Science
Year 5
Term 2
Forces

Final Outcome: We are working towards creating an investigation that explores the effective boat shape and salty water might have on forces.

Article 27

Component 6:

What we will know after this sequence:

- How to investigate and identify the effect of boat shape on water resistance
- How to investigate and identify the effect of salty water on water resistance
- How present findings and recommendations, based on scientific evidence, in written form.

Vocabulary:

Variables, accuracy, causal relationships, support/refute, fall, gravity, water resistance,

How will this feed into my next learning:

I will use my knowledge of forces to develop my understanding of working scientifically in Year 6.

SEN:

Pre learn vocabulary. Limited choices for experiment titles. Turn taking visuals. First, Next and Then guides. Checklist of what they need for experiment and order to complete it. To have limited choices of equipment to use.

Component 4:

What we will know after this sequence:

- How to recognise that gear mechanisms allow a smaller force to have a greater effect
- How to identify the effects of friction, that acts between moving surfaces
- How gears ad gear ratios work
- How to identify appropriate gear combinations for specific terrains
- How to identify and record gear ratios

Vocabulary:

Variables, accuracy, precision, gravity, friction, moving surfaces, mechanisms, gears, transfers

How will this feed into my next learning:

I will use my knowledge of gears and mechanisms and the forces that work around them to explore further the force of friction and its effect on bikes/surfaces.

SEN:

Pre learn vocabulary. Limited choices for experiment titles. Turn taking visuals. First, Next and Then guides. Checklist of what they need for experiment and order to complete it. To have limited choices of equipment to use.

Component 5:

What we will know after this sequence:

- How to identify the effects of friction that acts between moving surfaces
- How to plan different types of scientific enquiries to answer questions
- How to take measurements, using a range of scientific equipment
- The appropriate amount of friction for the safe onward journey of a bike

Vocabulary:

Variables, accuracy, precision, gravity, friction, moving surfaces, mechanisms, gears, transfers,

How will this feed into my next learning:

I will use my knowledge of friction to then explore which force are present during water.

SEN:

Pre learn vocabulary. Limited choices for experiment titles. Turn taking visuals. First, Next and Then guides. Checklist of what they need for experiment and order to complete it.

Component 3:

What we will know after this sequence:

- How unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- How to create an investigation to see how levers work
- How to explore the position of fulcrum, load and effort impacts on use

Vocabulary:

Variables, accuracy, precision, causal relationships, gravity, mechanisms, levers, pulleys, transfers,

How will this feed into my next learning:

I will use my knowledge of forces that work on levers and pulleys to explore what forces act on gears.

SEN:

To have opportunities to explore in games and investigations prior to the lesson what a fulcrum, load and effort is.

Component 2: Parachute experiment

What we will know after this sequence:

- How to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- How to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings
- How to record data and results of increasing
- complexity
- How to use test results to make predictions to set up further comparative and fair tests

Vocabulary:

Variables, support, fall, Earth, gravity, air resistance, friction, moving surfaces,

How will this feed into my next learning:

I will use my knowledge of forces at work on parachutes to explore what forces work on levers and pulleys.

SEN:

To focus on learning a slimmed down version of facts that are supported by visuals to support memorisation. To have word banks and speaking frames to promote discussion. To have alternative ways of recording their understanding other than writing.

Component 1:

We should know:

- How to compare how things move on different surfaces/ That some forces need contact between two objects, but magnetic forces can act at a distance. Difference between a push and pull force

What we will know after this sequence:

- How to explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- How to identify scientific evidence that has been used to support or refute ideas or arguments
- Key facts about Isaac Newton and what he is famous for.

Vocabulary:

Support, fall, Earth, gravity, air resistance, friction, balancing force, weight, newtons, resistance force,

How will this feed into my next learning:

I will use my knowledge of how objects fall to explore the forces at work in different parachutes. **SEN:** To focus on learning a slimmed down version of facts that are supported by visuals to support memorisation. To have word banks and speaking frames to promote discussion. To have alternative ways of recording their understanding other than writing.