Year 6 Knowledge Organiser Exploration Terms 2 and 3

How has exploration affected our understanding of the world today?

What do we know already?





Science in Year 3: Fossils can show us evidence of living things from the past.

Science in Year 4: Living things can be grouped in different ways. Classification keys help us identify them.

Science in Year 5: Plants and animals have different life cycles and reproduce to produce offspring.

Geography: Maps, atlases and globes help us locate countries, oceans and the Equator.

Art: Close observation helps us draw shape, line, texture and tone accurately.

EQ1 What does it mean to explore?

Geography Art





Exploration means investigating to learn more. It can happen in a new place, a familiar habitat or a laboratory.

Explorers ask questions, observe carefully and record **evidence** using maps, notes, measurements and drawings.

In art, **observational drawings** record details accurately. Artists sketch simple shapes to build forms; watercolour washes, blending and splattering show colour and texture.

Explorers should respect people and protect habitats. Places may already be known to the people who live there.

Enquiry link: Exploring helps us replace guesses with evidence.

EQ2 What makes a successful explorer?

Geography





Successful explorers are **curious**, observant and willing to change their ideas when evidence challenges them. They plan, work with others and record accurately.

Use a map's **key**, compass directions and grid references to describe a route or location.

The **Galápagos Islands** belong to Ecuador. They lie near the Equator in the Pacific Ocean, about **1,000 km west** of mainland Ecuador.

These volcanic islands have coastal, dry and highland habitats.

Latitude measures degrees north or south of the Equator; longitude measures degrees east or west of the Prime Meridian.

Enquiry link: Preparation and careful recording make findings useful to others.

EQ3 How have living things adapted to their environment?

Science





An **adaptation** is an inherited feature that helps an organism survive and reproduce in its environment.

Different Galápagos finch species have different **beak shapes**, suited to different foods.

Many cacti have thick stems that **store water** and spines instead of broad leaves, helping them survive dry conditions.

Helpful inherited features can become more common over **many generations**. This can lead to evolution.

Individuals do not choose to evolve because they need to change.

Enquiry link: Adaptations help explain why organisms suit particular habitats.

EQ4 How is exploration linked to science?

Science History





Charles Darwin travelled on HMS Beagle from **1831 to 1836** and visited the Galápagos in **1835**. His observations and specimens helped him develop ideas about evolution.

Fossils are preserved remains or traces of past living things. They provide evidence that life has changed over millions of years.

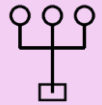
Offspring inherit characteristics from their parents but usually show **variation**.

Natural selection: Helpful inherited differences can make survival and reproduction more likely. Over many generations, populations can change.

Enquiry link: Scientific explanations develop from evidence.

EQ5 How has exploration supported our understanding of the world today?

Science





Studying organisms helps scientists compare living things and **classify** them using shared characteristics.

Living things include **animals, plants and microorganisms**. Fungi are a separate group from plants. Many microorganisms are useful; some cause disease.

Animals can be grouped as **vertebrates** or **invertebrates**. Vertebrates include mammals, birds, reptiles, amphibians and fish.

A **classification key** uses questions about observable features. A beetle is an insect because it has six legs and three main body parts.

Enquiry link: Classification helps us identify and compare life.

Exploration Vocabulary

Words that help us answer enquiry questions 1 and 2

Exploration and evidence	
exploration	Investigating a place or an idea to learn more about it.
expedition	A planned journey made for a particular purpose.
observation	Information gathered by looking carefully or using equipment.
evidence	Information that helps us answer a question or support an explanation.
naturalist	Someone who studies animals, plants and the natural world.
specimen	A sample or example studied to learn about a larger group.
prediction	An idea about what might happen, based on what we already know.
conclusion	An answer to an enquiry question supported by evidence.

Geography and maps	
archipelago	A group or chain of islands, such as the Galápagos Islands.
Equator	An imaginary line around Earth at 0 degrees latitude.
volcanic	Formed by, or connected with, volcanoes.
habitat	The place where an organism lives.
climate	The usual weather patterns in a place over many years.
endemic	Found naturally in one particular area and nowhere else.
map key	A guide explaining what the symbols on a map mean.
grid reference	Four figures identify a grid square; six locate a point more precisely. Read eastings before northings.

Drawing and watercolour	
shape and form	Shapes are flat; forms have height, width and depth. Sketch simple shapes to build a form.
tone	How light or dark a colour or part of a drawing is.
watercolour wash	A flat wash is even. A graduated wash changes gradually from dark to light.
wet-on-wet	Wet paint on wet paper makes soft, blended edges.
wet-on-dry	Wet paint on dry paper makes clear, sharp edges.
blending	Gently join colours so they change smoothly from one to another.
splattering	Flick a loaded brush to create small drops and textures.
tint and shade	A tint is made by adding white; a shade by adding black. Water also makes watercolour look lighter.
colour choices	Complementary colours are opposite on a colour wheel; harmonious colours sit near each other.

Science Vocabulary

Words that help us answer enquiry questions 3 4 and 5

Evolution and inheritance	
offspring	The young produced by a living thing.
characteristic	A feature of a living thing, such as its shape or behaviour.
inheritance	The passing of characteristics from parents to offspring.
variation	Differences between individuals of the same species.
adaptation	An inherited feature that helps survival and reproduction in an environment.
evolution	Change in the inherited characteristics of populations over generations.
natural selection	When inherited differences affect which organisms survive and reproduce.
fossil	Preserved remains or traces of a living thing from the past.
extinction	When every member of a species has died.

Classifying living things	
organism	An individual living thing.
classification	Grouping living things using shared characteristics.
classification key	Questions used to identify organisms from their features.
species	A group of similar organisms that can usually reproduce together to produce fertile offspring.
vertebrate	An animal with a backbone.
invertebrate	An animal without a backbone.
microorganism	A living thing too small to see clearly without magnification.
fungus	An organism, such as a mushroom, mould or yeast, that absorbs nutrients. Fungi are not plants.
bacterium	A single-celled microorganism. Many bacteria are useful; some cause disease.

Use the knowledge

Explain a classification
A beetle is an invertebrate because it has no backbone. It is an insect because it has six legs and three main body parts.

Explain an adaptation
A cactus has a thick stem that stores water. This helps it survive in a dry habitat.

Separate inherited and learned features
Natural eye colour can be inherited. Learning to ride a bicycle is an acquired skill.

Explain change over time
Variation exists. Some inherited differences help survival and reproduction. Over many generations, these features may become more common.

Classification models
One six-kingdom model uses Animalia, Plantae, Fungi, Protista, Eubacteria and Archaea. Classification systems can change with new evidence.

Remember
A fossil may be a footprint, shell, bone or impression. Mould is a fungus, not a plant. Not all fungi are microscopic. Individuals do not choose their inherited features.