TEL PE Revision

Revision Series 2024

Edexcel GCSE Physical Education Paper 1

• Notes pages •

The EverLearner

How to use this revision session and notes

- Complete this document when doing the live or on-demand revision shows.
- The imagery contained in the notes is designed for you to be able to study the AO1 knowledge prior to the live session.
- During the live session, James will guide you through how to use that knowledge in your exam.
- Focus on the skills that James is presenting as much as the content. In most cases, students have a knowledge of the topic but struggle to respond to the command in the question. This is a focus of our revision.
- Complete the notes pages as extensively as possible and, if necessary, return to the show to complete it more than once in order to make the fullest notes possible.
- Have the National Mock Exam to hand and, ideally, your completed, marked version of it.
- Have the **exam infographics** to hand. These will be referred to throughout the show.

My ticklist:

- ☑ Notes pages
- ☑ Exam infographics
- ☑ Exam paper
- ☑ Exam mark scheme
- ☑ Exam model answers

During the live show, we will cover...

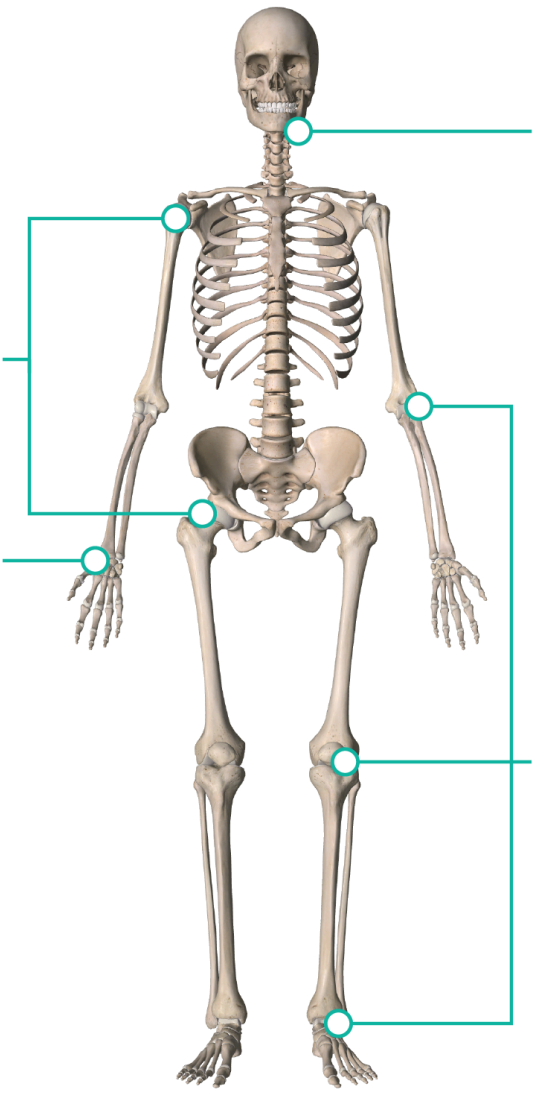
We will also cover a wide array of exam skills including command terms for A01, A02 and A03 as well as the extended writing requirements of the paper.

You may also find it useful to study our previous years' revision shows when different samples of content and skills have been developed.

Topic 1: Classification of joints

Ball-and-socket

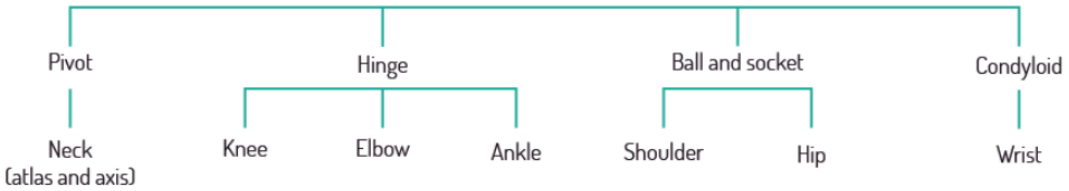
Pivot



Condyloid

Hinge

Classification of joints



8. Look closely at the statement about the movement at a joint. Complete the statement by writing the words that could replace the letters for A, B and C.

The quadriceps **A** the knee joint. The knee joint is classified as a **B** joint. For example, in football, a player will use this movement when **C**.

A _____

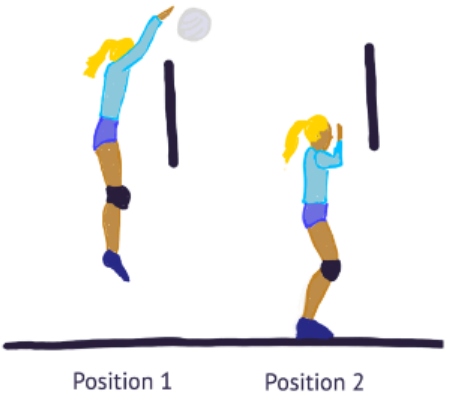
B _____

C _____

_____

Marks: [3]

14. Look closely at the image.
Analyse the movement at the **ankle** when the volleyball player moves from position 1 to 2.



Type of joint _____

Joint movement _____

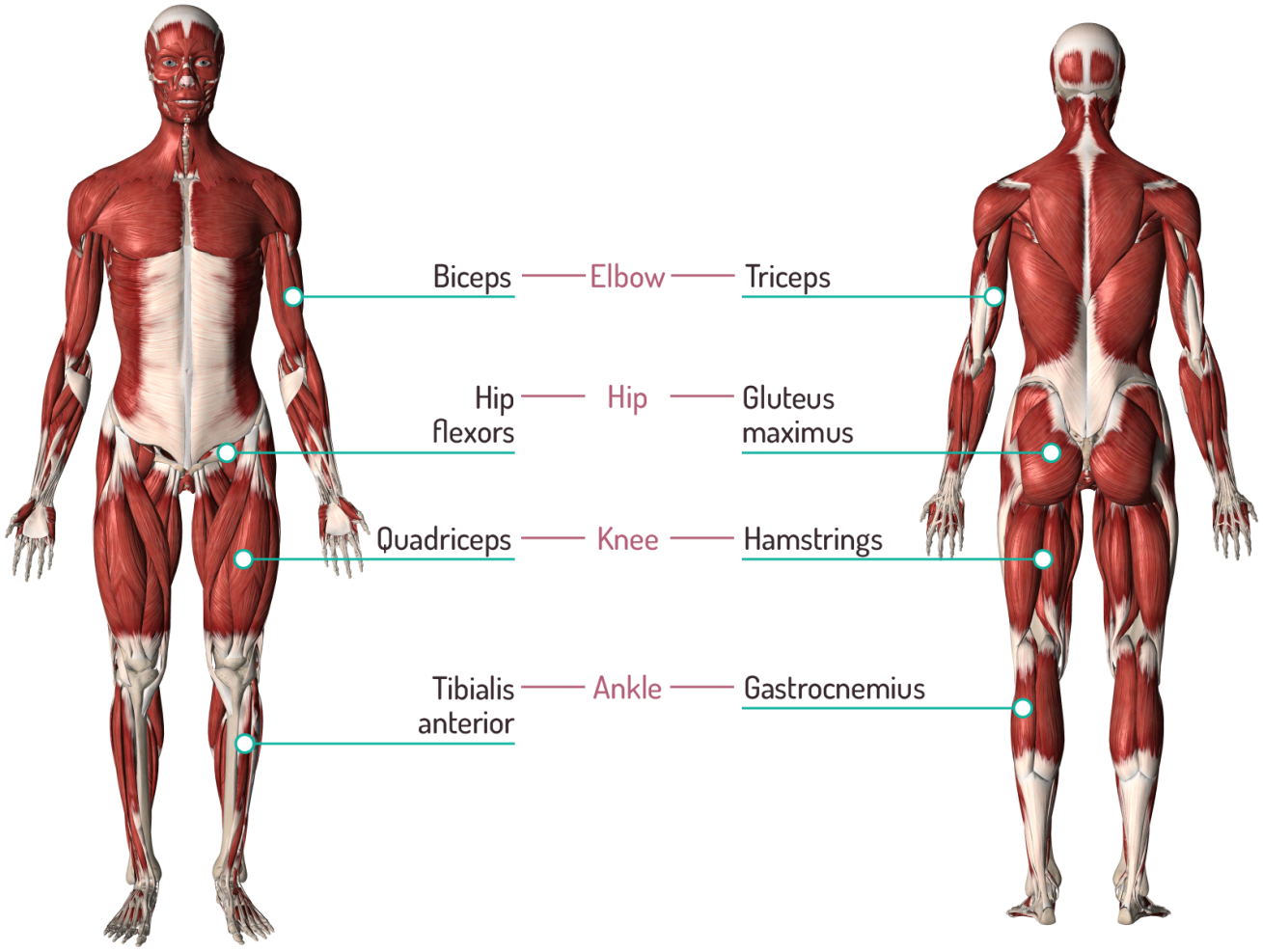
Agonist muscle _____

Marks: [3]

Want to know more?

Watch the FREE tutorial "Classification of joints" on TheEverLearner.com

Topic 2: Antagonistic pairs of muscles



Movement	Movement at the joint	Agonist	Antagonist
	Flexion at the knee		
	Flexion at the hip		
	Flexion at the elbow		
	Extension at the knee		
	Extension at the elbow		
	Plantar flexion		
	Flexion at the right hip		
	Dorsiflexion (right ankle)		

Examine the action of the antagonistic muscle pair at the knee and hip joints that result in the athlete achieving this shape:

		Mark 1 (movement)	Mark 2 (agonist)	Mark 3 (antagonist)
	Hip joint			
	Knee joint			

		Mark 1 (movement)	Mark 2 (agonist)	Mark 3 (antagonist)
	Elbow joint			

		Mark 1 (movement)	Mark 2 (agonist)	Mark 3 (antagonist)
	Knee joint			

Examine the action of the antagonistic muscle pair at the ballerina's ankle joint that results in her achieving this shape:

Want to know more? Watch the FREE tutorial "Antagonistic pairs" on TheEverLearner.com

Topic 3: Characteristics of fast- and slow-twitch muscle fibre types

	Muscle fibre type	Impact on performance / justify why it is an advantage
Long jumper running their final attempt	Type IIx	
A football midfielder repeatedly tracking back and defending throughout the 90-mins match		This muscle fibre type is suited to lower intensity activities, as they contract slower. They have a good oxygen supply which allows the footballer to work continuously for the full length of the match.
A WD in netball needing to keep up with marking a player		

	Muscle fibre type	Impact on performance / justify why it is an advantage
Steady-pace running over 26.2miles		

	Muscle fibre type	Impact on performance / justify why it is an advantage
Sprint finish to overtake and improve finishing place		This muscle fibre type is advantageous for a sprint finish because it can generate the greatest amount of power due to working quickly. This power is beneficial to increase speed in the sprint finish. However, they fatigue quickly and cannot be recruited for very long. Therefore, the sprint finish must not be started too early.
Sustained speed for 500m at the start to get a good position		

Want to know more? Watch the FREE tutorial "Muscle fibre types" on TheEverLearner.com

Topic 4: Aerobic and anaerobic energy

System	Energy release
Aerobic respiration	Glucose + Oxygen → Carbon dioxide + Water + Energy
Anaerobic respiration	Glucose → Lactic acid + Energy

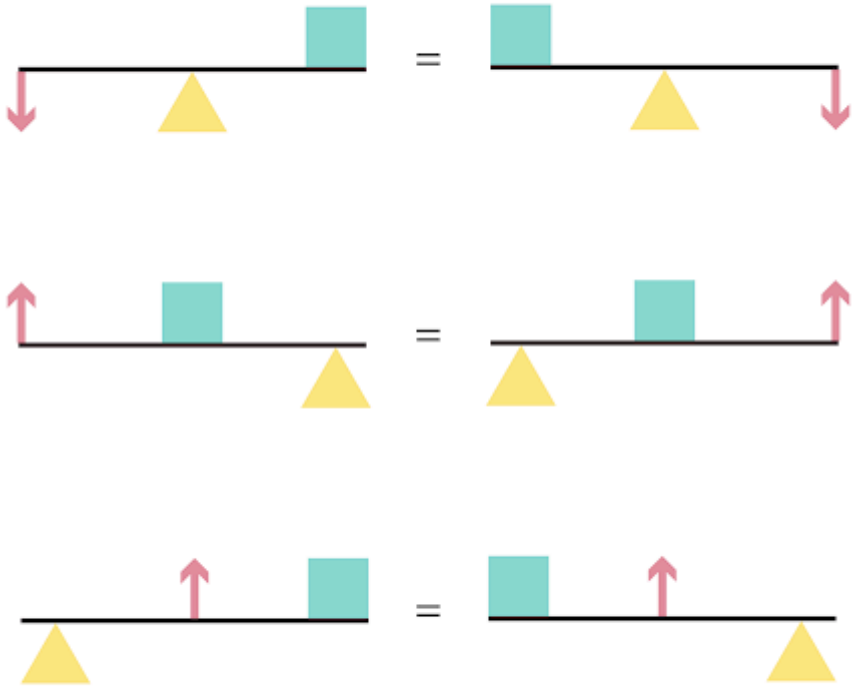
Performer	When aerobic is relevant	When anaerobic is relevant	Conclusions
Javelin thrower	Very little. Recovery between throws **BECAUSE** the aerobic pathways powers recovery.	To power the approach and throw of the javelin **BECAUSE** it is short duration and very high intensity.	Javelin throwing is predominantly anaerobic but relies on aerobic energy release for recovery. Suitable training methods would be weights, intervals and plyometrics.
Football midfielder			

Performer	When aerobic is relevant	When anaerobic is relevant	Conclusions
Downhill skier			
Triathlete			
Boxer			

Want to know more?

Watch the tutorial "Aerobic and anaerobic energy" on TheEverLearner.com (subscribers only).

Topic 5: First-, second- and third-class levers



Lever component	In the human body	Shape and position
Lever arm		
Fulcrum		
Load		
Effort		

First-class levers

The two images above represent a first-class lever.

Complete this statement:

First-class levers, such as neck extension and elbow extension, have the _____ between the _____ and the _____.

Explain why this statement is wrong: "First-class levers have the fulcrum in the middle."

Lever component	For elbow extension
Lever arm	
Fulcrum	
Load	
Effort	

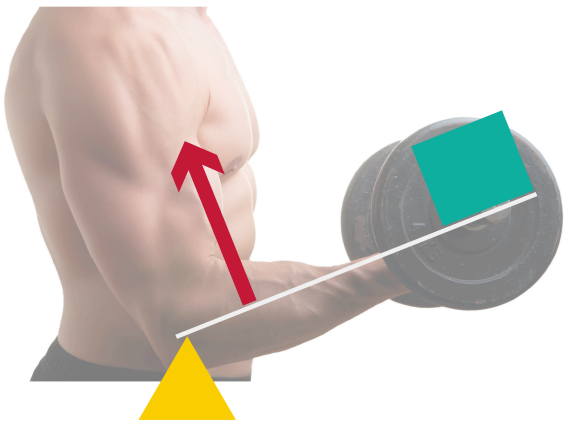
Second-class levers

The image above represents a second-class lever.

Second-class levers such as plantar flexion at the ankle have the _____ between the _____ and the _____.

Lever component	For plantar flexion
Lever arm	
Fulcrum	
Load	
Effort	

Third-class levers

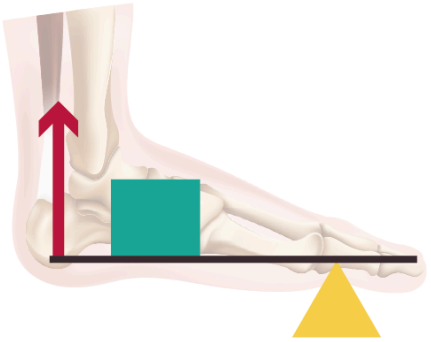


The image above represents a third-class lever.

Third-class levers such as elbow flexion have the _____ between the _____ and the _____.

Lever component	For elbow flexion
Lever arm	
Fulcrum	
Load	
Effort	

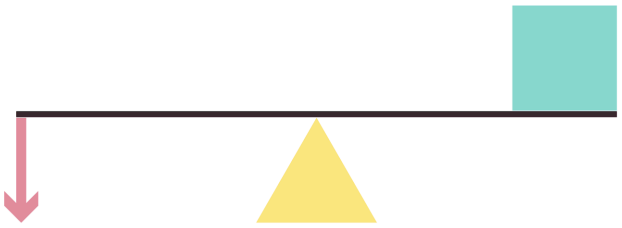
Mechanical advantage



$$\text{Mechanical advantage} = \frac{\text{Effort arm}}{\text{Load arm}}$$

Effort arm: Distance from effort to the fulcrum
Load arm: Distance from the load to the fulcrum

Accurately draw the effort and load arms on this lever:



Which one is greater, the effort or the load arm? ▢ Effort arm ▢ Load arm

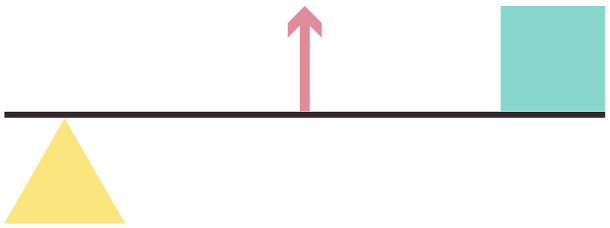
Does this lever operates with mechanical advantage? ▢ Yes ▢ No

Accurately draw the effort and load arms on this lever:

Which one is greater, the effort or the load arm? ▢ Effort arm ▢ Load arm

Does this lever operates with mechanical advantage? ▢ Yes ▢ No

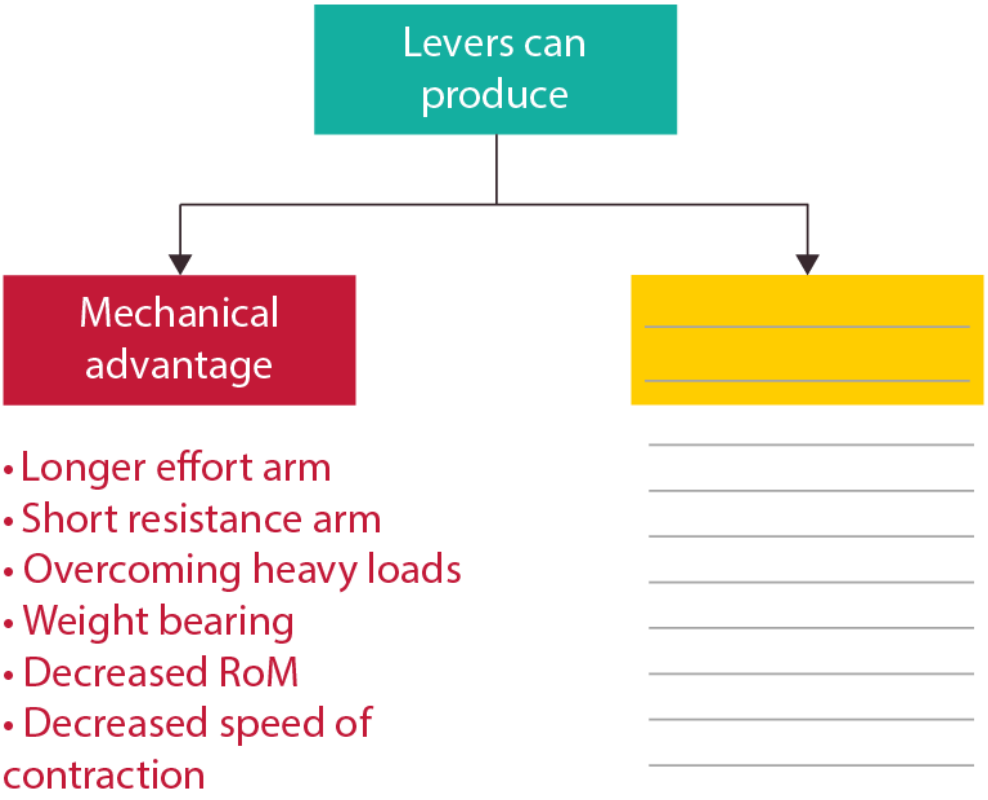
Accurately draw the effort and load arms on this lever:



Which one is greater, the effort or the load arm? ▢ Effort arm ▢ Load arm

Does this lever operates with mechanical advantage? ▢ Yes ▢ No

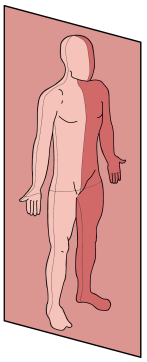
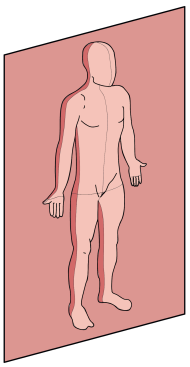
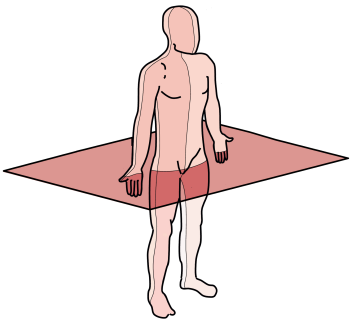
Mechanical advantage



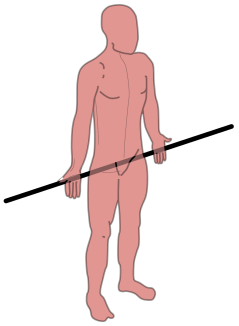
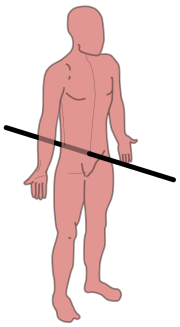
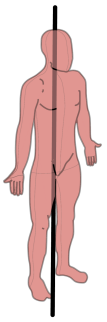
Want to know more? Watch the tutorial "Levers" on TheEverLearner.com (subscribers only).

Topic 6: Movement patterns using planes and axes

Planes

Plane	Image	Movement at the joint
Sagittal plane		Flexion Extension _____ _____
_____		_____ _____
Transverse plane		_____

Axes

Axis	Image	Movement at the joint
Frontal axis		Flexion Extension Plantar flexion Dorsiflexion
Sagittal axis		Abduction Adduction
Vertical axis		Rotation

Sporting examples

Front tucked somersault	Sagittal plane and _____ axis
Cartwheel	_____ plane and sagittal axis
Full twist jump	Transverse plane and _____ axis

TASK 1: Complete the 8-bounce trampoline routine with the correct planes and axes.
TASK 2: Can you complete the antagonistic muscle pairs linked to the specific movement?

Skill	Plane	Axis	Specific movement	Agonist	Antagonist
Straddle			Flexion at the hip		
Tucked back somersault			Flexion at the knee		
Pike jump			Extension at the knee		
Full twist			Extension at the elbow		
Seat landing			Plantar flexion		
Half twist out to feet			Dorsiflexion		
Tuck jump			Flexion at the elbow		
Piked front somersault			(opening out of the piked front somersault) Extension at the hip		

Want to know more? Watch the tutorial "Planes and axes" on TheEverLearner.com (subscribers only).

Topic 7: Components of fitness

Components of fitness	Cardiovascular fitness/Aerobic endurance	Ability of the _____ and _____ to supply oxygen to the working muscles
		Harvard step test
		Cooper 12-minute test
	Muscular strength	Amount of _____ a muscle can exert against a _____
		Hand grip dynamometer
	Muscular endurance	The ability to use voluntary muscles _____ without getting _____
		One-minute press up test
		One-minute sit up test
	Flexibility	The range of motion of your joints
		Sit and reach test
	Body composition	The _____ of body weight that is _____, fat or bone
		No named test - mention BMI.
	Agility	Changing _____ quickly whilst maintaining _____
		Illinois agility test
	Balance	Maintenance of the centre of _____ over the base of _____
		No named test
	Coordination	The ability to use _____ parts of the body _____
		No named test

	Reaction time	_____ taken to initiate _____ to a _____
		No named test
	Power	_____ x _____
		Ability to perform _____ movements _____
		Vertical jump test
	Speed	_____ rate at which an individual is able to perform a move_____ment or cover a _____ in a period of _____
		30m sprint test

The heptathlon is made up of seven events and will be hotly contested in the Paris Olympics this summer. Below is an example of six of the events and how the components of fitness are required in them.

Shot-put

Event phase	Most important component of fitness required	Justify choice
Throw	Strength	Strength is important because the athlete needs to _____ _____ This will lead to them _____ _____
The rotational technique	Coordination	During the rotation at the start of the throw, the athlete needs to make sure that they coordinate their _____ _____ in order to _____ _____ Without this _____ _____

*Sentence starters could change

800m

Event phase	Most important component of fitness required	Justify choice
The end of the race	Cardiovascular fitness	
The shot-gun start		

High jump

Event phase	Most important component of fitness required	Justify choice
Clearing the bar		To be as light as possible in order to clear the bar. Excess weight or fat will require more effort to jump the same height.

100m hurdles

Event phase	Most important component of fitness required	Justify choice
Hurdle action		

Event phase	Most important component of fitness required	Justify choice
Landing after the hurdle		

Long jump

Event phase	Most important component of fitness required	Justify choice
Take-off		
Shape in the air		

Javelin

Event phase	Most important component of fitness required	Justify choice
Run-up		

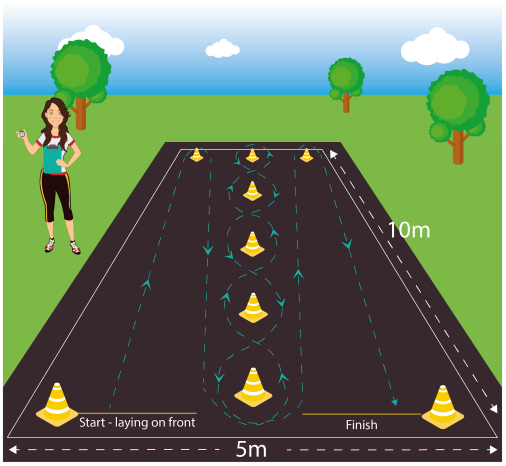
Event phase	Most important component of fitness required	Justify choice
Throw		

Want to know more?

Watch the tutorial "Components of fitness" on TheEverLearner.com (subscribers only).

Topic 8: Fitness tests

Illinois Agility Test

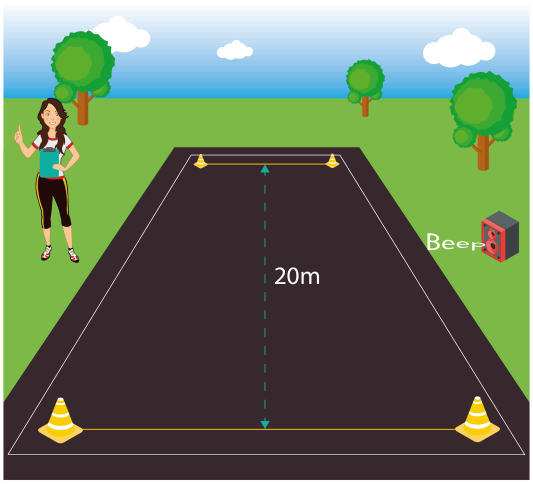


Illinois Agility Test	
Protocol	Strengths and Weaknesses
Mark the course out to the exact measurements required (10m x 5m grid).	Relevant for running-based games
Start lying face down (prone) behind the start line.	Small area
Follow the path correctly.	Maximal
Stop the clock when you cross the finish line.	Coordination issues affect results
Result is time in seconds.	Little sideways movement so less relevant for racquet sports
	One participant at a time

Standing Stork Test

Stork Stand Test	
Protocol	Strengths and Weaknesses
Hands on hips and one foot on the inside knee of the opposite leg	Little equipment required
Participant raises their heel	Small area
Hold the balance for as long as possible	Participants struggle to find the balance
Heel touches the ground and the balance is lost	Potential timing errors
Score is the total time the the participant held the balance successfully	Non-dynamic: only relates to static balances
	One participant at a time

Multi-stage Fitness Test



Multi-stage Fitness Test	
Protocol	Strengths and Weaknesses
Measure out a 20m track	Lots of participants simultaneously
Use a multi-stage fitness recording	Relatively small amount of space required
Keep in time to the bleeps	Maximal
Wait for the bleep before turning	Not relevant for non-running based sports like cycling
Bleeps get closer together	Prediction only - it is not a measure of CV endurance
Test ends after two missed beeps	Not reliable - scores vary a lot in repeated attempts (based on motivation)
Result is the last level and shuttle they reach	

Wall Throw Test

Wall Toss Test	
Protocol	Strengths and Weaknesses
Mark a line 2m from the wall	Simple and little equipment required
Stand behind the line	Throwing and catching is a learned skill
Using an underarm action, throw the ball at the wall	Not sport-specific
Throw the ball with one hand and catch with the other	
Count the number of successful catches	
In 30 seconds	

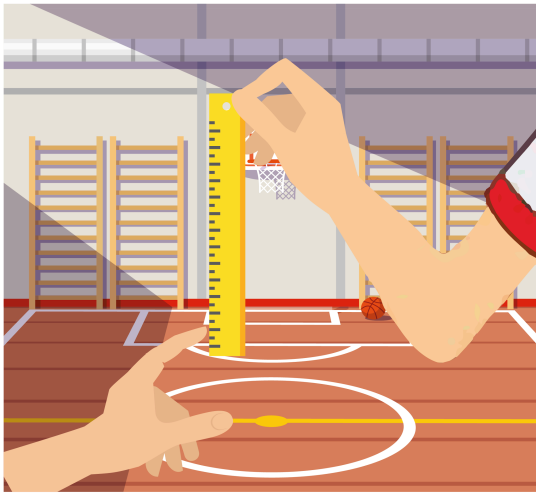
Sit and Reach Test

Sit and Reach Test	
Protocol	Strengths and Weaknesses
Remove shoes	Simple to complete
Sit on the floor with legs straight out	Little equipment required
Soles of the feet on the box	Good measure of lower back and hamstring flexibility
Bench and ruler as an alternative	Only measures lower body flexibility
Reach forward with one hand on top of the other	Only measures static flexibility
Stretch as far as possible and hold for two seconds	One participant at a time
No jerking or bouncing movements	
Distance reached is measured in centimetres	

Abdominal Curl Test

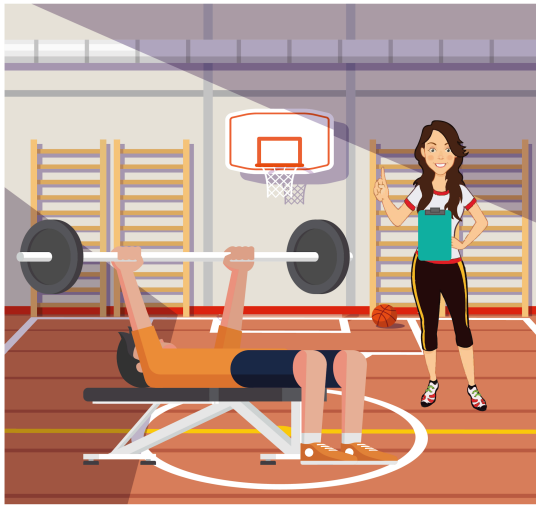
Sit Up Bleep Test	
Protocol	Strengths and Weaknesses
Use a sit up bleep test recording	Large numbers of participants simultaneously
Keep in time to the bleeps	Little equipment required
Complete the entire range of movement	Maximal
Two bleeps per sit up	Specific to core and hip flexor muscular endurance
Test ends after two missed bleeps	Participants experience technique issues so reliability is low

Ruler Drop Test



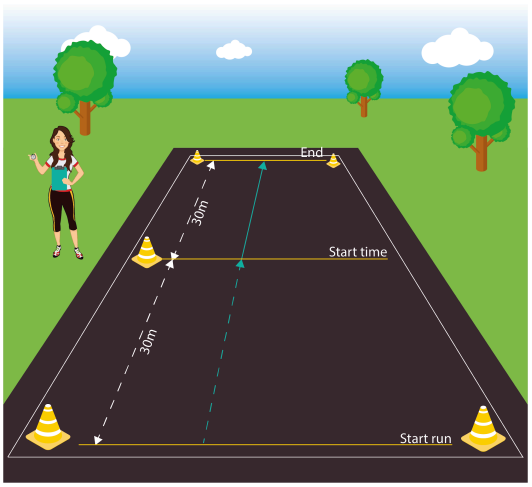
Ruler Drop Test	
Protocol	Strengths and Weaknesses
Ruler is held at 0cm between the thumb and index finger	Simple
Ruler is dropped with no warning	Generic test - not specific to reactions in any sporting context
Participant catches the ruler as early as possible	Results improve with practice - not reliable
Distance dropped is measured in centimetres	

1 Rep Max Test

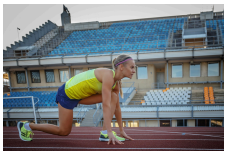


One Rep Max Test	
Protocol	Strengths and Weaknesses
Select the body part	Muscle-group specific
Realistic weight lifted once	Can be repeated for every lift
PRest for 5 minutes	Maximal
Select a heavier weight	Time-consuming
Repeat the process until a weight is selected that cannot be lifted once	Lifts are technique-based as well as strength-related
Result is weight in kg of the last successful lift	

30m Sprint Test



30m Sprint Test	
Protocol	Strengths and Weaknesses
Measure out exactly 30m	Simple to set up
Rolling start	Measures top speed rather than acceleration
Run as fast as you can	Maximal
Use a stopwatch to measure the time	Only measures straight line running speed
Result is time in seconds	Not sport-specific
	Potential timing inaccuracies

Sport/activity	Identify the most appropriate fitness test for each sport/activity (select different ones for each sport)	Justify your choice
		
		
		

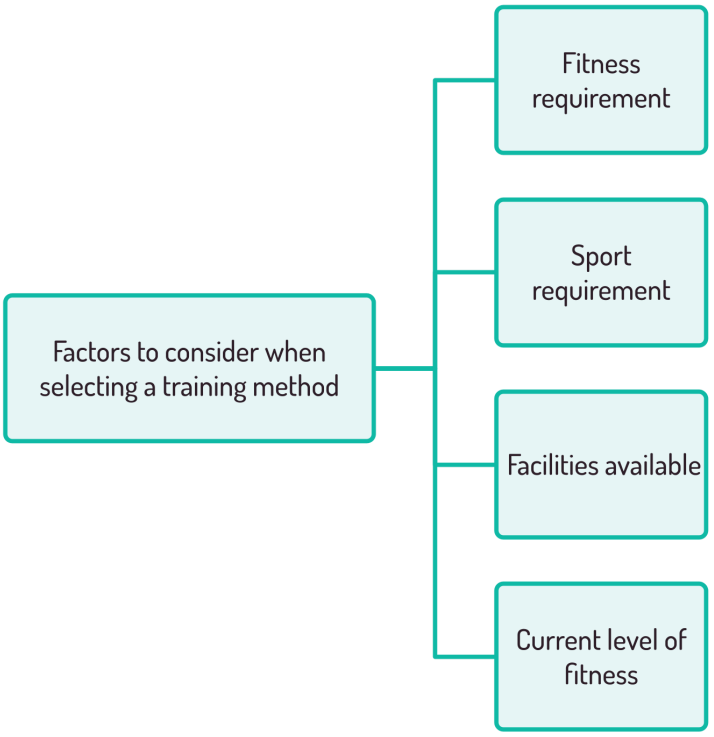
Justify why the following athletes should change from the suggested fitness test:

Sport/activity	Suggested fitness test	Alternative suggestion	Justify your choice
Sumo wrestling	12min Cooper run		
Triathlon	Sit-and-reach each		
Football	Hand grip		

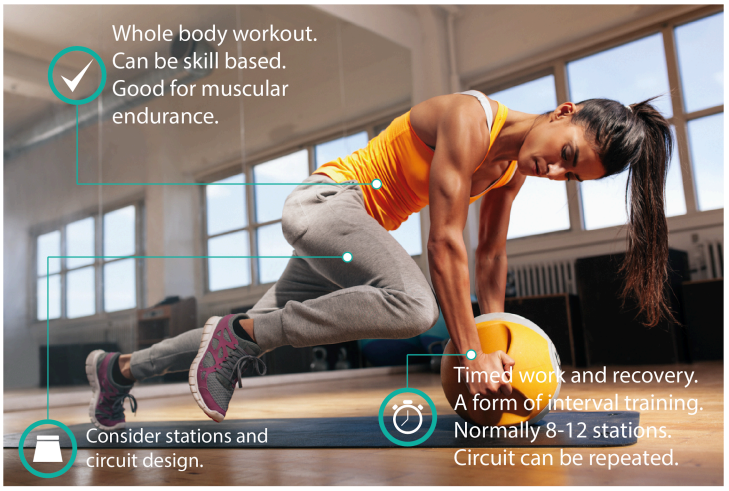
Want to know more?

Watch the tutorials "Fitness testing 1", "Fitness testing 2" and "Fitness testing 3" on TheEverLearner.com (subscribers only).

Topic 9: Training methods



Circuit Training



- Versatile
- Can cater for large numbers
- Basic equipment
- Can target skill and fitnes

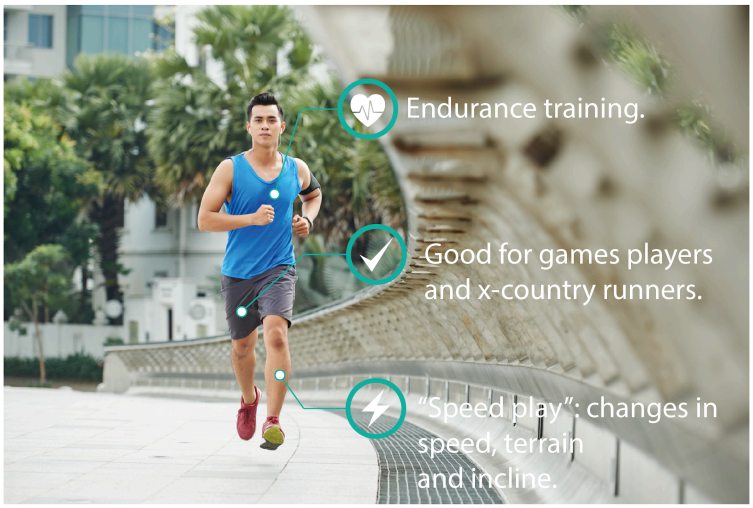
- Few records
- Loafing

Continuous Training

- Simple
- Cheap
- Intensity accuracy
- All age groups
- Essential

- Monotonous
- Time-consuming
- Weight-bearing
- Overuse injuries
- Can decrease speed

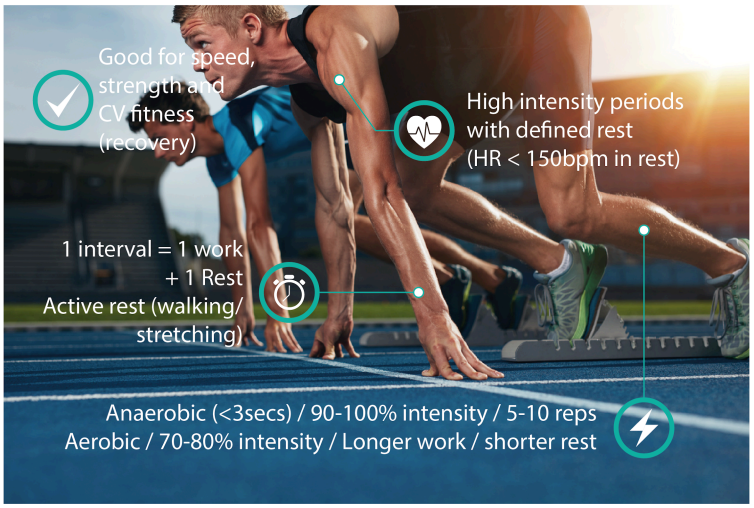
Fartlek Training



- More varied than continuous
- Non-rhythmical
- Different sessions
- More sport-specific
- Does not threaten speed

- More varied locations needed
- Individual requirements- harder for group training

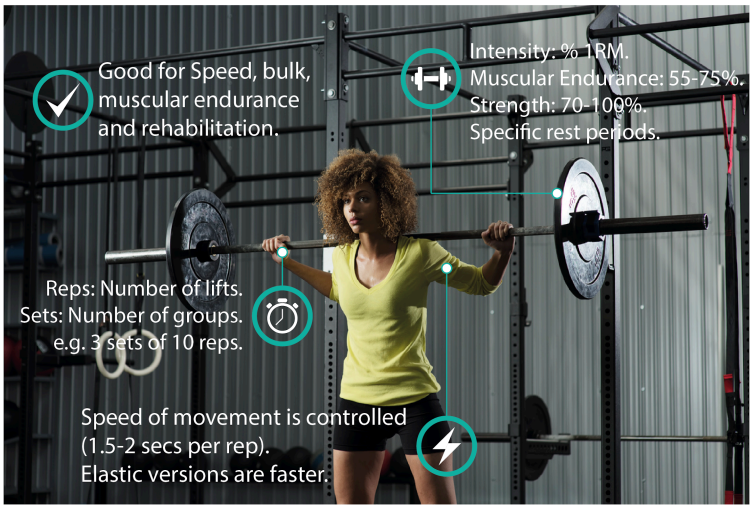
Interval Training



- Versatile
- Simple
- Effective
- Suitable for different athletes

- Increased intensity so requires motiviation
- Can be monotonous

Resistance Training



- Good for rehabilitation
- Endless variations
- Impacts performance
- Muscle isolation

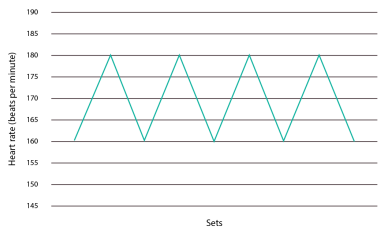
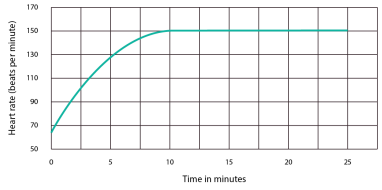
- Poor technique has major side-effects
- Weight machines control movement

Plyometric Training

- Increases power
- Central to many sports
- Very effective

- Can be contraindicating
- Not suitable for unfit people
- Not suitable for young people

Heart rate: identify the method of training from the heart rate and justify your answer:

	Method of training	Justification of answer
		
		

Evaluate the importance of these methods of training to improve the fitness of these athletes:

Method of training	Athlete	Component of fitness	Evaluation
Interval	75m hurdler		
Plyometric	High jumper		
Fartlek	Steeplechase		
Weight	Shot Putter		

Want to know more?

Watch the tutorials "Methods of training 1" and "Methods of training 2" on TheEverLearner.com (subscribers only).

Topic 10: Performance-enhancing-drugs (EAQ)

Peptide hormones (EPO)		
*Taken by	Positives	Negatives
• Road cyclist • Triathlete • Marathon runner • X-country skier	• RBC production • Increased oxygen transportation • Perform at higher intensities aerobically	• Increased blood viscosity • Increased blood pressure

Peptide hormones (HGH)		
*Taken by	Positives	Negatives
• Weight lifters • Hammer throwers	• Increased muscle mass • Increased strength and power	• Liver damage

Stimulants		
*Taken by	Positives	Negatives
• Games players • Boxers	• Increased alertness • Improved reaction time	• Over-arousal • Loss of concentration • Errors

Narcotic analgesics		
*Taken by	Positives	Negatives
		• Make the injury worse • Not good for the athlete's health

Diuretics		
*Taken by	Positives	Negatives
		• Dehydration • Body can go into shock

Beta blockers		
*Taken by	Positives	Negatives
		• Slower reaction time • Drowsiness

Anabolic steroids		
*Taken by	Positives	Negatives
		• Roid rage • Androgynous changes • Liver damage • Heart failure

PED	Sport or physical activity where effect of PED would be an advantage	Advantage to performer in that sport or physical activity
Anabolic steroids		
Narcotic analgesics		
Diuretics		
Beta blockers		

Want to know more? Watch the tutorials "Anabolic steroids" "Beta blockers", "Diuretics" and "Other PEDs" on TheEverLearner.com (subscribers only).