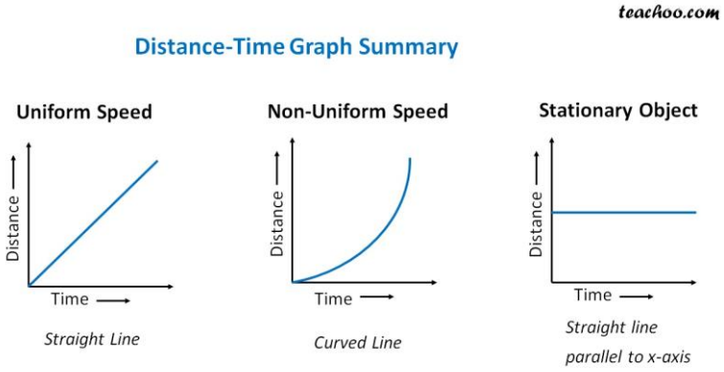
Year 8 Science: Term 1
Motion, Respiration and photosynthesis

Week 1

Big Picture – Motion

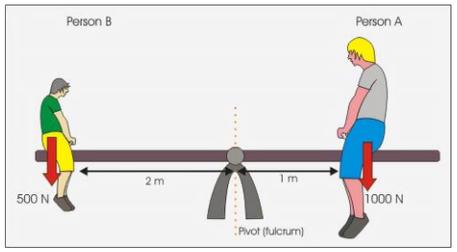
A distance time graph can be used to describe the motion of an object. If the graph curved then the object is accelerating



Week 2

Big Picture – Motion

A moment is a turning force around a pivot point. A see saw or swings are examples of moments. Two things affect a moment the force you exert and the distance from the pivot.



The direction of movement is either clockwise or anticlockwise. If you look above person A is heavier than person B. The moments are balanced because Person A is further away. You may have done this yourselves in the past

Week 3

Big Picture – Respiration and Photosynthesis

Respiration is how an organism is supplied with energy. There are two types or respiration Aerobic and Anaerobic.

Aerobic Respiration (with Oxygen)
Glucose +oxygen → Carbon Dioxide + Water
This causes the release of energy and takes place in the mitochondria

Anaerobic Respiration (without oxygen)
This is done when your body does not have sufficient oxygen it takes place in the cytoplasm

Glucose → Lactic acid

Week 4

Big Picture – Respiration and Photosynthesis

Anaerobic respiration is used when the body requires more energy than what can be supplied solely be aerobic respiration.

Both types will happen at the same time, anaerobic respiration produces lactic acid which is toxic. Over time this will cause muscles to cramp up and stop functioning.

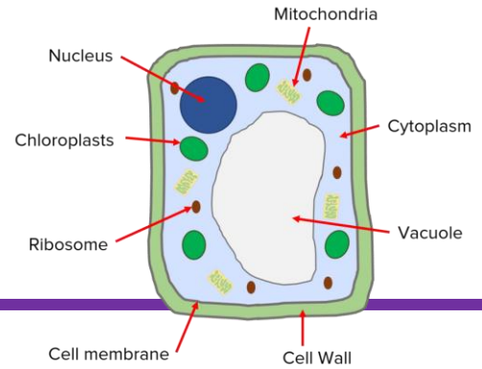
Once you have stopped exercising your body will break down this lactic acid by breathing heavily. This is known as an oxygen debt

Week 5 & 6

Big Picture – Respiration and Photosynthesis

All living organisms respire. For this they need glucose. This is made in producers (green plants) This glucose is made by photosynthesis which happens in the chloroplasts. This process requires light energy

Carbon Dioxide + Water → Glucose + Oxygen



Key words:

Aerobic – Respiration with oxygen

Anaerobic – Respiration without oxygen

Chloroplast – Part of plant cell which contains chlorophyll which is needed for photosynthesis

Distance time Graph – A graph which shows motion of an object

Lactic Acid – Byproduct of anaerobic respiration causes muscle cramps

Moment – A force caused by turning an object around a pivot such as a door handle.

Photosynthesis – Chemical process which produced Glucose in plant

Year 8 Science: Term 1
Tissues and Organs, Acids and Alkalis

Week 1

Questions	Answers
Horizontal line means?	The object is stationary
A distance time graph shows	The motion of an object
Why would the line go down diagonally?	The object is moving backwards
How is acceleration shown?	The graph will have a curve in it
How is constant speed shown	The line will be straight diagonally

Week 2

Questions	Answers
Why do cars have big steering wheels?	To create a large moment without needing a large force
Define a moment	A moment is a turning force around a fixed point (pivot)
What two things affect a moment?	The force on the object and distance from the pivot
The two directions of a moment are	Clockwise and anticlockwise
You push a steering wheel with 5N and you are 0.6m from the pivot what is the moment?	Moment = Force X Distance Moment = 5 X 0.6 Moment = 3Nm

Week 3

Questions	Answers
Name the two types of respiration	Anaerobic and Aerobic Respiration
Does respiration create energy?	No, it transforms chemical energy into thermal energy
What is respiration needed for?	Life processes (type into google MRS GREN for more info)
Both types of respiration need	Glucose
Where does both types of respiration happen	In cells, however aerobic takes place in mitochondria, anaerobic happens in the cytoplasm.

Week 4

Questions	Answers
Why don't we respire anaerobically all the time	Anaerobic respiration produces lactic acid which is toxic to us. Our bodies therefore can only use this for short periods.
When do we respire anaerobically?	When we do not have sufficient oxygen to meet our energy needs through aerobic respiration
Describe oxygen debt?	After exercise we need to take in excess oxygen to break down lactic acid.
What does lactic acid cause?	Muscles to cramp and become paralysed if not broken down over time
Why respiration is most efficient	Aerobic is much more efficient

Week 5 & 6

Questions	Answers
Where does the reactants come from?	Carbon dioxide from the air and water is absorbed though the roots
Do plants respire if there is no light?	No – photosynthesis must have light to happen
Why is photosynthesis important?	Glucose is produced which is used for respiration
Why are plants green?	Chloroplasts contain chlorophyll which is green.
Are the roots green?	No roots do not photosynthesis therefore have no chloroplasts. This is because they are underground

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