EGERTON PRIMARY SCHOOL KNUTSFORD

SCIENCE CONCEPTS AND END POINTS ASSESSMENT

*"Ready to learn. Ready to thrive. Ready for tomorrow."*

"The important thing is to never stop questioning."

Albert Einstein

| Scientific Enquiry |
|---|
| **Comparative/Fair testing** – Carrying out fair tests to see the effect of a changing variable. |
| **Research** – Using secondary sources of information to answer questions. |
| **Observation over time** – Observe changes that occur over a period of time (minutes to months). |
| **Pattern-seeking** – Identifying patterns and looking for relationships in enquires. |
| **Identifying, grouping and classifying** – Identifying patterns and looking for relationships in enquires. |
| **Biology**<br>• **Understand plants** – This concept involves becoming familiar with different types of plants, their structure and reproduction.<br>• **Understand animals and humans** – This concept involves becoming familiar with different types of animals, humans and the life processes they share.<br>• **Investigate livings things** – This concept involves becoming familiar with a wider range of livings things, including insects and understanding life processes.<br>• **Understand evolution and inheritance** – This concept involves understanding that organisms come into existence, adapt, changes and evolve and become extinct. |
| **Chemistry**<br>• **Investigate materials** – This concept involves becoming familiar with a range of materials, their properties, uses and how they may be altered or changed. |
| **Physics**<br>• **Understand movement, forces and magnets** – This concept involves understanding what causes motion.<br>• **Understand the Earth's movement in space –** This concept involves understanding what causes seasonal changes, day and night.<br>• **Investigate light and seeing –** This concept involves understanding how light and reflection affect sight.<br>• Investigate sound and hearing – This concept involves understanding how sound is produced, how it travels and how is it heard.<br>• **Understand electrical circuits** – This concept involves understanding circuits and their role in electrical applications. |

# Year 5 Living Things and their Habitats

| What I know and can explain |
|---|
| I can describe the life cycle of a mammal. |
| I can describe the life cycle of an amphibian. |
| I can describe the life cycle of an insect. |
| I can describe the life cycle of a bird. |
| I can describe the life process of reproduction in some plants. |
| I can explain how seeds are dispersed. |
| I can describe the works of some influential naturalists (such as David Attenborough). |
| I can compare the life cycles of flowering and non-flowering plants. |
| **Skills** |
| I can display and present key findings orally and in writing. |
| I can use labelled diagrams to show complex outcomes. |
| I can use various ways to show complex evidence. |
| I can answer questions using evidence gathered from different types of enquiry. |

## Unit Rocket Words: Living Things and their Habitats

**Rocket Words**

| | |
|---|---|
|  living organism | something that can move, use energy and reproduce |
|  naturalist | an expert in the studies of natural history |
|  primatologist | a person who carries out a scientific study of primates |
|  metamorphosis | when insects and amphibians transform from larval stage to their adult form |
|  endangered | an animal is considered endangered when there are very few of them alive |
|  asexual | where only one parent is needed to create offspring |
|  reproduction | to make offspring either sexually or asexually |
|  fertilisation | when a sperm and egg cell join together |
|  placental mammal | has live young which develop before birth inside a female mammal |
|  monotreme mammal | a mammal who lays eggs to reproduce |

# Year 5 Animals including Humans – Reproduction

| What I know and can explain |
|---|
| I can explain how plants reproduce asexually. |
| I can explain how sexual reproduction occurs in plants. |
| I can discuss how different animals reproduce. |
| I can compare the gestation periods of different animals. |
| I can examine the correlation between the age of reproduction of a mammal and its size of litter. |
| I can explain how asexual reproduction can occur from cuttings. |
| I can interpret gestation data relating to mammals and draw conclusions. |
| I can describe the difference between asexual and sexual reproduction in plants. |
| **Skills** |
| I can use various ways to show complex evidence. |
| I can answer questions using evidence gathered from different types of enquiry. |
| I can use a graph to record basic data. |
| I can interpret anomalous results. |

## Unit Rocket Words: Animals Including Humans

### Rocket Words

| | |
|---|---|
| offspring | a child or young animal |
| foetus | the term for an unborn offspring still within the female mammal's body |
| dependent | an offspring needing others to look after it |
| adolescent | a mammal's young adult offspring |
| puberty | the period of life when a human's sexual organs mature |
| gestation | the period of time an animal is pregnant for |
| pregnant | when an animal contains a foetus within the body |
| toddler | the name of the stage given to a young child when they start to walk |
| prenatal | the stage before birth when the foetus is developing in the womb |
| breeding | mating and producing offspring |
| embryo | the name of the unborn offspring in the first few weeks of development |
| hormones | chemical messengers produced by the body |

# Year 5 Properties and changes of materials

| What I know and can explain |
|---|
| I can compare and group together everyday materials on the basis of their properties. |
| I know that some materials will dissolve in liquid to form a solution. |
| I can describe how to recover a substance from a solution. |
| I can use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. |
| I can give reasons for the particular uses of everyday materials, including metals, wood and plastic. |
| I can demonstrate that dissolving, mixing and changes of state are reversible changes. |
| I can explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible. |
| I can understand the materials needed for combustion to occur. |
| I can observe the effects of burning on different materials. |

| Skills |
|---|
| I can identify and manage variables. |
| I can take measurements that are precise as well as accurate. |
| I can indicate why some results may not be entirely trustworthy. |
| I can use evidence to suggest further comparative or fair tests that would develop the investigation. |
| I can select and use appropriate equipment, following discussion of alternatives. |
| I can use labelled diagrams to show complex outcomes. |
| I can write a conclusion using evidence and identifying causal links. |

Unit Rocket Words: Year 5 – properties of materials

## Rocket Words

| | |
|---|---|
| conductive | a material that allows heat and/or electricity to pass through it |
| magnetic | material that is attracted to a magnet |
| thermal | using or producing heat |
| conduction | heat moving from one object to another through contact |
| hardness | resistance to scratching and pressure |
| force | when an object is acted upon by a pull or push motion in a specific direction |
| dissolve | to mix with a liquid and become part of the liquid |
| solute | a substance that can be dissolved in liquid |
| solvent | a substance that can dissolve in a solute, water is a solvent |
| substance | any material, such as sugar |
| filtering | the separation of a mixture using a tool with small holes to separate particles |
| evaporation | the process where a liquid changes into a gas |

Unit Rocket Words: Year 5 – changes of materials

## Rocket Words

| | | |
|---|---|---|
|  | solute | a substance that can be dissolved in liquid |
|  | solvent | a substance that can dissolve in a solute |
|  | reversible | a change to a substance that can be undone or reversed |
|  | evaporate | the process where a liquid changes to a gas |
|  | chemical change | a type of change in which a new substance is formed |
|  | effervescence | fizzing or bubbling |
|  | fair test | an experiment that only changes one variable |
|  | corrosion | the reaction of a metal with oxygen |
|  | combustion | an irreversible change where a fuel uses oxygen to burn and releases energy |
|  | extinguish | to put out a fire |
|  | reaction | process in which substances are converted into different substances |
|  | carbon dioxide | gas which makes up around 0.04% of our atmosphere |

# Year 5 Forces


| What I know and can explain |
|---|
| I can explain that objects fall towards the Earth because of the force of gravity. |
| I can identify the effects of air resistance. |
| I can identify the effects of water resistance. |
| I can identify the effects of friction. |
| I can recognize that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. |
| I can identify when forces are balanced and unbalanced and explain how this relates to the movement of objects. |
| I can give examples of when pulleys and levers are used in everyday life and describe the impact. |
| I can give examples of when pulleys and levers are used in everyday life and describe the impact. |
| I can describe the forces acting on an object and explain how changing the shape would increase or decrease the speed at which it moves. |
| **Skills** |
| I can write a conclusion using evidence and identifying causal links. |
| I can identify and manage variables. |
| I can take measurements that are precise as well as accurate. |
| I can indicate why some results may not be entirely trustworthy. |
| I can use various ways to record complex evidence. |

Unit Rocket Words: Year 5 - forces

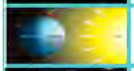
## Rocket Words

| | | |
|---|---|---|
|  | Sir Isaac Newton | an English physicist and mathematician |
|  | gravity | force which draws objects towards the centre of a planet |
|  | Galileo Galilei | an Italian scientist, and the first astronomer |
|  | parachute | a device, usually made from cloth, designed to create air resistance and slow descent |
|  | water resistance | friction which acts on an object as it moves through water |
|  | streamlined | an object that is shaped to travel through air or water with little resistance |
|  | buoyant | to float |
|  | upthrust | any force that is causing something to be pushed upwards |
|  | friction | the resistance of motion when one object rubs against another |
|  | newton | the international metric unit of force |
|  | lever | a long arm that rests on a support called a fulcrum |
|  | pulley | a wheel over which a belt, rope, or chain is pulled to lift or lower a heavy object |

# Year 5 Earth and Space

| What I know and can explain |
|---|
| I can name the 8 planets in the solar system. |
| I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. |
| I can describe the movement of the Moon relative to the Earth. |
| I can describe the Sun, Earth and Moon as approximately spherical bodies. |
| I can explain why day and night occur. |
| I know that our Sun is a star in the centre of our solar system and that there are other stars in our galaxy and other galaxies. |
| I can explain why we experience different seasons on Earth. |
| **Skills** |
| I can draw comparisons and discuss differences between terrestrial planets and gas giants. |
| I can select appropriate equipment, following discussion of alternatives. |
| I can use labelled diagrams to show complex outcomes. |
| I can display and present key findings orally and in writing. |
| I can answer questions using evidence gathered from different types of scientific enquiry. |

## Unit Rocket Words: Earth and Space

| | Rocket Words | |
|---|---|---|
|  | heliocentric | The modern model of the solar system, which places the Sun at the centre |
|  | geocentric | The old solar system model, which thought the Earth was at the centre. |
|  | solar system | The name for the Sun and all planets and objects that orbit it. |
|  | astronomy | The study of space, planets and the universe as a whole. |
|  | terrestrial planet | The name given to the four inner rocky planets - Mercury, Venus, Earth and Mars. |
|  | gas giants | The name given to the four outer planets - Jupiter, Saturn, Uranus and Neptune. |
|  | axis | The (imaginary) line which a planet rotates around and tilts on. |
|  | orbit | The path of a celestial object around another, such as Moon around the Earth. |
|  | moon | A body which orbits a planet; also called a natural satellite. |
|  | phase | The appearance of a Moon or planet, according to the amount of illumination. |
|  | waxing | the name given to Moon phases when the Moon is becoming brighter |
|  | waning | the name given to Moon phases when the Moon is becoming darker |