BTEC FIRST

endorsed for BTEC

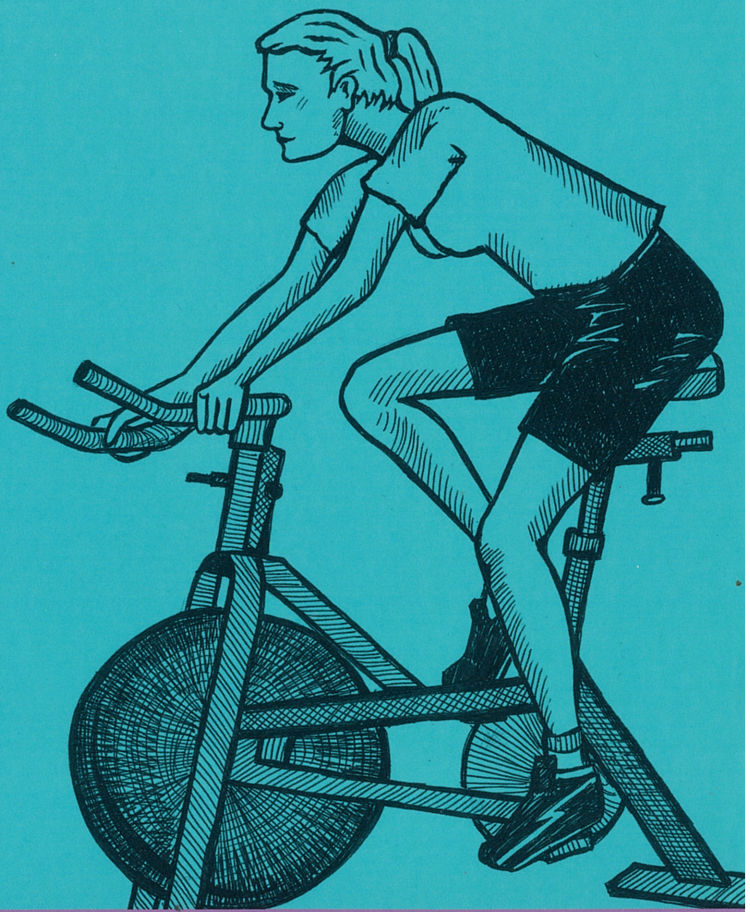
REVISE BTEC

Sport

Unit 1 Fitness for Sport and Exercise

Unit 7 Anatomy and Physiology for Sports Performance

REVISION WORKBOOK



ALWAYS LEARNING

PEARSON

Aerobic endurance

1 Three of the following are alternative names for aerobic endurance. Identify the term that is **not**. Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Cardiorespiratory fitness

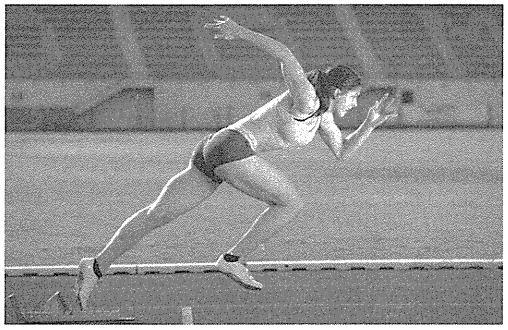
B ☐ Aerobic fitness

C ☐ Cardiovascular fitness

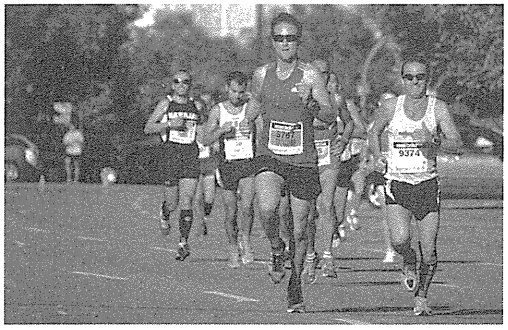
D ☐ Cardiorespiratory endurance

2 Look at the photos of athletes.

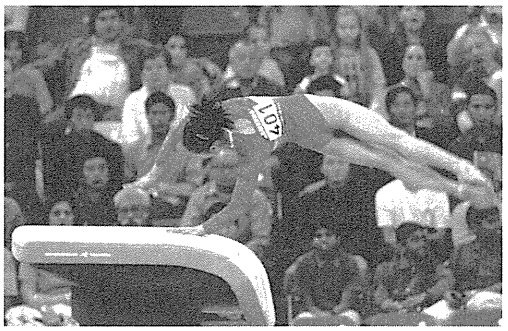
(a) Identify which athlete requires the highest level of aerobic endurance. Put a cross in the box by the correct one. **(1 mark)**



A ☐ 100 m sprinter



B ☐ Marathon runner



C ☐ Gymnast

D ☐ Weightlifter

(b) Explain why aerobic endurance is most important to the athlete you selected in your answer to **(a)**. **(2 marks)**

.....

.....

Guided

3 Complete the following statement about aerobic endurance, using the words from the box below. **(4 marks)**

Aerobic endurance is the ability of the ..... system to work efficiently, supplying *oxygen* and *nutrients* to working muscles during sustained physical activity. It is also responsible for the removal of waste products such as ..... and water.

carbon dioxide	nutrients	oxygen	cardiovascular

Had a go ☐ Nearly there ☐ Nailed it! ☐

Muscular endurance

1 Which **one** of these statements best describes muscular endurance?
Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ The ability to use voluntary muscles repeatedly over time without them getting tired

B ☐ The maximum force that can be generated by a muscle or group of muscles

C ☐ The ability to lift a heavy weight quickly

D ☐ The ability to perform strength exercises without fatigue

Guided

2 Muscular endurance is an important component of fitness for many sports performers.

Complete the table below to describe how muscular endurance is used by each performer. **(3 marks)**

Performer	How muscular endurance is used in their sport
Rower	Excellent muscular endurance in the upper body and arms allows the rower to row repeatedly against the resistance of the water without tiring.
Marathon runner	
Long-distance swimmer	

3 For each athlete, tick the box to say whether they are using muscular strength or muscular endurance. **(4 marks)**

	Muscular strength	Muscular endurance
A Cross-country runner	☐	☐
B Shot-putter	☐	☐
C Weightlifter	☐	☐
D Long-distance cyclist	☐	☐

Flexibility

1 Flexibility is important in many activities.

Below is an incomplete definition of flexibility. Complete the definition by selecting the correct word from the box below. **(1 mark)**

Flexibility is the range of motion possible at a ..... .

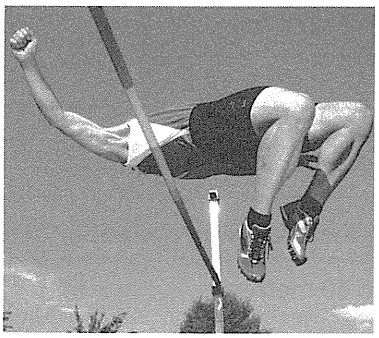
tendon	muscle	joint	ligament

In your online test, you might have to drag and drop the correct word into the space.

Guided

2 The images show two different performers: a high jumper and a hurdler.

Describe how each of these performers needs flexibility to be successful in their activities. **(4 marks)**



High jumpers require excellent flexibility in the ..... , ... and ..... to ensure that they are able to bend their torso and legs around the bar and avoid knocking it off.

.....

.....

.....

.....

3 Explain why a 100 m sprinter would require high levels of flexibility to perform well in their sport. **(2 marks)**

.....

.....

.....

Speed

1 What is the usual unit of measurement for speed? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ m/s

B ☐ km/m^2

C ☐ n

D ☐ km/h

2 Complete the following statements about speed. **(3 marks)**

Speed can be defined as ..... travelled ..... by the time taken.

There are three basic types of speed.

They are ..... speed, pure speed and speed endurance.

3 Draw a line between the type of speed and its correct definition. **(3 marks)**

Accelerative speed	Sprints with short recovery periods in-between
Pure speed	Sprints up to 60 metres
Speed endurance	Sprints up to 30 metres

Guided

4 Speed is an important component of fitness for many performers.

Complete the table below to show which type of speed is most important to each of the performers and then describe when the performer would use this type of speed. **(6 marks)**

Performer	Type of speed	When it is used
100 m sprinter	Pure speed	
Long jumper		During the run-up so that they are travelling at maximum speed on take-off.
Hockey player		

Muscular strength

1 Complete the following sentence using the correct word from the box below. **(1 mark)**

Muscular strength is an example of ..... fitness.

personal	physical	skill	sport-specific

2 Complete the following statement describing the relationship between muscular strength and power. **(1 mark)**

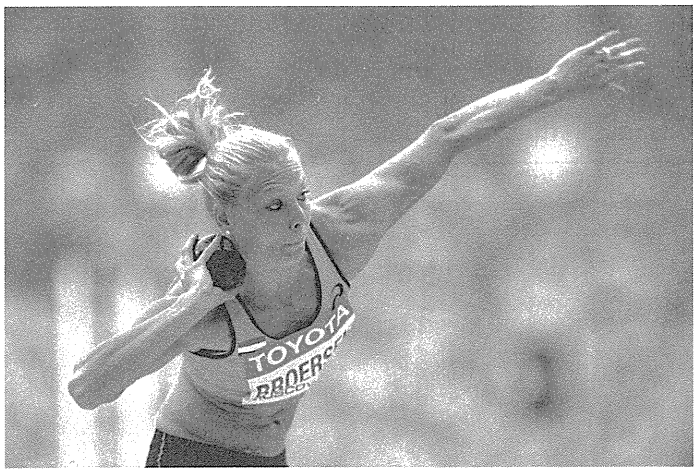
Power is the ability to use muscular strength at ..... .

> Try to remember the calculation for power:
>
> power = muscular strength × speed
>
> Once you can remember this you will be able to describe the relationship.

Guided

3 The athlete in the image is taking part in a shot put competition.

Explain the importance of muscular strength in shot put. **(2 marks)**



In shot put, muscular strength is needed to maximise the distance travelled. .....

.....

.....

Agility

1 Agility is an important aspect of many team sports.

Select the correct words from the box below to complete the definition of agility. **(2 marks)**

Agility is the ability to make a controlled ..... of direction at .....

speed	improvement	change	will

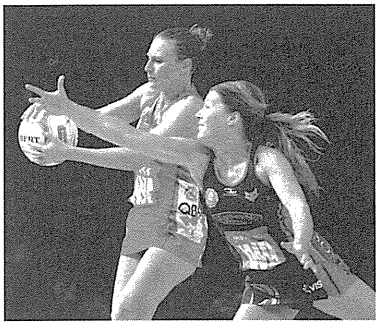
2 The image below shows competitors in a netball match.

Explain how a netball player uses agility in her sport. **(2 marks)**

.....

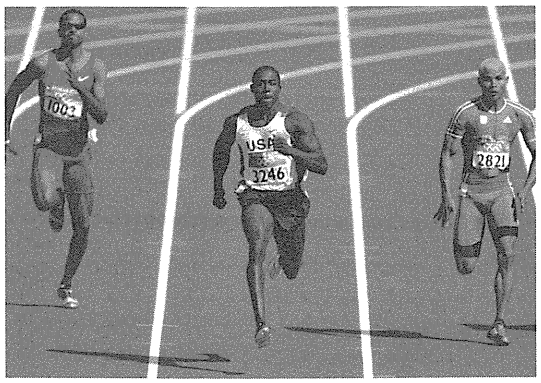
.....

.....



3 Look at the images below of competitors running in two events.

(a) State whether the competitors in event A or B have a greater need for agility. Put a cross in the correct box. **(1 mark)**



A ☐

B ☐

Guided

(b) Explain why the athletes in the event you selected in your answer to **(a)** have a greater need for agility. **(2 marks)**

The competitors in ..... need agility for ..... the ..... . The competitors in ..... do not have as much need for agility because they are running in a straight line with nothing in their way.

Balance

1 Which **one** of the following is a type of balance? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Static

B ☐ Moving

C ☐ Alternating

D ☐ Held

Guided

2 Outline the differences between static and dynamic balance, using examples. **(4 marks)**

Static balance is the ability to maintain the centre of gravity over a stationary base of support. An example of this would be .....

Dynamic balance is about a performer's ability to .....

..... . An example of this would be a gymnast performing a cartwheel.

3 Give **two** examples of how balance is important in sporting activities. **(2 marks)**

.....

.....

.....

.....

4 Give **one** example of a player in netball who requires good balance. **(1 mark)**

.....

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

Coordination

1 Which **one** of the following is the correct definition of coordination?
Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ The ability to work well as part of a team

B ☐ The ability to use two or more body parts together

C ☐ The ability to respond quickly to a stimulus

D ☐ The ability to use different aspects of fitness at the same time

Guided

2 Many sports require excellent hand–eye coordination, foot–eye coordination or hand–to–hand coordination.

Draw lines to match the sports below with the correct type of coordination needed. **(3 marks)**

Tennis	Foot–eye coordination
Football	Hand–to–hand coordination
Basketball	Hand–eye coordination

3 Cricket is a sport in which coordination is important.

Give **two** examples to show how a cricket player would use coordination in their sport. **(2 marks)**

.....

.....

.....

.....

.....

.....

Think about ways in which the batters or fielders might need to be coordinated.

Power

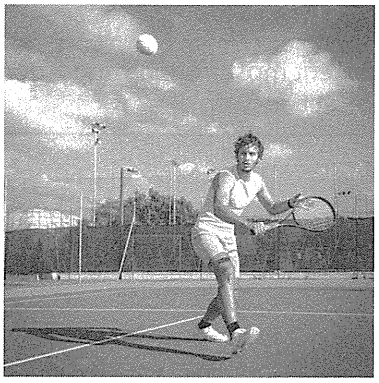
1 Complete the equation below to show how power is calculated. **(1 mark)**

Power = ... × .....

Guided

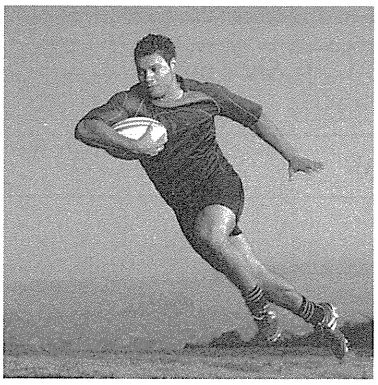
2 The images show two sports performers engaging in two physical activities: tennis and rugby.

Using an example for each, explain how each performer would use power in their performance. **(4 marks)**



The tennis player needs power in order to make fast shots that are harder to return.

Increased power means the opposition has less time to respond.



.....

.....

3 Explain the impact of power on the performance of a javelin thrower. **(2 marks)**

.....

.....

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

Reaction time

Guided

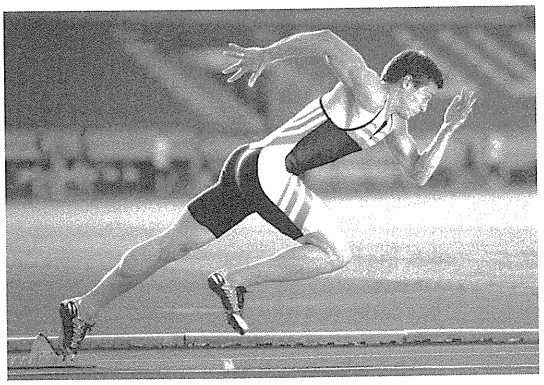
1 Complete the following statement about reaction time, using the correct words from the box below. **(2 marks)**

Reaction time is the time taken for a sports performer to respond to a stimulus and the initiation of this ..... .

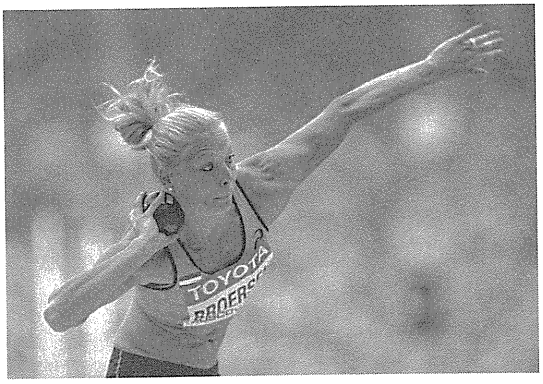
time	stimulus	response	reaction

2 Look at the images below.

(a) Which type of sports performer – A or B – would benefit most from having a good reaction time? Put a cross in the box next to the correct answer. **(1 mark)**



A ☐ Sprinter



B ☐ Shot-putter

(b) Explain the reasons for your choice of answer in **(a)**. **(2 marks)**

.....

.....

.....

.....

The importance of fitness components for success in sport

1 Which **one** of the following aspects of fitness would be the most useful to a long-distance swimmer?
Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Agility

B ☐ Muscular endurance in the upper arms

C ☐ Reaction time

D ☐ Balance

2 State **one** reason why agility is a useful fitness component for a rugby player. **(1 mark)**

.....

Imagine watching rugby live or on the television – what aspects of fitness can you see the players using?

Guided

3 Below is a table of different sports performers.

(a) Identify the components of fitness needed by each performer. **(3 marks)**

(b) For each performer, state why they need that component for their sport. **(3 marks)**

Sports example	Aspect of fitness that is important	Why it is important
Gymnast		It allows them to move their joints through a large range of movement and hold more extreme body positions.
Discus thrower	Balance	
Football goalkeeper		It helps them respond quickly to shots on goal.

4 Explain why the fitness requirements of a football striker and goalkeeper would be different. **(4 marks)**

.....

.....

.....

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

Exercise intensity: heart rate

1 Define the term 'heart rate'. **(1 mark)**

.....

Guided

2 Yosef is a 23-year-old athlete.

Calculate his maximum heart rate in bpm, showing your workings. **(2 marks)**

Maximum heart rate = 220 − .....

In the online test you will be given a box to show your workings.

.....

3 What does 'bpm' stand for? **(1 mark)**

.....

4 Explain why it is important to be able to work out your maximum heart rate. **(2 marks)**

.....

.....

.....

.....

Exercise intensity: the Borg (RPE) scale

1 What does 'RPE' stand for? **(1 mark)**

.....

2 Circle the rating on the scale below that would suggest exercise is being performed at a moderate intensity. **(1 mark)**

Rating of Perceived Exertion	Intensity
6	No exertion
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Guided

3 State **two** benefits of using this scale to measure RPE. **(2 marks)**

1 The Borg (RPE) scale can be used to estimate heart rate and as a tool for calculating training zones.

2 .....

.....

Exercise intensity: training zones

1 If you are trying to improve aerobic endurance, what training zone would it be most appropriate to work in? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ 35–40% of HRmax

B ☐ 40–50% of HRmax

C ☐ 50–60% of HRmax

D ☐ 60–85% of HRmax

In the online test, you might be asked to select from a dropdown list.

2 Explain why it might **not** be appropriate for a 100 m sprinter to train within their aerobic training zone? **(2 marks)**

.....

.....

.....

.....

Guided

3 Mohammed is 36 years old.

Calculate his target heart rate zone for improving his aerobic endurance. Show your workings. **(4 marks)**

220 – 36 (age) = 184

60% of 184 = 110

85% of 184 = ...

Therefore the heart rate zone is between 110– ..... bpm.

Remember to work out the percentage you need to complete the following calculations:
60 × 184 ÷ 100
and
85 × 184 ÷ 100

Basic principles of training

1 What does the acronym FITT stand for? Fill in the missing word below. **(1 mark)**

F: Frequency

I: Intensity

T: .....

T: Type

2 Which part of the FITT principle do the following statements represent? **(4 marks)**

A Training more often each week .....

B Training for longer each week .....

C Lifting heavier weights each week .....

D Selecting a specific training method .....

Guided

3 Naseem is a swimmer and is planning a training programme to improve her aerobic endurance.

Using the FITT principle, describe **three** ways in which Naseem could adjust her training as she progresses. **(3 marks)**

Naseem could adjust her training by:

(a) using training aids to add resistance and increase intensity

(b) .....

.....

(c) .....

Think about how training can be made harder over time.

Additional principles of training 1

1 Which principle of training must be applied to ensure training matches the needs of an individual's sport? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Overload

B ☐ Intensity

C ☐ Specificity

D ☐ Reversibility

Guided

2 Explain **one** reason why fartlek training would be an appropriate training method for a football player. **(2 marks)**

Make sure you reference the football player specifically.

Fartlek training would be appropriate for a football player because the training is varied in pace. This .....

No footballer runs continuously for 90 minutes so periods of ..... followed by periods of ..... are most similar to the requirements of the game.

3 Abby is a long-distance swimmer. She is planning a training programme to help her prepare for an event.

(a) Explain why Abby should train in the pool rather than on a track. **(2 marks)**

.....

.....

.....

Abby trains using weights as well as her training in the pool.

(b) Explain how this training still meets the needs of specificity. **(2 marks)**

.....

.....

.....

Additonal principles of training 2

1 Give **one** reason why it is important that overload is applied gradually over time. **(1 mark)**

.....

Guided

2 State **two** ways in which progressive overload could be applied to a six-week training programme and for **each** way give an example of it in practice. **(4 marks)**

This question requires you to remember the acronym FITT.

1 Increase the frequency of training – for example, ...

.....

2 .....

.....

3 Sarah took part in a 12-week training programme to improve her aerobic endurance. She did the multistage fitness test at the start, in the middle and at the end of her programme.

Sarah's results	
Bleep 1	6.3
Bleep 2	7.1
Bleep 3	7.1

Describe what her results tell you about the way she used progressive overload. **(2 marks)**

.....

.....

.....

.....

.....

.....

Additional principles of training 3

1 Which **one** of the following statements best describes the principle of individual differences/needs in training? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Making the body work harder over time by increasing the length of the training sessions

B ☐ Not training when you are injured or fatigued

C ☐ Designing a programme to meet the training needs and goals of the individual

D ☐ Ensuring that the individual knows the aim of the fitness training programme

2 Danuta is a 100 m runner and Edward is a marathon runner.

Explain why Danuta and Edward should have different training programmes. **(2 marks)**

.....

.....

.....

.....

3 **(a)** What type of training would be most appropriate for Danuta to follow? **(1 mark)**

.....

.....

(b) What type of training would be most appropriate for Edward to follow? **(1 mark)**

.....

.....

Additonal principles of training 4

1 Define the principle of 'reversibility'. **(1 mark)**

.....

.....

2 Give **one** reason why rest is an important part of the training schedule. **(1 mark)**

.....

3 Look at the training data below. Which athlete has been affected by reversibility? **(1 mark)**

	Week 1	Week 2	Week 3	Week 4	Week 5
Prakash	60 mins	57 mins	55 mins	54 mins	51 mins
Elena	55 mins	54 mins	52 mins	49 mins	48 mins
Kim	49 mins	47 mins	43 mins	44 mins	46 mins

.....

4 State **one** factor that could lead to reversibility in an athlete's training. **(1 mark)**

.....

Additonal principles of training 5

Guided

1 Which **one** of the following examples of variation would be most appropriate for a badminton player? Put a cross in the box next to the correct answer. **(1 mark)**

A ☒ Court work; strength work in the gym; weights for muscular endurance

B ☐ Pool work for muscular endurance; gym work for power; continuous training on the track

C ☐ Fartlek training in the park; gym work for general fitness; court work

D ☐ Court work; cardiovascular work in the pool; flexibility work in the conditioning room

2 Give **one** example of why variation in training is important. **(1 mark)**

Think about why you vary your own training routines.

.....

3 Rivka does continuous training regularly.

Give **one** example of how she could add variation to her training. **(1 mark)**

.....

4 Lucy is taking part in a training programme to improve her base levels of fitness.

Describe how she can use variation to reduce the chance of boredom in her training. **(4 marks)**

.....

.....

.....

.....

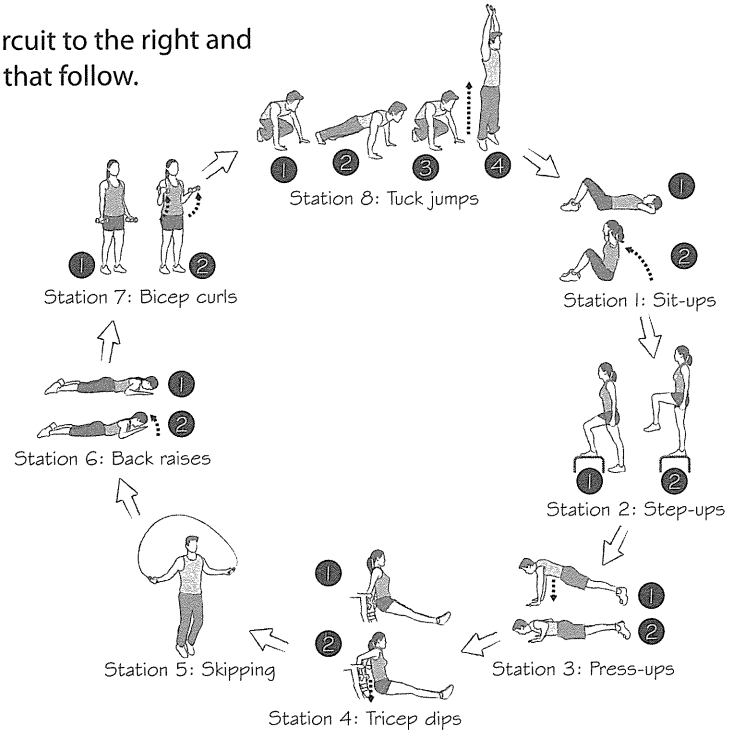
.....

.....

Think about the other types of training that you've learned about in this unit and always remember to apply the FITT principle.

Circuit training

Look at the training circuit to the right and answer the questions that follow.



1 Which stations would help to develop the following aspects of fitness? **(3 marks)**

A Muscular endurance in the abdominals = station ☐

B Quadriceps power = station ☐

C Aerobic endurance = station ☐

2 Describe **two** ways in which exercise intensity could be increased on this circuit. **(4 marks)**

.....

.....

.....

.....

You need to think about the FITT principle here and how you can apply it to your answer.

Guided

3 Sofia has designed her own training circuit. She has press-ups at station 3 and bicep curls at station 4.

Explain the problem with Sofia's training circuit and give **one** suggestion for improvement. **(3 marks)**

Stations 3 and 4 both exercise the same body part. This is a problem because of the risk of fatigue and injury. There needs to be some recovery time between each station. The circuit could be improved by .....

.....

Continuous training

1 Which aspect of fitness is most commonly improved through continuous training? **(1 mark)**

.....

2 Identify **two** sports activities in which continuous training would be suitable for sports performers wishing to improve their fitness specifically for that sport. **(2 marks)**

.....

.....

Guided

3 Look at the table below showing heart rate data.

Fill in the missing gaps to show the correct heart rate data for these athletes if they were working within their aerobic training zone. You may use the box below for your workings. **(6 marks)**

Name	Age (years)	HRmax (bpm)	Aerobic zone lower limit (bpm)	Aerobic zone upper limit (bpm)
Di	68	152	91	129
Dave	50	170	102	145
Minsuh	34		112	
Adam	20			170

Di's HRmax: 220 − 68 = 152

Dave's upper limit: 85 × 170 ÷ 100 = 145

Remember you should normally round numbers up or down. So if you had 91.2 it would be 91, while 97.7 would be 98.

4 Identify **one** impact on your fitness of consistently exceeding your upper aerobic training zone? **(1 mark)**

.....

.....

Fartlek training

1 Name **one** training aid that can be used in fartlek training to increase intensity. **(1 mark)**

.....

Guided

2 Explain **one** way a tennis player would adapt fartlek training to suit the needs of their sport. **(2 marks)**

As tennis involves players sprinting short distances in order to reach the ball, training should involve .....

.....

Think about the movements involved in a game of tennis.

3 Look at the photo, which shows suitable terrain for fartlek training.

Describe the features of this terrain that make it suitable for fartlek training. **(3 marks)**

.....

.....

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

Interval training

1 Name **one** key feature of interval training. **(1 mark)**

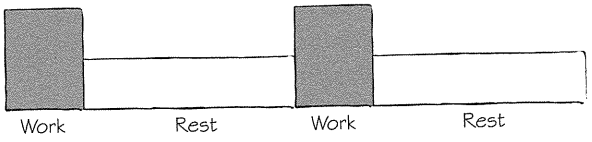
.....

Guided

2 The diagrams below show possible interval training plans.

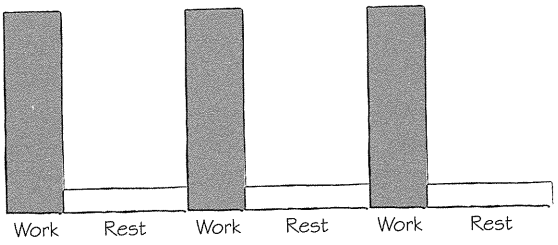
(a) Which diagram best demonstrates interval training suitable for a 100 m sprinter wishing to improve their speed? Put a cross in the box by the correct answer. **(1 mark)**

Diagram A



☐

Diagram B



☐

(b) Explain the reasons for your choice. **(2 marks)**

Diagram ..... best represents the interval training most suitable for a sprinter. To improve speed, the best intervals need to be .....

Think about the nature of the event and try to link this to your answer.

.....

3 Identify **one** purpose of rest periods in interval training. **(1 mark)**

.....

Plyometric training

1 Which **one** of the following exercises would be most suitable in plyometric training? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Tricep dips

B ☐ Sit-ups

C ☐ Hurdle jumps

D ☐ Shuttle runs

Guided

2 What happens to the working muscles during a plyometric exercise such as lunging? **(1 mark)**

Muscle lengthening immediately followed by .....

3 Laura is a high jumper. She uses plyometric training.

Explain **one** reason why this type of training would be beneficial to her performance. **(2 marks)**

.....

.....

4 Give **two** disadvantages of plyometric training. **(2 marks)**

.....

.....

Speed training methods

1 Which **one** of the following is **not** a type of speed training? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Hollow sprints

B ☐ Sprint intervals

C ☐ Box sprints

D ☐ Acceleration sprints

2 Name the type of speed training that is made up of a series of sprints and rest periods, where rest periods may include walking or jogging. **(1 mark)**

.....

Guided

3 Give **one** example of a sports performer who might use speed interval training and explain why it would be an appropriate choice. **(3 marks)**

Speed interval training may be used by long-distance runners because .....

.....

.....

4 Julian completes the following training routine.

A standing start

↓

Jogging

↓

Striding

↓

Maximum sprint

He completes three sets of this routine, walking in-between each set.

Which of the following techniques is Julian using? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Hollow sprints

B ☐ Circuit training

C ☐ Acceleration sprints

D ☐ Sprint intervals

Flexibility training

Guided

1 Describe the difference between active and passive stretching. **(2 marks)**

Active stretching is performed without ..... and relies on internal forces to stretch the muscle. Passive stretching uses another ..... or ..... to provide resistance.

2 State **one** benefit of including some sort of stretching in your warm-up routine. **(1 mark)**

.....

3 Insert the **two** missing words to complete the name of a type of stretching. **(1 mark)**

.... facilitation

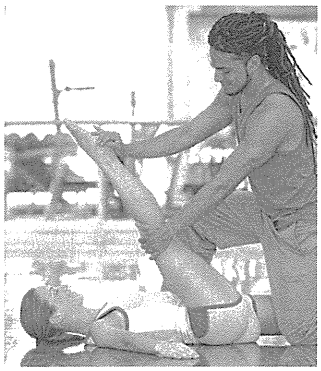
Remember that facilitation means helping something to happen.

4 The images below show different kinds of stretches.

Match the image with the correct description. **(4 marks)**

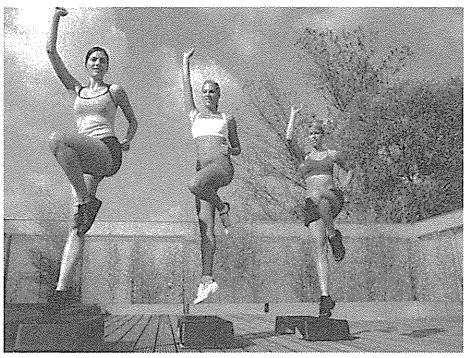
Passive ☐ PNF ☐ Ballistic ☐ Active ☐

A



B

C



D

Weight training

1 State **two** components of fitness that weight training helps to develop. **(2 marks)**

.....

.....

Guided

2 Explain the difference between repetitions and sets. **(2 marks)**

Repetitions are the number of times a weightlifting exercise .....,
for example, 12 reps. Sets are .....,
for example, 3 sets of 12 reps.

3 An athlete is training at 90 per cent of their 1RM.

Which type of strength is this helping to build? **(1 mark)**

.....

4 Give **one** example of a sports performer who would benefit from weight training. **(1 mark)**

.....

5 Outline what happens to the load-to-weight ratio when you compare training for strength endurance with training for maximum strength at 75% 1RM. **(4 marks)**

.....

.....

.....

.....

Fitness testing: importance to sports performers and coaches

1 Baseline scores from fitness tests are important as they give a set of data to compare future scores against.

Give **another** reason why the collection of baseline data is important. **(1 mark)**

.....

Guided

2 Fitness testing can provide benefits for sports performers and coaches.

Describe **one** possible benefit of fitness testing to a coach and **one** benefit to a sports performer. **(4 marks)**

Make sure you describe **two** different benefits.

Benefit of fitness testing to a **coach**:

.....

.....

Benefit of fitness testing to a **performer**:

It can be motivating because the performer can see how much they are improving as a result of their training over time.

3 The table below shows the results of three fitness tests taken by an individual before and after a training programme.

Fitness test	Pre-training	Post-training
35 m sprint test	5.1 s	4.6 s
1 min press-up test	13 press-ups	29 press-ups
Sit and reach test	8.8 cm	6.8 cm

Use the data in the table to interpret whether the training programme has been successful in terms of improving:

(a) upper body muscular endurance. **(1 mark)**

.....

(b) hamstring flexibility. **(1 mark)**

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

Fitness testing: issues, validity and reliability

1 Reliability and validity mean two different things.

Match the correct definition to each term. **(2 marks)**

Reliability	The ability to repeatedly carry out a test and get the same result each time.
Validity	How accurate a test is so that it measures what it should measure.

2 When conducting a fitness test who do you need to gather informed consent from? **(1 mark)**

.....

Guided

3 Give **three** examples of factors that may influence the reliability of a fitness test. **(3 marks)**

1 Length and type of warm-up

2 .....

3 .....

4 Using an example, explain **one** reason why calibration is important for ensuring validity. **(2 marks)**

.....

.....

.....

.....

Fitness tests: skinfold testing (body composition 1)

1 Which **one** of the following contains the correct locations for taking female skinfold measurements? **(1 mark)**

A ☐ Chest, abdomen and thigh

B ☐ Chest, suprailiac and thigh

C ☐ Tricep, suprailiac and thigh

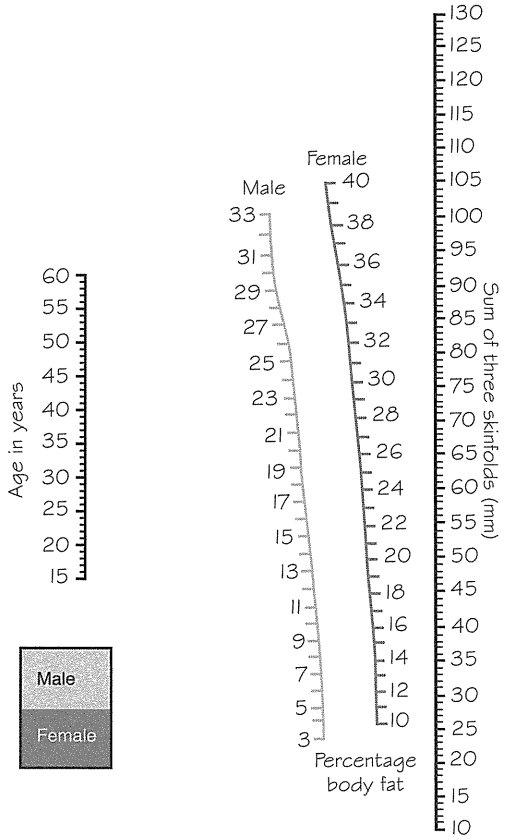
D ☐ Tricep, abdomen and calf

2 Name the instrument used to take skinfold measurements. **(1 mark)**

.....

Guided

3 Using the Jackson-Pollock (J-P) nomogram below, complete the following table. **(3 marks)**



If Isaac is 15 years old and the sum of his skinfolds is 40, his total body fat is 11 per cent. To find this out, join the age of the person to the sum of their skinfolds using a straight line. You can then see their total body fat where it crosses the line in the middle.

Name	Age (years)	Skinfold total (mm)	Body fat percentage (%)
Chloe (female)	18	55	
Ayesha (female)	26	25	12
Charlie (male)	15	120	

Rating	Males	Females
Very low	<7	<13
Slim	7–12	13–20
Ideal	13–17	21–25
Overweight	18–28	26–32
Obese	29+	33+

4 Explain which of the subjects in Question 3 has the most concerning level of body fat and why. **(4 marks)**

.....

.....

.....

.....

Fitness tests: BMI (body composition 2)

Guided

1 What does 'BMI' stand for? **(1 mark)**

Body ..... index

2 What is the unit of measurement for BMI? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ mg/m^2 **B** ☐ kg/cm^2

C ☐ kg/m^2 **D** ☐ g/cm^2

3 Using a sports example, explain **one** reason why BMI is not always an accurate method of measuring body composition. **(2 marks)**

.....

.....

4 Jakob is 1.5 m tall and weighs 66 kg. The formula to calculate BMI is:

$$\frac{\text{Body weight (kg)}}{\text{Height (m)} \times \text{Height (m)}}$$

(a) Work out Jakob's BMI, using the usual unit of measurement. **(2 marks)**

.....

(b) Using the table provided, how would you classify Jacob's weight from his BMI? **(1 mark)**

.....

.....

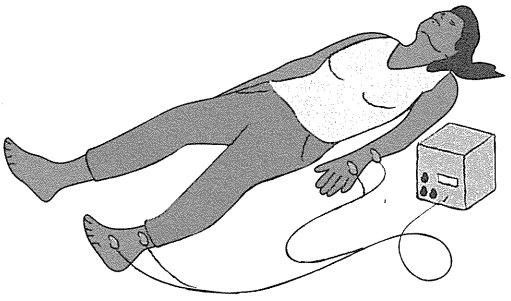
Rating	BMI
Underweight	⩽19
Desirable	20–25
Overweight	26–30
Obese	31+

Fitness tests: bioelectrical impedance analysis (body composition 3)

1 The images below show two different tests for measuring body fat percentage.

Identify the **one** showing bioelectrical impedance analysis. **(1 mark)**

A ☐



B ☐

Guided

2 Give **two** disadvantages of bioelectrical impedance analysis as a testing method. **(2 marks)**

1 The equipment is very specialised and therefore expensive.

2 .....

3 Identify the impact of dehydration on the results of this test. **(1 mark)**

.....

.....

4 Which **one** of the following provides the greatest resistance to the electrical current? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Body fat

B ☐ Fat-free mass

C ☐ Muscle

D ☐ Bone

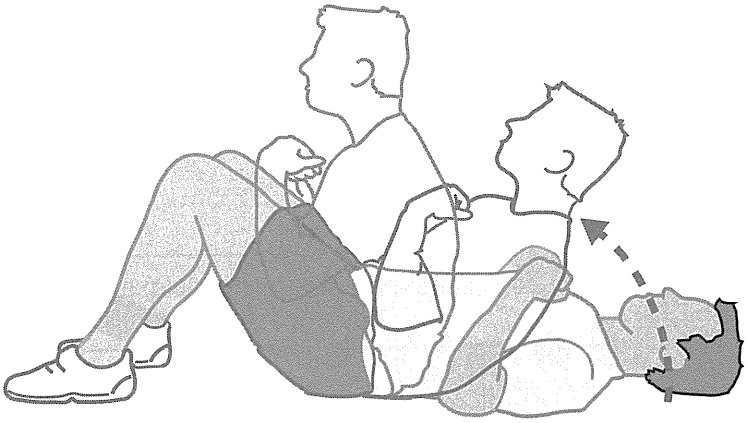
Had a go ☐ Nearly there ☐ Nailed it! ☐

Fitness tests: muscular endurance – abdominal

Look at the image below and answer the questions.

1 Name the test shown in the image. **(1 mark)**

.....



2 Which **one** of the following is the usual unit of measurement for the test shown in the image? **(1 mark)**

A ☐ kg/m^2

B ☐ reps/minute

C ☐ second (s)

D ☐ kgm/s

Guided

3 Describe the method for the test shown in the image. **(3 marks)**

Step 1: Lie on the mat with your knees bent and your feet flat on the floor.

Step 2: .....

Step 3: .....

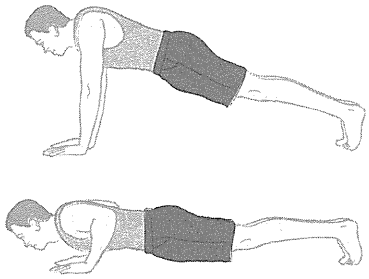
4 Give **two** examples of sporting activities in which participants would be expected to score highly in the test shown in the image. **(2 marks)**

.....

.....

Fitness tests: muscular endurance – upper body

Look at the image below and answer the questions.



1 Name the test shown in the image. **(1 mark)**

.....

2 Describe the method for the test shown in the image. **(3 marks)**

Step 1: .....

Step 2: .....

Step 3: .....

Guided

3 Describe the difference between the standard and modified test method for the test shown in the image. **(2 marks)**

In the standard test, the subject takes all of their weight on their hands and feet. In the modified version .....

The image shows the standard test.

.....

4 Identify why the test shown in the image is **not** a measure of muscular endurance in the legs. **(1 mark)**

.....

.....

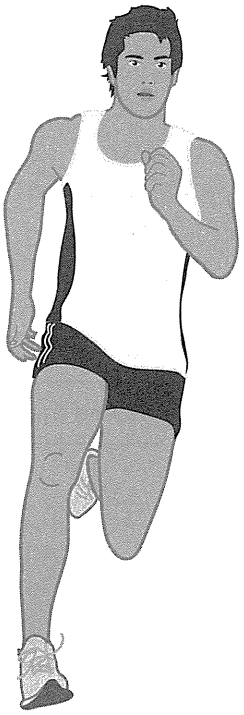
Had a go ☐ Nearly there ☐ Nailed it! ☐

Fitness tests: speed – 35 m sprint test

Guided

1 Give **three** examples of sports performers who would benefit from using the 35 m sprint test. **(3 marks)**

A hurdler, a centre court netball player and a .....



2 Which **two** of the following could influence the reliability of the 35 m sprint test? Put a cross in the box next to the correct answer. **(2 marks)**

A ☐ Not using a tape measure to mark out 35 m in one test

B ☐ Doing both tests indoors

C ☐ Doing the tests at different times of the day

D ☐ Having an audience for both tests

E ☐ Using the same equipment in both tests

3 The 35 m sprint test is normally conducted three times.

Which of these results is taken as the performer's final result? **(1 mark)**

.....

.....

4 Identify **one** way in which the 35 m sprint test is different from the Illinois agility run test. **(1 mark)**

.....

.....

Fitness tests: MSFT (aerobic endurance 1)

1 Define 'VO^2 max' and give its usual unit of measurement. **(2 marks)**

.....

.....

2 What does 'MSFT' stand for? **(1 mark)**

.....

Guided

3 Using **three** examples, identify when an athlete should finish their participation in the MSFT. **(3 marks)**

An athlete should finish this test when they are either no longer physically able to keep up with the beeps, when .....

or when .....

4 A lacrosse team wants to carry out fitness testing to test aerobic endurance.

Give **one** reason why a lacrosse team may choose to use the MSFT instead of another type of test. **(1 mark)**

.....

.....

5 Give **two** factors which may influence the reliability of MSFT results. **(2 marks)**

.....

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

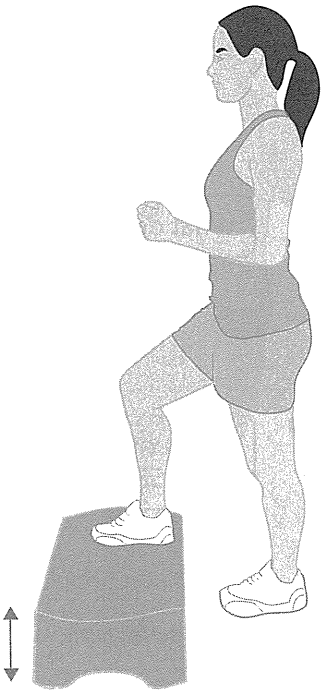
Fitness tests: forestry step test (aerobic endurance 2)

1 What is the role of the metronome in the forestry step test? **(1 mark)**

Remember a metronome is a device that produces regular beats. Think about what that noise could help you to do.

.....

.....



2 Give **one** disadvantage of using the forestry step test as a measure of aerobic endurance. **(1 mark)**

.....

.....

Guided

3 Describe the method for the forestry step test. **(5 marks)**

Remember that another term for method is protocol. You may see this in your test.

Step 1: Record body weight with clothing on.

Step 2: .....

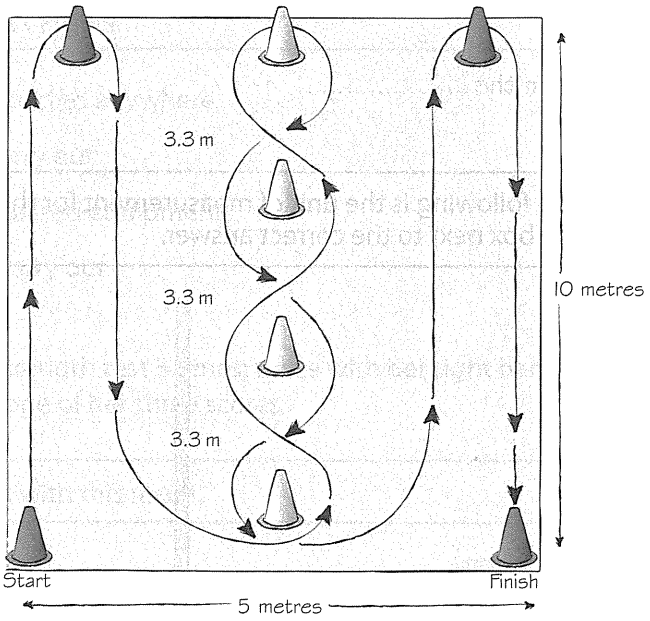
Step 3: .....

Step 4: .....

Step 5: Fifteen seconds after stopping, count your pulse for 15 seconds and record this number.

Fitness tests: agility

1 Which fitness test is shown in the image? Put a cross in the box next to the correct answer. **(1 mark)**



A ☐ 35 m sprint test

B ☐ Multistage fitness test

C ☐ Forestry step test

D ☐ Illinois agility run test

2 Give **two** examples of sports performers who may choose to use the test shown in the picture to monitor the effectiveness of their training programmes. **(2 marks)**

1 .....

2 .....

Guided

3 Give **one** advantage and **one** disadvantage of the Illinois agility run test. **(2 marks)**

Advantage: It requires minimal amounts of .....

Disadvantage: .....

4 Identify **one** reason why the Illinois agility run test would be a valid test for a tennis player. **(1 mark)**

.....

Had a go ☐ Nearly there ☐ Nailed it! ☐

Fitness tests: vertical jump test (anaerobic power)

Guided

1 What does the vertical jump test measure? **(1 mark)**

Anaerobic power in the .....

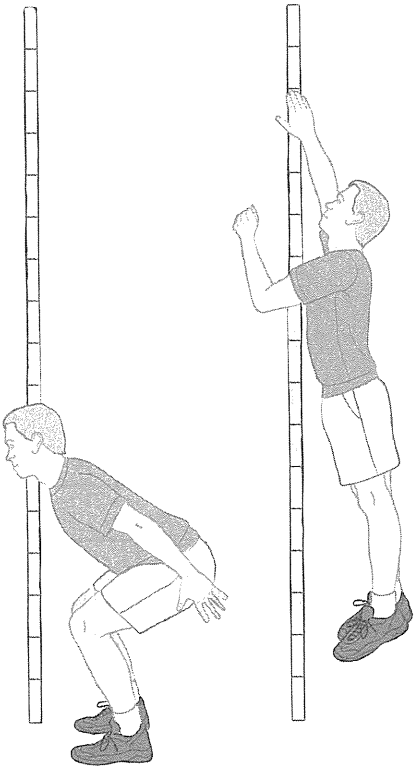
2 Which **one** of the following is the unit of measurement for the vertical jump test? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ lbs/min

B ☐ lbs/s

C ☐ kgm/m

D ☐ kgm/s



3 Give **one** example of a sports performer who should score highly in this test and briefly explain your reasoning. **(2 marks)**

.....

.....

4 What type of training could be used to improve results on the vertical jump test? **(1 mark)**

.....

Fitness tests: grip dynamometer (strength)

1 Which of the following is **not** an advantage of the grip dynamometer test? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ It can be conducted anywhere

B ☐ It is easy to carry out

C ☐ It needs specialised equipment

D ☐ It is quick to carry out

Guided

2 Rachel takes the grip strength test 3 times; twice with her right hand and once with her left. She then takes an average of her three scores.

Identify **one** problem with this result. **(1 mark)**

It would not be accurate because the three readings were not taken with .....

Think about the terms reliability and validity when answering this question.

3 Noah is a weightlifter and wants to measure his leg strength in order to plan a fitness training programme. He plans to use the grip dynamometer test.

Explain why the grip dynamometer test would not be a valid test for Noah to use. **(2 marks)**

.....

.....

4 Which **one** of the following sports performers would most benefit from using the grip dynamometer test? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Football striker

B ☐ Long jumper

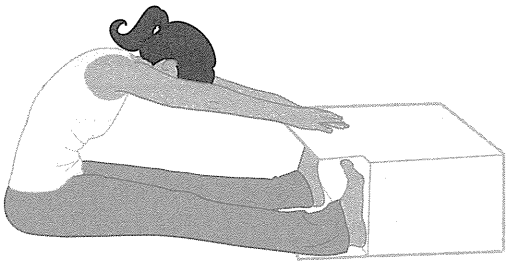
C ☐ Judo player

D ☐ Swimmer

Had a go ☐ Nearly there ☐ Nailed it! ☐

Fitness tests: flexibility

Look at the image below and answer the questions.



1 Which **one** of the following is the test shown in the image above? Put a cross in the box next to the correct answer. **(1 mark)**

A ☐ Toe touch test

B ☐ Sit and reach test

C ☐ Lumbar flex test

D ☐ Sit and stretch test

2 Name **one** sporting activity that you may be training for if you used the test shown in the image. **(1 mark)**

.....

Guided

3 Give **two** disadvantages of the test shown in the image. **(2 marks)**

1 Variations in trunk and arm length can make comparisons difficult.

2 .....

4 Name **one** specific type of training that would help to improve the scores obtained on this test. **(1 mark)**

.....

.....

Exam skills 1

For each question, choose an answer A, B, C or D and put a cross in the box next to the correct answer.

1 Which **one** of the following is **not** part of the FITT principle? **(1 mark)**

A ☐ Intensity
B ☐ Frequency
C ☐ Total
D ☐ Time

2 Which **one** of the following statements about training is **not** true? **(1 mark)**

A ☐ Hollow sprints are a type of speed training
B ☐ 100 m sprinters often use continuous training
C ☐ Fartlek training is good for games players
D ☐ Interval training is beneficial to a hockey player

This question tells you that three of the statements are true and one is not true. You have to find the one that is not true.

3 Which **one** of the following is the formula for calculating maximum heart rate? **(1 mark)**

A ☐ HRmax = 250 − age
B ☐ HRmax = 220 + bpm
C ☐ HRmax = 220 − age
D ☐ HRmax = 300 ÷ height (m)

4 Which **one** of the following can be used to calculate body fat percentage? **(1 mark)**

A ☐ The Jackson-Pollock nomogram
B ☐ The Borg (RPE) scale
C ☐ The forestry test
D ☐ RPE

5 Which **one** of the following is **not** an example of a type of stretching used to increase flexibility? **(1 mark)**

A ☐ Passive
B ☐ PNF
C ☐ Ballistic
D ☐ Bounce

6 Which **one** of the following definitions best describes the term validity? **(1 mark)**

A ☐ Being able to repeat a test reliably each time
B ☐ Measuring what you actually say you are measuring
C ☐ Changing the environment within which a test is taken
D ☐ Using the correct name and method for the test

Had a go ☐ Nearly there ☐ Nailed it! ☐

Exam skills 2

1 Name **one** appropriate fitness test to measure agility and describe how it is carried out. **(3 marks)**

Test: .....

Method: .....

.....

.....

2 Molly is 17 years old.

What are the upper and lower limits of her aerobic training zone? Show your workings in the box below. **(2 marks)**

.....

3 When planning her training, Alba applied the principle of progressive overload by altering the time spent training.

Explain why this will help Alba improve her fitness. **(2 marks)**

.....

.....

.....

4 Give a definition of 'coordination' and then explain **two** reasons why it is important to a tennis player. **(4 marks)**

Definition: .....

Why it is important: .....

.....

.....

.....

Exam skills 3

You need to be able to identify exactly what the question is asking you to do.

1 State an appropriate fitness test for the following aspects of fitness. **(3 marks)**

State – give one clear answer, normally just one piece of information.

A Agility: .....

B Hamstring flexibility: .....

C Aerobic endurance: .....

3 Compare the protocol for the Illinois agility run test and the 35 m sprint test, considering which test may be a more valid measure of sprint speed for a rugby player **(2 marks)**

.....

.....

.....

.....

Compare – look at two things you are being asked to compare and say how they are similar and how they are different.

3 Using your knowledge of training, interpret the data in the table below, commenting on the effectiveness of each athlete's training. **(8 marks)**

Name	MSFT test 1	MSFT test 2	MSFT test 3
Lin	4.4	5.3	7.1
Richard	5.5	5.6	5.5
Pedro	6.1	6.8	4.5

Interpret – look critically at the data provided and draw a reasonable conclusion.

.....

.....

.....

.....

.....

.....

.....

.....