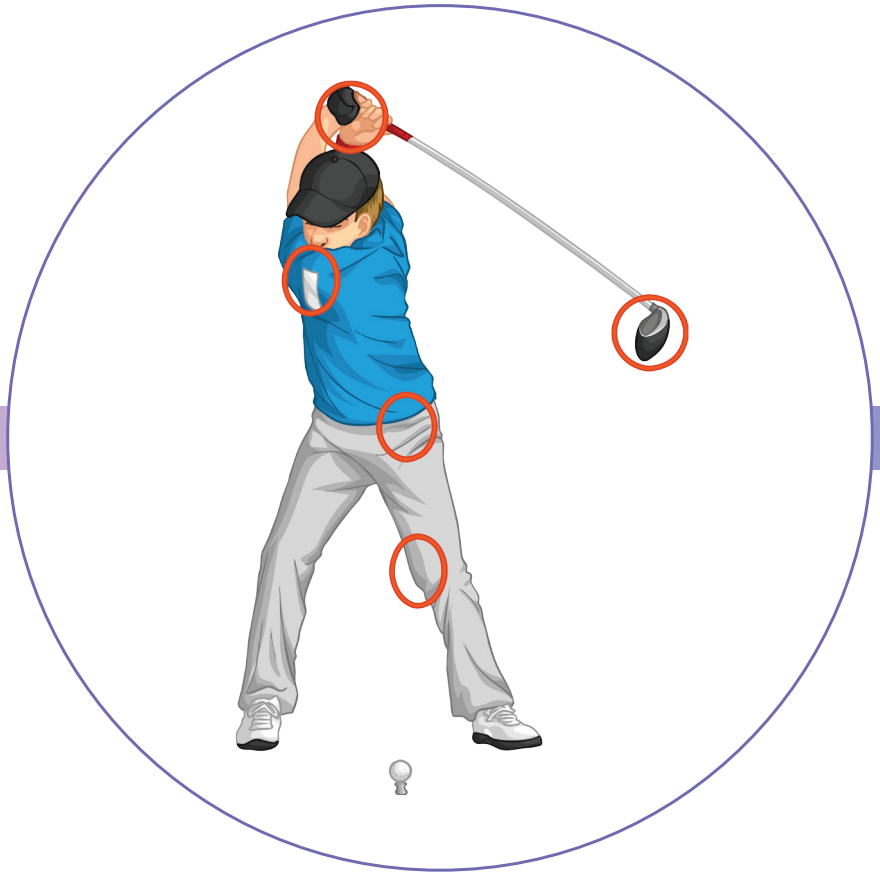
GCSE PE – Revision Booklet

Applied Anatomy and Physiology

Physical Factors Affecting Performance

Movement Analysis

Student Book



What the Specification Says:

Learners must know the three classes of lever and their use in physical activity and sport.

Learners must know the definition of mechanical advantage.

Lever Systems

All levers are made up of three parts:

Effort – input force

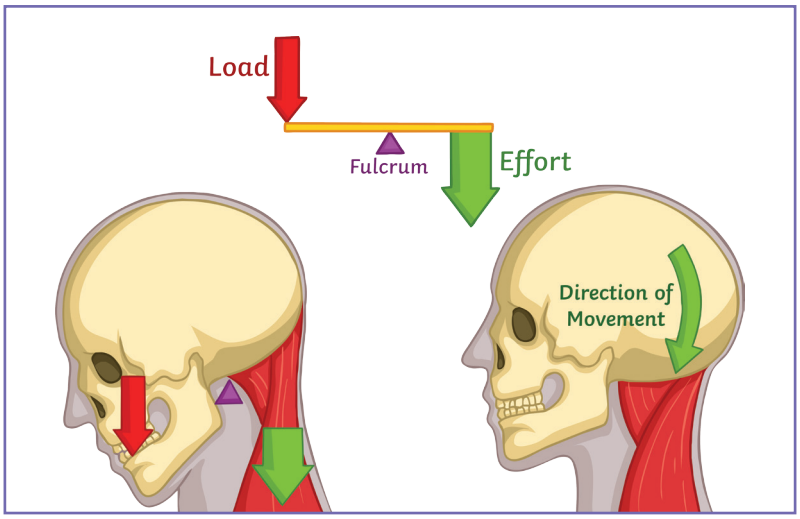
Fulcrum – point against or about which a lever acts

Load – opposing force

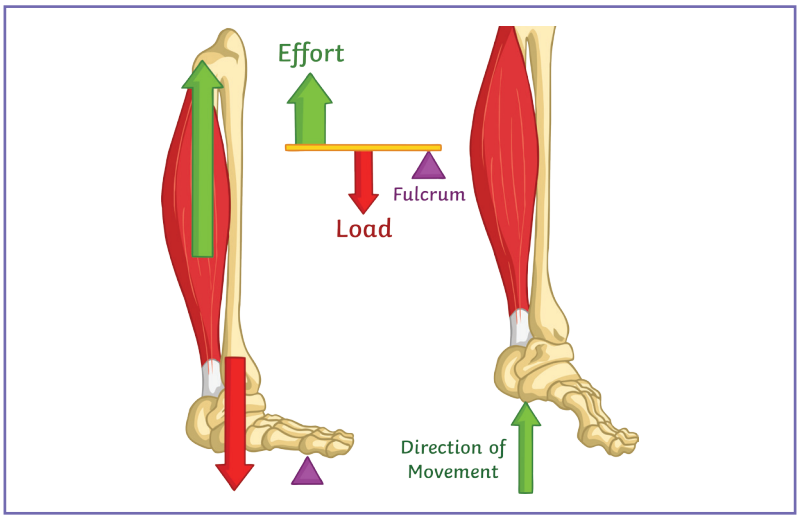
In the lever types below, the distance between these three parts is shown as equal in the diagrams, but will vary greatly in practice in accordance with the athlete's body dimensions and the position of the load.

There are three types of lever:

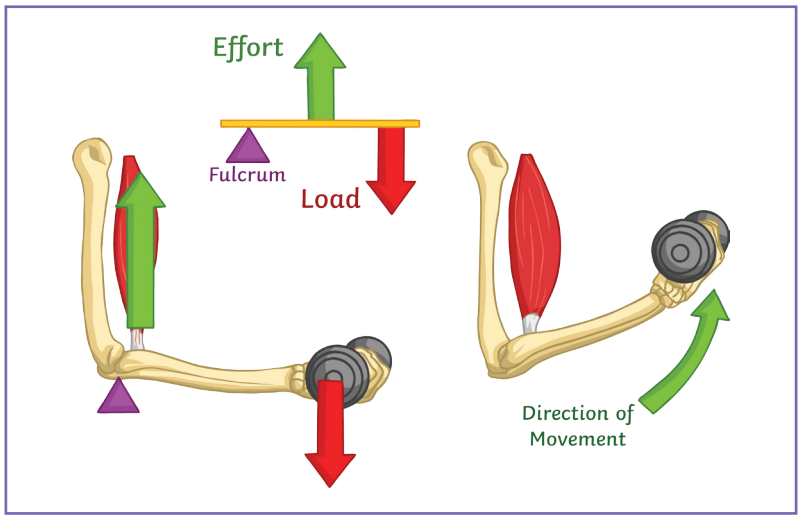
First class – the **fulcrum** is positioned between the effort and the load.



Second class – the **load** is positioned between the fulcrum and the effort.



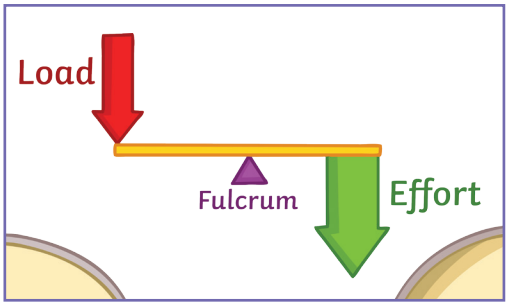
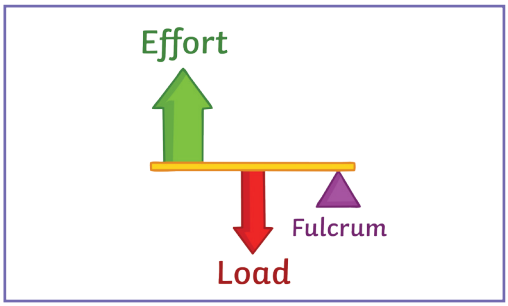
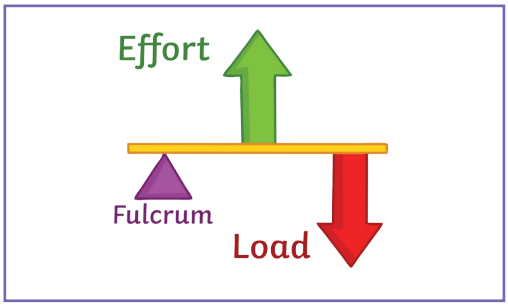
Third class – the **effort** is positioned between the fulcrum and the load.



Definitions:

Mechanical advantage – the ability of a lever system to move a large load with a small effort.

Levers and Sporting Examples

Lever	Diagram	Sporting Example
first class		
second class		
third class		

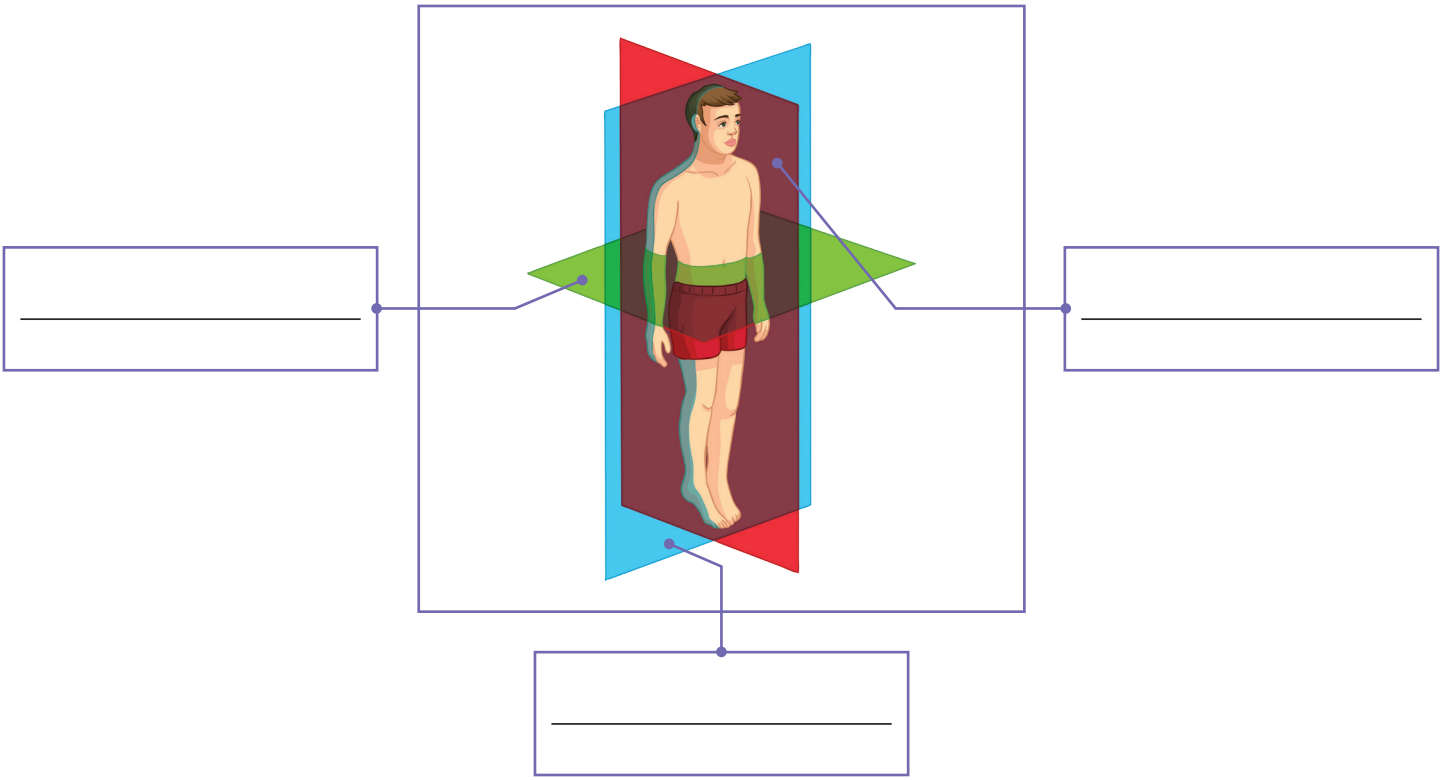
Extension Task: Can you think of another sporting example for each muscle?

What the Specification Says:

Learners must know the location of the planes of movement and axes of rotation in the body and their application to physical activity and sport.

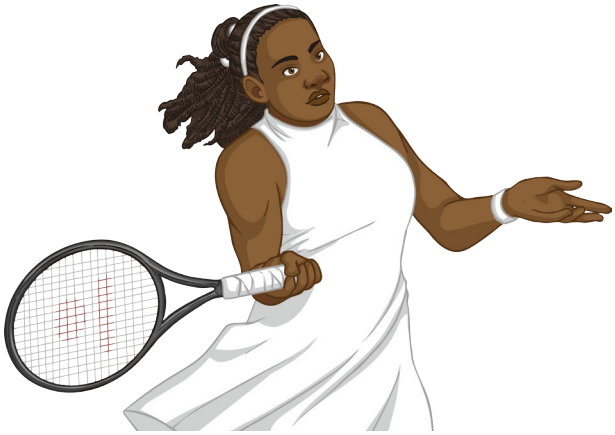
Planes of Movement

There are three planes of motion in which we move. Can you label the diagram?



Complete the table below:

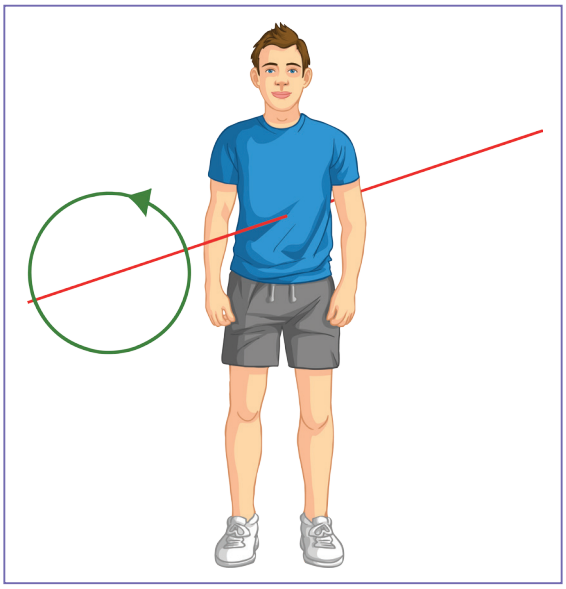
Plane	Movements	Sporting Example
transverse	rotation	tennis player putting spin on the ball.
frontal	abduction, adduction	star jump
sagittal	flexion, extension	sprinting action



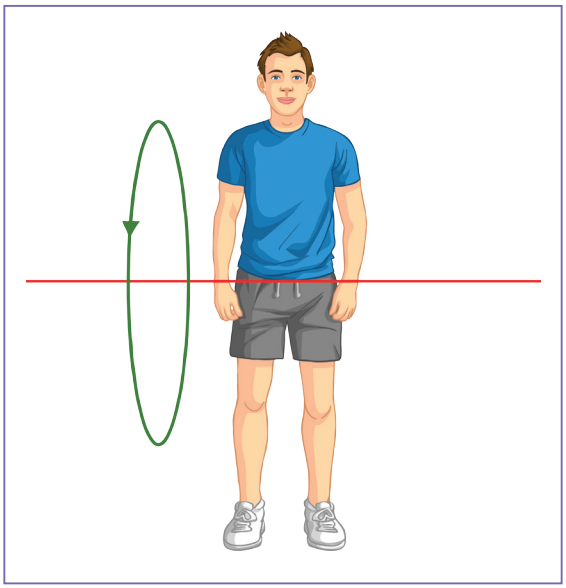
Axes of Rotation

A body can move around three axes of rotation.

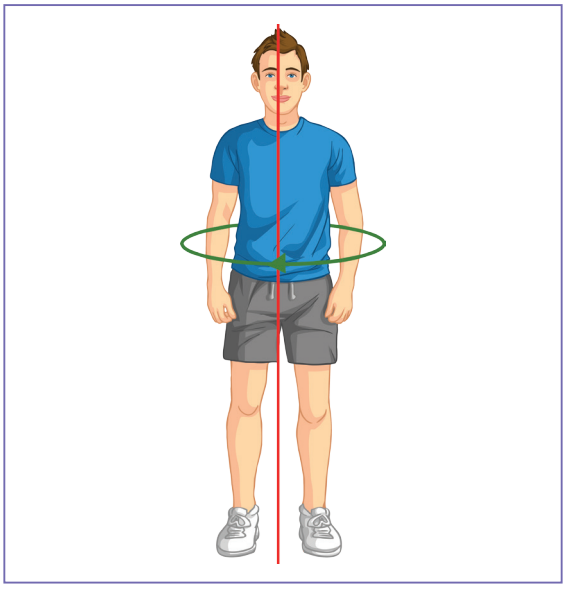
Frontal



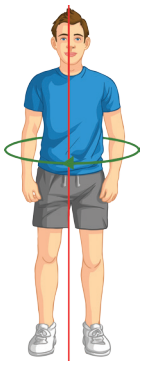
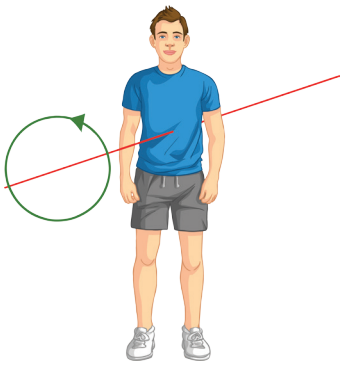
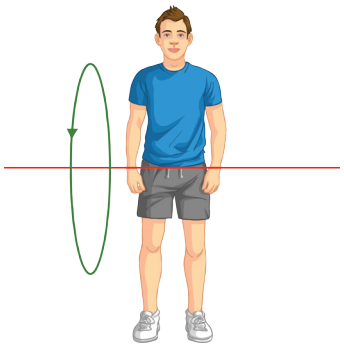
Transverse



Longitudinal



Complete the table:

Axis	Diagram	Sporting Example
		Pirouette in dancing
frontal		
transverse		Somersault

Extension Task: On a blank A4 sheet, draw a rough outline of a body. Cut this out and use a pencil to pierce the paper to demonstrate how the body rotates on each axis and try to identify a number of sporting movements around each axis.

To take this a stage further, you could cut out the individual parts of each limb and connect them with split pins to demonstrate different movements.