



Fitness Tests

Teacher Answer Booklet



	Description from Specification	Pupil comments – How confident do you feel on this topic?
3.2.2	Fitness tests: the value of fitness testing, the purpose of specific fitness tests, the test protocols, the selection of the appropriate fitness test for components of fitness and the rationale for selection	
3.2.3	Collection and interpretation of data from fitness test results and analysis and evaluation of these against normative data tables	
3.2.4	Fitness tests for specific components of fitness: cardiovascular fitness – Cooper 12 minute tests (run, swim), Harvard Step Test, agility – Illinois agility run test, strength – grip dynamometer, muscular endurance – one minute sit-up, one-minute press-up, speed – 30m sprint, power – vertical jump, flexibility – sit and reach	

Fitness Tests:

Fitness Test	Component of Fitness being tested	Sport(s) most useful for	Description of test	My score	My score in relation to the population (my age group)
Cooper 12 Minute Test	Cardiovascular Fitness	Marathon	Run for 12 minutes and measure or calculate the distance you run in this time		
Harvard Step Test	Cardiovascular Fitness	Long Distance Cycling	Take your RHR before the test. Step on and off a 45cm high bench for 5 minutes. You should complete 150 steps in this time. Measure your HR at one minute intervals during recovery until your HR is back to resting. The quicker your recover = the fitter you are.		
Grip Dynamometer (Hand Grip Strength Test)	Muscular Strength	Weight Lifting	With your strongest hand squeeze the dynamometer as hard as possible. Take three recordings. Take your best score.		
One minute sit-up	Muscular Endurance	Swimming	Perform as many sit ups (elbows to knees) as possible in one minute.		

Fitness Test	Component of Fitness being tested	Sport(s) most useful for	Description of test	My score	My score in relation to the population (my age group)
One minute press-up	Muscular Endurance	Rugby	Perform as many press ups as possible in one minute.		
30m sprint	Speed	Sprinter	Record the time taken for you to sprint 30m.		
Vertical Jump	Power	Football (shooting)	Chalk your fingertips then reach up the wall as high as possible and mark it. Jump from a standing start and again mark the wall as high as possible. Measure the difference between the two marks on the wall.		
Sit and Reach	Flexibility	Gymnastics	Sit down with your legs straight out in front of you. Reach forwards as far as possible. Your toes score '0'. Measure the cm beyond your toes for a positive score or before your toes is a negative score.		
Illinois Agility Run	Agility	Tennis	Set up the agility test and after starting flat on your stomach, move around the cones as quickly as possible in order to get the fastest time.		

The following statements are all reasons why a person might take part in fitness testing. Explain why each reason is valid and how you can use your fitness test scores to help you in your sport.

Identify strengths and weaknesses

After strengths and weaknesses have been highlighted a performer can decide on which areas they wish to focus on for a fitness or exercise programme

Comparing your score against a table of normative data

This will allow a performer to decide which areas they are strong in and which areas may require improvement

Monitor your progress

Regular testing will allow a performer to decide if they are making improvements. If they are not improving then they will need to adapt their training programme

Give yourself an incentive

If you know that you have fitness testing coming up you are likely to stay motivated and train hard in order to aim to beat your previous scores



The data collected from fitness tests is largely quantitative data. What is quantitative data?

Numerical data that can be compared and measured.

What is qualitative data?

Data based on 'quality' which is often based on opinion and difficult to measure.

Exam Questions

Jenny is a 16-year-old GCSE PE student. She has just taken the Cooper 12-minute run test.

The information below shows ratings for the Cooper 12-minute run test.

Age	Excellent	Above Average	Average	Below Average
15-16	>2100m	2000-2100m	1700-1999m	1600-1699m

Table 1

(h) Which one of the following is the correct rating for Jenny, given her score of 2050m in the Cooper 12-minute run test?

(1)

A Excellent

B Above average

C Average

D Below average

Define the term muscular endurance. (1)

Your ability to use voluntary muscles repeatedly without getting tired

Which fitness test is most suitable for assessing muscular endurance? (1)

One minute press-up test

One minute sit-up test

Key Terms:

Cardiovascular Fitness – The ability to exercise the whole body for long periods of time

Muscular Strength – Your ability to exert force against a resistance

Muscular Endurance – Your ability to use voluntary muscles repeatedly without getting tired

Flexibility – The range of motion of your joints or the ability of your joints to move freely

Body Composition – The percentage of body weight that is muscle, fat or bone

Agility – The ability to control the movement of the whole body and change position quickly

Balance – Being able to keep the body stable, while at rest or in motion

Co-ordination – The ability to use two or more body parts together

Power – The ability to undertake strength performances quickly (strength x speed)

Reaction Time – The time between the presentation of a stimulus and the onset of movement

Speed – The rate at which an individual can perform a movement or cover a distance

Quantitative Data – Information about quantities that can be compared and measured

Qualitative Data – Information about qualities which is difficult to measure



Fitness Testing

Mark Scheme

Q1. Which one of the following tests should be used to measure Muscular Endurance?

(1)

- A** Vertical Jump Test
- B** Harvard Step Test
- C** Hand Grip Dynamometer Test
- D** One Minute Press Up Test

Mark One – D. One Minute Push Up test

Q2.

State **one** way that quantitative data from fitness testing can be used when planning a personal exercise programme (PEP). **(1 mark)**

Mark One – It can help to monitor progress/It can help to find weaknesses in certain components of fitness

Accept other appropriate answers

Q3. Name a fitness test that can be used to measure power. Identify a sport where this fitness test will be useful. **(2 marks)**

Mark One – The Vertical Jump Test can be used to measure power

Mark Two – High Jump/Long Jump/100m Sprint

Accept any example of a sport where leg power is required

Q4. Name a fitness test that measures agility. Identify a sport where this fitness test will be useful. **(2 marks)**

Mark One – The Illinois Agility Test is used to measure agility

Mark Two – Side-step in rugby/dribbling in basketball or football

Accept any example of a sport where agility is required

Q5. Give two reasons why a sports performer may take part in fitness testing. **(2 marks)**

Any two from:

- Identify strengths & weaknesses
- Comparing your score against a table of normative data
- Monitor your progress
- Give yourself an incentive

Q6. Tennis players require a high level of fitness to be successful

Discuss the suitability of using the fitness tests shown below in order to assess the fitness of tennis players for their sport.

Illinois Agility Test. Hand Grip Dynamometer. Vertical Jump.

(9 marks)

A01 – The Illinois Agility test involves short sprints and turns through a designated course. It tests the component of fitness agility

A02 – The Illinois agility test is suitable for testing the agility of a tennis player. This is because the short, sharp movements of the whole body closely replicate the movement that a tennis player requires during a match

A03 – A tennis player will require agility when moving from side to side in order to play a shot, or when moving towards the net in order to play a volley. To make the Illinois agility test even more specific to the sport of tennis, a player could perform this test whilst holding their racket. This will closely simulate a match situation

A01 – The hand grip dynamometer test involves gripping and squeezing a small device which will measure a performer's strength

A02 – The hand grip dynamometer test is suitable for a tennis player as it closely simulates the grip that they will have whilst holding their racket. Hand and wrist strength will be measured

A03 – A tennis player requires good strength in order to play powerful shots which will result in them winning points. However, the weakness of the hand-grip test is that it only measures hand/wrist strength. A tennis player also requires strength in their upper and lower bodies and they should also test strength or power in these areas

A01 – The vertical jump test involves a performer jumping up as high as possible. This test measures power in the legs (particularly the quadriceps)

A02 – This test will be suitable to a tennis player as leg power is of high importance, particularly during a serves and smash shots. Playing powerful serves and shots are likely to result in more points won

A03 – Although this test will be useful for tennis players, they will also need to test the power in their arms and upper body. It may be more beneficial to test the speed of their serve as this will be a very specific test for their sport that they can then repeat after following a training programme



Name: _____

Fitness Testing

Date: _____

Total marks available: 17

Total marks achieved: _____

Percentage: _____

Q1. Which one of the following tests should be used to measure Muscular Endurance?

(1)

- A** Vertical Jump Test
- B** Harvard Step Test
- C** Hand Grip Dynamometer Test
- D** One Minute Press Up Test

Q2.

State **one** way that quantitative data from fitness testing can be used when planning a personal exercise programme (PEP).

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(1 mark)

Q3. Name a fitness test that can be used to measure power. Identify a sport where this fitness test will be useful. (2 marks)

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Q4. Name a fitness test that measures agility. Identify a sport where this fitness test will be useful. (2 marks)

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Q5. Give two reasons why a sports performer may take part in fitness testing. **(2 marks)**

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Cardiovascular Fitness



Cardiovascular Fitness

Harvard Step Test

Cycling

Maximal Strength

1 Minute Press-Up

Rugby



Reasons For Fitness Testing

- To identify **strengths** and/or weaknesses
- To compare your score against a **normative** table of data
- Give yourself an **incentive**
- To monitor **progress**

Speed

30m sprint

Sprinting



PE COMPONENT 1 - FITNESS TESTING

Agility

Illinois Agility Test

Tennis



Power

Vertical Jump

Football (shooting)



Muscular Endurance

1 Minute Sit-Up

Swimming



Flexibility

Sit and Reach

Gymnastics



Strength

Handgrip Dynamometer Test

Weightlifting





Cardiovascular Fitness

Run

Marathon



Cardiovascular Fitness



Step Test



Cycling

Strength

1 Minute Press-Up

Rugby



Reasons For Fitness Testing

- To identify _____ and/or weaknesses
- To compare your score against a _____ table of data
- Give yourself an _____
 - To monitor _____

Speed



30m sprint



PE COMPONENT 1 - FITNESS TESTING

Agility



Illinois Agility Test



Vertical Jump



Football (shooting)



1 Minute Sit-Up



Swimming



Sit and Reach



Gymnastics



Handgrip Dynamometer Test



Weightlifting





Fitness Tests

Name _____

Class _____



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Harvard Step Test					
Grip Dynamometer (Hand Grip Strength Test)					
One minute sit-up					

Fitness Test	Component of Fitness being tested	Sport(s) most useful for	Description of test	My score	My score in relation to the population (my age group)
One minute press-up					
30m sprint					
Vertical Jump					
Sit and Reach					
Illinois Agility Run					

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