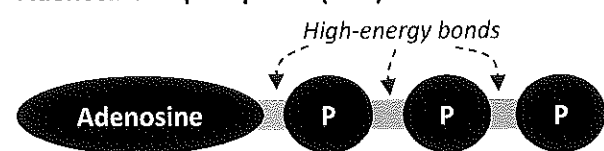


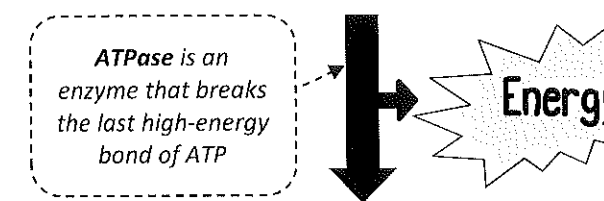
Adenosine Triphosphate (ATP)

ATP is the primary energy source for the human body. Energy is produced from ATP when the adenosine and three phosphate molecules are broken down.

Adenosine Triphosphate (ATP)



ATPase is an enzyme that breaks the last high-energy bond of ATP



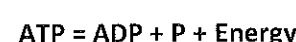
Adenosine Diphosphate (ADP)



Energy for Exercise

We get our energy from food, but the nutrients we get from food are stored as a high-energy compound known as ATP. This is broken down and resynthesised to continually supply us with energy for exercise.

ATP Breakdown



Exothermic reaction

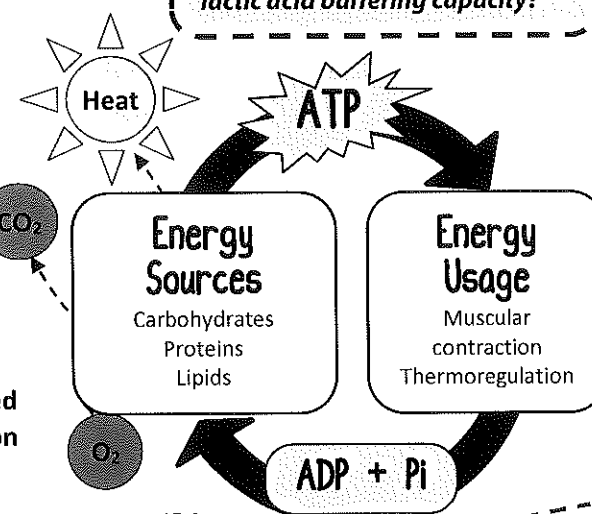
ATP Resynthesis



Endothermic reaction

In order for ATP resynthesis to happen, energy is used from the ATP-PC System

Research:
How can supplementation be used to increase an athlete's lactic acid buffering capacity?



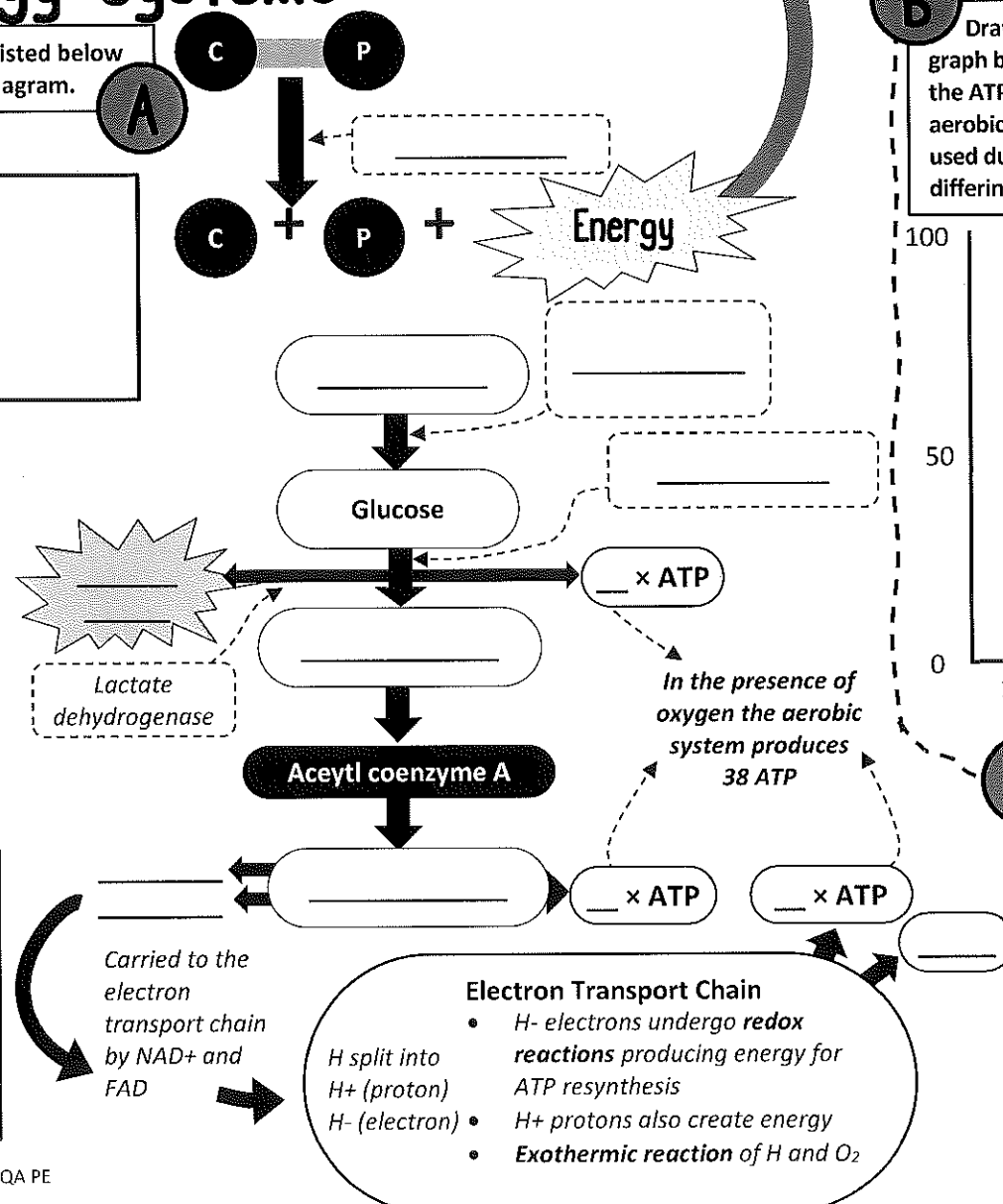
The Energy Systems

Describe the three energy systems listed below and fill in the missing gaps on the diagram.

ATP-PC

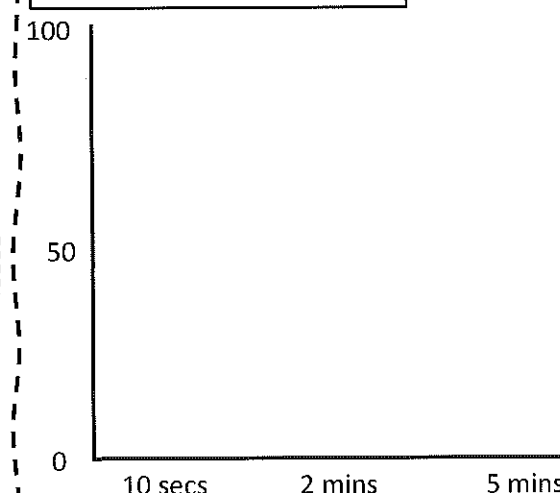
Glycolytic System

Aerobic System



Energy Continuum

Draw three lines on the graph below to represent how the ATP-PC, glycolytic and aerobic energy systems are used during exercise of differing intensity and duration.



Complete the table below to summarise the three energy systems.

Summary of Energy Systems

	ATP-PC System	Glycolytic System	Aerobic System
Type of Reaction			
Chemical/Fuel used			
Site			
Controlling Enzyme			
ATP Yield			
By-products			

Energy Transfer during Exercise of Different Intensities

3.1.1.6

1

The type of energy transfer that occurs is dependent on the duration and intensity of exercise.

Short duration / high intensity

This type of exercise uses the **anaerobic energy system**, i.e. the **ATP-PC system**, and is utilised in sports which require **sprint and power** performance, e.g. 100 m sprinting.

A downside of performing this type of exercise is that it leads to **lactate accumulation**. If lactate continues to accumulate, it will exceed the **lactate threshold** and, therefore, levels will rise dramatically leading to **OBLA** (a level of lactate accumulation which causes fatigue).

Athletes who rely on their ability to quickly produce energy will have a greater lactate-producing capacity than athletes who rely on aerobic energy production. This is largely due to a greater lactate buffering capacity which allows them to utilise this system for longer before fatigue occurs.

Long duration / lower intensity

Explain how energy is produced during long duration / lower intensity exercise and the impact this has on recovery.

Fitness levels

The higher the aerobic fitness levels, the longer the time spent using the ATP-PC and glycolytic energy systems.

Recovery periods

Aerobic: up to 24 hours
Glycolytic: 20 mins to 2 hrs
ATP-PC: 3 mins

Also affected by

Which energy system?

Muscle fibre
Type I fibres are more likely to use aerobic system, type IIx are more likely to use the glycolytic system and type IIa are more likely to use the ATP-PC system.

Duration

The graph to the left is of the energy continuum, demonstrating how the predominant energy system being used differs as the length of exercise increases.

Intensity

Low intensity: aerobic
High intensity: glycolytic
Very high intensity: ATP-PC

Energy Expenditure

Energy expenditure is a measure of the calories required to perform a task. It can be measured using the following methods:

- Indirect calorimetry
- Lactate sampling
- VO₂ max test
- Respiratory exchange ratio (RER)

Impact of Specialist Training Methods on Energy Systems

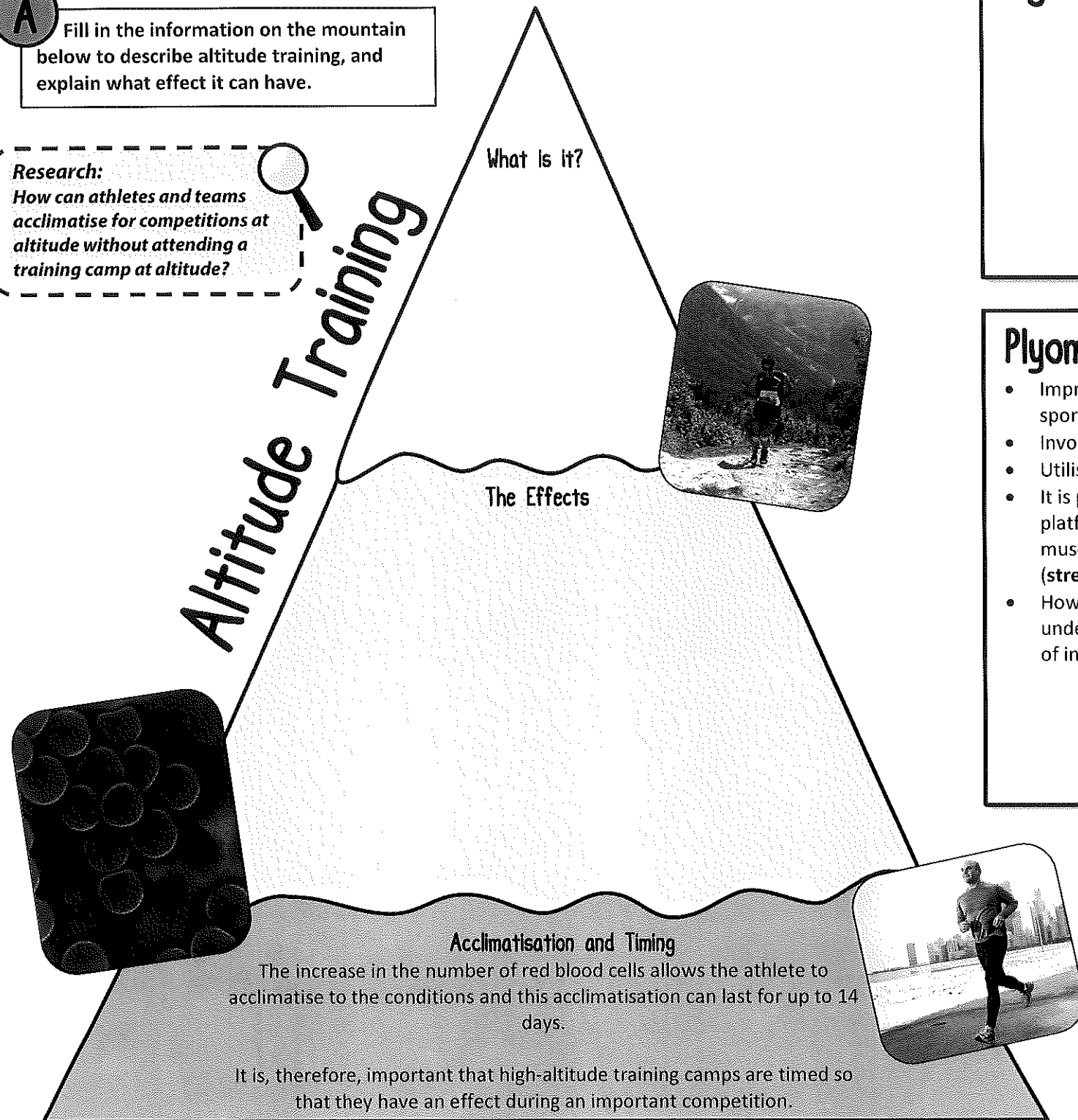
3.1.1.6

2

There are a number of specialist training methods which can be used in order to train the aerobic and anaerobic energy systems. These include: altitude training, high-intensity interval training (HIIT), plyometrics and speed agility quickness (SAQ).

A Fill in the information on the mountain below to describe altitude training, and explain what effect it can have.

Research:
How can athletes and teams acclimatise for competitions at altitude without attending a training camp at altitude?



B Describe high-intensity interval training and explain the impact that it can have.

High-intensity Interval Training (HIIT)



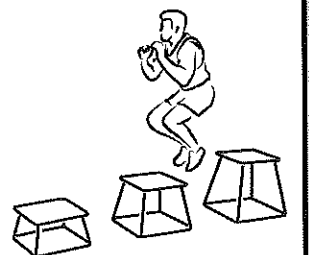
Plyometrics

- Improves power and explosive strength, useful for sports such as basketball and hurdling
- Involves anaerobic energy production
- Utilises the ATP-PC system
- It is performed by bounding between raised platforms which leads to the three types of muscular contraction described to the right (stretch-shortening cycle)
- However, this method puts the muscles under a lot of stress which increases the risk of injury



C Describe the three stages of muscle contraction during plyometric training.

- 1** Eccentric stage:
- 2** Amortisation phase:
- 3** Concentric phase:



Speed Agility Quickness (SAQ)

D Describe speed, agility, quickness (SAQ) training and explain the impact that it can have.



Information Processing

Information from the environment informs the way that we perform sporting skills. The way that this occurs is outlined below.

Memory Models

Research:

How does the sport of athletics ensure that athletes do not 'jump the gun' by starting the race before it is physically possible to react to the starting signal?

3.1.2.5 3

Reaction, Response and Movement Time

It is important that athletes can respond quickly to stimuli in the environment. The factors affecting response are outlined below.

A Briefly describe the four stages of information processing.

1. Input:
2. Decision-making:
3. Output:
4. Feedback:

Glossary of Keywords

C Complete the glossary below by providing definitions.

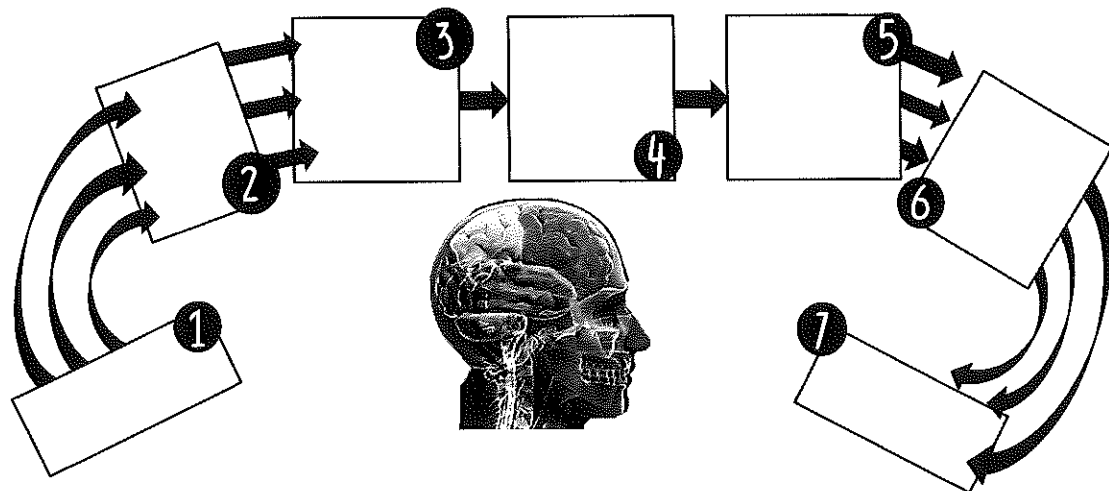
- Simple reaction time –
- Choice reaction time –
- Response time –
- Hick's law –
- Psychological refractory period –
- Single channel hypothesis –
- Movement time –
- Temporal anticipation –
- Spatial anticipation –

Response time can be improved by:

1. Practising regularly
2. Improving speed of movement
3. Improving selective attention

Whiting's Model of Information Processing

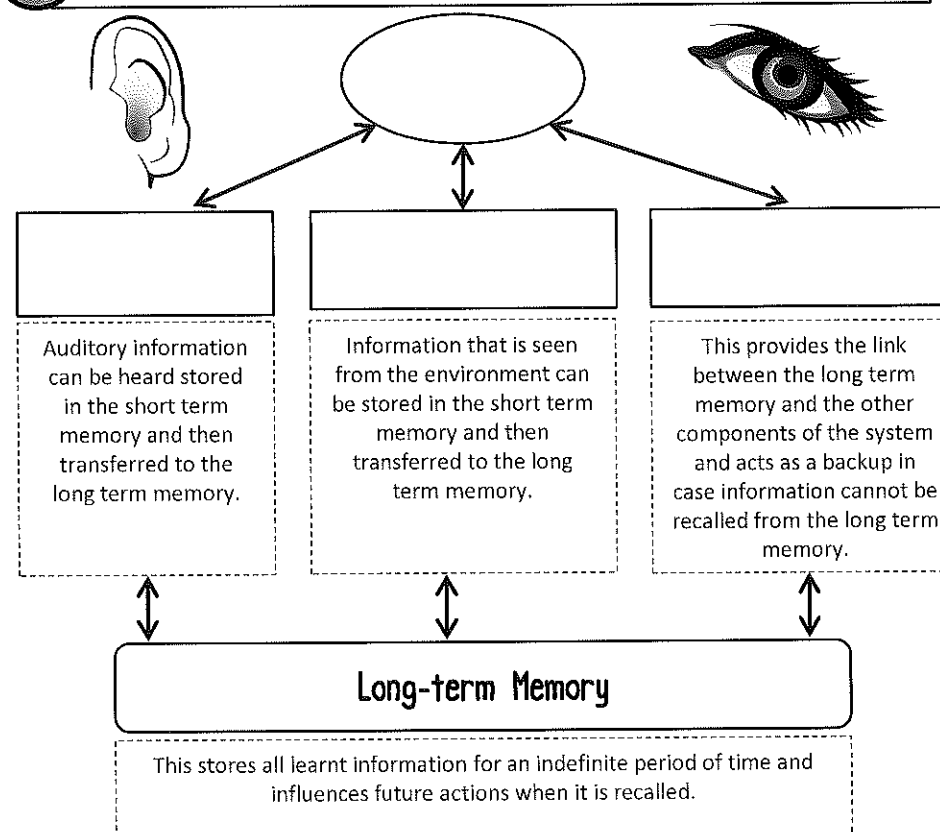
B Identify each stage of Whiting's model of information processing and fill in the model.



1. _____: The sporting environment, e.g. everything that is happening on a rugby field
2. _____: The sense organs, e.g. the eyes take information from the display e.g. a rugby player seeing an opponent kick the ball
3. _____: Information from the display is processed and selective attention removes irrelevant information, e.g. the rugby player removes the movement of substitutes on the sideline
4. _____: Information is compared to long-term memories and a decision is made, e.g. the player decides where to move to
5. _____: A nerve impulse is sent from the brain to the muscles via motor neurons, e.g. nerve impulse arrives at the hamstrings and quadriceps
6. _____: The muscles perform the action, e.g. the player begins to run into position
7. _____: The effectiveness of the action is measured and used to inform future decisions, e.g. if the player was in the wrong position, they will alter their positioning next time

Baddeley and Hitch Working Memory Model

D Fill in the blanks on the diagram of Baddeley and Hitch's working memory model below.



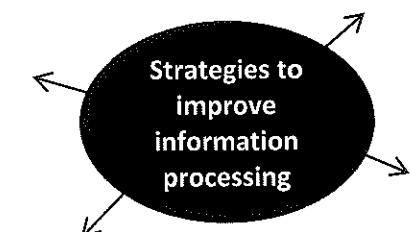
Schmidt's Schema Theory

This theory states that motor programmes can be adapted to suit a situation by responding to recall or recognition schema:

- Recall schema – parameters of the movement to be produced are informed by the information received from the display (initial conditions) and the desired response (response specifications).
- Recognition – occurs after the movement and takes information from the feeling of the movement (sensory consequences) and from how successful the movement was (response outcomes).

For example, a football player is about to shoot and will alter their technique based on their distance from the goal (initial conditions) which will determine how hard to shoot (response specifications). After the shot, they will take information from how the shot felt (sensory consequences) and whether or not they scored (response outcomes).

E Complete the spider diagram by outlining different strategies that can be used to improve information processing.



Acute and Chronic Injuries

A Describe each of the injuries listed below.

- **Acute injury:**
 - Hard tissue injuries:
 - Soft tissue injuries:
- **Chronic injury:**
 - Hard tissue:
 - Soft tissue:

Recovery from Exercise

B Explain how each of the methods listed below can help recovery from exercise.

Compression garments

Massage / foam rollers

Cold therapy

Sleep

Nutrition

Research:
What other methods of recovery can athletes use?



Screening

This involves performing a range of tests on an athlete prior to them taking part in physical activity to determine whether they are at risk of being injured.

Screening can be used to tailor training sessions to avoid certain movements and also to strengthen certain areas of the body.

Methods of Preventing Injury

C Identify and describe three different injury prevention methods

1.

2.

3.



D Explain how each of the methods listed below can help rehabilitation from injury.

Proprioceptive training

Strength training

Hyperbaric chambers

Cryotherapy

Hydrotherapy

Injury Prevention and Rehabilitation

Warm-up

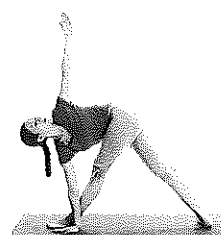
A warm-up is always essential. Below are the stages of an effective warm-up.

Warm-up activity: 5–10 minutes of light cardiovascular activity – raises body temperature

Static stretching: 5–10 minutes – improves range of movement

Sport-specific warm-up: replicating the sporting actions in intensity, type, etc.

Dynamic stretching: imitating the relevant sporting actions



Rehabilitation

Linear Motion

Linear Motion: The centre of mass of an object moving along a straight line. Created by direct force (the line of force moving through an object's centre of mass).

Research:
How can a cyclist ensure that the forces acting on them are beneficial?

Quantities



Forces acting on the cyclist during linear motion:

- **Gravity** – A force which attracts the cyclist towards Earth
- **Friction** – Negative force created when one object moves over another, e.g. the tyres over the road
- **Air resistance** – Negative force created by movement against the air. It is affected by the **velocity**, **mass**, **cross-sectional area** and **shape** of the cyclist and bike.
- **Internal muscular force** – Muscular tension which produces a force against resistance and allows the cyclist to move forwards
- **Weight** – The force acting on the cyclist due to gravity and their mass

Impulse:

3.2.2.3–4

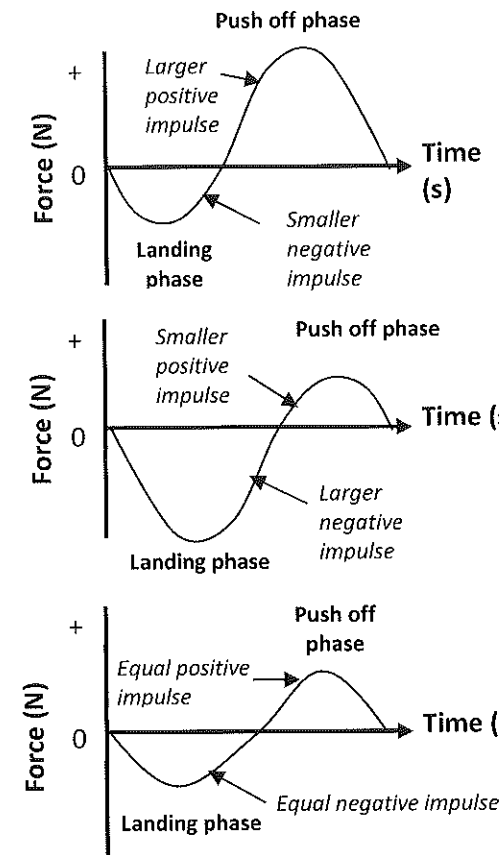
5

- The relationship between force and time, i.e. impulse = force × time
- The longer a force is applied for, the greater the impulse
- The direction and quantity of a force determines acceleration and momentum

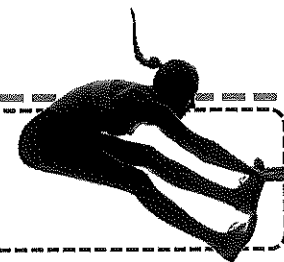
A Complete the table below by providing the definition, calculation and unit of measurement for each of the quantities of linear motion

Quantity	Definition	Calculation	Unit
Distance			
Mass			
Weight			
Momentum			
Displacement			
Speed			
Velocity			
Acceleration			
Deceleration			

B The graphs below are force–time graphs of a 100 m sprinter. Explain what is happening to the athlete's motion at each of the three stages.

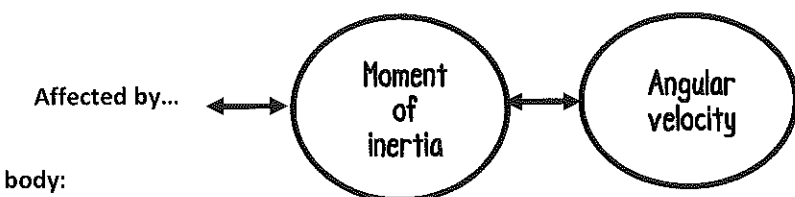


Angular Motion: The motion of an object around a fixed axis. Created by an eccentric force being exerted on an axis or axes of rotation.



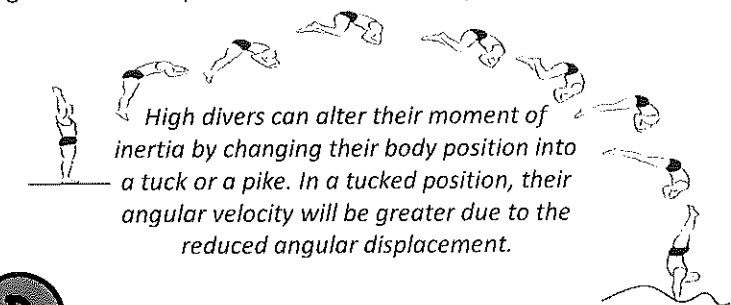
Distribution of the mass from the axis of rotation:

The larger the distance of the mass of the body from the axis of rotation, the larger the moment of inertia.



Mass of the body:
The larger the mass, the larger the moment of inertia.

A graph showing the relationship between angular velocity and moment of inertia



High divers can alter their moment of inertia by changing their body position into a tuck or a pike. In a tucked position, their angular velocity will be greater due to the reduced angular displacement.

D

Draw three lines on the graph (right) to represent the angular velocity, moment of inertia and angular momentum of the diver.

Angular Motion

C Explain each of Newton's three laws of angular motion.

Newton's first law	
Newton's second law	
Newton's third law	

Quantity	Definition	Calculation	Unit of measurement
Moment of inertia	The resistance of an object to change its current state of rotational motion	Moment of inertia = body mass × distance from the axis of rotation ²	kg/m ²
Angular velocity	The rate of angular displacement of an object	Angular velocity = angular displacement (radians)/time taken (seconds)	Rads/second
Angular momentum	The amount of angular motion of an object	Angular momentum = moment of inertia × angular velocity	kg m ² /sec
Angular displacement	The difference between the start and final angular positions of a rotating object	Angular displacement = final angular position – starting angular position	rad
Angular acceleration	The change in angular velocity over time	Angular acceleration = (final angular velocity – initial angular velocity)/time	rad/s ²

Conservation of angular momentum

- Angular velocity = angular momentum/moment of inertia
- Inverse relationship: as moment of inertia increases, angular velocity decreases and vice versa
- The angular momentum of an object will remain the same unless acted upon by an external force

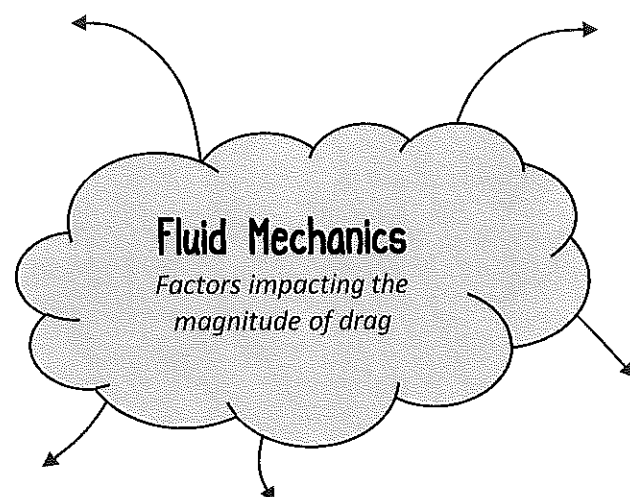
Fluid Mechanics and Projectile Motion

3.2.2.5-6

6

Drag is another word for **air resistance** and is, therefore, a negative force which opposes the movement of an object. There are a number of factors which affect the magnitude of drag:

A Explain how five factors that impact on the magnitude of drag are experienced.



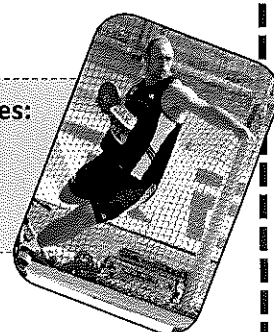
Upwards Lift Force:

When the projectile's velocity increases, it creates an air pressure gradient that develops additional lift. This lift force is important in some sports to increase the time a projectile stays in the air, increasing horizontal distance covered.

C Explain how athletes can use the angle of attack to produce a lift force.

Upwards lift examples:

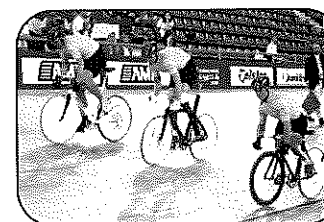
- Discus
- Javelin
- Ski jumper



Bernoulli's Principle

Downwards Lift Force:

D Explain how Bernoulli's principle of downforce works on a cyclist.



Research:
Why are the practical optimal release height, speed and angle different from the theoretical optimum?

Projectile Motion

Projectile: An object that is propelled forward through the air by an external force.

B Describe the optimal height, speed and angle of release for a shot-put.

Factors to increase the horizontal displacement:

Height of release

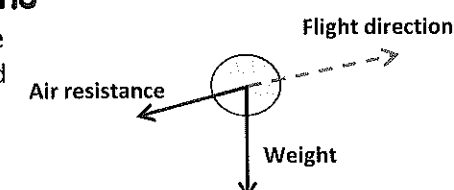
Speed of release

Angle of release



Patterns of Flight Paths

Free-body diagrams demonstrate the impact that air resistance and weight have on a body in flight.



Parallelogram of forces:

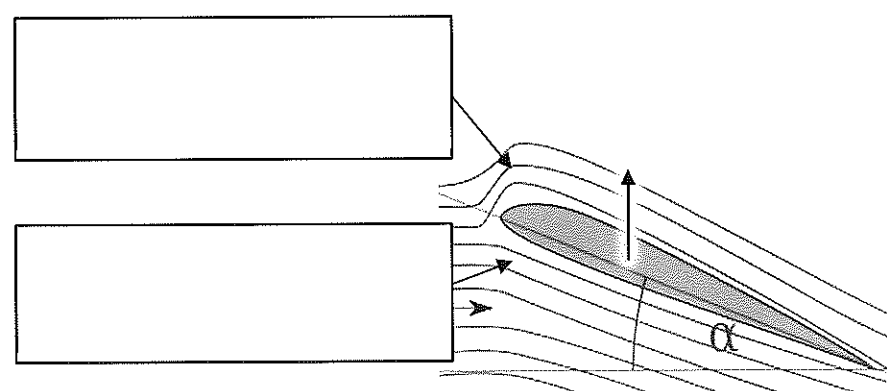
The arrows of the resultant forces of weight and air resistance form a parallelogram on the projectile.

E Draw free-body diagrams to show how air resistance and weight impact on a shuttlecock and a shot-put differently.

Shot-put (parabolic flight path) Shuttlecock (non-parabolic flight path)

Sporting example: Shot-put
Weight provides more resistance than air resistance.

Sporting example: Badminton shuttlecock
Air resistance is greatest force acting on projectile due to the relatively light mass and high velocity of release.



Attribution

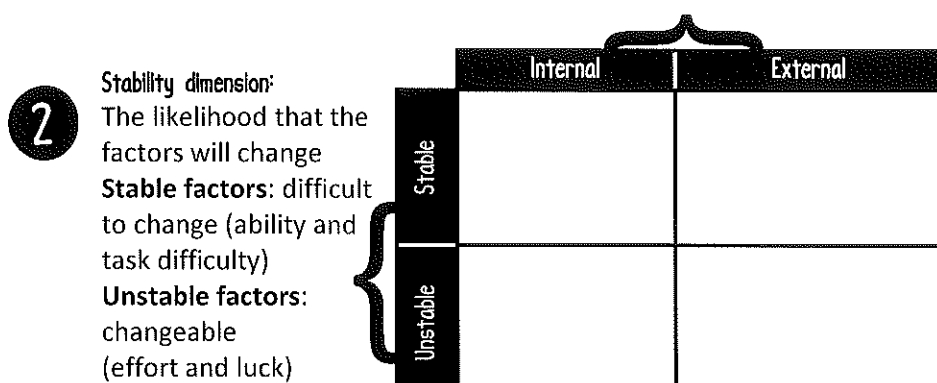
Attribution: Establishing that a particular result occurred as a result of another situation affecting it.

Weiner's model of attribution

Weiner's theory of attribution suggests we attribute an outcome of performance to three causal attributions outlined in the diagram below.

- 1** Locus of controllability:
How the performer perceives their behaviour to be governed
Internal factors: from within the performer (ability and effort)
External factors: from outside of the performer (task difficulty and luck)

A Provide examples for each of the four types of attribution.

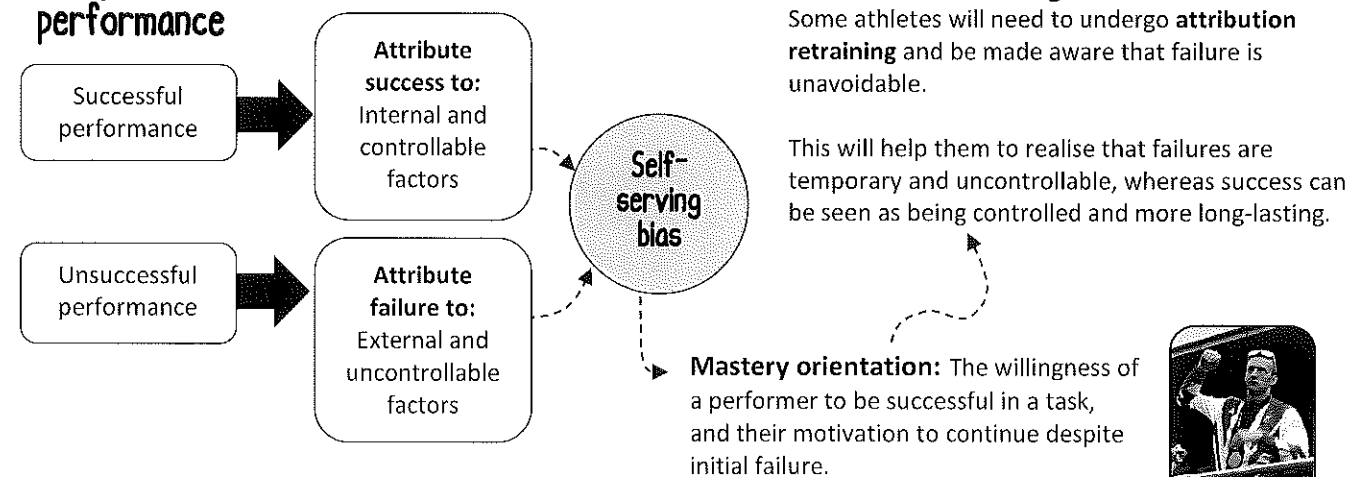


3 Controllability dimension:
How much control the performer feels they have over the situation. If they do not have control, they are not likely to show task persistence!
Controllable factors: high level of control (ability and effort)
Uncontrollable: low level of control (luck and task difficulty)

Learned helplessness:

B Describe what is meant by 'learned helplessness', using an example in sport to help.

Using attributions to aid performance



SELF-CONFIDENCE and SELF-EFFICACY in sports performance

Research:
What impacts can low self-confidence have on an individual's health and well-being?

The belief that an individual has concerning their ability to perform successfully in sport.

The belief that an individual has concerning their ability to be successful when faced with certain situations. The greater their self-efficacy, the greater their attitude and persistence is and the less anxiety they experience.

Impact of sports confidence on...

Performance

- Helps prevent over-arousal
- Encourages creativity
- Improves sense of flow

Participation

- Increased enjoyment when participating
- Improves task persistence
- Improves resilience

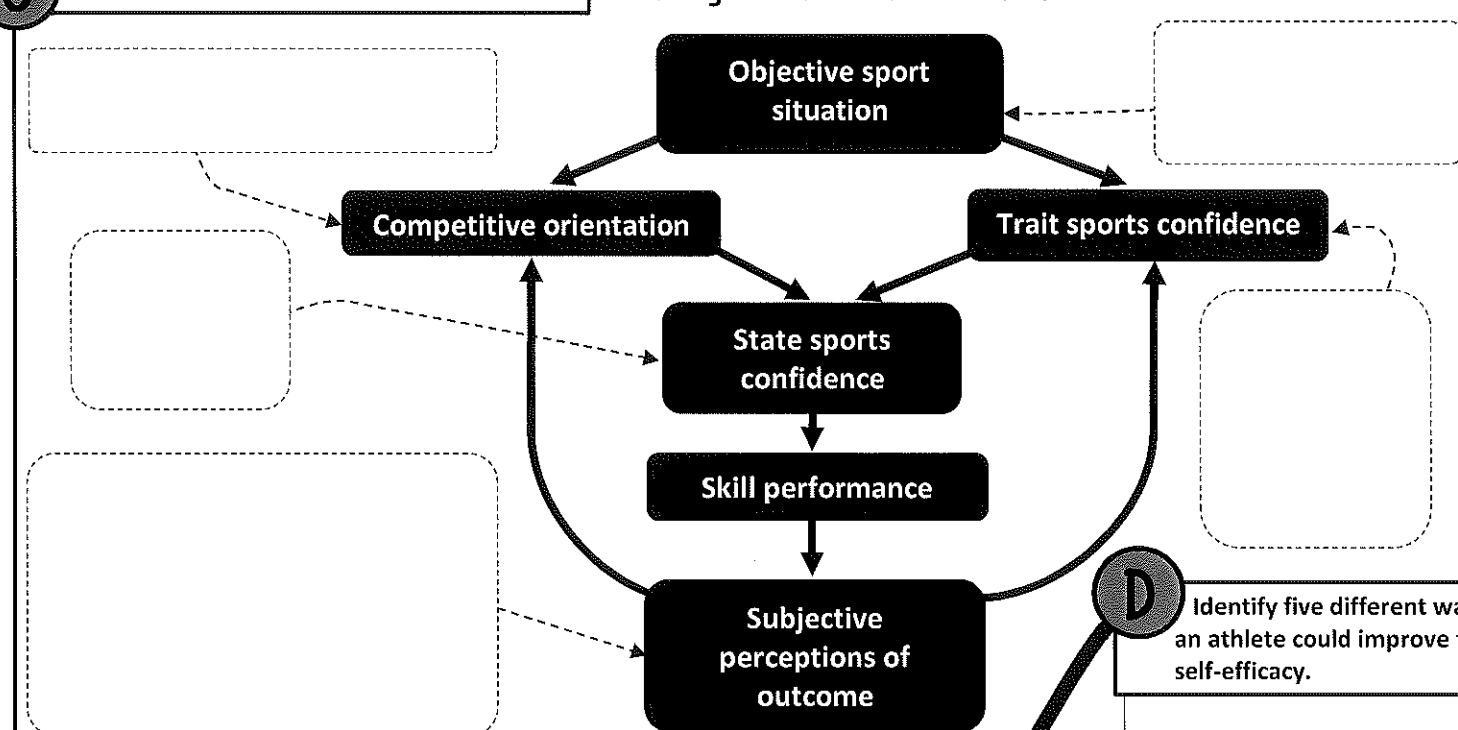
Self-esteem

- As confidence increases, self-esteem improves
- Improved satisfaction



C Annotate Vealey's model of self-confidence.

Vealey's model of self-confidence:



D Identify five different ways that an athlete could improve their self-efficacy.

-
-
-
-
-

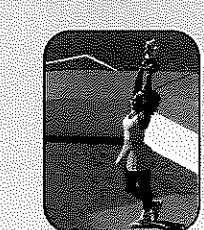
E Identify and explain the four factors which impact on efficacy expectations

Bandura's theory of self-efficacy



Efficacy expectations

Performance level



- + Home field advantage = increase in self-efficacy
- + Hostility towards away team = away team anxiety and over-arousal
- Pressure can lead to choking, evaluation apprehension and social inhibition.

Achievement Motivation

Atkinson's model of achievement motivation

Atkinson identified two different types of personality which can be identified when a person is faced with a challenging situation. The characteristics of the two personality types are outlined below.

A Identify the characteristics of athletes with 'need to achieve' and 'need to avoid failure' personality types.

Need to achieve (NACH)

Need to avoid failure (NAF)

However, athletes are able to display both approach and avoidance behaviours, which suggests that the **situation** they are performing in also has an effect. There are two situational factors to consider:

Probability of success

Those with NACH personalities are more likely to display approach behaviours when the chance of success is limited, whereas those with a NAF personality are likely to only display approach behaviours when there is a high probability of success.

Incentive value:

The harder the task is, the greater the incentive value of that task. Therefore, individuals with a NACH personality are more likely to display approach behaviours when the task is hard, as the rewards will be greater, and NAF personalities are more likely to display approach behaviours when the task is easy.

B Outline four strategies a coach could use to develop approach behaviour.



Research:
How can coaches and parents create mastery orientated environments within a sports setting?

Chelladurai's Multidimensional Model of Sports Leadership

This model suggests that the behaviour of the leader depends on the changeable characteristics and behaviour of each situation. The leader needs to change their behaviour successfully when faced with the differing characteristics to ensure a successful performance and content group.

Leadership in Sport

3.2.3.1.7 and 3.2.3.1.13 ⁸

Characteristics of an effective leader:

C Identify as many characteristics of an effective leader as you can.



Emergent or prescribed?

Comes from **outside** of the group

Prescribed

External appointment

Comes from **inside** the group

Emergent

Usually voted in or interviewed

Leadership Styles

There are three types of leader, which have the following characteristics:

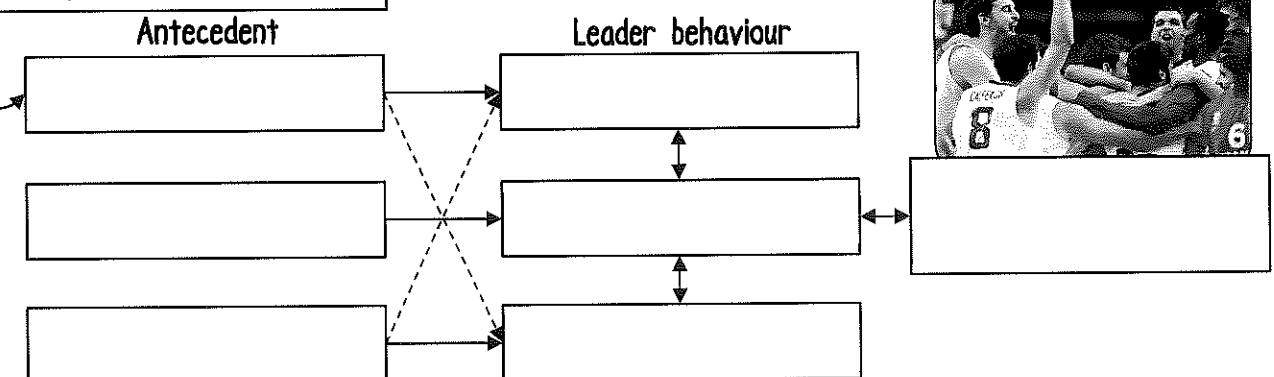
Autocratic	Democratic	Laissez-faire
In complete control	Listens to the opinion of the team	Has no input
Sole decision-maker	Allows decision-making to be shared	Problem-solving approach
Not approachable	People-centred	Group members are in charge of session
Task-oriented	Creative	

Suited to these situations:



E Explain what sporting situations each of the three leadership styles is suited to.

F Label Chelladurai's multidimensional model of sports leadership.



Stress Management to Optimise Performance

3.2.3.1.14 9

Psychological skills training (PST)

In order to learn the cognitive stress management outlined in this spider diagram, there are three stages of learning:

1. **Educational stage:** The athlete learns about the importance of using psychological skills
2. **Acquisition stage:** The athlete learns how to best use particular psychological skills
3. **Practice stage:** The athlete uses these skills during a performance

B Describe each of the stress-management techniques below.

A Define what is meant by 'stress' and 'stressors'.

Stress:

Stressor:

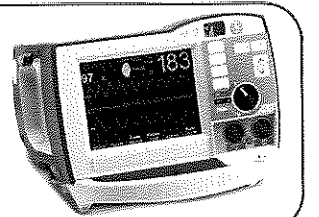
Imagery

Mental rehearsal

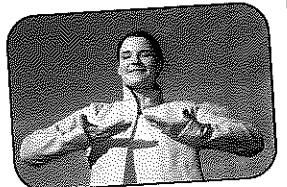
Cognitive Techniques

Somatic Techniques

Bio-feedback



Breathing control



Progressive muscular relaxation

Centring technique

Visualisation

Positive self-talk

Attentional control and cue utilisation

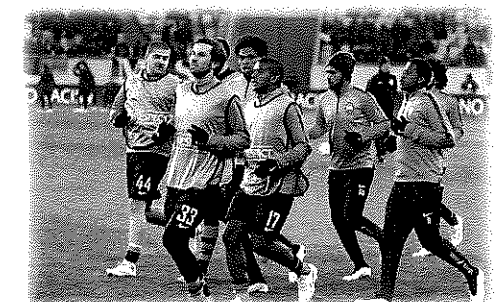
Negative thought stopping



Research:
What are your role models' preparations before a big competition?

Use of warm-ups as a stress-management technique

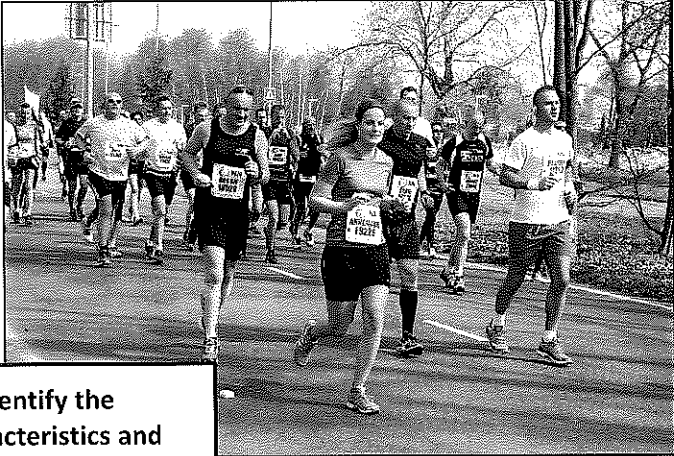
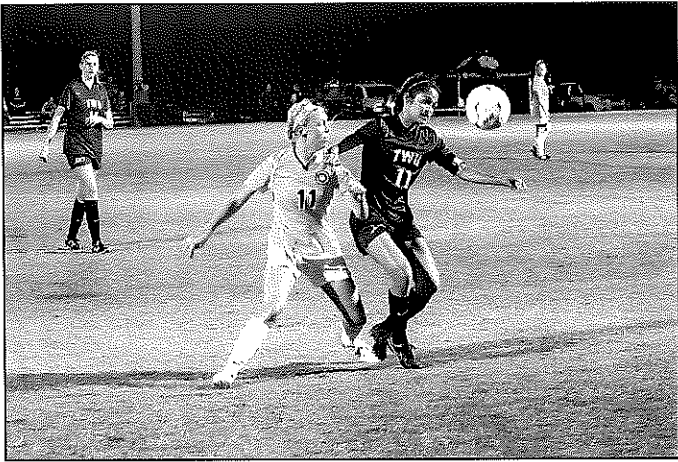

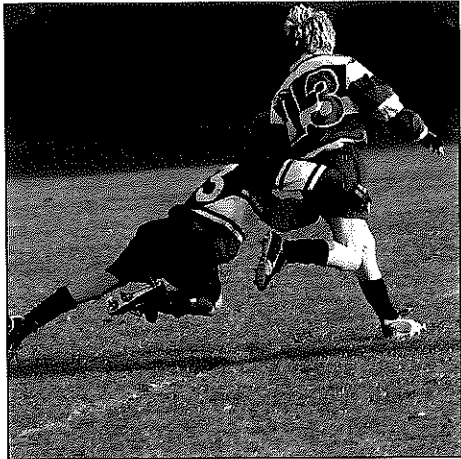
- A warm-up provides an opportunity for the athlete to prepare for performance in the following. Allows the performer to feel physically ready to compete, e.g. by gradually raising the heart rate
- Allows the performer to feel psychologically ready to compete by providing time to perform cognitive techniques – this will provide a chance for arousal to be controlled and self-confidence to be increased



Concepts of Physical Activity and Sport

A Identify the characteristics and functions of each concept of physical activity and sport.

B Explain how each type of physical activity creates a base for sporting development.

Physical Recreation	Sport	Physical Education	School Sport
			
Characteristics:	Characteristics:	Characteristics:	Characteristics:
Functions:	Functions:	Functions:	Functions:
How it creates a base for sporting development:	How it creates a base for sporting development:	How it creates a base for sporting development:	How it creates a base for sporting development:
Similarities with other concepts... Physical recreation and sport are similar to each other as they both involve physical exertion and can improve the health and fitness of the participants. However, sport is generally taken more seriously and, therefore, has more of a competitive element to it.		Similarities with other concepts... The content of physical education sessions and physical recreation is similar, and they both provide similar benefits. However, physical education is a compulsory at school, whereas individuals take part in physical recreation in their own time and out of their own choice.	Similarities with other concepts... School sport and physical education are similar in that they both take place within a school setting and involve participation in physical activity. However, those taking part in school sport do so out of their own interest and their desire to be involved in a more competitive setting.

Research:
What are the drop-out rates of boys and girls once they no longer have to take part in compulsory school sport?



Development of Elite Performers in Sport

There are a number of organisations responsible for increasing the performance of elite athletes. In order to do so, they must identify the most talented athletes and provide them with the required support in order to let them fulfil their potential and progress through the **sport development continuum**. The general support which is required is outlined in the table below and the more specific roles of each organisation are expanded on in each relevant section.

Factors required to support progression to elite level performance

The role of...

A

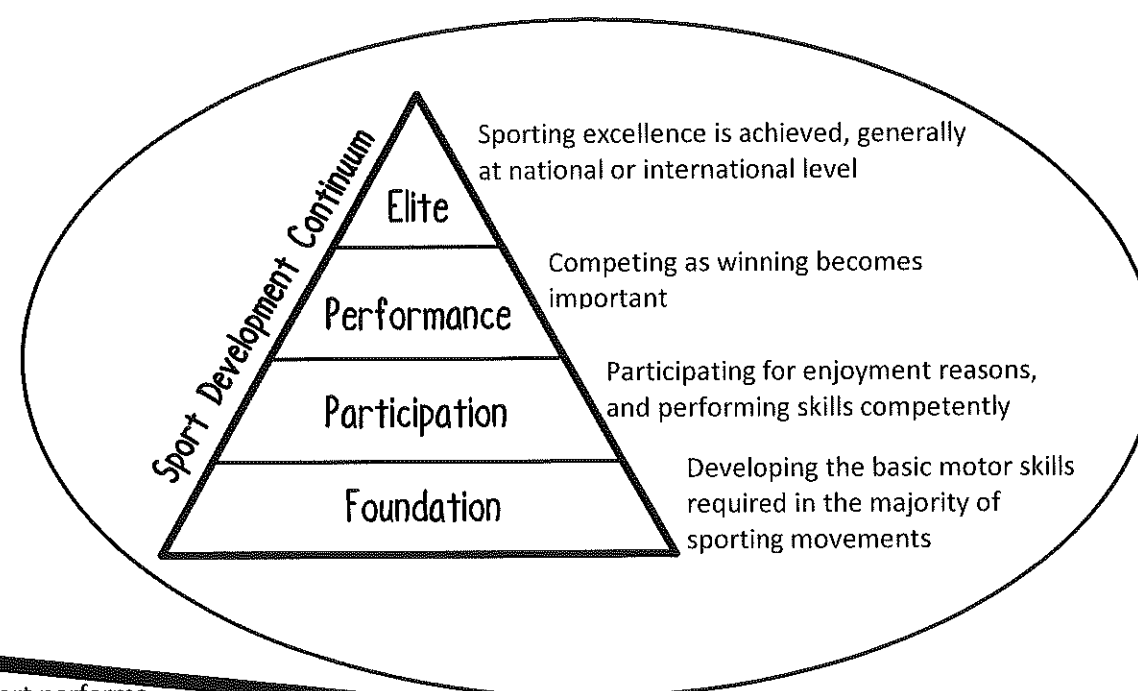
Explain how UK Sport develops excellence in sports performance.

UK Sport

B

Identify the personal, social and cultural factors which are required in order for an individual to progress to the elite level of performance.

Personal	Social	Cultural



The role of...

C

Describe the role of national governing bodies in the development of sport and elite performers.

National Governing Bodies

The role of...

National Institutes of Sport

The national institutes of sport are the organisations which operate in each of the home countries and are responsible for providing support to elite performers in order to give them the best possible opportunity of success.

D

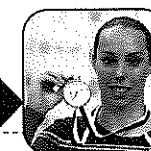
Identify the support services provided by the national institutes of sport.

UK Sport performs **talent identification** in order to increase the pool of talented athletes who could one day become an elite performer capable of winning medals

UK Sport provides funding to the national institutes of sport within the UK in order to allow them to support elite athletes



Talent Identification



Talent identification: Recognising young athletes who have the potential to make it to move through the **sport development continuum** and become an elite athlete.

Talent Identification Programmes (TIPS):

- Identify the physiological and psychological attributes of young athletes
- Set up high-quality coaching within schools across the UK
- Performance data is compared to age-relevant databases
- Those identified are given the chance to compete



Key Terms Relating to Ethics and Deviance

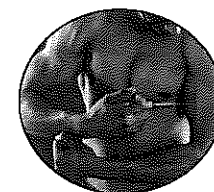
A Define the terms below and give an example of each.

Key Term	Definition	Example
Amateurism		
The Olympic Oath		
Sportsmanship		
Gamesmanship		
Win ethic		
Positive deviance		
Negative deviance		

Anabolic Steroids
Increase protein synthesis within skeletal muscles, improving an athlete's strength and power production.

Beta Blockers
Reduce a performer's heart rate, making them feel calm and in control of their movements.

Illegal Supplements
An aid that improves performance and can hurt the athlete, while contravening sporting ethics.



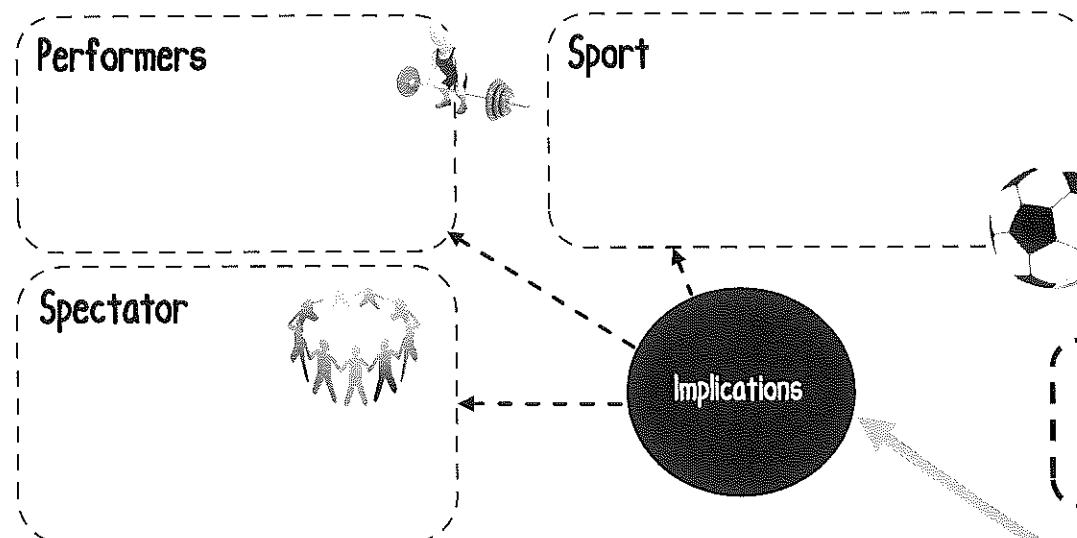
Erythropoietin (EPO)
Increases the red blood cell count in the body, increasing the efficiency of oxygen transport to the working muscles, allowing the athlete to perform for longer.

B Identify as many reasons as you can for why an athlete may choose to take performance-enhancing drugs (PEDs) in sport.

However, new drugs are often developed at a faster rate than new tests, so they go undetected!

C Explain the implications that taking drugs can have on the performers and the sport.

F Explain the implications of player violence and spectator violence on the performers, the sport and the spectators.



Research:
Which sports have the highest rates of deviance in terms of drug-taking and violence?

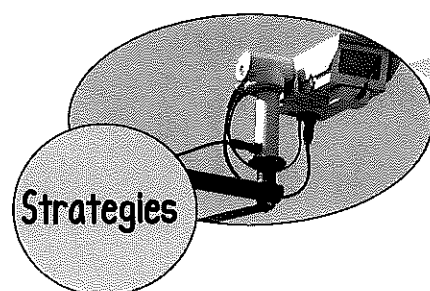
Ethics

Drugs

Violence

and the Law

G Identify as many strategies as you can for reducing spectator violence and player violence in sport.



E Identify five causes of spectator violence in sport and five causes of player violence.

Why?

Players

Spectators

Spectators
Those found guilty of violent behaviour (e.g. hooliganism) or dangerous behaviour which impacts on the safety of others, can receive banning orders, fines, or prosecution

Performers

- Contract laws prevent loss of earnings when injured
- Players face consequences if they break their contracts
- Players can be held accountable if they injure another player

Legislation

Coaches
Have a **duty of care** to protect players by upholding health and safety regulations during training

Officials

- They have a duty of care to protect the players by upholding the laws of the game
- They can be held accountable if they act in a **negligent** manner and allow a player to become injured

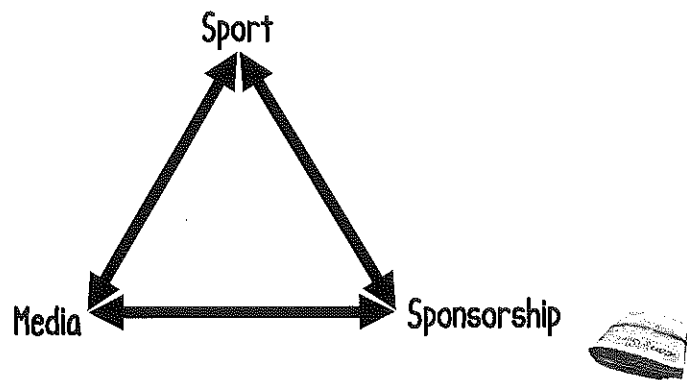
Strategies

Commercialisation and the Media

C Identify and explain five factors which have led to the commercialisation of sport.

3.2.4.7 1 3

A Annotate the golden triangle of commercialisation to explain the relationship between sport, the media and the sponsor.

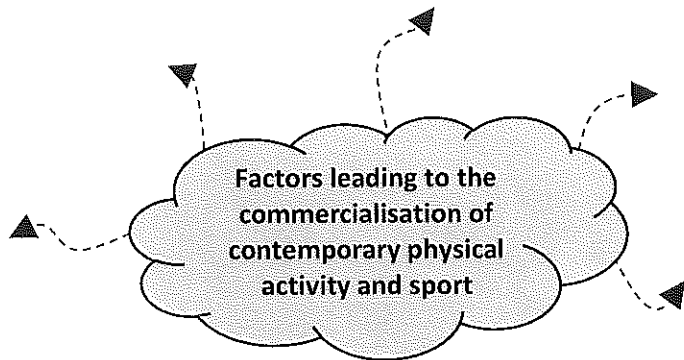


Research:
Which sports have the biggest commercial revenue?

Impact of the commercialisation of physical activity and sport

B Complete the table to assess the impact of commercialisation on the sport, the performers, the audience, the coaches and the officials.

	Positive	Negative
Sport		
Performer		
Audience		
Coach		
Official		



Television

Terrestrial – Fewer games are now broadcast this way due to terrestrial TV’s inability to compete with satellite companies for the broadcasting rights for many sporting events.

Satellite – Often requires a fixed-term contract. While showing many sporting events, it is unavailable to those who do not have the disposable income required to pay for the services.

Pay-per-view – Most associated with boxing, this service requires a one-off payment to enable the viewing of important sporting events.

Radio

There are now dedicated sports stations, which solely update the public on sporting matters, often 24 hours a day. Local and national radio stations also cover live commentaries of local and national sporting events respectively.

Internet

The Internet is the fastest growing source of sports information. It has become increasingly easy to access up-to-date information via computers, mobile phones, tablets, etc.

Written press

The main sources are newspapers and magazines. The back pages of the newspapers contain the latest news, whereas specialised magazines can increase the publicity of minority sports.

Sports coverage

Impact of media on physical activity and sport

D Complete the table to evaluate the positive and negative impact that sports coverage has on the sport, the performers, the audience, the coaches and the officials.

	Positive	Negative
Sport		
Performer		
Audience		
Coach		
Official		

The Role of Technology in Physical Activity and Sport

3.2.4.8 14

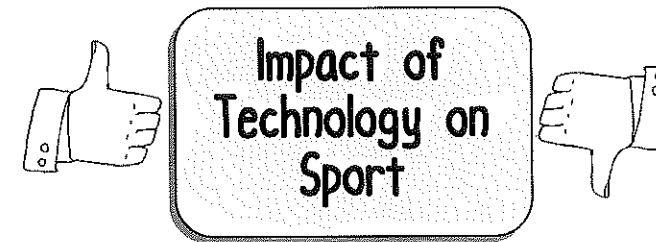
Functions of Sports Analytics

A Explain the effect of the following functions on sporting participation and performance.

The use of technology in sport has increased, from GPS and motion tracking software to video and analysis programmes.

Function	Effect on participation and/or performance
Skill development	
Game analysis	
Talent ID	
Facilities	
Equipment	
Monitoring of fitness	
Injury prevention	

B Identify and explain the positive and negative impacts that technology has had on sport.

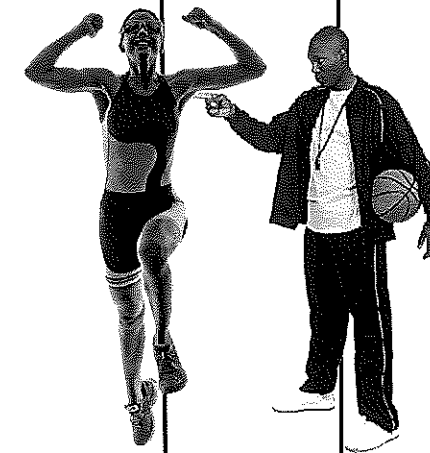


C Explain the impact of technology on the performer and the coach.

Impact of Technology on the...

Performer

Coach



Impact of Technology on the Audience

D Outline two drawbacks of technology for the audience.

Increasing Entertainment Value

- **Action replays** – Allow the more entertaining moments of an event to be watched again.
- **Multiple camera angles** – Allow skills to be viewed from different angles, giving the spectator a different perspective on the skill.
- **Slow-motion technology** – Allows the exciting and complex skills to be analysed more closely.
- **Improved analysis** – Enables a more complete and in-depth review of sporting performances, by generating interesting statistics.
- **Punditry** – Comments from experts can provoke debate and further analysis of performances.

Drawbacks

Research:
What are the latest forms of technology being introduced into sport?