Mixed Science

Is the school garden the same all year round?

Substantive Knowledge

Review of prior knowledge on seasons and habitats.

Seasons affect our animals and plants

Animals and plants have adapted ways of surviving the changing seasons

- These include hibernating, storing food, fattening up, migration, loss of leaves
- Trees can be either evergreen or deciduous.
- Evergreen trees keep their green leaves all year round.
- Deciduous trees lose their leaves every autumn.

HORTICULTURE

Plant hyacinth bulbs.

Plant in different ways - in soil, in water to see roots grow.

Look at a variety of bulbs. Cut them open and look inside.

Are all bulbs the same?

LONGITUDINAL

How does the school pond / forest change throughout the year?

Consider vegetation, animal life, make careful observations.

BOTANICAL DRAWING

Begin nature journals.

Signs of late summer.

Make careful observations to draw with accuracy.

Include scientific annotations.

HONESTY ENTHUSIASM AMBITION RESPECT TOGETHERNESS

Chemistry

Why do we choose certain materials to do certain jobs?

Substantive Knowledge

Materials can be changed by physical force (twisting, bending, squashing and stretching).

The properties of a material determine whether they are suitable for a purpose.

VOCABULARY

Crumbly - Easily broken onto a lot of little pieces.

Property - How a material can be described.

Drag - Pull something along with difficulty.

Suitable - Right for the purpose.

Strongest - Objects or materials that are not easily broken.

Changed - Different from before

Physical force - When objects touch making them move in some way

Absorb - To soak up or take in liquid.

Flexible - Bends easily without breaking

Disciplinary Knowledge

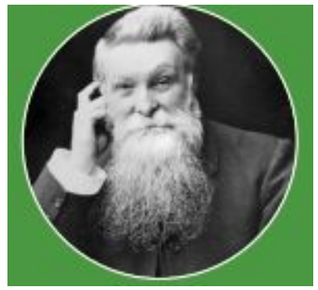
Use the planning mind map to consider independent variables and what will be measured.

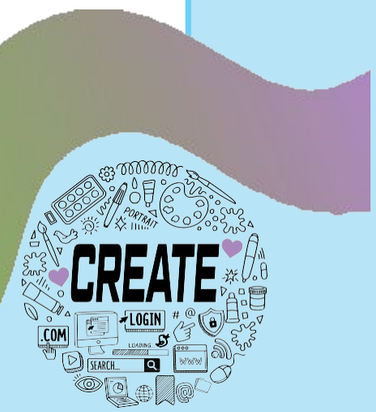
Ask scientific questions and recognise that they can be answered in different ways (know what a scientific question is).

Sort and group, identifying my own criteria for sorting

Understand the need to measure accurately when investigating

Gather and record data in a table to help answer questions





Scientist Study

Standing on the Shoulders of Giants - JOHN DUNLOP BOUNCY TYRE and BOUNCY BALLS

Physics

Why and how do objects move?

Substantive Knowledge

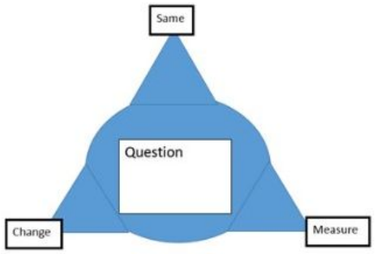
Objects can move (be in Motion) in various ways-roll, slide and bounce

The pushing or pulling of an object can affect its motion.

Pushing or pulling can do three things, slow down, speed up or change the direction of an object.

The larger the push/pull the bigger the effect on motion

Pushing and pulling objects can change their shape.



VOCABULARY

Motion - Moving or being moved

Pushing - To move something away from you or away from where it was before.

Pulling - Move something towards you or away from where it was before.

Slow down - To move or happen more slowly.

Speed up - To move or happen faster.

Direction - The path along which something moves

Disciplinary Knowledge

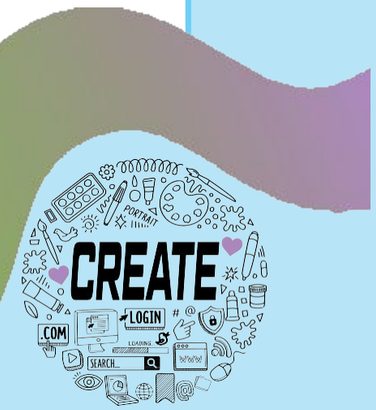
Ask scientific questions and plan an investigation considering the use of variables

Use the planning mind map

Gather and record data to help answer the question

Interpret what has happened

Report ideas



Scientist Study

Standing on the Shoulders of Giants - JOHN McAdam
BUMPY ROADS

HONESTY ENTHUSIASM AMBITION RESPECT TOGETHERNESS

Biology

How are new plants made?

Substantive Knowledge

All flowering plants make seeds (reproduction) that can grow (germinate) into new plants

Plants need water, light and a suitable temperature to grow and stay healthy

There are two main groups of seed plants – plants with cones and plants with flowers.

Some plants die after it has produced its seed (annual) and sometimes the plant lives for many generations producing seeds each year (perennial)

VOCABULARY

Flowering - Can produce flowers.

Reproduction(reproduce from 'Animal life cycles' yr 2) To produce another living thing of the same kind.

Germinate - (germination from 'Plants' yr1) A seed beginning to grow into a young plant or seedling.

Generations - The period of time between the birth of parents and the birth of their children.

Disciplinary Knowledge

Plan an investigation to answer a question.

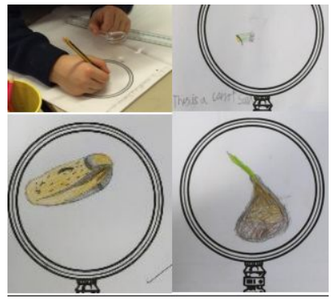
Consider variables

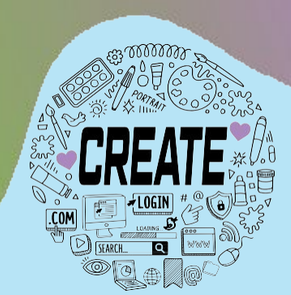
Observe changes over time

Look for similarities and differences

Measure accurately

Draw a conclusion by explaining what I have found out.





Making Links

Horticulture Curriculum
Nature Journals
Botanical Drawing

Biology

What is the life cycle of an animal?

Substantive Knowledge

Things that are living, move, feed, grow, reproduce and use their senses
Animals grow until they reach maturity and then don't grow any larger
Animals reproduce when they reach maturity (adulthood).
All animals eventually, die
Different animals live to different ages
Different animals reach different sizes before they are able to reproduce
Different animals reproduce at different ages
Animals, including humans, have offspring which grow into adults

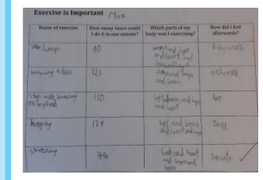
Exercise, eating the right amounts of different types of food and hygiene are important to maintain good health and wellbeing

Habitats are places where animals and plants live (from Year 1)
Animals live in habitats in which they are suited.
Different kinds of animals and plants depend on each other within habitat.
Animals get their food from plants and other animals. This can be shown in a food chain.
A food chain begins with a producer. This is often a green plant because plants can make their own food.
A living this that eats other plants is called a consumer.

VOCABULARY

Maturity - Being fully grown or adult.
Reproduce - To produce another living thing of the same kind.
Die - To stop living
Offspring - The child or young of a particular human, animal, or plant
Life cycle -The stages a living thing goes through during its life
Food chain (from 'Animal survival' y1) Describes the order in which living things depend on each other for food.

Producer - Something that has the ability to make its own food, usually a plant.
Consumer - An organism that must get its energy from eating a plant or animal.


Exercise is important

Name of exercise	How many times could I do it in one minute?	Which parts of my body was I exercising?	How did I feel afterwards?
star jumps	60	arms, legs, heart and lungs	fidgety
bunny hops	121	arms, legs, heart and lungs	relaxed
high knee bunny hops	110	legs, heart and lungs	hot
skipping	124	legs, heart and lungs	tired
star jumping	96	legs, heart and lungs	sweaty

Disciplinary Knowledge

Use secondary sources to research animals
Observe closely, using simple equipment
Record observations using photographs, videos and drawings in order to identify patterns and relationships
Gather and record data to help in answering questions using tables, venns, carroll diagrams etc