.

Investigate the impact of food on performance – Part A

ACTIVITY AND STRATEGY

4.1

PART A: SELECT A PRE-ACTIVITY SNACK

1

a In today's lesson, you will participate in a physical activity run by your teacher. Your teacher will explain the activity and tell you how long the activity will go for and the intensity of the activity. Write this information in the table below.

b Your teacher will provide you with several pre-game snack options. Based on the information in this module and your knowledge of the duration and intensity of the physical activity, select a snack that you think will benefit your performance.

Write the name of the snack and your reasons for selecting it in the table below.

c Eat the snack you selected before participating in the physical activity.

NAME OF THE PHYSICAL ACTIVITY:

Duration of the physical activity	Intensity of the physical activity (circle)
_____ minutes	Low Medium High
Selected snack	

Reasons for selecting this snack

_____

_____

_____

_____

_____

_____

PART B: PLAY THE GAME AND RATE YOUR ENERGY LEVELS

2 **a** Participate in the physical activity with your class. While you are participating, pay attention to your energy levels.

b After the activity is finished, fill in the table below to indicate your energy levels at different points in the activity.

Stage of the activity	Energy levels (circle)				
Before the activity started	Very low	Low	Medium	High	Very high
The start of the activity (the first 10 minutes)	Very low	Low	Medium	High	Very high
The middle of the activity	Very low	Low	Medium	High	Very high
The end of the activity (the last 10 minutes)	Very low	Low	Medium	High	Very high

3 Rate your overall performance in the activity. Give your performance a score out of 10.

PART C: EVALUATE YOUR PRE-ACTIVITY SNACK

4 Use the data you have collected pre- and post-activity to evaluate the snack you selected in Part A. Decide whether the snack was a good choice to optimise your performance in the activity. Write your evaluation in the table below.

a Mention the snack's macronutrient content and macronutrient timing. For example, if any key macronutrients were missing, this is a limitation.

b Mention your energy levels during the activity. For example, if you had enough energy to participate in the activity, this is a strength.

c In the outcome section of the table, discuss your overall performance in the activity.

NAME OF THE SNACK:

Strengths	Limitations

Outcome

ACTIVITY AND STRATEGY 4.1

PART D: FUEL EARLY

5

a In your next lesson, you will participate in a different physical activity. Your teacher will explain the activity and tell you how long the activity will go for and the intensity of the activity. Write this information in the table below.

b This time, you are responsible for selecting a pre-activity snack or meal that will benefit your performance. Write the name of the snack or meal and your reasons for selecting it in the table below.

c You also need to decide *when* to eat the snack or meal. For example, you may choose to eat it just before your lesson, or the night before, or for breakfast. Write your timing, and your reasons for selecting this timing, in the table below.

NAME OF THE PHYSICAL ACTIVITY:	
Duration of the physical activity	Intensity of the physical activity (circle)
_____ minutes	Low Medium High
Selected snack or meal	
Reasons for selecting this snack	
Timing (When will you eat the snack or meal?)	
Reasons for selecting this timing	

4.2 » Evaluating pre-game foods

Learning goal: To be able to evaluate how effectively a pre-game snack or meal optimised your athletic performance

↙

An important part of the process of learning how to select an appropriate pre-game snack is being able to evaluate the effectiveness of the food in optimising your performance.

Investigate the impact of food on performance – Part B

ACTIVITY AND STRATEGY **4.2**

PART A: PLAY THE GAME AND RATE YOUR ENERGY LEVELS

1 In this activity, you will participate in a physical activity organised by your teacher. While you are participating, pay attention to your energy levels.

Stage of the activity	Energy levels (circle)				
Before the activity started	Very low	Low	Medium	High	Very high
The start of the activity (the first 10 minutes)	Very low	Low	Medium	High	Very high
The middle of the activity	Very low	Low	Medium	High	Very high
The end of the activity (the last 10 minutes)	Very low	Low	Medium	High	Very high

2 Rate your overall performance in the activity. Give your performance a score out of 10.

PART B: EVALUATE YOUR PRE-GAME SNACK OR MEAL

3 Use the data you have collected pre- and post-activity to evaluate the snack or meal you selected in Part D of Activity and strategy 4.1. Decide whether it was a good choice to optimise your performance in the activity. Write your evaluation in the table on the next page.

   a Mention the snack's macronutrient content and macronutrient timing. For example, if you experienced a surge of energy before the activity started, this is a limitation.

   b Mention your energy levels during the activity. For example, if you did not have enough energy to participate in the activity, this is a limitation.

   c In the outcome section of the table, discuss your overall performance in the activity.

↙

NAME OF THE SNACK OR MEAL:

Strengths	Limitations

Outcome

PART C: COMPARE THE STRATEGIES

In this section, you will compare the snack you consumed before Activity and strategy 4.1 with the snack or meal you consumed before Activity and strategy 4.2.

4   Which snack or meal increased your energy levels the most?

_____

_____

5   Which snack or meal increased your energy levels the fastest?

_____

_____

6   Which snack or meal maintained your energy levels for the longest period?

_____

_____

7   Which snack or meal did you prefer to eat?

_____

_____

8   Which snack or meal do you think is the best option to consume before a game of your chosen activity?

_____

_____

4.3 » Refuelling to promote recovery

Learning goal: To be able to evaluate the effectiveness of a post-activity snack in helping your body to recover from exercise

After exercising, you should consume particular nutrients to help your body recover. Poor recovery can lead to athletes becoming injured or feeling overworked. Table 8 outlines how three nutrients can help the body to recover after exercise.

TABLE 8 > The role of water, carbohydrates and proteins in helping the body to recover after exercise

Nutrient	How the nutrient helps the body to recover after exercise	Amount of nutrient required
Water	Water helps to lower the body's temperature, transport nutrients around the body, and remove waste products from the body.	Depending on the intensity of the activity, most people should drink two to four cups of water after exercise. Elite athletes weigh themselves before and after exercising to ensure they replenish lost fluid.
Carbohydrates	Carbohydrates help to repair muscles and restock the body's glycogen stores. Glycogen is the stored form of glucose (sugar) and is the body's main source of energy.	Depending on the intensity of the activity, most people should eat a medium to high amount of carbohydrates after exercising.
Proteins	Proteins help build, maintain and repair tissue such as muscles.	Depending on the intensity of the activity, most people should eat a medium to high amount of proteins after exercising.

As with all foods consumed, the food you eat to help your body recover should be low in sugar and saturated fats.

Explore the impact of food on recovery

PART A: PARTICIPATE IN A PHYSICAL ACTIVITY

1 In today's lesson, your class will participate in a physical activity organised by your teacher. Write the name of the physical activity and how long it will go for in the table on the next page.

2 While you are participating in the physical activity, pay attention to how intense the activity feels. After the session, rate the intensity of the activity by circling 'Low', 'Medium' or 'High' in the table.

3 Identify your energy levels after participating the activity by circling 'Very low', 'Low', 'Medium', 'High' or 'Very high' in the table.

4.3

ACTIVITY AND STRATEGY

ACTIVITY AND STRATEGY 4.3

NAME OF THE PHYSICAL ACTIVITY:	
Duration of the physical activity	Intensity of the physical activity (circle)
_____ minutes	Low Medium High
Energy levels after the activity (circle)	Very low Low Medium High Very high
Selected snack	

Reasons for selecting this snack

_____

_____

_____

_____

Amount of water to drink	_____ cups

PART B: SELECT A POST-ACTIVITY SNACK

4 Your teacher will provide several post-activity snack options. Based on the information in Table 8 and the intensity of the activity, select the most appropriate snack and explain your reasons for selecting this food. Also identify the amount of water you should drink after the activity. Write this information in the table above.

PART C: EVALUATE THE SNACK

5 Evaluate your post-activity snack to decide whether it was a good choice to help your body recover after exercise. You will need to evaluate the snack 24 hours after the activity. Write your evaluation in the table on the next page.

   a Mention the snack's macronutrient content. For example, if the snack included a low amount of protein, this is a limitation.

   b Mention your energy levels just after the activity and your energy levels 24 hours later. Your energy levels should be higher 24 hours after the activity than they were just after the activity. For example, if your energy levels have not increased in the 24 hours after the activity, this is a limitation.

   c Mention how sore your muscles are 24 hours after the activity (you should have low muscle soreness 24 hours after the activity).

   d In the outcome section of the table, discuss your overall recovery from the activity.

ACTIVITY AND STRATEGY 4.3

Strengths	Limitations

Outcome

Now that you have finished Topic 4 (Fuelling and refuelling to optimise performance), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Continue to fill in Section 3 (Strategy to improve performance: Manage energy levels). You can update your Assessment Log at any time as your understanding grows.

TOPIC 5 > PERFORMANCE PSYCHOLOGY

Performance psychology focuses on the psychological skills and knowledge necessary to achieve peak performance. In the context of athletic performance, these 'mental skills' include the ability to stay motivated, set goals, use positive self-talk and mental imagery, and manage emotions such as stress. Athletes can use their mental skills to help them feel confident and motivated and to assist them to get into the best mindset for performing well.

In this topic and in Topic 6, you will focus on how athletes can use mental skills to optimise their performance.

5.1 » Motivation

Learning goal: To understand how motivation is related to optimum performance and to determine your motivation level

One of the key mental skills related to performance is being able to motivate yourself. Motivation is a person's internal drive to achieve goals or tasks. For example, you may be highly motivated to do something you enjoy, such as playing a video game, while you may be very unmotivated to do something you do not enjoy, such as chores or homework.

An athlete's performance can be significantly influenced by how motivated they are. Highly motivated athletes are more likely to perform at their best and will usually put in more effort than unmotivated athletes.

There are many factors that can influence an athlete's motivation, including:

- **enjoyment**: how much they enjoy the activity
- **confidence**: how good they think they are at the activity
- **relationships**: their dynamics with the other people involved in the activity; for example, their teammates, coach and opposition players.

Motivation is often represented and reflected in three different behaviours:

- the choices an athlete makes to play, practise, train and set challenging goals
- how much effort an athlete applies to training, competition and striving to reach their goals
- how long an athlete persists at striving to attain their goals, in good and challenging times.

Determine your level of motivation

ACTIVITY AND STRATEGY **5.1**

In this activity, you will participate in a sport or physical recreation activity organised by your teacher. Before you start, rate your motivation for participating in the physical activity.

1 **a** Give each statement in the table on the opposite page a rating out of five (tick the relevant box).

b Follow the instructions in the table to determine your enjoyment, confidence and relationships ratings.

c Follow the instructions in the table to determine your overall motivation rating.

MOTIVATION SURVEY					
Statements	Answers				
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
I am good at motivating myself.					
This is an activity I usually enjoy.					
I feel like doing this activity today.					
Enjoyment rating Add the numbers from the three statements above to calculate your enjoyment rating.	/15				
I am good at most sports.					
I am good at this sport.					
I believe I can succeed in this sport when it is challenging.					
Confidence rating Add the numbers from the three statements above to calculate your confidence rating.	/15				
My teammates rarely frustrate me.					
I am confident in the abilities of my teammates and my coach.					
My teammates are likely to include me in the game.					
Relationships rating Add the numbers from the three statements above to calculate your relationships rating.	/15				
Overall motivation rating Add the three ratings for enjoyment, confidence and relationships to calculate your overall motivation rating.	/45				

5.2 » Goal setting

Learning goal: To be able to set realistic goals to improve your enjoyment of and motivation for participating in physical activities

A person's motivation can be influenced by how much they enjoy participating in an activity. One strategy to increase your enjoyment of taking part in physical activities is to set realistic goals. Goal setting is a common strategy used to increase the motivation of athletes. When an athlete lacks a sense of enjoyment in an activity, it is often because they are not working towards a goal. Setting goals allows an athlete to focus on achieving the goals, rather than on the fact that they might be bored or disinterested.

The most effective type of goals are SMART goals. SMART goals are:

- **s**pecific
- **m**easurable
- **a**ttainable
- **r**ealistic
- **t**ime based.

See Table 9 below for more information about SMART goals.

TABLE 9 > SMART goals

SMART	Explanations	Examples
Specific	The goal should be specific to the sport or physical activity you will be participating in. It should be clear and unambiguous.	» Complete five tackles. » Make seven through runs.
Measurable	There is a clear way to know if you have achieved the goal.	» Run for the entire game. » Say something motivating five times.
Attainable	The goal can be achieved within the time available.	» Score one goal in the game.
Realistic	Each athlete has different strengths and weaknesses. Ensure the goal is realistic for you to achieve.	» Beginner player: Call for the ball 10 times. » Advanced player: Dribble around someone six times.
Time based	The goals can be achieved in a certain time frame.	» In this game » By next month

Set SMART goals

5.2

ACTIVITY AND STRATEGY

In this activity, you will take part in the same physical activity you completed in Activity and strategy 5.1.

PART A: SET A SMART GOAL

1 Set a goal for this lesson's activity. Use the template on the next page to make sure your goal is SMART. Write your answers in the table.

YOUR GOAL:	
Specific	
Measurable	
Attainable	
Realistic	
Time based	You will aim to achieve your goal in this lesson. Ensure it is attainable within this time frame.

PART B: EVALUATE YOUR GOAL

2 After participating in the activity and attempting to achieve your SMART goal, use two PIRFAM factors – relevance and motivation – to evaluate your goal. Write your responses to the following questions in the table below.

    a **Relevance:** How appropriate was your SMART goal for you? Did you achieve it? Was the goal too easy to achieve? Was the goal too difficult to achieve?

    b **Motivation:** Did having a goal help you stay motivated throughout the activity?

    c **Outcome:** Overall, did you enjoy the activity more because you had a goal to achieve? Did your level of motivation increase as a result of using this strategy? Refer to your answers to the survey in Activity and strategy 5.1.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Relevance		

5.2

ACTIVITY AND STRATEGY

Motivation

Strengths	Limitations

Outcome
(an evaluation of the overall success of the strategy – setting a goal
to improve enjoyment and motivation – drawing
on the strengths and limitations listed above)

5.3 » Relationships with others

Learning goal: To be able to use strategies to improve your relationships
with your team members to increase your personal motivation and the overall
motivation of the team

An athlete's motivation can also be influenced by the relationships they have with the other people involved in the physical activity, such as their teammates and coach. The interpersonal dynamics in a team rarely affect one individual, usually they affect a whole team or multiple people in a team. For a team to perform at its best, the team members need to have strong relationships and be able to work together.

There are three key issues that can affect the interpersonal dynamics of a team:

- **Group roles:** The team members may be unsure of their individual roles and responsibilities, which can cause tension.
- **Group values:** The team members may be unsure about what is important to the whole group.
- **Group bonding:** The team members may not be familiar with each other.

There are different strategies to improve the relationships between team members. These strategies include team bonding, determining the roles within a team, and identifying what is important to the group (the group's values). The strategy used depends on the issues affecting the team.

Relationship building

In this activity, you will participate in the same physical activity as you did in Activity and strategy 5.1. Your class will be divided into teams, and you will stay in these same teams for the whole activity.

In this lesson, you will trial three strategies for building relationships between team members; you will:

- participate in a team-bonding activity
- allocate individual roles and responsibilities to individual team members
- identify the values of the group.

PART A: DETERMINE YOUR MOTIVATION

1 **a** Before starting the session, rate your motivation for participating in the physical activity. To do this, give each statement in the table below a rating out of five (tick the relevant box).

b Follow the instructions in the table to determine your enjoyment, confidence and relationship ratings.

c Follow the instructions in the table to determine your overall motivation rating.

MOTIVATION SURVEY					
Statements	Answers				
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
I am good at motivating myself.					
This is an activity I usually enjoy.					
I feel like doing this activity today.					
Enjoyment rating Add the numbers from the three statements above to calculate your enjoyment rating.	/15				
I am good at most sports.					
I am good at this sport.					
I believe I can succeed in this sport when it is challenging.					
Confidence rating Add the numbers from the three statements above to calculate your confidence rating.	/15				

5.3

ACTIVITY AND STRATEGY

Statements	Answers				
	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)
My teammates rarely frustrate me.					
I am confident in the abilities of my teammates and my coach.					
My teammates are likely to include me in the game.					
Relationships rating Add the numbers from the three statements above to calculate your relationships rating.	/15				
Overall motivation rating Add the three ratings for enjoyment, confidence and relationships to calculate your overall motivation rating.	/45				

PART B: TRIAL A STRATEGY: PARTICIPATE IN A TEAM-BONDING SESSION

The first strategy you will trial to improve relationships between team members is participating in a team-bonding session. Team-bonding activities are not completed while the game is being played. They are often completed at the start or end of training sessions. The main purpose of these activities is to increase how familiar team members are with each other.

2 Participate in a team-bonding activity. You can come up with your own activity, or research one, or ask your teacher for ideas, or complete the activity below.

Team-bonding activity: Silent line-up

Divide the group into teams. Without using words or writing anything down, each team lines up in order of the following categories:

- birth month
- birth date
- number of siblings
- last digit of their phone number
- favourite sport, in alphabetical order
- years (or months) experience playing the sport.

It is a race and the first team to accurately line up, wins.

PART C: TRIAL A STRATEGY: DETERMINE THE ROLES OF TEAM MEMBERS

The second strategy you will trial to improve relationships between team members is determining the role of each team member. Roles can be position-based, tactical or related to responsibilities. Examples of different roles in a team are:

- captain or leader
- defenders
- goalkeeper
- coach
- tactician.

3 Work together as a team to determine a role for each player. A player's role should reflect their strengths and weaknesses. Determining these roles will allow each player to focus on their role, which will help the team to perform at its best.

Player's name	Role	Explanation of role

PART D: TRIAL A STRATEGY: IDENTIFY GROUP VALUES

The third strategy you will trial to improve relationships between team members is identifying the values of the group.

Values are things that are important to us. Our values help guide our behaviour and actions, including when we participate in sport. When team members have conflicting values, there can be tension within a team. When team members realise they have similar values, this can strengthen their relationship. Some of the values that are relevant to sport are listed in the 'Values survey' below.

4 Complete the 'Values survey' below. Indicate how important each value is to you by giving it a score out of five (one is not important and five is very important).

VALUES SURVEY		
Value	Description	Importance to you (circle)
Fairness	I am fair and I do not cheat.	1 2 3 4 5
Companionship	I am there with my friends.	1 2 3 4 5

Value	Description	Importance to you (circle)				
Compassion	I am concerned about the people around me while playing sport.	1	2	3	4	5
Conformity	I try to fit in with the group.	1	2	3	4	5
Conscientious	I am reliable and give 100 per cent when playing or competing.	1	2	3	4	5
Enjoyment	I enjoy myself and have fun.	1	2	3	4	5
Health and fitness	I stay fit and healthy by playing sport.	1	2	3	4	5
Obedience	I do what I am told.	1	2	3	4	5
Personal achievement	I give the best performance I can.	1	2	3	4	5
Public image	I like to look good to others.	1	2	3	4	5
Showing skill	I do the skills or techniques well.	1	2	3	4	5
Sportsmanship	I am well mannered, play with honour, and think it is important to play by the rules.	1	2	3	4	5
Team cohesion	I lift the team when things are difficult.	1	2	3	4	5
Tolerance	I try to get on with other people in my sport, even if I do not like them.	1	2	3	4	5
Winning	I like to win or beat other people.	1	2	3	4	5

5 Compare your survey results with the results of other members of your team. Were some values important to most members of the team? Write these values below.

_____

_____

_____

_____

6 As a team, select two values that you will aim to uphold during the game. (Select values that are important to most members of the team.)

_____

_____

7 Once you have decided on your team values, discuss what it might look like for members of your team to show these values while playing.

_____

_____

_____

_____

PART E: PLAY THE GAME

8 Play a game where you implement your strategies: each team member carries out their role, as determined in Part C, and the players try to show the values selected in Part D.

PART F: EVALUATE MOTIVATION

9 Evaluate whether each strategy increased your personal motivation and the motivation of your team. Write your evaluation in the table below.

STRATEGY: PARTICIPATE IN TEAM-BONDING	
Strengths	Limitations

Motivation

STRATEGY: IDENTIFY TEAM ROLES	
Strengths	Limitations

Motivation

ACTIVITY AND STRATEGY — **5.3**

STRATEGY: DETERMINE TEAM VALUES	
Strengths	Limitations

Motivation

Answer the following questions to reflect on whether the motivation strategies were effective.

10 Which strategy had the greatest impact on improving your relationships with your teammates? Why?

11 Did any of the strategies have a negative impact on your relationships with your teammates? If so, how?

12 Did having better relationships with your teammates increase your motivation? Explain your answer.

ASSESSMENT LOG

Now that you have finished Topic 5 (Performance psychology), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 4 (Strategy to improve performance: Set goals to help you enjoy physical activity) and Section 5 (Strategy to improve performance: Build relationships with your team members). You can update your Assessment Log at any time as your understanding grows.

TOPIC 6 > MENTAL SKILLS

As mentioned in Topic 5, the mental skills that can help an athlete to optimise their performance include the ability to use positive self-talk and visualisation (mental imagery) and the ability to manage emotions such as anxiety. In this topic, you will practise these mental skills.

6.1 » Positive self-talk

Learning goal: To be able to use positive self-talk to help you perform at your best in your chosen physical activity

Positive self-talk is where you say encouraging words and phrases to yourself in your mind. Doing this builds confidence by helping you believe that you can achieve a task. Focusing on your desired thoughts can lead to changes in your desired behaviour. Positive self-talk can not only build a person's self-confidence, it can also help them to cope in stressful situations, achieve their goals, and provide a general feeling of wellbeing. Examples of positive self-talk include phrases such as 'great shot', 'keep trying', 'I'm feeling strong' and 'focus on technique'. Many athletes use positive self-talk to help them feel more confident in their ability to perform a physical activity.

When practising positive self-talk, use the IMPACT acronym:

- **i**dentify what you want to achieve
- **m**atch your self-talk to your needs
- **p**ractise different statements
- **a**sk which statements work best for you
- **c**reate a positive self-talk plan
- **t**rain yourself by practising self-talk.

Practise positive self-talk

Think about a scenario in the future where you will need to perform confidently, competently and optimally in your chosen physical activity.

1 Identify what you want to achieve.

I want to … _____

_____

_____

2 Match your self-talk to your needs.

I need to … _____

_____

_____

ACTIVITY AND STRATEGY 6.1

3 Write down phrases you might say to yourself during the activity.

_____

_____

_____

_____

6.2 » Mental imagery

Learning goal: To be able to use mental imagery to help you perform at your best in your chosen physical activity

Mental imagery is also called visualisation or mental rehearsal. In the context of sport (or any physical activity), it involves picturing yourself performing a physical activity in your mind. A key part of successful visualisation is that you imagine what you _want_ to happen: you picture yourself performing at your very best. The idea is that visualising yourself performing at your optimum increases the chances of this successful performance actually occurring. Using mental imagery can also be an effective way to increase a person's confidence in their ability to perform well.

Practise using mental imagery

PART A: PRACTISE THE STRATEGY

Your teacher will set up a simple drill targeting a specific skill. Complete the drill twice: the first time, you will go straight into the drill, while the second time, you will practise mental imagery before completing the drill.

1 Complete the drill for the first time.

2 Complete the drill for the second time. However, before starting the drill, complete the steps below:

    a Watch a video or demonstration of someone performing the skill correctly.

    b Close your eyes and imagine yourself performing the skill correctly 10 times.

    c Complete the drill.

    d Complete steps a–c multiple times if necessary.

PART B: EVALUATE THE STRATEGY

3 Did using mental imagery improve your performance of the skill? Explain your answer.

_____

_____

_____

_____

6.3 » Managing moods

Learning goal: To be able to use strategies to manage your moods so you can perform at your best in your chosen physical activity

When playing sport (or participating in any physical activity), an athlete's mood can range from bored to anxious. An athlete performs at their best when their mood is in the middle of the range, where they are alert but not overexcited.

Athletes who are better at managing their moods are more likely to perform well. The first step in managing your mood is learning to notice mood indicators or signs (see Table 10). Once you can identify how you are feeling, you can use mental strategies to balance your mood to help you perform at your best.

TABLE 10 > Signs indicating a person's mood

	Low mood	Overexcited
Signs	» Loosing focus » Feeling lazy » Easily distracted » Bored	» Angry » Easily irritated » Unable to focus on one thing, focusing on too many things instead » Panicked

There are many strategies to manage mood. In this topic, we will look at two strategies:

• listening to pump-up music when you are experiencing a low mood
• listening to meditation music to calm down when you are overexcited and anxious.

Get in the zone

PART A: LOW MOOD – LISTEN TO PUMP-UP MUSIC

When experiencing a low mood, an effective strategy to improve your mood is listening to pump-up music. Pump-up music is any music that makes you feel excited. It is usually loud and fast and may have inspirational lyrics. There are pump-up songs in many musical genres.

1 As a class, come up with a list of pump-up songs. Write the names of these songs in the table below. Two examples have been provided to get you started.

PUMP-UP MUSIC	
Song title	Artist
Pump it	*Black Eyed Peas*
Thunderstruck	*AC/DC*

ACTIVITY AND STRATEGY 6.3

6.3

Song title	Artist

2 As a class, participate in the physical activity organised by your teacher. Before and while you are participating in this activity, your teacher will play pump-up music.

3 In the table below, circle the emotion that is closest to how you felt before, during and after the physical activity you just participate in.

STAGES OF THE ACTIVITY	EMOTIONS						
Before the activity	Tired	Bored	Alert	Excited	Stressed	Anxious	Panicked
During the activity	Tired	Bored	Alert	Excited	Stressed	Anxious	Panicked
After the activity	Tired	Bored	Alert	Excited	Stressed	Anxious	Panicked

PART B: OVEREXCITED – LISTEN TO MEDITATION MUSIC

When you are feeling panicked or overexcited, an effective strategy to help you calm down is listening to meditation music. Listening to this type of music has the opposite effect of listening to pump-up music. Meditation music is usually slow and quiet and often includes spoken instructions about what to focus on while listening to the soundtrack. There are many meditation playlists available on music platforms such as Spotify, Apple Music and YouTube.

4 As a class, participate in the physical activity organised by your teacher (the same game you played in Part A). Before and while you are participating in this activity, your teacher will play meditation music.

5 In the table below, circle the emotion that is the closest to how you felt before, during and after the physical activity you just participate in.

STAGES OF THE ACTIVITY	EMOTIONS						
Before the activity	Tired	Bored	Alert	Excited	Stressed	Anxious	Panicked
During the activity	Tired	Bored	Alert	Excited	Stressed	Anxious	Panicked
After the activity	Tired	Bored	Alert	Excited	Stressed	Anxious	Panicked

PART C: EVALUATE THE STRATEGIES

6 Evaluate the two strategies you tested in Part A and Part B to determine which one was better at optimising your performance. Remember that an athlete is more likely to perform well if they are alert but not overexcited. Write your evaluation in the table below.

A couple of tips have been included to help you complete this task:

- **Relevance:** How relevant was each strategy to you and your mood? For example, if you were bored before the activity, listening to pump-up music may have helped you change your mood to alert or excited. This is a strength.

- **Motivation:** A strength of one of the strategies may be that it helped you feel motivated to perform well during the activity.

STRATEGY: LISTENING TO PUMP-UP MUSIC	
Strengths	Limitations
Relevance		
Motivation		

6.3

ACTIVITY AND STRATEGY

STRATEGY: LISTENING TO MEDITATION MUSIC	
Strengths	Limitations

Relevance

Motivation

7 Overall, which strategy (listening to pump-up music or meditation music) had the most positive impact on your performance in the activity? Provide two reasons for why you think this.

ASSESSMENT LOG

Now that you have finished Topic 6 (Mental skills), turn to Assessment Log 1 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 6 (Strategy to improve performance: Build confidence) and Section 7 (Strategy to improve performance: Manage your moods). You can update your Assessment Log at any time as your understanding grows.

ASSESSMENT LOG 1: PROJECT

The first assessment of this unit is a project. For this assessment, you will investigate, plan and perform (implement) a strategy to improve performance in a physical activity. You will then evaluate the success of the strategy.

Steps	Requirements
Steps 1 and 2: Investigate and plan	**Investigate and plan** a strategy to enhance outcomes in athletic performance by: » determining an area of need » identifying a strategy to use to target the area of need » explaining how the strategy will be used in a physical activity.
Step 3: Perform	**Perform** (implement) your planned strategy by: » organising the equipment and preparing the space » delivering the plan.
Step 4: Evaluate	**Evaluate** your implemented strategy by: » evaluating your personal performance and success in achieving your determined purpose » identifying adjustments to improve your personal performance.

Note that a filled-in Assessment Log does not meet the QCAA's assessment specifications for direct assessment evidence. An Assessment Log may provide indirect assessment evidence only.

STEP 1: INVESTIGATION LOG

- Your Investigation Log is a record of all the evidence you have gathered in the Module 1: Nutrition and mental skills.

- Look back at the activity and strategy tasks in this module to determine what you would like to target to best improve your performance of a physical activity.

- All the information in this module can be used in your Investigation Log.

- The relevant activity and strategy tasks are indicated in each section of the following table.

- You should also find other relevant information to support your choices; for example, do some research and draw from your previous experiences of nutrition and mental skills.

- After completing the Investigation Log, you should have selected one area you will target in your plan.

- The Investigation Log gives you feedback to consider when selecting your strategy and creating your plan.

Section 1:
Strategy to improve performance: Review specific fitness requirements

Relevant activities from this module	Activity and strategy 1.3
Which specific fitness requirements were identified?	
Which types of training need to be implemented to address the identified specific components of fitness?	
Consult with your teacher to develop a revised training program. **What needs to be changed?**	

Section 2:
Strategy to improve performance: Eat a healthy diet

Relevant activities from this module	Activity and strategy 2.1, 2.2 and 2.3
Which five food groups do you need to eat as part of a healthy diet?	

Section 2:
Strategy to improve performance: Eat a healthy diet (continued)

Which foods do you need to eat in small amounts or rarely?	
What are the six types of nutrients that are important to eat as part of a healthy diet?	

Section 3:
Strategy to improve performance: Manage energy levels

Relevant activities from this module	Activity and strategy 3.1, 3.2, 4.1, 4.2 and 4.3
Name of your chosen physical activity (for example, a game of touch)	
Intensity of the physical activity (circle)	Low Medium High
Duration of the physical activity	_____ minutes

Your average energy levels (circle)

Before games	Very low	Low	Medium	High	Very high
During games	Very low	Low	Medium	High	Very high
After games	Very low	Low	Medium	High	Very high

Recommended strategies to manage energy levels

Energy levels	Very low or low energy before or during games
Recommended strategy to manage these energy levels	Fuel (eat) before games

What would you eat 10 minutes before a game of your chosen physical activity to give you enough energy to perform well during the game? **What nutrients should be included in this pre-game snack?** **In which ingredients are these nutrients commonly found?**	
What would you eat for dinner the night before a game (if you are playing in the morning)? **What nutrients should be included in this meal?** **In which ingredients are these nutrients commonly found?** **Why is this meal different to the food you eat 10 minutes before your game starts?**	
Energy levels	Very low to low energy after games
Recommended strategy to manage these energy levels	Refuel (eat) after games

Section 3:
Strategy to improve performance: Manage energy levels (continued)

What nutrients should be included in a good post-game snack that will give you a suitable amount of energy after the game?

In which ingredients are these nutrients commonly found?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Will you be targeting your energy levels for your assessment? Give reasons for your answer.

_____
_____
_____
_____
_____
_____
_____

Section 4:
Strategy to improve performance: Set goals to help you enjoy physical activity

Relevant activities from this module

Activity and strategy 5.2

What is your SMART goal for your chosen physical activity?

_____
_____
_____
_____
_____
_____

Section 5:
Strategy to improve performance: Build relationships with your team members

Relevant activities from this module	Activity and strategy 5.3
Will you be targeting relationships for your assessment? Give reasons for your answer.	
Which strategy will you use to improve your relationships with your team members and others involved in your chosen activity? (Tick)	☐ Participate in a team-bonding session ☐ Determine the roles of team members ☐ Identify group values
Details of your chosen strategy (for example, describe your chosen team-building session)	

Section 6:
Strategy to improve performance: Build confidence

Relevant activities from this module	Activity and strategy 6.1 and 6.2
Will you be targeting your confidence for your assessment? Give reasons for your answer.	

Section 6:
Strategy to improve performance: Build confidence (continued)

Which strategy will you use to improve your confidence in your personal abilities to perform your chosen sport? (Tick)	☐ Positive self-talk ☐ Mental imagery
Details of your chosen strategy (for example, the words or phrases that you will say to yourself)	

Section 7:
Strategy to improve performance: Manage your moods

Relevant activities from this module	Activity and strategy 6.3

Your average mood during physical activity		
Mood (tick)	☐ Tired ☐ Bored ☐ Alert ☐ Excited ☐ Stressed ☐ Anxious ☐ Panicked	

Will you be targeting mood for your assessment? Give reasons for your answer.	
Which strategy will you use to manage your mood for optimal performance? (Tick)	☐ Listen to pump-up music ☐ Listen to meditation music
Details of your chosen strategy (for example, the names of the pump-up songs you will listen to)	

STEP 2: PLANNING LOG

Your Planning Log is a place to develop a draft of your assessment plan. Use your Investigation Log to help you complete your Planning Log.

Selected target	Selected strategy

Plan

Depending on your strategy, your plan could be:

» a recipe with meal timing

» details about how and when to perform a mental skills strategy.

Adjustments

Prepare one slightly different strategy that you can use if you need to adjust your strategy:

STEP 3: PERFORMANCE LOG

In this step, you will implement planned activities and strategies to enhance outcomes in athletic performance.

Notes and reminders:

What do you need to remember to be successful in your performance?

_____

_____

_____

_____

_____

_____

_____

STEP 4: EVALUATION LOG

After using your strategy in a performance, use the PIRFAM template below to evaluate how well it enhanced your athletic performance. Ensure your outcome relates to what you identified in your Investigation Log (for example, energy levels or mood).

Strengths (things that worked)	Limitations (things that did not work or were missing)

Planning

Strengths	Limitations

Instructions

Relevance

Feedback

	Strengths	Limitations
Adjustments		
Motivation		

Outcome
(an evaluation of the overall success of your strategy,
drawing on the strengths and limitations listed above)

SPORTS MEDICINE AND FIRST AID

Sports medicine and first aid play an important role in an athlete's performance, especially the prevention and management of injuries. In this module, you will explore different ways to prevent injuries. You will investigate strategies to implement before game day – including pre-exercise screening, joint stability exercises, strapping and improving flexibility – and strategies to implement on game day, such as wearing protective equipment, warming-up and cooling-down. You will also examine in detail another critical aspect of athletic performance: recovery.

PIRFAM FOR SPORTS MEDICINE AND FIRST AID STRATEGIES TO OPTIMISE PERFORMANCE

To evaluate sports medicine and first aid strategies to optimise athletic performance, you will use the PIRFAM framework. In this module, the PIRFAM acronym stands for:

- **P**lanning
- **F**easibility
- **I**mplementation
- **A**djustments
- **R**elevance
- **M**onitoring.

A good evaluation of a strategy to optimise athletic performance identifies the strengths and limitations of the strategy according to each factor of the PIRFAM framework. See Table 12 for an example of a completed PIRFAM evaluation.

TABLE 11 > PIRFAM factors for sports medicine and first aid strategies to optimise athletic performance

PIRFAM factor		Examples of evaluation criteria
P	Planning	» The sports medicine strategy was well planned.
I	Implementation	» The implementation of the strategy was comprehensive, detailed and effectively delivered.
R	Relevance	» The strategy was relevant to the athlete's needs.
F	Feasibility	» The strategy was realistic and practical and was able to be implemented progressively in training.
A	Adjustments	» The strategy included possible adjustments to better target the needs of the athlete.
M	Monitoring	» The strategy was monitored so it could be reviewed.

TABLE 12 > An example of a completed PIRFAM evaluation of a sports medicine strategy (a sports trainer applying strapping to prevent a soccer player from sustaining an injury during a game)

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning	» The sports trainer had all the strapping equipment and supplies ready when the athlete arrived. » The sports trainer's plan for what strapping to apply was based on the movements the athlete was likely to perform and the joints that would be used in their position of striker on a soccer team.	» The sports trainer did not allow enough time to strap the athlete's knee; they rushed and applied the strapping too tightly.
Implementation	» The sports trainer used the correct technique (i.e. they placed the tape in the correct position) to strap a knee to prevent hyperextension.	» The strapping was a little too tight and caused blisters, which the athlete found uncomfortable.
Relevance	» The strapping applied to the athlete's knee to prevent hyperextension was relevant to the movements the athlete would perform in the position of striker on a soccer team.	» The sports trainer also strapped three of the athlete's fingers to prevent hyperextension; this strapping was not needed for this athlete.
Feasibility	» The planned strategy of taping to prevent a knee from hyperextending was sensible, practical and easily implemented.	
Adjustments	» When the athlete mentioned that they did not need their fingers strapped, the sports trainer removed the tape.	» When the athlete mentioned that the strapping was too tight, the sports trainer did not adjust the strapping so it was more comfortable.
Monitoring		» The sports trainer did not carefully watch the athlete during the game to make sure the strapping was comfortable.

Outcome (an evaluation of the overall success of the strategy, drawing on the strengths and limitations listed above)

The sports medicine strategy of strapping a striker's knee to prevent it from hyperextending was successful as the athlete did not sustain this injury. However, there were some limitations to the implementation of the strategy, namely that the strapping was too tight, which caused the athlete to feel uncomfortable; this may have negatively impacted their ability to perform at their best.

TOPIC 7 > ADMINISTERING BASIC LIFE SUPPORT

Life-threatening emergencies can easily happen in sport. Whether you are a player, coach, sports trainer or a spectator, you need to respond quickly to an emergency and know what to do. Your actions could save someone's life. In this topic, you will learn how to administer basic life support and which series of actions can be taken to help a person survive from a sudden cardiac arrest.

7.1 » Basic life support

Learning goal: To be able to administer basic life support, using the first aid DRSABCD action plan

In an emergency situation, apply the first aid DRSABCD action plan:

- **Danger:** check for danger to you and the patient
- **Response:** check for a response. Can the patient respond to you?
- **Send for help:** dial 000
- **Airway:** clear the patient's airway
- **Breathing:** check if the patient is breathing
- **CPR:** if the patient is not breathing, start CPR*
- **Defibrillation:** access a defibrillator, turn on the machine, then follow the prompts.

Continue CPR until the patient responds or starts to breathe normally.

*Cardiopulmonary resuscitation (CPR) is a combination of chest compressions and mouth-to-mouth or mouth-to-nose breaths. These techniques help to maintain the circulation of blood and oxygen to the heart and brain of the patient.

Queensland Health recommends that administering good-quality CPR and reducing the time to deliver defibrillation are the highest priorities in resuscitation. Keeping a patient's airway open is the first priority. This takes precedence over any injury, including a possible spinal injury. If you must move the patient away from danger, be extremely careful not to twist or bend their spinal column or neck.

Practise administering basic life support

ACTIVITY AND STRATEGY 7.1

1 Practise administering the DRSABCD action plan using a resuscitation manikin. If a manikin is not available, a large pillow and a Styrofoam head may be used as a 'patient'.

a Work with a partner to practise administering basic life support (DRSABCD). One person administers the breaths and one person administers the compressions.

b Change roles after a few minutes. It is tiring work!

c Try administering CPR by yourself. Your partner can monitor your rates of compression and breathing. They can also give you some constructive feedback.

2 Evaluate your performance of the DRSABCD action plan in the table below.

Procedure step	Strengths (things that worked)	Limitations (how the administration of DRSABCD could be improved)
D: Dangers?		
R: Response?		
S: Send for help		
A: Open airway		
B: Check breathing		
C: Start CPR if needed		
D: Attach a defibrillator		

ACTIVITY AND STRATEGY 7.1

7.2 » The chain of survival

Learning goal: To understand the actions involved in the 'chain of survival'

The Heart Foundation estimates that each year in Australia, over 30 000 people have a sudden cardiac arrest. This is when the heart malfunctions, suddenly stops beating, and ceases to pump blood around the body (to vital organs such as the brain). A sudden cardiac arrest is an emergency and prompt and decisive action will increase a person's chances of survival.

The **chain of survival** is a series of actions that you can take to help a person survive a sudden cardiac arrest. As shown in Figure 3, the links in the chain of survival are a patient receiving:

- early emergency first aid
- early cardiopulmonary resuscitation (CPR) until paramedics arrive
- early defibrillation to restart the heart
- early advanced life support from paramedics.

The chances of survival for someone who has had a cardiac arrest increase for each link of the chain you perform.

Figure 3: The chain of survival

EARLY ACCES   EARLY CPR   EARLY DEFIBRILLATION   EARLY ADVANCED LIFE SUPPORT

Source: iStock/elenabs

Investigate the chain of survival

1 Complete the table below to plan how you would enact the chain of survival in an emergency situation. You may need to do some research to complete this task.

ACTIVITY AND STRATEGY

THE CHAIN OF SURVIVAL			
Early access to emergency first aid	Early CPR	Early defibrillation	Early advanced life support
• How will I get help? • Who should I call?	• How do I administer CPR? • What is the rate of breaths to compressions?	• Where is the nearest defibrillator? • How do I use it?	• How will I direct the paramedics to the scene of the emergency? • What additional information should I give to the paramedics?

ASSESSMENT LOG

Now that you have finished Topic 7 (Administering basic life support), turn to Assessment Log 2 at the end of this module. Start in Step 1 (Investigation Log). Fill in Section 1 (First aid: Administering basic life support). You can update your Assessment Log at any time as your understanding grows.

TOPIC 8 > PRINCIPLES OF INJURY MANAGEMENT

Treating injuries is critical to athletic performance. In this topic, you will learn the steps to assess and treat an injured athlete. You will also practise treating soft-tissue injuries, as athletes commonly experience these.

8.1 » Managing an injured athlete

Learning goal: To understand how to administer best-practice injury management as a coach, sports trainer or official

When you play sport or participate in any other physical activity you or one of your teammates could be injured. Usually a coach, sports trainer or official is the first person to help an injured player on the field; however, it is still important to understand what to do when you or your teammate is injured.

When a player is injured, the first, most vital decision that needs to be made is whether there is any immediate threat to the player's life. Are they in danger? The coach, sports trainer or official should check that the player is responsive, send for help, check the player's airway is open and make sure the player is breathing and has a pulse. In other words, they complete the DRSABCD procedure (see Topic 7.1). The next step is to complete the STOP process.

The STOP process

To manage an injured player who is conscious, use the STOP process. This process is part of the on-field assessment of an injured player. The STOP process is:

- **S:** stop the player or stop play
- **T:** talk to the injured player
- **O:** observe the injured player
- **P:** prevent further injury.

The STOP process is explained in more detail in Table 13.

TABLE 13 > The on-field assessment of an injured player

S	Stop	» **Stop** the athlete from participating or moving. » **Stop** the game if necessary.
T	Talk	**Talk** to the injured athlete: » What happened? » How did it happen? » What did you feel? » Where does it hurt? » Does it hurt anywhere else? » Can you continue to play? If no, arrange appropriate transport.

O	Observe	**Observe** while talking to the athlete. General observations:
		» Is the athlete distressed?
		» Is the athlete lying in an unusual position?
		Observations of the injury site:
		» Is there any swelling or deformity or discolouration?
		» Can the athlete move the injured part?
		  – If yes: Does it hurt to move? Is the range of movement restricted compared to normal or compared to the other limb?
		  – If no, arrange appropriate transport.

P	Prevent further injury	**Prevent further injury** by completing a detailed assessment using TOTAPS.

Source: APE Medical, 2023

The TOTAPS process

After going through the STOP process, the coach or sports trainer will decide whether the player can return to the game. If the injured player needs to leave the field, then the trainer should do a full off-field assessment using the TOTAPS process.

The TOTAPS process is:

- **T:** talk to the injured player
- **O:** observe the injured player
- **T:** touch the injured area
- **A:** check active movement
- **P:** check passive movement
- **S:** conduct a skill test.

Figure 4: The off-field assessment of an injured player

T	O	T	A	P	S
TALK	OBSERVE	TOUCH	ACTIVE MOVEMENT	PASSIVE MOVEMENT	SKILL TEST
History of: • the incident • the individual	Observe the injury and look for: • swelling • discolouration • deformity	Compare to the uninjured side: • tenderness • temperature • pain	Athlete moves the injured part through full range of movement (only to the point of pain)	Sports trainer moves the injured part through full range of movement (only to the point of pain)	Athlete performs a progress skill test appropriate for the sport

Source: APE Medical, 2023

After the game, the sports trainer helps the injured player to manage the injury so it heals and then assists the player with rehabilitation so they can return to training and competition. Note that after conducting the initial assessment of an injured player, it is important that, if necessary, the sports trainer seeks help (for example, calls an ambulance) or refers the player to healthcare providers for ongoing management (for example, physiotherapists and orthopaedic surgeons). Figure 5 summarises this process.

Figure 5: The process to treat an injured athlete

Investigate injury management

8.1
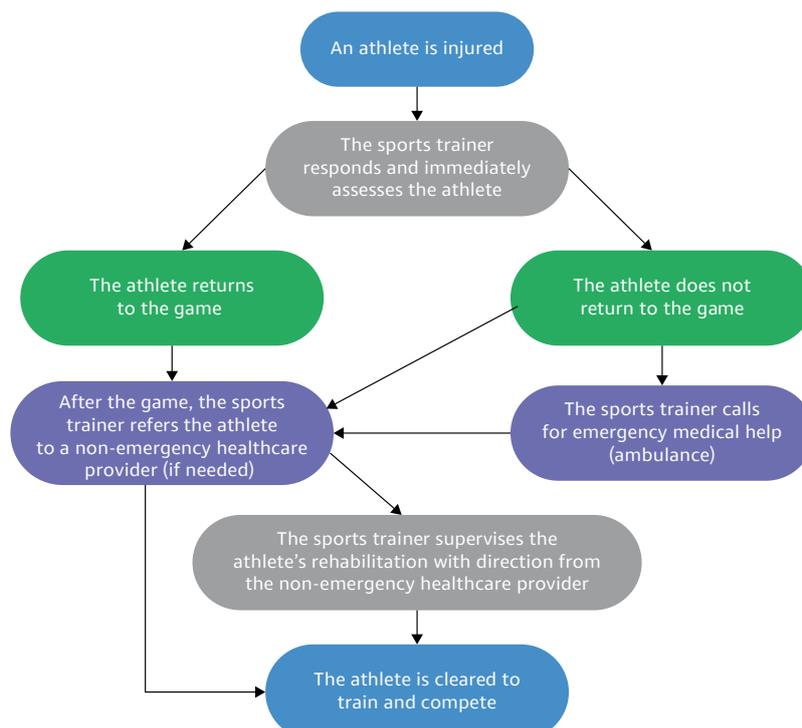
PART A: PRACTISE USING THE STOP PROCESS

1 **a** Work with a partner: one of you is an injured athlete and the other is a sports trainer helping the athlete on the field immediately after they have been injured.
The sports trainer uses the STOP process to assess the injured athlete.

b When you are role-playing being a sports trainer, note your observations of the injured athlete in the table below.

c Swap roles.

Stop	
Talk	
Observe	
Prevent	

PART B: PRACTISE USING THE TOTAPS PROCESS

2 **a** Work with a partner: one of you is an injured athlete and the other is a sports trainer who is assessing the athlete off the field. The sports trainer uses the TOTAPS process to assess the injured athlete.

b When you are role-playing being a sports trainer, note your observations of the injured athlete in the table below.

c Swap roles.

Talk	
Observe	
Touch	

Active movement	
Passive movement	
Skill test	

8.2 » Soft-tissue injuries

Learning goal: To understand how to treat soft-tissue injuries

Soft-tissue injuries are very common. 'Soft tissues' connect and support other structures and organs in the body. Muscles, tendons, ligaments, fascia, nerves, fibrous tissues, fat, blood vessels, and synovial membranes in joints are all soft tissues.

The most important time in the treatment of soft-tissue injuries is the first 24 to 48 hours after the injury has occurred. When soft tissue is injured, blood vessels are ruptured and blood accumulates around the damaged area, which leads to inflammation. The aims of the initial treatment of soft-tissue injuries are to reduce pain and bleeding at the site.

The CPRIE process

Sports medicine experts recommend using the CPRIE process to treat soft-tissue injuries:

- compression
- protection
- rest
- ice
- elevation.

Compression

Apply a firm bandage (an elastic bandage works well) that does not restrict circulation or cause additional pain. The bandage should cover the whole joint or affected area. Compression limits swelling and movement and reduces blood flow to the injured area. Remove the compression bandage when you sleep.

Protection

Protect the affected area from further injury; for example, use a support or splint.

Rest

Rest the injured area for two to three days and avoid activities that cause significant pain. You may need to use a sling or crutches.

Ice

Wrap ice in a damp tea towel, or use an ice pack, and place it on the injured area for 15 to 20 minutes. Never place ice directly onto skin. Reapply ice every two to four hours. Maintain compression during this process. Applying ice to a soft-tissue injury reduces blood flow to the affected area, as the blood vessels shrink in response to the cold.

Elevation

Raise the injured limb above the level of your heart and keep the limb supported.

Finally, during the first few days after being injured, do not apply heat or massage the area as this promotes increased blood flow to the injured area, which will not help at this stage.

Practise treating soft-tissue injuries

8.2

ACTIVITY AND STRATEGY

1　**a**　Work with a partner: one of you is an injured athlete and the other is a sports trainer. The sports trainer applies the CPRIE process to the injured athlete, using an elastic bandage, an ice pack and a wet towel. Swap roles.

　　b　Ask your teacher to evaluate your performance as a sports trainer. Record your teacher's response in the table below.

CPRIE process	Teacher's evaluation of your performance
Compression	
Protection	
Rest	
Ice	
Elevation	

ASSESSMENT LOG

Now that you have finished Topic 8 (Principles of injury management), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 2 (Sports medicine strategy: Injury management). You can update your Assessment Log at any time as your understanding grows.

TOPIC 9 > **SPORTS MEDICINE PROTOCOLS**

Sports medicine is a specialised branch of healthcare dedicated to promoting safe and effective athletic performance at all levels It involves treating and preventing injuries related to sport, exercise and physical activity.

In this topic, you will explore the following aspects of sports medicine:

- how to treat concussion safely
- Sports Medicine Australia's blood rule
- the World Anti-doping Code.

9.1 » Concussion protocols

Learning goal: To be able to identify the best-practice protocols to treat a player who has a concussion

A concussion is a traumatic injury to the brain that results in a loss of normal brain function. While the condition is usually temporary, there is increasing evidence that sustaining multiple concussions can have a serious, long-term impact on a person's health.

Concussions are usually caused by a blow to the head; it is not uncommon for players of contact sports to sustain a concussion during games or training. These injuries occur at all levels of sport, including children's sport and elite competition.

Athletes and their trainers need to find ways to avoid blows to the head, and it must be taken seriously if someone receives such an injury. Being able to identify the signs that a player may have sustained a concussion is essential to being able to properly treat them.

On-field indicators that a player may have sustained a concussion are summarised in Figure 6 on the next page; use this guide whenever there are any head injury concerns.

Figure 6: On-field concussion indicators

Athlete with suspected concussion

On-field signs of concussion:

- Loss of consciousness
- Lying motionless
- Slow to get up
- Seizure
- Confusion, disorientation
- Memory loss
- Disturbance in balance or motor coordination
- Nausea or vomiting
- Headache or feeling or pressure in the head
- Visual or hearing disturbance
- Dazed, blank or vacant stare
- Behavioural or emotional changes (they are not themselves)

Things to look out for at the time of the injury

Remove the athlete from the activity immediately and permanently. Take normal first aid precautions including neck protection.

Red flags

- Neck pain
- Increasing confusion, agitation or irritability
- Repeated vomiting
- Seizure or convulsion
- Weakness, tingling or burning in the arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual change in behaviour
- Visual or hearing disturbance

No

Yes

Refer the athlete to a medical practitioner as soon as practical.

Immediately take the athlete to a hospital emergency department.

Source: Australian Sports Commission, www.ausport.com.au

Create a return-to-sport flowchart

1 **a** Read the 'Concussion in sport' poster (available at https://mea.digital/UJ_M2_kxd).

   b As a class, develop a return-to-sport flowchart for a 17-year-old who has sustained a concussion while playing sport.

17-year-old sustains a concussion

Returns to playing sport
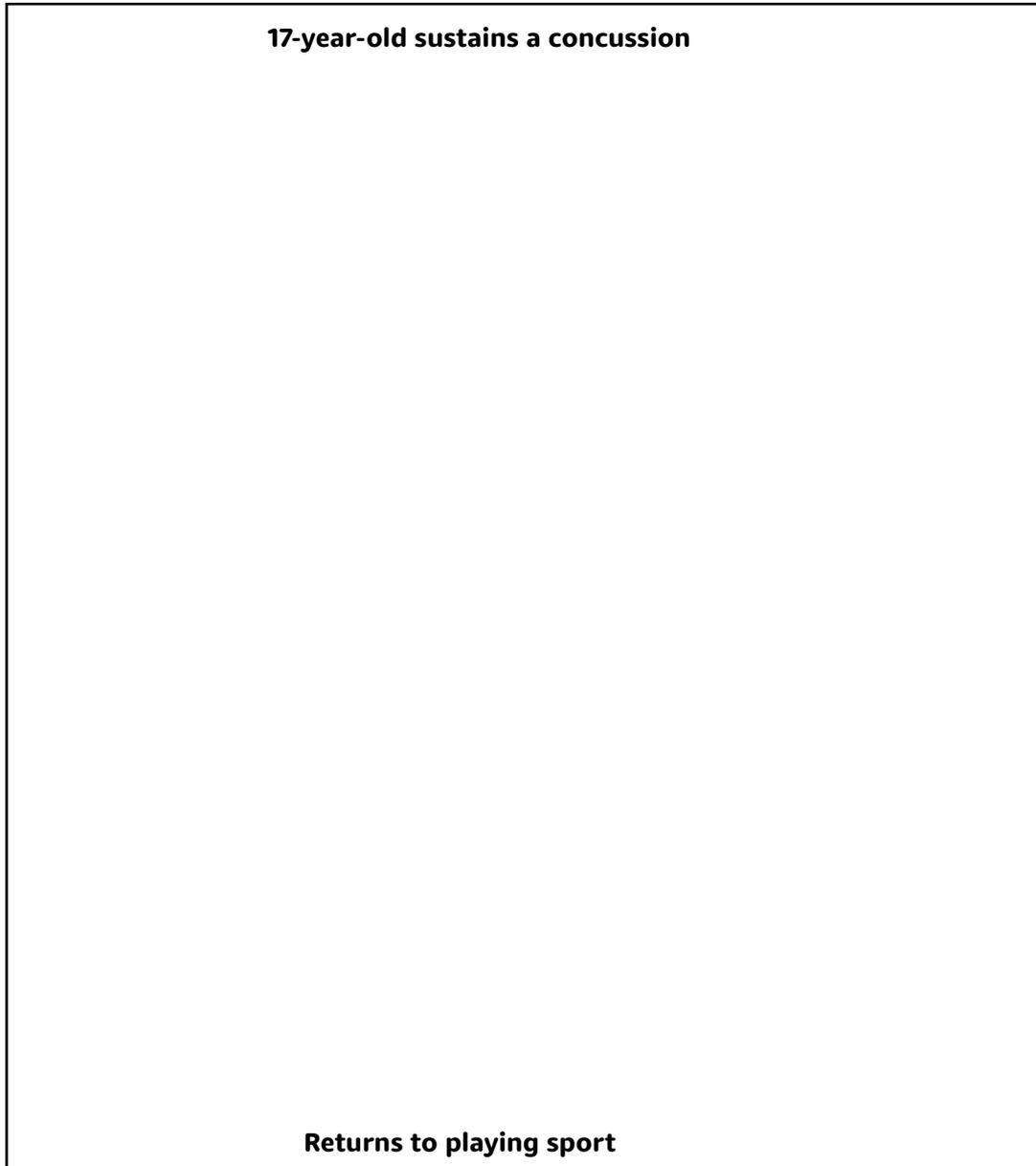
9.2 » The blood rule

Learning goal: To understand Sports Medicine Australia's 'blood rule'

Sports Medicine Australia's blood rule states that when a player is injured and is bleeding, or has blood on them or their clothes, they must immediately leave the playing area to receive medical attention. This is to prevent the possibility of other players being infected if the blood contains blood-borne viruses such as hepatitis B, hepatitis C and HIV (Human Immunodeficiency Virus).

There are three simple steps to the blood rule (see Figure 7 on the next page). Sports Medicine Australia's blood rule is not compulsory, although it has been voluntarily incorporated into the rules of many different sports.

Figure 7: Sports Medicine Australia's blood rule

- **Stop the blood** — • Have the player leave the field, and get them or a trainer to apply a bandage to stop the bleeding
- **Dress the wound** — • Clean and dress the wound
- **Clean up the blood** — • Clean up any spilled blood

Sports Medicine Australia provides the following detailed information about how to follow the blood rule:

- A player who is bleeding or who has blood-soiled clothing must immediately leave the playing area and seek medical attention.
- Any bleeding must be stopped and the injury or wound appropriately dressed with a bandage.
- Any blood on the player's body must be cleaned off before they can return to the game.
- The game should stop until all on-field blood spills are cleaned.
- Anyone providing treatment to a bleeding player should wear disposable latex gloves.
- Anyone providing treatment to a bleeding player should wash their hands with soap and water immediately after removing their gloves.
- Place any towels, wipes or bandages soiled by blood in a container to be discarded or destroyed in a hygienic manner.
- Assume that all blood spills are potentially infectious.

Investigate the blood rule

ACTIVITY AND STRATEGY · 9.2

1 As a class, identify the sports that have adopted the blood rule.

2   Develop a flowchart that shows the steps to avoid infection from blood-borne viruses. Share your work with the class.
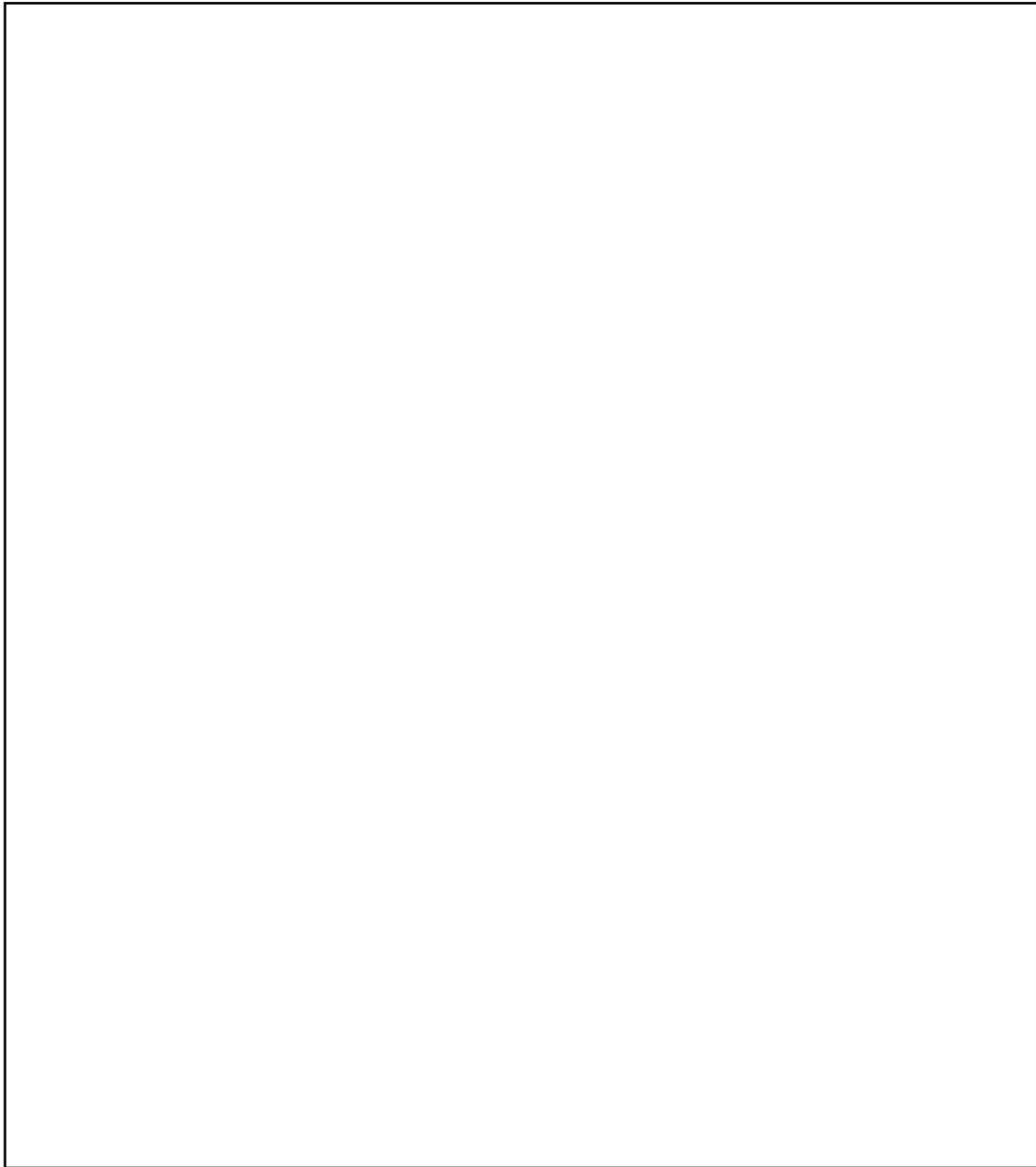
9.3 » Performance-enhancing drugs and supplements

Learning goal: To understand the principles of the World Anti-doping Code

Australia is an international leader in the fight against the use of illegal performance-enhancing drugs in sport. Our country was one of the first to establish a sports anti-doping agency, and is a signatory to the UNESCO International Convention against Doping in Sport. Athletes at all levels of competition are required to comply with the rules in the World Anti-doping Code. Some of these rules also apply to coaches and officials.

ACTIVITY AND STRATEGY

9.3A

Investigate anti-doping rule violations

1 **a** Watch the video, 'The 11 anti-doping rule violations explained' (https://mea.digital/UJ_M2_gye), created by Sport Integrity Australia.

b Describe each step of the process in the table below.

Anti-doping rule violations	Description
Presence	
Use	
Evasion	
Whereabouts failures	
Tampering	
Possession	
Trafficking	
Administration	
Complicity	
Prohibited association	
Retaliation	

Investigate drug-testing protocols

1 **a** Watch the video, 'What to expect from the doping control process' (https://mea.digital/UJ_M2_nic), created by Sport Integrity Australia.

b Describe each step of the process in the table below.

Step of the testing process	Description
Athlete selection	
Notification	
Reporting to doping control	
Selecting a collection vessel	
Providing a urine sample	
Athletes aged under 18 years	
Providing a blood sample	

9.3B

ACTIVITY AND STRATEGY

9.3B

ACTIVITY AND STRATEGY

Step of the testing process	Description
Selecting a sample kit	
Splitting and sealing your sample	
Measuring the specific gravity	
Final paperwork	
Transporting and securing the sample	

Dietary supplements

A dietary supplement is a manufactured product – such as a tablet, liquid, powder or capsule – that is intended to provide nutrients that are missing or insufficient in a person's diet. For example, vitamin C tablets, fish oil capsules, protein shakes and multivitamin gummies are all supplements.

The advice of Sport Integrity Australia is as follows: 'No supplement is safe to use. As an athlete, you should not risk your career by taking a supplement because many supplements are contaminated with substances prohibited in sport. These may not be listed on ingredient labels.'

Before taking a supplement, think about whether you need it. Research indicates that very few supplements actually enhance performance. In most cases, a change in sleep patterns, diet and training will be more effective. However, despite this advice, you may still choose to take a supplement, hoping it will help you perform better. It is your responsibility as an athlete to ensure that your supplement use complies with anti-doping regulations. Many positive drug tests in Australia have been linked to supplement use.

Investigate supplements

9.3C

1　**a**　Search online for the supplements listed in the table below.

　　b　Describe each supplement. What is the advertised outcome of taking each supplement?

Supplement name	Description
Nutrition X Hydra Fuel	
Envisage Sport Endurance	
Musashi Pre-workout	
Body Science Glutamine	

2　Discuss your findings with the class.

ASSESSMENT LOG

Now that you have finished Topic 9 (Sports medicine protocols), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 3 (Sports medicine strategy: Sports medicine protocols). You can update your Assessment Log at any time as your understanding grows.

TOPIC 10 > INJURY PREVENTION STRATEGIES: BEFORE GAME DAY

Preventing injuries is critical to athletic performance as an injured athlete cannot perform at their best. In this topic, you will learn injury prevention strategies to use before game day or physical activity generally.

10.1 » Pre-exercise screening

Learning goal: To be able to use pre-exercise screening to prevent injuries

Pre-exercise screening is used to identify medical conditions that may affect a person's ability to perform physical activity. These tests are usually conducted by industry professionals such as personal trainers and sports medicine officials. The purpose of pre-exercise screening is to identify issues and adjust sessions to better suit an individual's needs, which will reduce the chances of the person being injured.

Investigate pre-exercise screening

PART A: RESEARCH PRE-EXERCISE SCREENING SYSTEMS

1 Industry professionals use a range of pre-exercise screening systems. Research two different systems and identify their strengths and limitations. Write your findings in the table on the opposite page. An example has been provided below to help you.

PRE-EXERCISE SCREENING SYSTEMS			
Name of the system	Strengths	Limitations	Source
Exercise and Sports Science Australia Adult Pre-exercise Screening System (ESSA APSS)	• *Asks questions about high-risk conditions.* • *Includes questions about how much exercise the individual is currently doing.* • *Includes information about exercise intensity levels.*	• *Not targeted at teenagers.* • *Client details may be too detailed.*	*Exercise and Sports Science Australia*

ACTIVITY AND STRATEGY

10.1

Name of the system	Strengths	Limitations	Source

PART B: USE A PRE-EXERCISE SCREENING SYSTEM

2 Based on the strengths and limitations you identified in Question 1, select one pre-exercise screening system.

Selected system: _____

_____

3 Use this pre-exercise screening system to assess one of your classmates.

4 Complete the following questions after screening your classmate.

a What are the strengths of the screening tool?

_____

_____

_____

_____

b What are the limitations of the screening tool?

_____

_____

_____

_____

c Did the screening tool help you identify any risk factors for your classmate? If so, how could you adjust physical activity sessions to better suit this classmate?

_____

_____

_____

_____

_____

_____

_____

10.2 » Joint stability exercises

Learning goal: To be able to instruct a peer to perform joint-stability exercises to prevent injuries

Many sporting injuries are caused by a lack of joint stability. Joint stability refers to how well your joints can maintain the correct line of movement. Someone with stable joints can move through a full range of motion without losing control or becoming unbalanced. Some joints are more stable than others.

Common injuries that are caused by joint instability include:

- sprains and strains
- dislocations
- anterior cruciate ligament (ACL) tears.

Joint stability training can help to make joints more stable and prevent injuries. Joint stability training exercises are often completed as part of a warm-up.

Investigate joint stability

PART A: RESEARCH JOINT-STABILITY EXERCISES

1 Research two different joint-stability exercises. Write your findings in the table below. In Part B, you will teach a classmate how to perform these exercises, so make sure your instructions are clear and detailed. An example has been provided to help you.

Exercise name	Targeted joint	Instructions
Depth drops	*Knee*	1 *Stand on a box or bench around 80 centimetres off the ground, towards the front.* 2 *Step off with one foot to drop but land on the balls of both feet, letting the heels meet the floor and absorbing the force with a bend of the knees and hips.* 3 *Pause, then slowly stand up.* 4 *Repeat for 3—5 reps and 2—3 sets.*

10.2

ACTIVITY AND STRATEGY

PART B: INSTRUCT A CLASSMATE

2 **a** Find a partner.

b Instruct your partner through the two joint-stability exercises you described in the table on the previous page.

c Make sure your partner completes the required number of repetitions.

d Give your partner feedback on how well they perform each exercise.

e Swap roles.

PART C: EVALUATE THE JOINT-STABILITY TRAINING

3 After completing your partner's exercises, evaluate their instructions and the feasibility of the exercises. Write your evaluation in the table below. Here are some tips to help you complete this task:

- **Instructions:** The instructions were clear and you easily understood what you were required to do. No important details were missing.

- **Feasibility:** The exercises were practical and relevant to your specific needs. It was realistic for you to complete them. The exercises required no specialised equipment and required minimal space to perform.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Instructions		
Feasibility		

Outcome
(an evaluation of the overall success of the exercises,
drawing on the strengths and limitations listed above)

4 Suggest one modification to the way your partner instructed you through these exercises.

10.3 » Preventative strapping

Learning goal: To be able to effectively strap a joint to limit specific movements

Athletes with their joints strapped is a common sight in all sports around the world. Athletes generally use strapping to prevent injuries, support long-term injuries, and help them return to play after being injured.

The aim of strapping is to:

- prevent an injury
- reduce the severity of an injury
- provide support
- limit pain
- limit the movement of a joint
- allow desired movement at a joint.

Practise joint-strapping techniques

PART A: STRAP A JOINT

The table on the next page lists joints that are commonly strapped, and the movement that is limited by the strapping. Depending on the movement that is being limited, a joint can benefit from multiple strapping techniques.

ACTIVITY AND STRATEGY (10.3)

1 Follow the steps below to complete this task.

a Find a partner.

b Your teacher will assign you a joint and a movement to limit.

c Research strapping techniques that can be used to limit this movement.

d Provide instructions, steps or a diagram in the table.

e Apply the steps to strap your partner's joint. Depending on which joint you have been given, you may need to tape over their clothes.

f You may repeat these steps with a different joint if your teacher permits.

Joint	Movement to limit	Instructions or a diagram
Ankle	Inversion	
Ankle	Eversion	
Knee	Hyperextension	
Knee	Patellar tracking	

Joint	Movement to limit	Instructions or a diagram
Knee	Pivoting	
Shoulder	Anterior dislocation	
Wrist	Radial wrist sprain	
Thumb	Instability	
Fingers	Hyperextension	

10.3

ACTIVITY AND STRATEGY

PART B: TEST YOUR STRAPPING

2 You will now participate in a physical activity of your teacher's choice to test the effectiveness of the strapping.

PART C: EVALUATE THE STRAPPING INSTRUCTIONS

3 After participating in the physical activity, evaluate your strapping instructions. If the instructions for your strapping were effective, the tape would:

- not be painful
- limit specific movement at a joint (as specified in the table)
- allow desired movements at a joint (other movements that are not limited)
- allow you to participate in the activity.

Strengths (things that worked)	Limitations (things that did not work or were missing)

Instructions

Outcome
(an evaluation of the overall success of the strapping instructions, drawing on the strengths and limitations listed above)

4 Provide one recommendation about how the tape could be adjusted to improve your performance in the game.

10.4 » Stretching and flexibility

Learning goal: To understand how to improve the range of movement in specific joints by stretching

One of the factors that can limit or determine athletic performance is flexibility. In the context of sport, fitness and physical recreation, flexibility is the ability of a joint or series of joints to move unrestricted through a range of motion without pain. The range of motion associated with joints, muscles, tendons, connective tissue and nerves can influence how well a person can perform a technique related to sport or any other physical activity.

Flexibility has two components:

- **static flexibility** is the range of motion through which a muscle or joint can be taken and held by a slow and forceful movement
- **dynamic flexibility** is the range of motion that is used when the body is moving; dynamic flexibility is essential in high-speed movement, which is integral in sport and is a major outcome of flexibility training.

Stretching can improve flexibility. Types of stretching include:

- **static stretching**, where a joint is held at its end range of motion
- **ballistic stretching**, which involves repeated bouncing or swinging into the end range of motion
- **dynamic stretching**, which uses a combination of movement and stationary holding and reaching the end range of motion, holding that position briefly then releasing
- **PNF (proprioceptive neuromuscular facilitation) stretching**, which requires a stretch–contract–relax–stretch cycle followed by brief relaxation and a further stretch.

Practise stretching

1 Your teacher will guide you through each type of stretch.

2 a Select a sport or other physical activity that you participate in. Write this activity in the table on the next page.

   b How could improving your flexibility improve your performance in that sport or physical activity?

ACTIVITY AND STRATEGY 10.4

ACTIVITY AND STRATEGY 10.4

c Design a stretching routine that will improve the flexibility (the range of movement) you need to perform well in your chosen sport. Your teacher will assist you. Record your routine in the table below.

STRETCHING ROUTINE	
SPORT:	

Type of stretch	Description and a drawing
Static	
Ballistic	

Type of stretch	Description and a drawing
Dynamic	
PNF	

Now that you have finished Topic 10 (Injury prevention strategies: Before game day), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 4 (Sports medicine strategy: Injury prevention strategies before game day). You can update your Assessment Log at any time as your understanding grows.

ASSESSMENT LOG

TOPIC 11 > INJURY PREVENTION STRATEGIES: GAME DAY

Preventing injuries is the best way to maintain athletic performance as an injured athlete cannot perform at their peak. In this topic, you will learn about some of the injury prevention strategies that take place on game day: wearing protective equipment, warming-up and cooling-down.

11.1 » Protective equipment

Learning goal: To be able to identify appropriate protective equipment to help prevent injuries

Protective sports equipment is specifically designed to help prevent injuries occurring. There are two types of protective sports equipment:

- items worn by players (for example, mouthguards)
- items used to make the playing area safer (for example, post pads and landing mats).

For some sports, it is compulsory to wear certain items of protective equipment; for example, in baseball, catchers must wear face masks. In other sports, athletes may choose to wear certain items for their safety; for example, in AFL, players can opt to wear a helmet.

Investigate protective equipment

ACTIVITY AND STRATEGY 11.1

1 As a class, brainstorm some protective equipment used in sport.

_____

_____

_____

_____

_____

2 In the table on the next page, list the protective equipment used in a sport you play. Do players need to always wear each item? Which injuries does each item help to prevent?

MY SPORT:

Protective equipment	Required at all times?	Notes
A mouthguard	Yes	Most dental injuries in sport can be prevented if a professionally fitted mouthguard is worn.

Protective equipment	Required at all times?	Notes

11.2 » Warming-up

Learning goal: To be able to create and perform an effective warm-up to prevent injuries

Warming-up before participating in physical activity is essential to prevent muscle and joint injuries. The purpose of a warm-up is to prepare the body for the session or game that the person is about to participate in. Warming-up not only helps to prevent injuries, it can also help athletes focus on what they are about to do and 'get in the zone'.

An effective warm-up consists of two key parts:

- moving the body
- dynamic stretching.

It is also important that athletes enjoy the warm-up, so it is a good idea to incorporate a game or something fun into the session.

TABLE 14 > The parts of an effective warm-up

Parts of an effective warm-up	What does this do?
» Exercise or move your body for 5–20 minutes » The exercises should get gradually harder	» Moving your body increases your heart rate, which increases the flow of blood and oxygen to your muscles. » The gradual increase in the intensity of the exercises prevents injuries.
» Dynamic stretches	» Dynamic stretches mobilise the joints and muscles that will be used in the game or other physical activity.

Investigate warm-ups

11.2

ACTIVITY AND STRATEGY

PART A: RESEARCH STRETCHING

1 Research dynamic stretches, then answer the following questions.

  a Describe three dynamic stretches that could work well as part of a warm-up.

_____

_____

_____

_____

_____

_____

  b For each dynamic stretch you described in Question 1a, state which body part the stretch is helping to mobilise.

_____

_____

_____

PART B: CREATE A WARM-UP

2 Working in small groups, create a warm-up that will move the body for 5 to 20 minutes. The warm-up should be relevant to the physical activity you will participate in later in the lesson. The exercises in your warm-up should gradually become harder or more intense. Remember to include dynamic stretches, and try to make the session fun. Describe your warm-up in the table on the next page. You may include instructions and diagrams.

WARM-UP

PHYSICAL ACTIVITY YOU ARE WARMING-UP FOR:

EXERCISES

DYNAMIC STRETCHES

PART C: PARTICIPATE IN A WARM-UP

3 Participate in the warm-ups run by other groups in your class.

4 Participate in the physical activity organised by your teacher.

PART D: EVALUATE A WARM-UP

5 Evaluate one of the warm-ups you participated in using the PIRFAM table on the next page.

11.2

ACTIVITY AND STRATEGY

Here are some tips to help you complete this task:

- **Planning:** A well-planned warm-up includes exercises and dynamic stretches. It is a strength if the relevant equipment was set up before the warm-up started.
- **Implementation:** Strengths include if the warm-up was carried out as planned and if everyone participated in the session.
- **Relevance:** It is a strength if the warm-up was relevant to the physical activity; for example, it used a mini game of the same sport or stretched the same muscles that were used in the sport.
- **Monitoring:** It is a strength if the participants' heart rates and range of movement were monitored throughout the warm-up.

	Strengths	Limitations
Planning		
Implementation		
Relevance		
Monitoring		

6 After completing the evaluation, answer the following questions.

a Do you think the warm-up was effective for you? Explain why or why not.

_____

_____

_____

b Give one recommendation to improve the warm-up and identify at least one PIRFAM factor that this recommendation would improve.

_____

_____

_____

11.3 » Cooling-down

Learning goal: To be able to create and perform an effective cool-down to prevent injuries

Just like warming-up, cooling-down after participating in physical activity is essential to prevent muscle and joint injuries. The purpose of cooling-down is to allow the body to start recovering from sport or other exercise.

An effective cool-down consists of two key parts:

- light exercise
- static stretches.

TABLE 15 > The parts of an effective cool-down

Parts of an effective warm-up	What does this do?
» Light exercise for 5–20 minutes	» Light exercises slowly bring the heart rate and body temperature back to normal
» Static stretches	» Static stretches relax muscles and prevent tears

Investigate cool-downs

11.3

ACTIVITY AND STRATEGY

In this activity, you will work in groups to create an effective cool-down. A couple of groups will run their cool-downs for the class after everyone has participated in a physical activity selected by your teacher.

PART A: RESEARCH STRETCHING

1 Research static stretches and then answer the following questions.

a What are static stretches? How are they different to dynamic stretches?

_____

_____

_____

b Provide three examples of static stretches that could work well in a cool-down.

_____

_____

_____

PART B: CREATE A COOL-DOWN

2 Working in small groups, create a cool-down that includes 5 to 20 minutes of light exercise and static stretches to stretch the muscles used in the physical activity. Describe your cool-down in the table below. You may include instructions and diagrams.

COOL-DOWN
PHYSICAL ACTIVITY YOU ARE COOLING-DOWN FROM:
EXERCISES

STATIC STRETCHES

PART C: PARTICIPATE IN AN ACTIVITY

3   Now your teacher will have you perform an activity to get your heart rate up.

PART D: PARTICIPATE IN A COOL-DOWN

4   Participate in the cool-downs run by other groups in your class.

PART E: EVALUATE A COOL-DOWN

5   Evaluate one of the cool-downs you participated in, using the PIRFAM table below. Here are some tips to help you complete this task:

- **Planning:** A well-planned cool-down includes light exercises and static stretches. It is a strength if the relevant equipment was set-up before the cool-down started.
- **Implementation:** Strengths include if the cool-down was carried out as planned and if everyone participated in the session.
- **Relevance:** It is a strength if the cool-down enabled the body to recover from the physical activity you just participated in.

	Strengths (things that worked)	Limitations (things that did not work or were missing)
Planning		

11.3

ACTIVITY AND STRATEGY

	Strengths	Limitations
Implementation		
Relevance		

6 After completing the evaluation, answer the following questions.

a Do you think the cool-down was effective for you? Explain why or why not.

_____

_____

_____

b Give one recommendation to improve the cool-down and identify at least one PIRFAM factor that this recommendation would improve.

_____

_____

_____

ASSESSMENT LOG

Now that you have finished Topic 11 (Injury prevention strategies: Game day), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 4 (Sports medicine strategy: Injury prevention strategies on game day). You can update your Assessment Log at any time as your understanding grows.

TOPIC 12 > RECOVERY STRATEGIES

Recovering from exercise helps your body perform better overall. Recovering from injury not only helps your performance, but can help protect you from being reinjured. In this topic, you will learn about strategies that help the body recover from physical activity and the stages of rehabilitation. You will also look at a strategy in detail: sports massage therapy.

12.1 » Recovering from games and training

Learning goal: To be able to identify effective strategies to help the body recover from exercise

After exercising, such as playing a game or participating in a training session, it is important to recover physically; this is critical to the person being able to perform at their best in the future. Post-exercise recovery strategies help make sure that an athlete is ready for the next game or the next training session.

Post-exercise recovery strategies include:

- completing a cool-down
- drinking plenty of fluids to replace what has been lost
- eating carbohydrate-rich foods immediately after training
- seeing a sports massage therapist
- managing any injuries (on the advice of a sports first aider, sports trainer or treating medical professional)
- getting enough sleep
- making sure an overall training program includes easier days and off-season breaks.

If an athlete does not recover properly from games and training, their body will become tired and their immune system will be placed under stress, which means the athlete is more susceptible to illness and injury. An athlete in this position is unlikely to improve and their performance may even go backwards.

Investigate a recovery strategy

1 One of key strategies to recovering from games and training is getting enough sleep. On average, how many hours of sleep do you get a night?

You may need to do some research to answer the following questions.

2 How many hours of sleep a night are needed by someone your age?

12.1

ACTIVITY AND STRATEGY

12.1

ACTIVITY AND STRATEGY

3 What impact can not getting enough sleep have on athletic performance?

_____

_____

_____

_____

4 What impact can not getting enough sleep have on aspects of your health such as your mental health and wellbeing?

_____

_____

_____

_____

5 Identify barriers that could prevent you from getting enough sleep.

_____

_____

_____

12.2 » Recovering from an injury

Learning goal: To be able to identify the stages of rehabilitation

Rehabilitation requires a gradual return to training and competition. You should not return to your sport or activity until the pain, swelling and stiffness have reduced significantly or disappeared completely. Pushing yourself too soon could make your recovery take longer or make your injury worse, so be sure you get the green light from your healthcare professional.

The American College of Sports Medicine provides comprehensive guidelines on returning to sport after being injured. This peak body recommends that you should not resume playing until you have full, pain-free range of motion. The injured body part should be able to move freely with minimum discomfort.

The gradual return should comprise the following stages:
- return of strength
- minimal pain or swelling
- functional retraining
- progressive return to activity
- continue general conditioning with cross-training
- mental confidence in your ability to exercise.

Develop a return-to-play timeline

1 As a class, and with the assistance of your teacher, develop a return-to-play timeline for an imaginary athlete. Write your answers to the following questions in the table below.

a What injury is your imaginary athlete recovering from? This could be an injury that you or one of your classmates has experienced.

b Estimate how long each stage of recovery will take. You may need to conduct some research to complete this task.

INJURY:

Stage of recovery	Time period
Swelling and pain decreases or disappears	
Bruising fades	
Range of motion increases	
Strength returns	
Progressive return to physical activity	
General conditioning training with cross-training	
Regain mental confidence in ability to exercise	

12.3 » Sports massage therapy

Learning goal: To understand the benefits of sports massage therapy

Sports massage therapy is used to help athletes recover from physical activity and from an injury. This type of therapy is administered before, during and after training. It can help increase flexibility, prevent injuries, and help injuries heal. Sports massage therapy works by stretching tight muscles, stimulating inactive muscles and improving the condition of soft tissue.

ACTIVITY AND STRATEGY

12.3

Investigate sports massage therapy techniques

1   Sports massage therapists use several different techniques to treat athletes. Some of these techniques are listed in the table below. Research these techniques, then describe them in the table.

Sports massage technique	Description
Petrissage	
Effleurage	
Trigger or pressure point	
Cross-fibre friction	
Range of motion	
Vibration	

ASSESSMENT LOG

Now that you have finished Topic 12 (Recovery strategies), turn to Assessment Log 2 at the end of this module. Continue to fill in Step 1 (Investigation Log). Fill in Section 5 (Sports medicine strategies: Recovery). You can update your Assessment Log at any time as your understanding grows.

TOPIC 13 > WHERE TO FROM HERE?

The experiences, knowledge and skills related to nutrition, mental skills, sports medicine and first aid that you have learnt in this unit are in high demand in sport and recreation organisations throughout Australia and can be applied to jobs in a broad range of settings, including elite sport, community sport, personal training, group exercise and at schools. In this topic, you will explore employment opportunities and vocational pathways that interest you. At the end of this topic, you will look at one role in depth: that of a sports trainer.

13.1 » Employment opportunities

Learning goal: To identify potential employment opportunities related to the skills learnt in this unit

Investigate employment opportunities

1 As a class, brainstorm jobs related to what you have learned in this unit about nutrition, mental skills, sports medicine and first aid.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

2 Write your responses to the following questions in the table on the next page.

   a From the list you compiled in Question 1, select four jobs that interest you.

   b Research each job and describe what is involved in each role.

   c Research the qualifications or work experience that is required for each job.

   d Why does each job interest you?

ACTIVITY AND STRATEGY 13.1

13.1

ACTIVITY AND STRATEGY

Description of the job	Qualifications or work experience required	Why this job interests me
Job one:		
Job two:		
Job three:		
Job four:		

13.2 » Vocational pathways

Learning goal: To identify pathways to jobs related to what you have learnt in this unit

One of the key pathways to getting a job related to sport or physical recreation in Australia is to complete an Australian Vocational Education and Training (VET) qualification. VET courses provide the practical skills and knowledge to help you in the workplace. You can complete a VET course while you are at school, which can provide credit towards your Queensland Certificate of Education and support your transition from school to employment or higher education.

Investigate vocational pathways

1 Compare two VET qualifications that are related to what you have learnt in this unit. The first qualification is a Certificate IV in Nutrition (see: https://mea.digital/UJ_M2_0yu) and the second is a Certificate III in Fitness (see: https://mea.digital/UJ_M2_k4z). Write your comparison in the table below.

	Certificate IV in Nutrition	Certificate III in Fitness
Course code		
Qualification description (What roles and duties are carried out by someone with this qualification?)		
Course entry requirements		

ACTIVITY AND STRATEGY 13.2

	Certificate IV in Nutrition	Certificate III in Fitness
Number of core units		
Number of elective units		

2 What are three differences between the two courses?

a Difference one: _____

_____

_____

b Difference two: _____

_____

_____

c Difference three: _____

_____

_____

3 How many QCE points are earned by completing each course?

a Certificate IV in Nutrition: _____

b Certificate III in Fitness: _____

13.3 » Sports trainers

Learning goal: To understand the roles and responsibilities of an accredited sports trainer

A job that is related to the experiences, knowledge and skills you have learnt in this unit is that of a sports trainer. The roles and responsibilities of sports trainers include to:

- look after the safety and wellbeing of the athletes they work with
- assess injured athletes on the field
- deliver sport-specific first aid
- use specialised strapping techniques that are customised to the needs of individual athletes to prevent injury and stabilise joints before games and training
- refer athletes to other health professionals for further treatment and advice
- assess, record and document athletes' injuries and treatment
- write injury reports.

Complete an injury report

Sports trainers and other health professionals keep records of the nature and extent of injuries or accidents that occur at training or during competition. In this activity, you will complete an injury report for an imaginary athlete.

1   Download one of the following injury report templates:

- WA Footy's injury report form (https://mea.digital/UJ_M2_jf8)

- Sports Medicine Australia's football injury reporting form (https://mea.digital/UJ_M2_8rf).

2   Fill in the injury report for an imaginary injured athlete. Your teacher will describe the specific nature of the athlete's injuries.

3   Share your completed report with the class.

ASSESSMENT LOG 2: PERFORMANCE

The second assessment of this unit is a performance. For this performance, you will plan and perform (implement) an activity or a strategy to optimise performance in a physical activity. You will then evaluate the success of your activity or strategy.

Steps	Requirements
Steps 1 and 2: Investigate and plan	**Investigate and plan** an activity or a strategy to enhance outcomes in athletic performance by: » determining an area of need » identifying an activity or a strategy to use to target the area of need » explaining how the activity or strategy will be used in a physical activity.
Step 3: Perform	**Perform** (implement) your planned strategy by: » organising the equipment and preparing the space » delivering the plan.
Step 4: Evaluate	**Evaluate** your implemented activity or strategy by: » evaluating your personal performance and success in achieving your purpose » identifying adjustments to improve your personal performance.

STEP 1: INVESTIGATION LOG

- Your Investigation Log is a record of all the evidence you have gathered in Module 2: Sports medicine and first aid.
- Look back at the activity and strategy tasks in this module to determine how you would like to plan and perform your selected activity or strategy.
- All the information in this module can be used in your Investigation Log.
- The relevant activity and strategy tasks are indicated in each section of the following table.
- You should also find other relevant information to support your choices; for example, do some research and draw from your previous experiences.

Section 1:
First aid: Administering basic life support

Relevant activities from this module	Activity and strategy 7.1 and 7.2
In your assessment task, will you be exploring administering basic life support?	☐ Yes – answer the questions below ☐ No – continue to the next section
What is the purpose of administering basic life support?	
What are the steps of the DRSABCD action plan?	
What is the chain of survival? Identify the four links in the chain.	

Section 2:
Sports medicine strategy: Injury management

Relevant activities from this module	Activity and strategy 8.1 and 8.2
In your assessment task, will you be exploring how to manage an injured athlete?	☐ Yes – answer the questions below ☐ No – continue to the next section
What are the steps in the STOP process?	
What are the steps in the TOTAPS process?	
What are the steps in the CPRIE process? **What type of injury does this process treat?**	

Section 3:
Sports medicine strategy: Sports medicine protocols

Relevant activities from this module	Activity and strategy 9.1, 9.2 and 9.2
In your assessment task, will you be exploring sports medicine protocols?	☐ Yes – answer the questions below ☐ No – continue to the next section
What is the purpose of sports medicine protocols?	
Concussion **What are some of the signs that a player has sustained a concussion?**	
Blood rule **What is Sports Medicine Australia's blood rule? Outline the three main steps of this rule.**	

Anti-doping

What are the names of the 11 anti-doping rule violations?

Supplements

What is a dietary supplement? Can you take a supplement before a game?

Section 4:
Sports medicine strategy: Injury prevention strategies before game day

Relevant activities from this module	Activity and strategy 10.1, 10.2, 10.3 and 10.4
In your assessment task, will you be exploring pre-game day injury prevention strategies?	☐ Yes – answer the questions below ☐ No – continue to the next section

Section 4:
Sports medicine strategy: Injury prevention
strategies before game day (continued)

What is pre-exercise screening? How can it help prevent injuries?

How can joint stability exercises:
a) help prevent injuries?
b) improve athletic performance?

How can strapping:
a) help prevent injuries?
b) improve athletic performance?

How can stretching:
a) help prevent injuries?
b) improve athletic performance?

Section 5:
Sports medicine strategy: Injury prevention strategies on game day

Relevant activities from this module	Activity and strategy 11.1, 11.2 and 11.3
In your assessment task, will you be exploring game day injury prevention strategies?	☐ Yes – answer the questions below ☐ No – continue to the next section
How can warming-up: **a) help prevent injuries?** **b) improve athletic performance?**	
What are the two parts of an effective warm-up?	
How can cooling-down: **a) help prevent injuries?** **b) improve athletic performance?**	
What are the two parts of an effective cool-down?	

Section 6:
Sports medicine strategy: Recovery

Relevant activities from this module	Activity and strategy 12.1, 12.2 and 12.3
In your assessment task, will you be exploring recovery strategies?	☐ Yes – answer the questions below ☐ No – continue to the next section
List five post-exercise recovery strategies.	
How can post-exercise recovery strategies help to improve athletic performance?	
Describe the stages a person goes through when they are recovering from an injury.	

STEP 2: PLANNING LOG

Your Planning Log is a place to develop a draft of your assessment plan. Use your Investigation Log to help you complete your Planning Log.

Identify a specific need	Selected strategy

Plan

Depending on your strategy, your plan could be:

» a specific sports medicine strategy; for example, soft-tissue injury management

» a recovery strategy

» an injury prevention strategy.

Discuss your ideas with your teacher before you begin your plan.

Adjustments

Identify how you might adjust your strategy in different circumstances:

STEP 3: PERFORMANCE LOG

In this step, you will implement planned activity or strategy to enhance outcomes in athletic performance.

Notes and reminders:

What do you need to remember to be successful in your performance?

_____

_____

_____

_____

_____

_____

STEP 4: EVALUATION LOG

After implementing your activity or strategy, use the PIRFAM template below to evaluate how well it optimised athletic performance. Ensure your outcome relates to what you identified in your Investigation Log (for example, the prevention or treatment of a sports injury).

Strengths (things that worked)	Limitations (things that did not work or were missing)

Planning

	Strengths	Limitations
Implementation		
Relevance		
Feasibility		
Adjustments		

Strengths	Limitations

Outcome
(an evaluation of the overall success of your strategy,
drawing on the strengths and limitations listed above)