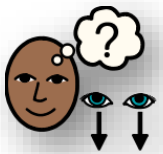
Learning Organiser **Forces** Year Five

Enquiry Questions: Why does the surface area of a parachute affect how long it takes for it to fall to the ground?

What do we know?

- **Know that** some forces need contact to act (Y3)
- **Know how** things move on different surfaces (Y3)

1. Friction – testing cars on the ramp



2. Air Resistance

3. Plan – Parachute Experiment

4. Investigate –Parachute Experiment

5. Evaluate – Parachute Experiment

6. Water resistance – investigate

7. Explore **Gravity**

8. Use **small forces** to greater effects.

Vocabulary

Friction
Air resistance
Force
Surface Area
Water resistance
Streamlined
Gravity
Lever

Big Ideas

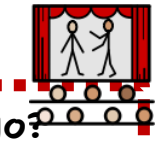
Physics

Forever Facts

Know the effects of air resistance, water resistance and friction, that act between moving surfaces.

Know why if parachutes have a larger surface area they have greater air resistance and slow a skydiver down.

Know how to plan different types of scientific enquiries to answer questions, including recognising and controlling variables. **(Working Scientifically- Skill)**



Where will it go?

Showcase

So… Why does the surface area of a parachute affect how long it takes for it to fall to the ground?

Immersive Science Workshop

Learning Organiser

Space and Global Warming

Year Five

Enquiry Questions: How have our ideas about the Solar System changed?

What is global warming and how can we help reduce it?

What do we know?

- **Know how** day length varies (Y1)
- **Know that** environments can change and that this can sometimes pose dangers to living things (Y4)
- **Know how** deforestation impacts the planet (Y4)

1. The Solar System
2. Diameter of planets – number of moons. Distance from sun – lengths of year.
3. Modelling
4. Motion of the Earth and planets
5. The Solar System – ideas over time
6. Planet Earth
7. Night and day
8. The Moon

1. What is Global Warming
2. What are the impacts of Global Warming on living

Forever Facts

Know what Global Warming is and how we can help reduce it (Sustainability.)

Know why the Earth's rotation creates day and night, all planets in our Solar System (and the moon) are roughly spherical and move in orbit.

Know how to use scientific language and illustrations to discuss, communicate and justify their scientific ideas and talk about how scientific ideas have developed over time. **(Working Scientifically- Skill)**

Vocabulary

Solar System
Planets
Orbit
Heliocentric
Geocentric
Rotate
Gravitational force
Global warming
Climate change
Carbon footprint

Big Ideas

Physics
Sustainability

Where will it go?

Showcase

So… How have our ideas about the Solar System changed?
What is global warming and how can we help reduce it?

Space knowledge timelines
Global Warming posters

Learning Organiser

Animals including Humans & Life Cycles

Year Five

Enquiry Questions: Are there patterns linking gestation periods and lifespans?

How are the life cycles of animals similar and different?

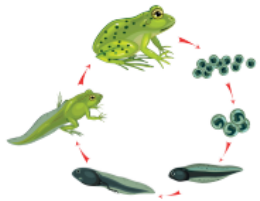
What do we know?

- **Know that** animals, including humans, have offspring which grow into adults **(Y2 Animals)**
- **Know how** living things can be grouped in a variety of ways **(Y4 Living Things)**

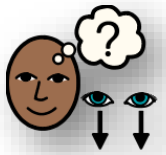
1. The Human life cycle

2. Babies & children, Adolescence & Puberty, Adults and the Elderly

3. Gestation periods and lifespans of mammals



4. Life cycles of mammals and insects



2. Life cycles of amphibians and birds

Vocabulary

Biology

Mammary gland

Amphibians

Vertebrates

Survive

Transform

metamorphosis

offspring

Reproduce

Period

Puberty

Gestation

Reproduction

Big Ideas

Biology

Forever Facts

Know that there are different stages to the life cycles, including foetus, baby, adolescent and adult and elderly adults.

Know that mammals, insects, amphibians and birds that have different life cycles and describe these.

Know how to report and present findings from enquiries, including conclusions and explanations. **(Working Scientifically- Skill)**

Where will it go?

Showcase

So... How are the life cycles and gestation periods of animals similar and different?

Schema & oracy (tapestry) presentation

Scientific Art Exhibition

Learning Organiser

Properties of Materials

Year Five

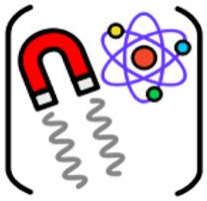
Enquiry Questions: Which material is the best insulator of heat?

What do we know?

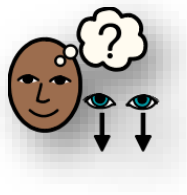
- **Know which** materials would be best for curtains (Y1)
- **Know which** material will be best for an umbrella (Y2)
- **We know how** to identify and classify different materials.

Big Ideas

Physics



1. Test materials – Magnetic, transparency and hardness.
2. Test Materials – Electric conductivity
3. Plan – Insulating heat experiment
4. Investigate – Insulating heat experiment
5. Evaluate – Insulating heat experiment
6. Uses of everyday materials



Forever Facts

Know why materials that would make good conductors or insulators.

Know that materials have particular properties

Know how to use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas. **(Working Scientifically- Skill)**

Vocabulary

Transparent
Translucent
Opaque
Magnetism
Conductor
Insulator

Where will it go?

Showcase

So...Which material is the best insulator of heat?

Schema & oracy (tapestry)

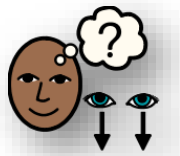
Investigative Workshop

Learning Organiser

Reproduction

Year Five

Enquiry Questions: Which plant cutting produces the tallest plant?



Vocabulary
Fertilisation
Pollination
Asexual
Cloning
Variables
Cutting

What do we know?

- **Know that** the things we plant change overtime **(Y1 Planting)**
- **Know how** bulbs and seeds change overtime **(Y2 Wildlife)**
- **Know that** the number of seeds within one plant pot affects the growth of the plants **(Plants and Biodiversity Y3)**

1. Sexual reproduction in mammals
2. Reproductive parts in plant
3. Pollination
4. Asexual Reproduction
5. Scientific - Cloning plants
1. Collect and present data from
2. Present and explain

Big Ideas

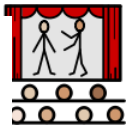
Biology

Forever Facts

Know how plants reproduce sexually or asexually and how fertilisation occurs.

Know that sexual reproduction involves two parent producing offspring.

Know how to plan a scientific enquiry, identifying the dependent, independent and control variables. **(Working Scientifically- Skill)**



Where will it go?

Showcase

So...Which plant cutting produces the tallest plant?

Presentation of experiment cloning plants

Learning Organiser

Reversible and irreversible changes and plastic pollution

Year Five

Enquiry Questions: Which changes are reversible and which are irreversible? What is plastic pollution and what are the impacts of plastic pollution and what are the impacts?

What do we know?

Take accurate measurements using a range of equipment **(Take measurements Y4)**

Compare and group materials together, according to whether they are solids, liquids or gases. **(States of Matter, Y4)**

Evaporation and condensation in the water cycle **(States of matter, Y4)**

1. Dissolving
2. Separate Materials – Filtering and Sieving
3. Solutions and evaporations
4. Reversible Changes
5. Irreversible changes - burning
6. Irreversible changes - Acid
7. What is plastic pollution?
8. What are the impacts of plastic pollution on the planet?

Vocabulary

Soluble
Insoluble
Solution
Dissolving
Evaporation
Reaction
Pollution
Habitat

Where will it go?

Showcase

To produce a poster to present showing what solid's, liquids and gases are. For each section children should explain how they explored this through experimentation. Schema & oracy (tapestry)

Big Ideas

Chemistry

Forever Facts

To know that plastics don't break down for a long time and can end up in landfills and oceans which cause damage to the planet.

To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.

To take measurements, using a range of scientific equipment, with increasing accuracy and precision, and taking repeat readings when appropriate. **(Working Scientifically- Skill)**