

The components of fitness



UNTAMED
EDUCATION

1.3.2 Physical training

Speed

Agility

**Muscular
Endurance**

Body Composition

Flexibility

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Co-ordination

**Cardiovascular
Endurance**

Strength

Speed of Reaction

Balance



PAR-Q

Physical Activity Readiness Questionnaire

It is important to assess your readiness to perform before becoming active in case you have the following conditions:

- ▶ _____ problems.
- ▶ _____ pains.
- ▶ _____ or feeling **faint**.
- ▶ **High blood** _____.
- ▶ _____ and _____ problems.

The questionnaire asks questions to uncover any of these conditions.

Definition of Exercise

“The participation in an activity that requires physical effort.”

1. **Exercise** can **improve your** _____, health and therefore performance if you try the following:
- Exercise _____ **times a week**.
 - Increase your heart rate above _____ **per cent of your maximum**.
 - Keep your heart rate raised for **more than** _____ **minutes per session**.

Definition of Fitness

“Fitness is the ability to meet the demands of the environment.”

Everything that you experience and surrounds you is your environment. Home, school, commuting, sports, hobbies, meeting friends, shopping and housework.

You will study **2 different types** of fitness components;

1. **Health-related Fitness**
2. **Skill-related Fitness**





Health-Related Fitness

1. Cardio-Vascular Endurance (Aerobic Fitness)

"The ability to perform for a long period of time"

Explanation

- a. Cardio-vascular refers to the _____ and the _____ **system** (blood vessels)
- b. This is determined by the body's ability to **take in oxygen** and **deliver** it to the **working** _____ efficiently.
- c. Good cardio-vascular endurance is needed for: Marathon running, Swimming (long distance), Cycling (long distance).



► Measurement 1 - _____ **Step Test**

1. Every 2 seconds step up onto a bench.
2. The test continues for 5 minutes (150 steps)
3. Record your pulse after minute 1.
4. Record your pulse after minute 2.
5. Record your pulse after minute 3.
6. Calculate the result using the equation;

$$\frac{30,000}{2 \times \text{sum of pulses 1-3}}$$

Gender	Male	Female
Poor	<55	<50
Below Average	55-64	50-60
Average	65-79	61-75
Above Average	80-90	76-86
Excellent	>90	>86

► Measurement 2 - **12 Minute** _____ **Run**

1. Run and try to cover as much distance as possible in 12 minutes.
2. Count each completed lap and multiply this by the lap distance.
3. Walking is allowed but try and push yourself.

Gender	Male	Female
Poor	<2200	<1600
Below Average	2200-2299	1600-1699
Average	2300-2499	1700-1999
Above Average	2500-2800	2000-2100
Excellent	>2800	>2100



2. Muscular Endurance

"The ability for muscles to repeat contractions without tiring"

Explanation

- a. Being able to continue the **muscle contracting** over _____ **periods of time** can result in a build up of lactic acid and energy stores depleting.
- b. The fitter the person the longer they can **offset** _____ **build up**.
- c. Good muscular endurance is needed for: **Rowing, Swimming and Cycling** (long distance).

Measurement

► One minute _____ test

1. Lie on the mat with your knees bent at right angles and your feet flat on the ground.
2. Rest your hands on your thighs.
3. Raise your upper body until your hands touch your knees.
4. Return to start position.
5. Count the number of complete sit-ups in one minute.

Gender	Male	Female
Poor	<17	<9
Below Average	17-19	9-14
Average	20-25	15-20
Above Average	26-30	21-25
Excellent	>30	>25



► One minute _____ test

1. Start in plank position for full press-up position, drop to knees for modified press-up position.
2. Bend at the elbows until your shoulders are just below your elbows.
3. Raise your upper body until your hands touch your knees.
4. Return to start position.
5. Count the number of complete press-ups in one minute.

Gender	Male	Female
Poor	4-10	2-5
Below Average	11-18	6-10
Average	19-34	11-20
Above Average	35-46	21-27
Excellent	>47	>28





3. Muscular Strength

"The maximum force that can be developed by muscles in a single contraction"

Explanation

- a. This is the body's ability to do **strength performances rapidly**.
- b. **Power** = _____ x _____.
- c. Strength and power are needed for: **high jumping, shot putting, weight lifting**.



Measurement

► _____ **Grip Strength Test**

- 1. Adjust the hand grip dynamometer to suit your hand.
- 2. Hang the dynamometer in line with your arm with your dominant hand.
- 3. The maximum strength is applied to
- 4. the meter without the arm moving.
- 5. Take the best score of two attempts.

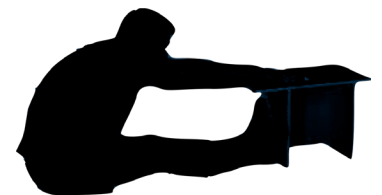
Gender	Male	Female
Poor	<30	<26
Below Average	30-39	26-35
Average	40-49	36-46
Above Average	50-65	47-58
Excellent	>65	>58

4. Flexibility

"The range of movement at a joint"

Explanation

- a. Reduces the risk of muscle and tendon _____.
- b. Good flexibility is needed for:
 - **Gymnastics - Splits**
 - **Dance - Split leap**
 - **Football – Slide tackle**





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Measurement

► _____ and _____ Test

1. Sit with your feet flat against a bench or a sit and reach block.
2. Then lean as far forward as
3. you can without bending your knees.
4. A measurement is taken from the fingertips with the soles of the feet being 0cm.

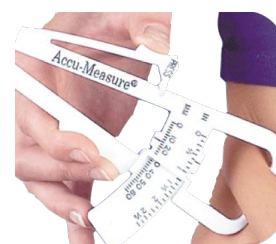
Gender	Male	Female
Poor	<4	<4
Below Average	7-4	7-4
Average	11-8	12-8
Above Average	14-12	15-13
Excellent	>14	>15

5. Body composition

"The percentage of body weight that is muscle, bone and fat."

Explanation

- a. Having the appropriate amount of body fat is important.
- b. Too much body fat can lead to heart disease and other obesity related diseases.
- c. The correct body composition is needed for:
 - **Sumo wrestling - weight and power**
 - **Marathon running - less weight and muscle tone**



Skill-Related Fitness Tests

1. Agility

"The ability to change direction quickly."

Explanation

- a. Being able to _____ **the position** of the body _____ without losing control is important in many sports and skills such as:



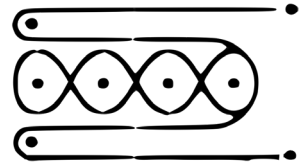
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- ▶ Dribbling in Football - to take it around a player.
- ▶ Faking a run in Basketball

Measurement

▶ _____ Agility Run

1. Start by lying down on the floor at the start.
2. On "go", push to your feet and run around the course in the pattern above.
3. Time is recorded when you pass the finish.



Gender	Male	Female
Poor	>18.8s	>23.4
Below Average	17.7-18.8s	22.5-23.4
Average	16.8-17.6s	18.7-22.4
Above Average	15.9-16.7s	17.5-18.6
Excellent	<15.9	<17.5

2. Balance

"The ability to hold a position without falling."

Explanation

- a. The bigger your **base of** _____ the more _____ you are.
- b. Holding your **centre of mass directly over the base of support** increases balance.

- ▶ Handstand in Gymnastics
- ▶ Marks position in 100m sprint

Measurement

▶ Standing _____ Test

1. Standing place your hands on your hips.
2. Lift one leg and place the toes of that foot on the knee of the standing leg.
3. On go lift your heel of the floor and stand on your toes. The times starts.
4. The times stops when the heel touches the floor, the foot moves away from the knee, or the standing foot moves position.



Gender	Teenager
Poor	<11s
Below Average	11-25s
Average	26-39s
Above Average	40-49s
Excellent	>50s

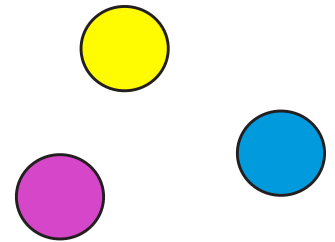


3. Co-ordination

“The ability to move the body parts smoothly and accurately in response to your senses”

Explanation

- a. Being able to intentionally **move more than one body part at the _____ time** accurately.
- b. Co-ordination is needed for most sports but in particular:
- ▶ Dance movements
 - ▶ Tennis serve



Measurement

- ▶ **3 Ball _____**
1. Hold two balls in your dominant hand and one in the other.
 2. Throw one ball from your dominant hand to the other.
 3. At its highest point throw the ball from you weaker hand to the dominant hand.
 4. Throw the remaining ball in your dominant hand to the weaker hand.
 5. Repeat the action for as long as you can.
 6. Compare the number of rotations you can do compared to your classmates.

4. Power/Explosive Strength

“The ability to apply a combination of strength and speed in an action.”

Explanation

- a. Being able to apply maximum force in one fast contraction of one or more muscles.
- b. Power is needed in many sports but in particular:
- ▶ _____ **and throwing in athletics**
 - ▶ _____





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► **Measurement 1 - _____ Jump Test**

1. Stand sideways to the wall and with your feet flat on the wall, reach up as high as you can with your arm closest to the wall.
2. Make a note of this height from the floor to your fingertips.
3. Move away from the wall slightly.
4. Bend and jump as high as you can and at the highest point touch the wall with a piece of chalk.
5. Measure this distance.
6. Minus the distance from standing to the distance when jumping.

Gender	Male (cm)	Female (cm)
Poor	<30	<26
Below Average	30-39	26-35
Average	40-49	36-46
Above Average	50-65	47-58
Excellent	>65	>58

5. **Reaction Time**

"The speed of reaction to a stimulus"

Explanation

- a. This is how fast you can _____ a **movement** after you are **presented** with a _____.



- **Sprinting from the blocks** when you hear the gun.
- A goalkeeper reacting to a **deflected shot**.

Measurement► _____ **Drop Test**

1. The person assisting you holds the ruler up high and with their arm outstretched.
2. The ruler's 0 mark should be level with the finger and thumb of your slightly open hand.
3. The ruler is released without warning and you must try and catch it between your thumb and finger as quick as possible.

Gender	Teenagers
Poor	>28cm
Below Average	20 cm - 28cm
Average	15 cm - 20 cm
Above Average	7.5 cm - 15 cm
Excellent	<7.5 cm



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4. The distance you catch is recorded.

6. Speed

"The ability to move a body part quickly"

Explanation

- a. This is how quickly a person can cover a _____
or how quickly they can perform a single movement.
- b. Speed is needed for:
- ▶ A **fast** _____ in Cricket or Baseball
 - ▶ Throwing a _____
 - ▶ 100m sprint



Measurement

▶ 30m Sprint Test

1. From a standing start run as fast as you can down the marked 30m lane.
2. The time is stopped when you run through the finish line.

Gender	Male (m)	Female (m)
Poor	>4.6	>5
Below Average	4.6-4.5	5-4.9
Average	4.4-4.3	4.8-4.7
Above Average	4.2-4	4.6-4.5
Excellent	<4.0	<4.5

7. Reasons to test

The **reasons** to test are:

- ▶ Identify _____ or _____ in a performance or training programme.
- ▶ Monitors _____.
- ▶ Gives a _____ **line** level of fitness.
- ▶ Allows individual scores to be compared to group norms or **national** _____.
- ▶ Allows **goals** to be set and _____.
- ▶ Provides _____ to a training programme.

