

Y7 Science Checklist (term 2)



Forces (Physics) https://classroom.thenational.academy/units/forces-and-motion-b426	☺	☹	☹
Know that if the overall, resultant force on an object is unbalanced, its motion changes and it slows down, speeds up or changes direction.			
Use the formula: speed = distance (m) / time (s) or distance-time graphs, to calculate speed.			
Illustrate a journey with changing speed on a distance-time graph, and label changes in motion.			
A straight line on a distance-time graph shows constant speed, a curving line shows acceleration.			
The higher the speed of an object, the shorter the time taken for a journey.			
Describe how the speed of an object varies when measured by observers who are not moving, or moving relative to the object.			
Suggest how the motion of two objects moving at different speeds in the same direction would appear to the other.			
Predict changes in an object's speed when the forces on it change.			
Mass and weight are different but related. Mass is a property of the object; weight depends upon mass but also on gravitational field strength.			
Every object exerts a gravitational force on every other object. The force increases with mass and decreases with distance. Gravity holds planets and moons in orbit around larger bodies.			
Use the formula: weight (N) = mass (kg) x gravitational field strength (N/kg).			
Gravitational field strength on Earth = 9.8 N/kg. On the Moon it is 1.6 N/kg.			
Explain unfamiliar observations where weight changes.			
Draw a force diagram for a problem involving gravity.			
Deduce how gravity varies for different masses and distances.			
Compare your weight on Earth with your weight on different planets using the formula.			
Compare and contrast gravity with other forces.			
Draw conclusions from data about orbits, based on how gravity varies with mass and distance.			
Suggest implications of how gravity varies for a space mission.			
KEYWORDS	☺	☹	☹
Speed: How much distance is covered in how much time.			
Average speed: The overall distance travelled divided by overall time for a journey.			
Relative motion: Different observers judge speeds differently if they are in motion too, so an object's speed is relative to the observer's speed.			
Acceleration: How quickly speed increases or decreases.			
Weight: The force of gravity on an object (N).			
Non-contact force: One that acts without direct contact.			
Mass: The amount of stuff in an object (kg).			
Gravitational field strength, g: The force from gravity on 1 kg (N/kg).			

Electricity (Physics) https://classroom.thenational.academy/units/electricity-and-magnetism-ab64	😊	😐	😞
Current is a movement of electrons and is the same everywhere in a series circuit. Current divides between loops in a parallel circuit, combines when loops meet, lights up bulbs and makes components work.			
Around a charged object, the electric field affects other charged objects, causing them to be attracted or repelled. The field strength decreases with distance.			
Two similarly charged objects repel, two differently charged objects attract.			
We can model voltage as an electrical push from the battery, or the amount of energy per unit of charge transferred through the electrical pathway. In a series circuit, voltage is shared between each component. In a parallel circuit, voltage is the same across each loop.			
Components with resistance reduce the current flowing and shift energy to the surroundings.			
Calculate resistance using the formula: Resistance (Ω) = potential difference (V) \div current (A).			
Keywords	😊	😐	😞
Electrons: Tiny particles which are part of atoms and carry a negative charge.			
Charged up: When materials are rubbed together, electrons move from one surface to the other			
Electrostatic force: Non-contact force between two charged objects.			
Current: Flow of electric charge, in amperes (A).			
In series: If components in a circuit are on the same loop.			
In parallel: If some components are on separate loops.			
Potential difference (voltage): The amount of energy shifted from the battery to the moving charge, or from the charge to circuit components, in volts (V).			
Resistance: A property of a component, making it difficult for charge to pass through, in ohms (Ω).			
Electrical conductor: A material that allows current to flow through it easily, and has a low resistance.			
Electrical insulator: A material that does not allow current to flow easily, and has a high resistance.			

Yr 7 Reactions (Chemistry)

<https://classroom.thenational.academy/units/reactivity-609c>



Metals and non-metals react with oxygen to form oxides which are either bases or acids.

Metals can be arranged as a reactivity series in order of how readily they react with other substances.

Some metals react with acids to produce salts and hydrogen.

Iron, nickel and cobalt are magnetic elements.

Mercury is a metal that is liquid at room temperature.

Bromine is a non-metal that is liquid at room temperature.

The pH of a solution depends on the strength of the acid: strong acids have lower pH values than weak acids.

Mixing an acid and alkali produces a chemical reaction, neutralisation, forming a chemical called a salt and water.

Acids have a pH below 7, neutral solutions have a pH of 7, alkalis have a pH above 7.

Acids and alkalis can be corrosive or irritant and require safe handling.

Hydrochloric, sulfuric and nitric acid are strong acids.

Acetic and citric acid are weak acids.

Keywords



Metals: Shiny, good conductors of electricity and heat, malleable and ductile, and usually solid at room temperature.

Non-metals: Dull, poor conductors of electricity and heat, brittle and usually solid or gaseous at room temperature.

Displacement: Reaction where a more reactive metal takes the place of a less reactive metal in a compound.

Oxidation: Reaction in which a substance combines with oxygen.

Reactivity: The tendency of a substance to undergo a chemical reaction.

pH: Scale of acidity and alkalinity from 0 to 14.

Indicators: Substances used to identify whether unknown solutions are acidic or alkaline

Base: A substance that neutralises an acid - those that dissolve in water are called alkalis.

Concentration: A measure of the number of particles in a given volume.

Ecosystems (Biology) https://classroom.thenational.academy/units/ecological-relationships-and-classification-b523	😊	😐	😞
Organisms in a food web (decomposers, producers and consumers) depend on each other for nutrients. So, a change in one population leads to changes in others.			
The population of a species is affected by the number of its predators and prey, disease, pollution and competition between individuals for limited resources such as water and nutrients.			
Insects are needed to pollinate food crops.			
Describe how a species' population changes as its predator or prey population changes.			
Explain effects of environmental changes and toxic materials on a species' population.			
Combine food chains to form a food web.			
Explain issues with human food supplies in terms of insect pollinators.			
Suggest what might happen when an unfamiliar species is introduced into a food web.			
Develop an argument about how toxic substances can accumulate in human food.			
Make a deduction based on data about what caused a change in the population of a species.			
Plants have adaptations to disperse seeds using wind, water or animals.			
Plants reproduce sexually to produce seeds, which are formed following fertilisation in the ovary.			
Flowers contain the plant's reproductive organs.			
Pollen can be carried by the wind, pollinating insects or other animals.			
Describe the main steps that take place when a plant reproduces successfully.			
Identify parts of the flower and link their structure to their function.			
Suggest how a plant carried out seed dispersal based on the features of its fruit or seed.			
Explain why seed dispersal is important to survival of the parent plant and its offspring.			
Describe similarities and differences between the structures of wind pollinated and insect pollinated plants.			
Suggest how plant breeders use knowledge of pollination to carry out selective breeding.			
Develop an argument why a particular plant structure increases the likelihood of successful production of offspring.			
KEYWORDS	😊	😐	😞
Food web: Shows how food chains in an ecosystem are linked.			
Food chain: Part of a food web, starting with a producer, ending with a top predator.			
Ecosystem: The living things in a given area, and their non-living environment.			
Environment: The surrounding air, water, and soil where an organism lives.			
Population: Group of the same species living in an area.			
Producer: Green plant or algae that makes its own food using sunlight.			
Consumer: Animal that eats other animals or plants.			
Decomposer: Organism that breaks down dead plant and animal material so nutrients can be recycled back to the soil or water.			
Pollen: Contains the plant male sex cells found on the stamens.			
Ovules: Female sex cells in plants found in the ovary			

Pollination: Transfer of pollen from the male part of the flower to the female part of the flower on the same or another plant.			
Fertilisation: Joining of a nucleus from a male and female sex cell.			
Seed: Structure that contains the embryo of a new plant.			
Fruit: Structure that the ovary becomes after fertilisation, which contains seeds.			
Carpel: The female part of the flower, made up of the stigma where the Pollen lands, style and ovary			