Year 5 Knowledge Organiser: Animals Including Humans

Key Vocabulary

Term	Definition
Baby	A very young child, typically newly born
Child	A young person who is not yet an adult
Teenager	A person aged between 13 and 19 years
Adult	A fully grown person
Elderly	An older adult, typically aged 65 and over
Growth	The process of increasing in size or amount
Development	The process of change and becoming more advanced
Puberty	The stage when a child's body begins to develop into an adult's
Age	The length of time a person has lived
Stage	A particular point in a process or development
Hormone	A chemical that helps control growth and development
Change	To make or become different
Adolescence	The stage between childhood and adulthood
Ageing	The process of growing older

Memory	The ability to store and recall information
Compare	To examine similarities and differences
Difference	A point or way in which things are not the same
Physical	Relating to the body
Emotional	Relating to feelings
Life stage	A specific period in a person's development
Measure	To find the size or amount of something
Data	Facts and statistics collected for reference or analysis
Chart	A visual representation of data
Trend	A general direction in which something is developing
Experience	Practical contact with and observation of facts or events
Reflection	Careful thought about something
Empathy	Understanding and sharing the feelings of another

Big Questions

- What are the stages of human development from birth to old age?
- What changes occur during puberty and adolescence?
- How do physical, emotional, and social traits vary across life stages?
- How can we measure human growth and what does the data show?

- What is it like to live at different stages of life?

Sticky Knowledge

- Humans go through different stages of development from baby to elderly.
- Puberty involves physical and emotional changes caused by hormones.
- Growth and development vary at each life stage.
- Measuring changes in height, weight, and abilities helps track human development.
- Understanding different life stages builds empathy and awareness.

Working Scientifically

- Measure and record physical characteristics like height or foot size.
- Collect and interpret data in charts and graphs.
- Plan investigations to explore patterns in human growth.
- Compare data from different life stages.
- Use case studies to understand development from real-life perspectives.

Real-World Links

- Understanding personal development and health education
- Using growth charts in healthcare and schools
- Empathising with different life experiences across age groups
- Preparing for physical and emotional changes during puberty

Year 5 Knowledge Organiser: Earth and Space

Key Vocabulary

Term	Definition
Planet	A large celestial body that orbits a star
Solar system	The Sun and all the objects that orbit around it
Orbit	The path an object takes as it revolves around another
Sun	The star at the center of our solar system
Distance	The space between two objects
Revolve	To move around another object in a circular path
Year	The time it takes a planet to complete one orbit around the Sun
Elliptical	Oval-shaped, like the path of some orbits
Sphere	A round, three-dimensional shape
Round	Having a shape like a circle or sphere
Shape	The external form or appearance of something
Moon	The Earth's natural satellite
Satellite	An object that orbits a planet
Phase	The appearance of the Moon at a particular time
Gravity	The force that attracts objects

	towards each other
Rotation	The spinning of an object around its axis
Axis	An imaginary line through the center of a spinning object
Day	The period of time the Earth faces the Sun
Night	The period of time the Earth faces away from the Sun
Spin	To rotate quickly around a central point
Apparent	Something that seems to be true but may not be
Movement	Change in position
Sunrise	The time when the Sun appears in the morning
Sunset	The time when the Sun disappears in the evening
Sky	The space above the Earth where clouds and the Sun appear
Model	A representation used to explain how something works
Rotate	To turn or spin around an axis
Relative	Considered in relation or in proportion to something else
Crescent	A curved shape of the Moon seen in early and late phases
Full moon	When the Moon is fully visible from Earth

Gibbous	When more than half but not all of the Moon is visible
Shadow	A dark area caused when an object blocks light
Sundial	A device that tells time by the position of the shadow cast by the Sun
Position	The location of something
Measure	To find the size or amount of something
Timezone	A region with a standard time based on Earth's rotation
Longitude	A geographic coordinate specifying east-west position
Difference	The way in which things are not the same
Exploration	The action of traveling to discover new things
Astronaut	A person trained to travel in space
Telescope	A tool that makes distant objects appear closer
NASA	The U.S. agency responsible for space exploration

Big Questions

- What makes up our solar system and how do planets move?
- How do the movements of the Earth, Moon, and Sun cause day, night, and Moon phases?

- What is the shape of celestial bodies and how can we model their motion?
- Why do time zones exist and how are they connected to Earth's rotation?
- How do scientists explore space and what have they discovered?

Sticky Knowledge

- The solar system includes the Sun, eight planets, and other objects.
- Planets orbit the Sun in elliptical paths and rotate on their axes.
- The Earth's rotation causes day and night; its orbit causes the year.
- The Moon orbits the Earth and goes through phases based on its position.
- Time zones exist because the Earth rotates, making different parts face the Sun.
- Space exploration uses satellites, telescopes, and astronauts to study space.

Working Scientifically

- Use models and diagrams to show orbits and rotations.
- Record and explain patterns such as shadow movement and Moon phases.
- Conduct investigations using tools like sundials or simulations.
- Interpret data from observations to explain astronomical concepts.
- Compare time zones using maps and data.
- Research and present findings on space missions and discoveries.

Real-World Links

- Understanding day, night, and time zones across the globe
- Using telescopes and satellites to explore the universe
- Applications of space science in technology and communication

- Careers in space science, such as astronaut or astronomer

Year 5 Knowledge Organiser: Forces

Key Vocabulary

Term	Definition
Force	A push or pull acting on an object
Push	To apply force in order to move something away
Pull	To apply force in order to draw something closer
Contact	Force that acts through physical touch
Non-contact	Force that acts at a distance, like gravity
Gravity	A force that pulls objects towards Earth
Weight	The force of gravity on an object
Mass	The amount of matter in an object
Newton	The unit used to measure force
Air resistance	A force that slows objects moving through air
Drag	A type of resistance force that acts opposite to motion
Surface area	The total area of the outside surface of an object
Speed	How fast something moves
Water resistance	A force that slows objects moving through water

Streamlined	Shaped to move easily through air or water
Buoyancy	The upward force that keeps objects afloat
Friction	A force between two surfaces that slows movement
Surface	The outside layer or top of something
Rough	Having an uneven surface that increases friction
Smooth	Having an even surface that reduces friction
Lever	A simple machine that helps lift or move loads
Effort	The force applied to make a machine work
Load	The object being moved or lifted
Pivot	The fixed point a lever turns around
Mechanical	Relating to machines and movement
Pulley	A wheel with a rope that helps lift loads
Gear	A toothed wheel that turns another gear
Rotate	To turn around a central point
Axle	A rod that connects wheels and allows rotation
Mechanism	A system of parts working together in a machine

Compound	Made of two or more simple machines
Machine	A tool that makes work easier
Design	To plan and make something
Efficiency	Working well with little waste
Investigation	A scientific study to explore a question
Variable	Something that can be changed in an experiment
Results	The outcome of an experiment
Graph	A visual way to show data
Test	An experiment to check how something works
Application	How something is used in the real world
Safety	Being free from harm or danger
Engineering	The use of science to design and build things

Big Questions

- What are forces and how do they affect objects?
- How does gravity work and how is it different from weight?
- What causes resistance in air and water?
- How does friction affect movement across different surfaces?
- How do simple machines like levers, pulleys and gears help us do work?
- How are forces used in real-life applications like transport and sports?

Sticky Knowledge

- Forces can be contact (push/pull) or non-contact (gravity).
- Gravity pulls objects towards Earth; weight is the force from gravity on mass.
- Air and water resistance slow objects moving through fluids.
- Friction is a force that slows movement; it depends on surface roughness.
- Levers, pulleys and gears are mechanisms that make work easier.
- We use our understanding of forces in everyday life and engineering.

Working Scientifically

- Set up fair tests to investigate resistance and friction.
- Measure and compare variables using appropriate equipment.
- Use tables and graphs to record and interpret results.
- Design and build simple machines to solve problems.
- Observe and explain the effects of forces in different contexts.

Real-World Links

- How engineers design bridges, vehicles and buildings using knowledge of forces.
- How sports gear is designed to reduce air or water resistance.
- The use of levers and pulleys in construction and machinery.
- How safety features like seatbelts and helmets reduce the impact of forces.

Year 5 Knowledge Organiser: Living Things and Their Habitats

Key Vocabulary

Term	Definition
Life cycle	The series of changes in the life of an organism
Birth	The beginning of life for an animal
Growth	The process of increasing in size and maturity
Reproduction	The process of producing offspring
Death	The end of an organism's life cycle
Mammal	A warm-blooded animal that feeds its young with milk
Development	The process of change as an organism matures
Gestation	The time a mammal carries its offspring before birth
Adult	A fully developed organism
Amphibian	An animal that lives both in water and on land
Metamorphosis	A dramatic change in form during an organism's life cycle
Tadpole	The larval stage of a frog
Frogspawn	A mass of fertilised eggs laid by frogs
Insect	An animal with three body parts and six legs

Larva	The immature form of an insect
Pupa	The stage between larva and adult in insects
Bird	A feathered vertebrate that lays eggs
Egg	The structure from which an embryo develops
Hatchling	A young animal that has just emerged from an egg
Fledgling	A young bird learning to fly
Nest	A structure built by birds for laying eggs
Compare	To identify similarities and differences
Pollination	Transfer of pollen from one flower to another
Fertilisation	Joining of sperm and egg to begin reproduction
Seed	The plant structure that grows into a new plant
Petal	Colourful part of a flower that attracts pollinators
Stamen	The male part of a flower
Asexual	Reproduction without the joining of egg and sperm
Bulb	An underground storage organ that can grow into a new plant

Cutting	A part of a plant used to grow a new one
Runner	A stem that grows horizontally and can produce new plants
Clone	An organism that is genetically identical to its parent
Offspring	The young produced by living things
Egg (repeated)	A structure containing a developing embryo
Sperm	The male reproductive cell
Observe	To watch carefully
Sequence	The order in which things happen
Evidence	Information used to support a conclusion
Adaptation	A trait that helps an organism survive in its environment
Environment	The surroundings where a living thing exists
Region	A specific geographic area

Big Questions

- What are the stages in the life cycles of different animals and plants?
- How do life cycles differ between mammals, insects, amphibians, and birds?
- How do plants reproduce sexually and asexually?
- What is metamorphosis and which animals go through it?

- Why are life cycles and reproduction important for survival?

Sticky Knowledge

- All living things go through a life cycle including birth, growth, reproduction, and death.
- Some animals undergo metamorphosis, a dramatic change in form.
- Mammals grow inside their mother; insects, amphibians, and birds have different development.
- Plants can reproduce by seeds (sexual) or by cuttings and bulbs (asexual).
- Life cycles vary depending on environment and species adaptations.

Working Scientifically

- Compare and contrast life cycles across species.
- Label diagrams of plant and animal life cycles.
- Observe and describe changes in real or recorded life cycles.
- Plan and conduct research on reproduction and adaptations.
- Use evidence from diagrams and observations to explain ideas.

Real-World Links

- Understanding human and animal development and health.
- How farmers and gardeners use knowledge of reproduction.
- Conservation of endangered species and their life cycles.
- Global differences in animal and plant adaptations and reproduction.

Year 5 Knowledge Organiser: Properties and Changes of Materials

Key Vocabulary

Term	Definition
Hardness	How resistant a material is to being scratched or dented
Solubility	The ability of a substance to dissolve in water
Transparency	The ability of a material to let light pass through
Conductivity	How well a material allows heat or electricity to pass through
Magnetism	The property of being attracted to a magnet
Group	To classify or organise by shared features
Property	A characteristic of a material
Sort	To arrange into categories
Compare	To identify similarities or differences
Evidence	Information used to support a conclusion
Dissolve	To mix a substance in a liquid so it forms a solution
Solution	A mixture where a solute is dissolved in a solvent
Solute	The substance that dissolves in a solvent
Solvent	The liquid in which a solute dissolves

Mixture	A combination of two or more substances
Evaporation	Turning from liquid to gas, often used to separate mixtures
Recover	To get back a substance from a solution
Residue	What is left behind after a liquid is removed
Filter	To separate solids from liquids using a material that lets liquid through
Sieve	To separate larger solids from smaller ones using a mesh
Evaporate	To change from liquid to gas
Separate	To divide or break apart a mixture
Method	A process or procedure
Compare	To look for similarities and differences
Justify	To explain with reasons or evidence
Test	To try something to see how it works
Suitable	Appropriate for a specific purpose
Fair test	An experiment where only one variable is changed
Variable	Something that can change in an experiment
Prediction	A guess based on prior knowledge
Insulation	Preventing heat transfer
Reversible	A change that can be undone

Melting	Changing from solid to liquid
Freezing	Changing from liquid to solid
Change	To make or become different
Irreversible	A change that cannot be undone
Chemical	Involving the interaction of substances
Burn	To consume by fire or heat
Gas	A state of matter that expands to fill its container
Reaction	A process where substances change into different substances
Materials	Substances used to make things
Engineer	A person who designs or builds machines and structures
Use	The way something is employed or applied
Application	A practical use or purpose of something

Big Questions

- What are the properties of different materials and how do we test them?
- What happens when materials are mixed, dissolved or separated?
- How can we separate mixtures into their original components?
- What are reversible and irreversible changes?
- How do we choose materials for different uses based on their properties?

Sticky Knowledge

- Materials have different properties such as hardness, solubility, and magnetism.
- Some materials dissolve in water to form solutions, while others do not.
- Mixtures can be separated by filtering, sieving, or evaporating.
- Reversible changes can be undone (e.g. melting, freezing).
- Irreversible changes result in new materials (e.g. burning, chemical reactions).
- We choose materials for their properties depending on the intended use.

Working Scientifically

- Test materials for different properties like solubility and conductivity.
- Conduct fair tests to compare materials.
- Plan and carry out methods to separate mixtures.
- Observe changes and decide if they are reversible or irreversible.
- Present findings in tables, graphs, and scientific explanations.

Real-World Links

- Understanding materials used in construction, clothing, and packaging.
- How engineers use material science to design better products.
- The role of reversible and irreversible changes in cooking and manufacturing.
- How recycling involves separation and material recovery techniques.