Chapter 10: Fit for life

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Review

ICT ACTIVITIES

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Chapter 10: Fit for life

Introduction

Being fit doesn’t just mean being able to swim the fastest, run a marathon or being a certain weight. Fitness incorporates a number of components that can be specifically measured and trained. Some of these components are more closely related to sports performance and some of these are related to everyday health and wellbeing. Being ‘fit for life’ will help maintain better health for life.

ESSENTIAL QUESTION

What does it mean to be fit and how can I improve my fitness?

STARTER QUESTIONS

1. Who is the fittest person: a marathon runner, a sumo wrestler, a sprinter, a hockey player or a brick layer? Justify your choice.

2. Can you judge someone’s fitness by just looking at them? Explain why or why not.

3. Can everyone use similar training programs to improve their fitness? Explain why or why not.
10.1 Fitness — what is fitness?

Fitness has an enormous effect on our quality of life. Being fit allows us to engage in activities that interest us. It also positively affects our sense of self and improves our general level of health.

ENGAGE

What does it mean to be fit? We know that being fit can have a positive impact on your health but what does being fit mean? What does being fit look like? Does being fit mean different things to different people?

Consider the above questions and the image below and compare your response to others.

Discuss what being fit means to you and then compare with the group.
EXPLORE

What is fitness?

Physical fitness is a measure of our ability to perform daily tasks and activities. During most days we perform many general movements, notably walking and running. Other days we may choose or be required to perform additional activities such as jumping (for example, in basketball), cycling, surfing, climbing, swimming or skateboarding. The degree to which we can comfortably perform daily physical demands is an indication of our level of physical fitness.

If we are unable to do activities we would like to or if physical activity causes us discomfort — and if we are not injured or ill — we are probably lacking in fitness. When we are fit, we live a certain quality of life; we are able to perform our daily activities without undue fatigue. We can also choose to be involved in additional activities we enjoy because we have sufficient energy in reserve for these activities. All this adds up to feeling good and being able to approach each day positively and with enthusiasm.

Physical fitness encompasses both health- and skill-related components. Health-related fitness relates to the level of fitness we need to maintain good physical health during our daily activities. Skill-related fitness relates to the level of fitness we need for involvement in physical activities like sport.
Fitness has both health-related and skill-related components.

### Table 10.1: The various aspects of physical fitness

<table>
<thead>
<tr>
<th>Component</th>
<th>Health-related</th>
<th>Definition</th>
<th>Sporting example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiorespiratory endurance</td>
<td>Health</td>
<td>The body’s ability to sustain prolonged exercise with the use of oxygen. It is also known as aerobic fitness, aerobic capacity or aerobic endurance.</td>
<td>Running a marathon</td>
</tr>
<tr>
<td>Muscular strength</td>
<td>Health</td>
<td>The ability of muscles to exert force</td>
<td>Holding someone down in a wrestle</td>
</tr>
<tr>
<td>Muscular endurance</td>
<td>Health</td>
<td>Ability of the muscle or muscle group to sustain (isometric) or repeat (isotonic) contractions for a long period of time</td>
<td>Repeated actions by the legs while cycling</td>
</tr>
</tbody>
</table>
In order to be considered physically fit, a person needs to attain a particular standard when tested for each of the components. Even then, some components are more important than others. **Cardiorespiratory endurance** (or aerobic fitness) is the most important component of all because it directly affects our health, such as our cardiovascular health, cholesterol levels and lung function. It is also important for participating in sustained physical activity and promoting recovery processes.

### DID YOU KNOW?

Exercise improves heart function. When you begin an aerobic exercise program, expect your resting heart rate to decrease by about one beat per minute every week during the first few weeks. This indicates that your heart is becoming more efficient and pumping more blood each beat. Highly trained Olympic endurance athletes have had resting heart rates recorded at just 28–40 beats per minute.

<table>
<thead>
<tr>
<th>Component</th>
<th>Type</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility</td>
<td>Health</td>
<td>The degree of movement around a joint</td>
<td>Rotation of shoulders in butterfly stroke</td>
</tr>
<tr>
<td>Body composition</td>
<td>Health</td>
<td>Describing body shape or type with reference to the ratio of muscle tissue in the body compared to fat</td>
<td>Gymnasts require little body fat and a higher proportion of muscle.</td>
</tr>
<tr>
<td>Muscular power</td>
<td>Skill</td>
<td>A combination of speed and strength. When strength is exerted quickly, it is called power.</td>
<td>High jumper</td>
</tr>
<tr>
<td>Speed</td>
<td>Skill</td>
<td>The ability to get from one point to another as quickly as possible</td>
<td>50m swimmer</td>
</tr>
<tr>
<td>Agility</td>
<td>Skill</td>
<td>The ability to change direction quickly with speed and balance</td>
<td>Dodging an opponent</td>
</tr>
<tr>
<td>Reaction time</td>
<td>Skill</td>
<td>The time it takes to initiate the first response to a stimulus</td>
<td>Responding to starting gun in sprint</td>
</tr>
<tr>
<td>Balance</td>
<td>Skill</td>
<td>The ability to control our centre of gravity while stationary or moving</td>
<td>Diver on the edge of 10m platform in a static handstand</td>
</tr>
<tr>
<td>Coordination</td>
<td>Skill</td>
<td>The ability of body parts to work together resulting in smooth, efficient movements</td>
<td>Tennis serve</td>
</tr>
</tbody>
</table>
ACTIVITIES

1 Views about fitness

1. Fitness means different things to different people. Allocate the following occupations or roles to pairs within the class and create a list identifying how you think that person might view fitness. Have a representative of each pair report to the class on why that person would view fitness that way. The occupations or roles are:
   a. plumber
   b. dentist
   c. surfer
   d. chronically ill person
   e. triathlete
   f. body builder
   g. elderly person
   h. police officer
   i. nurse
   j. office worker
   k. obese person.

2. Why do people view fitness differently?

3. Which of the above people would you consider to be the fittest? Why?

4. What factors affect an individual’s optimal level of fitness?

2 Identifying fitness components

In pairs, discuss and justify the most important fitness components (at least three) for each of the following athletes. Share and compare different group’s responses. Analyse how the components are developed through the activity.
   a. Sprinter
   b. Long distance swimmer
   c. Pole vaulter
   d. Midfielder in soccer
   e. Javelin thrower
3 Analysing fitness components

Complete the following table.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Health or skill</th>
<th>Definition</th>
<th>Sporting example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jump as high as you can</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete 5 mins of step-ups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sitting down with straight legs touch your toes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternate hand toss with tennis ball</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weave around a set of 5 cones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete a prone hold for 1 min</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stand on one foot with your hands above your head and hold for as long as possible</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHECK & CHALLENGE

Explain
1. Define the term ‘physical fitness’.
2. Distinguish between health-related and skill-related components of fitness.
3. Why is cardiorespiratory endurance the most important element of fitness?
4. Identify the health-related components of fitness.
5. Identify the skill-related components of fitness.

Elaborate
6. Discuss why views about fitness differ from one person to another.

Evaluate
7. Evaluate your performance in health- and skill-related fitness components. What are your strengths and weaknesses? Why do you think this is the case?
**Worksheet**

Fitness components  
Searchlight ID: doc-14664

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**Explain**

8. Explain why being able to run for a long time doesn’t necessarily mean you will be successful in other sports.

**Elaborate**

9. Research and suggest a sport that requires the greatest number of fitness components.

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### 10.2 Health-related fitness components — how to measure

The health-related components of fitness are cardiorespiratory endurance, flexibility, muscular strength, body composition and muscular endurance. There are recognised ways of measuring these components.

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**ENGAGE**

Cardiorespiratory endurance, muscular strength, muscular endurance and flexibility are all important components of our health. Most of us may know a little about them, but are not sure how to gauge them. Unless we can do this, attempts to improve our fitness will be ineffective. How do we measure health-related components of fitness?

To find a simple test which you can use to track the improvements in your flexibility, use the **Trunk flexion test** weblink in your Resources section.
Developing cardiorespiratory endurance is an important part of health-related fitness.

EXPLORE

Importance of health-related components

The health-related components of fitness target essential body functions that impact directly on our health. Improved cardiorespiratory endurance, muscular strength, flexibility, local muscular endurance and body composition all positively affect our health.

Regular exercise strengthens bones and muscles, both of which give shape to the body. Physical activity promotes healthy bone growth which is important to support our weight as well as enabling basic motor skills like carrying objects. Exercise strengthens the heart, making it a more effective pump in supplying the body with oxygen and nutrients. The heart muscle needs to remain strong so that it can pump blood every day for our entire lives. Exercise increases the heart’s ability to contract forcefully, allowing it to pump more blood into our circulatory system with each beat.

Activity also improves our breathing and the ability of the lungs to take in oxygen. The harder we work, the more oxygen we need to deliver via the blood to the working muscle. This is why we breathe more rapidly during exercise sessions.
Body composition is an important health-related component. This relates to composition of our body in terms of muscle and fat. Unused energy is stored in the body as fat. We need to balance our intake (food) with our output (metabolism and exercise) to control our weight. It is better to monitor weight and maintain a healthy weight range than to let our weight fluctuate. Activity has the advantage of increasing our metabolism and keeping it elevated for hours after we have finished, so that we continue to burn more fuel even as we recover.

Finally, exercise strengthens muscles, making them respond quickly and forcefully. This helps us to run faster, be active for longer and control our bodies with greater precision in activities such as dance, gymnastics and games.

The following activities include a series of tests designed to measure the levels of some of your health-related components of fitness. It is very important that the tests are carried out as instructed for accurate results. Remember, these results are a reference point only. They are not meant to grade your fitness ability; rather, they are used to highlight areas in which you can improve.

Once you know which areas you need to improve you can choose appropriate activities to help improve your weaknesses while maintaining your strengths.

**ACTIVITIES**

1 **Pulse rate — an indicator of fitness**

   Learn to take your pulse rate accurately.

   1. Place your index and middle finger on the thumb-side of your wrist as indicated in the photo and count the pulse for 20 seconds.

   2. Multiply by 3 to convert to a reading for a minute.

   3. Repeat the exercise two more times and then average the reading. You have now established your resting pulse in beats per minute.

   4. An average resting heart rate is about 72 beats per minute. As your fitness level improves, your resting pulse rate will decrease. Heart rates can also be measured on a heart rate monitor. It is worn while participating in physical activity and lets you know your pulse rate.
Use the **Heart rate levels** weblink in your Resources section to find out how hard your heart needs to work for activities of varying intensity. Calculate your maximal heart rate by subtracting your age from 220.

2 Measuring aerobic fitness using the multistage fitness test

**Equipment:** multilevel fitness test audio, firm surface with two lines marked 20 metres apart

1. Form a group of no more than 10 subjects to one supervisor.

2. Divide the group into two. Half the group is to perform the test while the remaining half observes and records the results.

3. Perform a general purpose warm-up including leg stretching exercises before commencing this test.

4. The subjects in group 1 should move to the start line and listen to the introductory remarks on the audio, which tell them when to start and how to judge pace.

5. Subjects begin by walking to the end line, aiming to reach it on the ‘beep’. Both feet must cross the line. They then turn and walk back, aiming to reach the start line on the next ‘beep’. Gradually the tempo is increased, necessitating a jog and then a run to reach the other line by the sound of the ‘beep’. When subjects fail to stay in time with the ‘beep’ they are given a warning. Failure to catch up or a second warning means the subject must stop the test.

6. Recorders should note the level at which their subject was unable to continue the test. Record the level and the fitness rating using Table 10.2 below.

<table>
<thead>
<tr>
<th>Level</th>
<th>Fitness rating (boys)</th>
<th>Fitness rating (girls)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Poor</td>
<td>Poor</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Fair</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3 Measuring muscular strength using the hand-grip dynamometer test

*Equipment:* hand dynamometer

1. Pick up the dynamometer and push the arrow back to zero.

2. Let your arm hang vertically with the dynamometer comfortably gripped in your hand.

3. Gradually lift the dynamometer to shoulder height, squeezing the grip as hard as you can with your arm extended.

4. Read the result and record it in table 10.3. Repeat with your other hand.

5. Allow three tests on each hand and record the best result. Determine your rating using table 10.4.

<table>
<thead>
<tr>
<th>Table 10.3: Results for muscular strength using a hand dynamometer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Result (kg)</strong></td>
</tr>
<tr>
<td>Right</td>
</tr>
<tr>
<td>Left</td>
</tr>
<tr>
<td>Best</td>
</tr>
</tbody>
</table>
Table 10.4: Ratings for muscular strength using a hand dynamometer (13–15-year-olds)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>≥ 36</td>
<td>≥ 29</td>
</tr>
<tr>
<td>Good</td>
<td>31–35</td>
<td>25–28</td>
</tr>
<tr>
<td>Average</td>
<td>26–30</td>
<td>21–24</td>
</tr>
<tr>
<td>Fair</td>
<td>21–25</td>
<td>16–20</td>
</tr>
<tr>
<td>Poor</td>
<td>≤ 20</td>
<td>≤ 15</td>
</tr>
</tbody>
</table>

4 Measuring muscular endurance using the sit-up test

*Equipment:* stopwatch, recording sheet

1. Work in pairs. Nominate who will be the first subject and who will be the first counter.

2. The subject should lie on the floor with the knees bent and feet flat on the floor. Arms are folded across the chest. Palms are open and rest on the front of the shoulders. Elbows are close together. The counter should hold their partner’s feet firmly on the floor. The angle at the knees should not be less than 60°. In the sit-up, the trunk is raised and the elbows brought to a position between the knees. The body then returns to the floor. The total movement counts for one sit-up.

3. Have a number of practices to warm-up and ensure the technique is correct. Disallow any sit-ups performed incorrectly.

4. Perform the test, counting the number of correctly executed sit-ups in one minute.

5. Change roles and repeat the process.

6. Determine the rating for each person, using table 10.5.

The sit-up test
Table 10.5: Muscular endurance ratings for sit-ups (13–15-year-olds)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number of sit-ups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
</tr>
<tr>
<td>Excellent</td>
<td>≥ 46</td>
</tr>
<tr>
<td>Good</td>
<td>41–45</td>
</tr>
<tr>
<td>Average</td>
<td>33–40</td>
</tr>
<tr>
<td>Fair</td>
<td>26–32</td>
</tr>
<tr>
<td>Poor</td>
<td>≤ 25</td>
</tr>
</tbody>
</table>

5 Measuring flexibility using the sit-and-reach test

*Equipment:* sit-and-reach measuring device, box for mounting

1. Divide into pairs. Set up the box with a sit-and-reach measuring device placed horizontally on top.

2. The first subject sits on the floor with both legs straight, as shown below.

3. The second subject holds the first subject’s knees firmly on the floor and sets the markers.

4. The first subject should reach forward slowly (no jerky movements allowed) and push the markers forward as far as possible with the fingers. Fingers remain extended with palms down.
5. The best of three attempts should be recorded.

Table 10.6: Sit-and-reach ratings (13–15-year-olds)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Reach (cm)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>≥ 33</td>
<td>≥ 36</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>29–32</td>
<td>32–35</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>25–28</td>
<td>28–31</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>21–24</td>
<td>23–27</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>≤ 20</td>
<td>≤ 22</td>
<td></td>
</tr>
</tbody>
</table>

6 Analysing your results

Use the Analyzing health-related fitness components worksheet in your Resources section to collate your results and analyse your health-related fitness.
CHECK & CHALLENGE

Explain

1. Explain how regular exercise improves the health-related components of fitness.

Elaborate

2. What was your rating in the multistage fitness test? Suggest what you can do to maintain (if satisfied) or improve this rating.

3. Were you satisfied with your muscular strength rating? Do you feel this reflected your overall body strength?

4. When in your daily life is adequate strength important?

Evaluate

5. Analyse your level of muscular endurance in terms of the ratings provided.

Elaborate

6. Choose any five sports and describe how muscular endurance is essential for good performance in each.

Explain

7. Explain how muscular endurance can be improved.

Evaluate

8. Evaluate your level of flexibility in terms of the ratings.

Explain

9. Explain the advantage of good flexibility in sport and game situations.

Evaluate

10. Evaluate your level of flexibility in terms of exposure to injury in the sports or activities in which you participate.
10.3 Health-related fitness components — how to improve

Knowing how you rate in health-related fitness components such as aerobic fitness, strength, endurance and flexibility is just the start. Different sports require you to use different components and different activities will require focus on certain components.

ENGAGE

In pairs make a list of the health-related fitness components you tested in section 10.2. Describe each component using at least two key words. Watch a clip of a team sport and identify the use of the health-related fitness components. Explain why they are important in this sport.

DID YOU KNOW?

How fit are you? The best measure of endurance fitness is maximal oxygen uptake or VO2 max. After running the beep test, you can find out your VO2 max by using the VO2 max weblink in your Resources section. The higher the value, the fitter you are. The highest ever recorded is 96 mL/kg/min for men and 77 mL/kg/min for women. Both people were cross-country skiers. Cross-country skiing requires a very high cardiorespiratory endurance due to the length of the event and because the event is held at high altitude. At high altitudes less
oxygen is available so the athletes must be able to take in, transport and use oxygen very efficiently.

The key to training cardiorespiratory endurance/aerobic fitness is stressing the whole body over a longer period of time at a moderate intensity. By improving your cardiorespiratory endurance not only will you be able to work for longer, but you will also recover faster.

HEALTH FACT

Our maximal heart rate during exercise varies from person to person. To get a rough indication, subtract your age from 220. For example, the maximal heart rate for a 14-year-old would be 206 beats per minute \((220 - 14 = 206)\). However, the heart has been known to race at speeds of 300 beats per minute or more under certain medical conditions.

To train muscular strength you need to stress the body using weight, usually with added weights or resistance. Due to the increased load you should not be able to complete many repetitions. To train muscular endurance you need to stress a muscle/group of muscles at a moderate to high intensity for many repetitions. To train flexibility you need to stretch a muscle beyond its resting length. Body composition can be changed by decreasing body fat, increasing muscle tone or both at the same time. The following activities will help you to develop a particular component of health-related fitness.

DID YOU KNOW?

To improve your fitness you actually need to ‘stress’ your body so that it can recover and grow. This can include small muscle tears which can then repair and grow to be bigger.

ACTIVITIES

1 Training cardiorespiratory endurance/aerobic fitness — parlouf relay

In pairs, person 1 runs a lap of the oval while person 2 completes star jumps. When person 1 returns to the start, person 2 runs a lap while person 1 completes star jumps. Repeat at least 3 times.
2 Training muscular strength

Complete eight repetitions (excluding prone hold) of the following exercises in a slow and controlled movement:

– lunges
– ab crunch
– push-ups
– squats
– prone hold for 30 seconds.

Complete three sets.

3 Training muscular endurance

Complete as many repetitions of the following exercises as you can in 60 seconds:

– lunges
– ab crunches
– push-ups
– squats.

**4 Training flexibility**

Participate in a yoga or pilates class.

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**CHECK & CHALLENGE**

**Explain**

1. Explain the difference between training activities for muscular strength and muscular endurance.

**Elaborate**

2. Create a training session aimed to develop cardiorespiratory endurance.

**Evaluate**

3. Evaluate the use of the parlouf activity for a swimmer.

**Elaborate**

4. Create a training session aimed to develop cardiorespiratory endurance that does not involve running.

5. Create a training session aimed to develop muscular strength.

6. Create a training session aimed to develop muscular endurance.

7. Create a session aimed to develop three health-related fitness components.
10.4 Skill-related fitness components — how to measure

The skill-related components of fitness are muscular power, speed, agility, balance, coordination and reaction time. In this lesson you will explore the uses of these components and learn how to measure them so that you can identify areas where your level of skill may not be sufficient for the demands of sporting and day-to-day activities.

ENGAGE

Some fitness components are more directly related to sports performance. These are called skill-related fitness components because an improvement in these areas will enable us to perform movements safely and with greater skill in a range of sporting and recreational activities. People who have adequate development of skill-related fitness components perform better, both in individual games such as tennis, and team games such as netball, because their movements are skilful, practiced and controlled.

One skill important to many sports, such as surfing, golf and gymnastics, is balance. Use the Test your balance weblink in your Resources section to gauge your balance skills.

Balance is an important fitness component in most sports.

EXPLORE

Importance of the skill-related components of fitness

Muscular power is an important skill-related fitness component because it determines the ‘explosiveness’ of our movements. This affects skills like rebounding in basketball, marking in AFL
and sprinting. Strength and power are closely related. As we increase our strength, we simultaneously and indirectly increase our power. We can further develop power through the use of **plyometric** activities, which involve springing-, landing- and bounding-type movements.

### HEALTH FACT

Females are more flexible than males as they have more elastic tendons, muscles and ligaments. Females also generally have less muscle around joints, which has the effect of improving their flexibility.

Speed is probably the most important of the skill-related components. There are very few sports or activities where speed is not an advantage. Although speed is essential in track events, it can also be a decisive element in games like hockey, AFL and soccer. This ability provides positional advantage in attacking strategies and enables defenders to cover a wider area.

Agility is related to speed and is important in most sports, particularly team sports where you must move around opponents and team mates. An agile person is able to manoeuvre themselves better, take evasive action and wrong-foot opponents more easily than players who lack agility.

Coordination is the ability of body parts to work together, resulting in smooth, efficient, movements. Coordination is developed with practice.

All activities, from the simplest to the most complex, require balance. For example, running requires us to balance our body weight on one foot momentarily and then shift weight and balance to the other foot. Good balance improves performance in all activities, particularly in fast-moving ones such as snowboarding, surfing, skating and skiing. It is also important, however, in activities such as gymnastics, golf and wrestling, where establishing a solid platform on which to perform a skill or movement is critical.

The ability to respond quickly is called reaction time. It is important at the start of events like running and swimming and used constantly in games like rugby, soccer or table tennis.

### DID YOU KNOW?

The standing long jump and standing high jump were Olympic events until 1912. The world record for the standing long jump was 3.47 metres and the standing high jump was 1.65 metres. They were both held by the same person, Ray Ewry, an American athlete who competed in the Olympic Games in 1900, 1904 and 1908. Nicknamed ‘the human frog’ for his incredible leaping ability, Ewry’s feats were even more incredible considering he was confined to a wheelchair as a boy because of polio. He followed a rigorous jumping program to develop his leg strength and overcome muscle weakness brought on by the disease.
ACTIVITIES

1 Measure muscular power using the vertical jump test

**Equipment:** vertical jump board or tape measures attached to wall, Blu-Tack

1. Divide into pairs. One person is the subject and the other is the recorder.
2. The subject should take some blue tack, face the wall, extend both hands upwards and make a mark. Record the height of the mark in centimetres.
3. The subject should then turn sideways to the wall, spread their feet, take a deep squat and jump vertically. No feet movements are allowable in preparation for the jump.
4. At the height of the jump, the subject should mark the wall with their Blu-Tack. Record the difference between the first and second marks.
5. Allow three jumps and record the best attempt.
6. The subject and recorder should now change roles and repeat steps 2–5.
7. Take the best jump for each person and determine their power rating using table 10.7.

**Table 10.7: Muscular power rating (13–15-year-olds)**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Height (cm)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
<td>Girls</td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>≥ 50</td>
<td>≥ 41</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>41–50</td>
<td>31–40</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>31–40</td>
<td>21–30</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>21–30</td>
<td>11–20</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>≤ 20</td>
<td>≤ 10</td>
<td></td>
</tr>
</tbody>
</table>

2 Measure agility using the Illinois agility test

**Equipment:** tape measure, four markers (chairs or witches’ hats), stopwatches, recording sheets

1. On a football field or suitable flat surface, mark two parallel lines 9.15 metres apart. Place four witches’ hats 3.05 metres apart as illustrated in the figure below. Place two witches’ hats 1.83 metres each side of the first line marker to indicate start and finish.
2. Divide into pairs. One person is to complete the course and the other is to time and record the results. Ensure that you warm up and stretch before you begin.
3. The first person from each pair must lie face down flat on the ground in a push-up position just behind the line at the start.
4. On the instruction ‘go’, that person:
   a. runs to the end line, around the marker and back
   b. weaves around the markers to the end and back
   c. then runs to the end line, around the marker and back to the finish.

5. During the run, each end line must be crossed. The marker cannot be jumped or knocked.

The Illinois agility test

6. The other person records the time for completion of the course.

7. Allow two attempts, with recovery time between each. Then repeat the test for the other person.

8. Check your agility rating using table 10.8.

Table 10.8: Agility rating (13–15-year-olds)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Time (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Boys</td>
</tr>
<tr>
<td>Excellent</td>
<td>≥ 16.9</td>
</tr>
<tr>
<td>Good</td>
<td>17.0–17.9</td>
</tr>
<tr>
<td>Average</td>
<td>18.0–18.9</td>
</tr>
<tr>
<td>Fair</td>
<td>19.0–19.9</td>
</tr>
<tr>
<td>Poor</td>
<td>≤ 20</td>
</tr>
</tbody>
</table>

3 Measure coordination using the alternate ball toss

*Equipment:* tennis ball, measuring tape, a marker, wall, recording sheet

1. Mark a spot 1 metre from the wall.
2. Stand behind the line, facing the wall.
3. Throw the ball from one hand in an underarm action against the wall and attempt to catch it with the opposite hand.

4. Throw the ball back against the wall and catch with the first hand.

5. Continue for 30 seconds.

Table 10.9 lists general ratings for the wall toss test, based on the score of the number of successful catches in a 30 second period.

Table 10.9: General ratings for the wall toss test

<table>
<thead>
<tr>
<th>Rating</th>
<th>Score (in 30 seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>&gt;35</td>
</tr>
<tr>
<td>Good</td>
<td>30–35</td>
</tr>
<tr>
<td>Average</td>
<td>20–29</td>
</tr>
<tr>
<td>Fair</td>
<td>15–19</td>
</tr>
<tr>
<td>Poor</td>
<td>&gt;15</td>
</tr>
</tbody>
</table>

4 Measure reaction time using the Latham reaction time test

*Equipment:* two one-metre rulers, desk and chair, recording sheets

1. Divide into pairs. Nominate one person to be the subject and the other to conduct the experiment and record the result.

2. The subject sits at a desk and places their forearms across the desk so that the hands are beyond the far edge of the desk. Fingers and thumbs point away and have a gap between them, approximately two centimetres wide.

3. The recorder stands beside the subject’s hands and suspends the rulers just beyond the far edge of the desk. The bottom edges of the rulers should be level with the thumb and index finger of the subject.

4. Any time after the recorder says ‘ready’, the rulers should be dropped, but not at the same time. However, the rulers must be dropped within 10 seconds of each other.
Conducting the Latham reaction time test

5. The subject should try to catch each ruler. The score is read in centimetres and is the point at which the thumb and index finger grasp the ruler. Combine the scores for each hand and average the result.

6. Allow three trials prior to testing and then five attempts during the test. Record the best result.

7. Repeat the test for the second subject.

8. Use table 10.10 to determine your reaction time rating.

### Table 10.10: Reaction time rating

<table>
<thead>
<tr>
<th>Classification</th>
<th>Ruler reading (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>&lt; 6</td>
</tr>
<tr>
<td>Good</td>
<td>7–10</td>
</tr>
<tr>
<td>Average</td>
<td>11–15</td>
</tr>
<tr>
<td>Fair</td>
<td>16–21</td>
</tr>
<tr>
<td>Poor</td>
<td>&gt; 22</td>
</tr>
</tbody>
</table>

5 Analyse your results

Use the Analysing skill-related fitness components worksheet in your Resources section to collate your results and analyse your skill-related fitness.
CHECK & CHALLENGE

Explain
1. What is muscular power?

Evaluate
2. What was your muscular power rating? Is your power sufficient to be able to perform sporting movements as well as you would like?

Elaborate
3. Describe aspects of daily life where muscular power is an advantage.

Explain
4. According to the ratings chart, how was your level of agility classified? How could it be improved?
5. Identify five sports or activities in which above average levels of agility are essential.

Elaborate
6. Comment on your coordination as indicated by your measurement. Do you think this was an accurate measure? Discuss what you could do to improve your coordination.

Explain
7. What is reaction time?
8. Identify three activities where reaction time is important.

Elaborate
9. Discuss a range of activities that could be used to improve reaction time.

10.5 Skill-related fitness components — how to improve

We know skill-related fitness components are linked to elements that can have a big impact on our sporting performance. Now you have your benchmarks for the components of skill-related fitness, the next step is to find out how to maintain or improve these components.
ENGAGE

In pairs list the skill-related fitness components and at least two key words to describe each component. Use the USA vs Aus basketball weblink in your Resources section, or watch a team sport of your choosing, and over a period of 3–5 minutes identify the use of the skill-related components in this sport. Explain their importance.

DID YOU KNOW?

High jump requires power, flexibility and agility. Before 1965, most high jump records were made using a scissor kick.

EXPLORE

Improving skill-related fitness

The key to developing muscular power is completing explosive efforts. Plyometric training involves explosive efforts. When completing these activities you should always start with low stress activities such as skipping and build up to high stress activities such as hop, step and jump.

To develop speed you need to work at maximal intensities over shorter distances, but also focus on technique.

The key to developing agility is by combining speed training with changes in direction such as weaving around cones.
Improving coordination, balance and reaction time generally need to be more specific to the sport. For example, a rugby player requires hand–eye coordination, but a soccer player requires foot–eye coordination. These are best developed using sport-specific drills.

**ACTIVITIES**

1 Training power — plyometrics

Complete at least two sets of 10 repetitions of the following exercises over 20 minutes.

<table>
<thead>
<tr>
<th>Low impact plyometric drills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light medicine ball throw</td>
</tr>
<tr>
<td>Side jumps</td>
</tr>
<tr>
<td>360° jumps</td>
</tr>
<tr>
<td>Skipping</td>
</tr>
<tr>
<td>Low hops</td>
</tr>
<tr>
<td>Steps</td>
</tr>
<tr>
<td>Jumps</td>
</tr>
<tr>
<td>Throwing a ball</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High impact plyometric drills</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jumps onto, over and from 35 cm bench</td>
</tr>
<tr>
<td>Hop, step and jump</td>
</tr>
</tbody>
</table>

Plyometric exercises

1. Define power.
2. Rank the exercises from easiest to hardest.
3. List three sports that might use these exercises as part of their training.
4. Create two different plyometric exercises for the upper body.
2 Training speed — speed training

Use the Speed training drills weblink in your Resources section to access the speed training drills.

1. Define speed training.
2. Rank the exercises from easiest to hardest.
3. List three sports that might use these exercises as part of their training.
4. List two factors that may impact your ability to complete these exercises.

3 Training agility — agility circuit

1. Define agility training.
2. List three sports that might use these exercises as part of their training.
3. List two factors that may affect your ability to complete these exercises.
CHECK & CHALLENGE

Explain
1. Explain the difference between training activities for speed and agility.

Elaborate
2. Create a training session aimed to improve power.
3. Discuss how the session in question 2 could be made more specific for a tennis player.
4. Create a training session aimed to improve speed.
5. Create a training session aimed to improve agility.

Evaluate
6. Identify how the need for balance and coordination would differ for a diver and for a rugby player.

Elaborate
7. Using a sport of your choice, create a specific activity that could be used to develop balance, coordination and reaction time.

Evaluate
8. a. Consider the following basketball training session and predict which fitness components are likely to be developed.
   
   Warm up — 5 min jog at 55% MHR
   10 repetitions — Sprint 10 m and walk back
   5 repetitions — Sprint 15 m and walk back
   10 repetitions of the following exercises with rest between each exercise:
   - skipping
   - bounding
   - lateral jumps
   - lateral hops
   - squat jumps (as high as you can)
   - squat jumps (as far as you can).
   5 min cool down
b. Modify the above session to develop the same fitness components, but make it more specific to the sport of your choice.

10.6 FIDT — the formula for fitness

There are many ways to improve our fitness. Ideally, the measures we take should be well-planned, involve a variety of enjoyable activities, be challenging and target the components most in need of attention.

ENGAGE

All athletes must have a plan. Plans will differ based on the number of events and the recovery time required. Some sports have seasons that require building up to and then recovering from one high intensity game a week, such as rugby. However, some sports have only one or two major events in a year, like many Olympic sports. Discuss how you think this would change their training programs.

How and why do training programs differ in different sports?

DID YOU KNOW?

It takes 6-12 weeks for training effects to become evident. After only two weeks without training you can lose up to half of any gains you had made.
EXPLORE

How FIDT works

FIDT stands for frequency, intensity, duration and type. It is an acronym for an exercise prescription designed to improve the way we plan and carry out our fitness program.

The FIDT principle

**Frequency**

Frequency relates to how often we engage in the program. To improve cardiorespiratory fitness, three or four days per week is the minimum, with five or more being preferable.

**Intensity**

Intensity is a measure of how hard we are working. The level of intensity is indicated by our heart rate. When we are at rest, our heart rate is relatively slow (around 70 beats per minute) because the muscles require less oxygen as they are not working very hard. When we move (work), our heart rate increases. There is a limit to how fast our heart can beat during physical activity. This is called the maximal heart rate (MHR) and is roughly calculated by subtracting your age from 220.

To improve our fitness, the pace at which we exercise must be hard enough to make the heart work at between 70 and 85 per cent of its maximum rate. Somewhere between these two values lies our target heart rate. When we begin an exercise program, we should aim for a target heart rate that is around 70 per cent of our maximal heart rate. As our fitness improves, we should lift our target heart rate to 75 per cent MHR, and higher again with continued improvement.

How then do we estimate our target heart rate? The easiest method is to subtract your age from 220 and multiply by the level you are aiming for, in this case, 70 per cent MHR. For a 14-year-old, for example, this would be $(220 - 14) \times 0.70 = 144$ beats per minute (to the nearest whole number). The 14-year-old person should then aim to keep their heart rate around the target heart rate for a sustained period of time. This general area is called the target heart rate zone. When they are
comfortable with this level of intensity, the target heart rate could be lifted to 75 per cent MHR, or 154 beats per minute.

Another indicator of intensity can be respiratory rate (RR). As we increase our intensity our respiratory rate will increase in order to supply increased levels of oxygen to our muscles. The harder you work the more oxygen your muscles will require therefore your respiratory rate will also increase.

The higher your respiratory rate, the harder it can be to talk. It is very difficult to talk when you are working at maximal intensities. The talk test is a very easy method of indicating intensity.

<table>
<thead>
<tr>
<th>Intensity Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low–moderate intensity</td>
<td>You can hold a conversation with ease, maybe even sing.</td>
</tr>
<tr>
<td>Moderate intensity</td>
<td>You can talk with possible pauses between sentences, but you cannot sing.</td>
</tr>
<tr>
<td>Vigorous intensity</td>
<td>You cannot say more than one or two words without pausing to take a breath.</td>
</tr>
</tbody>
</table>

The talk test is easy to implement, but it is not as accurate as measuring heart rate.

**DID YOU KNOW?**

A normal breathing rate for an adult at rest is 8 to 16 breaths per minute. For an infant, a normal rate is up to 44 breaths per minute.

Durability

**Intensity**

$$\text{INTENSITY} = \left( \frac{220 - \text{Age}}{0.75} \right)$$

Calculating intensity

**Duration**

Duration refers to the length of a session or program. For aerobic capacity, duration refers to the minimal amount of time that we should spend with our heart rate in the target heart rate zone. Twenty minutes should be the minimum, with 30 minutes or longer being ideal.
Type

Type refers to the best kind of exercise that is appropriate to our fitness needs. To develop cardiorespiratory fitness, aerobic type exercises such as cycling, jogging and swimming are best.

To develop power, the best exercises are plyometrics.

ACTIVITIES

Choose some of the following activities to improve your fitness in a fun and challenging way.

1 **Fitness circuit**

A fitness circuit is a series of stations where different exercises are performed. The aim is to complete the circuit in the shortest possible time. Some examples of activities for inclusion are skipping, shuttle runs, dribbling between markers, running while pulling tyres, chin-ups, jumps and sit-ups. Organise these into a circuit and make signs that display the number of times that an activity needs to be performed by each individual (illustrated below). Allocate people to a starting position and complete two laps of the circuit, recording the time it takes. Repeat the exact circuit in following lessons to see if you can improve your time.

Rate your intensity using the talk test after each activity.

![Fitness Circuit Diagram]

2 **Pursuit**

Organise the class into four teams of roughly equal endurance fitness ability. The aim is to engage in a game of pursuit where teams run around a 200 metre (or approximate) circular track trying to overtake the other group. Teams begin on opposite sides of the track and must stay as a unit (illustrated below). They may use any tactics to help their own group such as carrying or assisting slower runners, so long as they do not interfere with another group. When a team catches and passes the last person in the group ahead, it is declared the
The other two teams compete in the same manner, with winners advancing to the finals.

3 Relay carnival

Organise the class into four teams of equal running ability and assemble on a 60-metre track. Conduct relays in which each stage is a different activity. The first relay, for example, might consist of running, skipping, running backwards and hopping. Another relay might include stages for sack racing, three-legged sprints, car-tyre pull and skipping-rope run. As a class, discuss ideas for other activities that could be included. Plan your relays in advance to ensure you have all the necessary equipment. Conduct the relay carnival and have a class presentation.

4 Health hustle

Divide the class into small groups, each of which is responsible for organising an activity for the health hustle. Each group is allocated a phase such as warm-up, stretching, strengthening, cardio work and cool-down. One group is given the responsibility for equipment and supplying music. Groups demonstrate their activity to the class and then organise the activities into a sequence. Finally, perform the health hustle with each group leading the activity it organised.

5 Ironman/Ironwoman contest

As a class, suggest activities that could be included in an Ironman/Ironwoman contest. If possible, organise the inclusion of swimming and beach sprint events. If facilities like these...
are unavailable, however, improvise using activities like modified cross-country, skipping, a 50-metre medicine ball roll and jumping races to make up the contest. Conduct the event and establish the Ironman/Ironwoman for the class.

6 A personal fitness plan

Use the FIDT principle to plan a personal fitness plan. Complete and then review the Weekly training plan worksheet in your Resources section to track your progress. Does anything need to change? What were some of the barriers you faced? How did you overcome these?

CHECK & CHALLENGE

Explain

1. Explain the FIDT principle.
2. Demonstrate your knowledge of how intensity is measured.
3. Clarify the difference between maximal heart rate and target heart rate.
4. Develop a fitness circuit and describe the activities that you would include and why.

Elaborate

5. Discuss some other possible measures of intensity and rank them from most accurate to least accurate. Justify your response.

Evaluate

6. a. Evaluate all the activities in this lesson in terms of their potential to improve your fitness.
   b. Which do you think was the most effective activity? Why?
   c. Not all fitness activities require specialised equipment to be effective. Use the How to exercise at home weblink in your Resources section and list some of the activities you would find useful.
There are many ways to improve your fitness. The more enjoyable you make the process, the keener you will be to continue with your exercise and the more likely you will be to succeed in achieving your ideal level of fitness.

**ENGAGE**

Consider the image below. On your own, list as many barriers or excuses you have faced when trying to improve your fitness. Compare your list to a partner. As a class, discuss the most common barriers. Do these barriers differ for boys and girls? Would these barriers be the same for 7-year-olds, 18-year-olds or the elderly? Why or why not?

There are many barriers to fitness.

**EXPLORE**

**SMART goals**

Setting short-term and long-term goals can be a very effective way to overcome some of the common barriers. When setting goals it is suggested you follow the SMART rule. This rule states each goal should be:

- Specific
- Measurable
- Achievable
Setting SMART goals can increase your chance of overcoming barriers and achieving success.

A SMART goal does not say ‘I want to be more active, or to be a better tennis player or runner’. Vague goals are not motivating, nor can you track your progress, so there is a good chance you will not achieve your goal. A SMART goal is broken down into small achievable parts that you can measure against specific times and dates. For example, instead of hoping ‘to run faster’ you set the goal of ‘I want to run 5 kilometres in 30 minutes by 30 June’. This is more motivating because you can easily track your progress and work out exactly what you need to do to achieve success. Complete the SMART goals worksheet and interactivity in your Resources section to practise identifying and setting SMART goals.

How can I make fitness fun?

Ways of making fitness fun

Training at the elite level is different from the way we need to work to achieve a general level of fitness. Much of what we see at football training, for example, is geared to toughening players in preparation for contact sport. If we are more interested in health-related fitness rather than skill-
related fitness, we need a different approach to exercise. With some creative thinking, we can make getting fit fun — so much so that we can actually improve our fitness without noticing small discomforts experienced in the process. Some suggestions for making fitness an enjoyable experience are listed below.

- Play field games/activities such as beach volleyball and frisbee whenever you can.
- Do aerobic exercises such as power walking, jogging and cycling with a friend so you can socialise at the same time. This takes your mind off what you are doing and often encourages you to exercise for a longer period of time than you might by yourself.
- Plan enjoyable outdoor activities such as hikes, cycling, walks and backyard games.
- Enter fun runs and community adventure activities whenever you get the chance.
- Look for new activities that challenge you mentally as well as physically, such as dancing, water sports, badminton, golf, karate, rope climbing or skating.
- Devise cross-training programs that include a range of exercises such as running, stretching, strength work, skipping, jumping and so on. Challenge yourself by creating new activities to keep you interested. Test for improvement and monitor your progress to keep motivated.
- Make choices that favour activity over inactivity. Walk to the shops if you can and choose stairs rather than escalators.
- Join a gym or centre where you can learn something new and different such as Pilates, yoga or aquarobics.
- Work with friends who are also keen to be active and maintain their health and fitness to achieve common goals.
- Reward yourself when you complete your work or achieve your fitness goals.

Can you think of others?

### ACTIVITIES

Try two or three of the following activities. They will help improve your fitness and hopefully you will enjoy them at the same time.

#### 1 Basketball tabloid

**Equipment:** court, basketballs, markers, skipping rope, station cards, whiteboard, markers

A tabloid is a fun activity where teams compete against one another by completing simple skills in a set period of time. Points are awarded to teams for the number of times an activity such as passing the ball is completed. At the end, the team which gains the most points is the winning team.

Set up the basketball court with stations spaced well apart, as illustrated below.
Basketball tabloid

1. Divide the class into five teams and allocate a leader/scorer for each team. Demonstrate the activity that is required at each station.

   a. **Station 1: Free throws.** Team members line up on the free throw line with a basketball in the hands of the team leader. Each person in turn has a shot for goal. One point is scored for each successful goal. The thrower returns the ball and goes to the end of the line until his/her turn comes again.

   b. **Station 2: Skip and dribble.** Team members complete 20 skips with the skipping rope and follow this with a dribble in and out of the cone markers and back to the line. Members gain one point for each completed skip and dribble.

   c. **Station 3: Lay-ups.** A team divides into two lines — a shooting line and a rebounding line. Players in the shooting line dribble towards the basket and do a lay-up. If successful, the team gains one point. The first person in the rebounding line gathers the ball, passes to the next person in the shooting line and runs behind the shooting line. The shooter goes to the end of the rebounding line.

   d. **Station 4: Captain ball.** The team leader faces the group and, from a distance of three metres, passes to each of the team members. Once team members have passed back to the leader, they duck to allow the pass to go to the next person in the line. The end person runs up and replaces the leader who then goes to the front of the line. The team gains one point for each rotation made.

   e. **Station 5: Dribble conditioner.** Team members line up on the end line. The leader dribbles the ball to the quarter-line and back, to the halfway line and back, to the three-quarter line and back and finally to the far end line and back. This completes one dribble conditioner and gains one point for the team.
2 Try

**Equipment:** field, rugby ball, bibs

Divide the class into teams of seven players and allocate the following positions within each team — goal scorer, three defensive players and three forwards. Allocate bibs to identify players in their respective teams. On a field measuring approximately 30 metres × 20 metres, mark out a 5-metre semicircle at each end to indicate the try area. Only the goal scorer is allowed in this area. This is illustrated below.

Use a rugby ball and begin the game with a toss. The team that gains possession attempts to pass the ball to their goal scorer who, after receiving the ball, puts it on the ground for a try, which is worth one point. The defensive side is allowed to intercept. Body contact (foul), however, is not allowed. If a person incurs five fouls, they must leave the field. The offensive side loses the ball if they take more than two steps with the ball or hold it for more than three seconds. The winning team is the team that scores the most tries in the time period.

3 Slide hockey

**Equipment:** hockey sticks, puck, bibs, markers

Play a game of slide hockey on an indoor surface or outdoor sealed area where the puck will slide easily. Divide the class into three teams. Mark an area approximately 20 metres × 10 metres and use markers to indicate goals that are one hockey stick wide. This is illustrated below.

One team begins with the puck, which must be pushed, not hit, to teammates. The offensive team can push the puck with either side of the stick but loses possession if responsible for the puck going over the sideline or end line. The defensive team is able to intercept the puck. When a team scores, the losing team leaves the field and is replaced by the team waiting on the sideline.
4 Design your own tabloid

Use the Fun group fitness activities weblink in your eBookPLUS to investigate some ideas for making fitness fun. Using equipment available to you, create your own fun fitness tabloid. As a class, decide on the best ideas and use them in your next lesson.

CHECK & CHALLENGE

Explain

1. Why is it important to ensure the process of improving our fitness is a fun activity?
2. Why is it important to have variety in fitness programs?
3. Describe three activities that could be used to improve aerobic fitness.
4. Describe three activities normally conducted in gyms that could be used to improve fitness.

Evaluate

5. Evaluate tabloid activities in terms of their ability to improve fitness in a fun way.

Explain

6. Create a soccer tabloid based on the ‘Basketball tabloid’ activity. Explain each station of your tabloid and use a diagram to illustrate progression from one activity to the next.
7. Identify the fitness components that are improved by participation in the ‘Slide hockey’ and ‘Touchdown’ activities.

Elaborate

8. Predict the potential of the first three activities in this section to improve fitness.

Review

What have I learned?

- Fitness is good for us because we feel better, look better and perform better.
- Physical fitness is a measure of our ability to perform daily tasks and activities.
• Health-related components of fitness include cardiorespiratory endurance, body composition, muscular strength, muscular endurance and flexibility.

• Skill-related fitness components include muscular power, agility, coordination, balance, reaction time and speed.

• A progressive lowering of our resting heart rate indicates an improving level of fitness.

• Regular exercise strengthens muscles, promotes healthy bone growth and helps the heart to transport blood more efficiently.

• There are recognised tests available for measuring both health-related and skill-related components of fitness.

• FIDT stands for frequency, intensity, duration and type.

• The FIDT principle is an exercise prescription that guides us through developing and monitoring our fitness program.

• Target heart rate is the number of beats per minute that we want the heart to work at during exercise.

• The target heart rate zone is the general range of the target heart rate.

• Respiratory rate (RR) and your ability to talk while exercising can be an indication of exercise intensity.

• Setting SMART goals can assist in setting up and maintaining a fitness program.

• There are many barriers to being fit, but the more enjoyable you can make getting fit the more likely you are to overcome these barriers.

CHECK
1. Describe the benefits of fitness.
2. Explain the difference between health-related and skill-related fitness components.
3. Define cardiorespiratory endurance.
4. Explain why views about fitness differ from person to person.
5. Describe three ways to make getting fit a fun activity.
6. What is a tabloid and how can it be used to improve fitness?
7. Describe a test used to measure a health-related component of fitness.
8. Describe a test used to measure a skill-related component of fitness.
9. Explain how the FIDT principle is used to develop and monitor a fitness program.
10. Explain how intensity is calculated.
ESSENTIAL QUESTION REVIEWED

What is fitness, how is it measured and how can it be improved? Can getting fit actually be fun?

Evaluate your initial response to the essential question now that you have studied the topic.

ICT ACTIVITIES

Living to win

SEARCHLIGHT ID: PRO-0056

Scenario

You are a personal trainer on a prime-time reality TV show. A new series is being developed which aims to educate young people on diet and exercise. It will be called Living to win.

The television network wants you to create a website educating young people about incorporating diet and regular exercise into their life. The website will ‘go live’ when the series screens in four weeks.

Your task

You will create a website that encourages young people to become healthier and educates them about regular exercise and good nutrition choices (see chapter 4). You will be provided with two case studies. You must select one and design an exercise and nutritional plan to use as an example on the website. It is possible that your
employer will want you to work as part of a web design team, so be prepared to collaborate and work with others.

**SUGGESTED SOFTWARE**

- ProjectsPLUS
- Dreamweaver
- iWeb
- FrontPage
- Adobe PageMaker

**Process**

- Open the ProjectsPLUS application for this chapter in your Resources section. Watch the introductory video lesson, click the ‘Start Project’ button and then set up your project group. You can complete this project individually or invite other members of your class to form a group. Save your settings and the project will be launched.

- Navigate to your Research Forum. Here you will find a series of topics just like you would find in a gym or health care setting. Choose a number of these topics to include on your website or add your own.
• Research. Make notes of interesting facts and ideas that are relevant to the case studies provided. Enter your findings as articles under your topics in the Research Forum. You should each find at least three sources (other than the textbook and at least one offline source, such as a book or newspaper) to help you discover extra information about exercise and nutrition. You can view and comment on other group members’ articles and rate the information they have entered. When your research is complete, print your Research Report to hand in to your teacher.

• Visit your Media Centre and download the website model, website planning template, exercise program and ‘diet for a day’ template to help you build your website. Your Media Centre also includes images and audio files to help bring your site to life.

• Use the website template to draw a design spec for your site. You should have a Home page (individual or group) and at least three link pages per person. You might want to insert features like ‘interesting facts’ and ‘did you know?’ into your interactive web site. Remember the three click rule in web design — you should be able to get anywhere in a website (including back to the Home page) with a maximum of three clicks.

• Use FrontPage, Adobe PageMaker or other web authoring software to build your website. Remember that ‘less is more’ with website design. Your mission is to make young people aware of exercise and nutrition in an informative and encouraging way. You want them to make some positive life changes after viewing your website.
MEDIA CENTRE

Your Media Centre contains:

- the website model
- the website planning template
- an exercise plan
- the ‘diet for a day’ template
- images and audio files.