



Curriculum

Year 5 Scheme of Work for Design Technology

Term: Autumn 1

Topic: Mechanical Systems- Making a sling shot car.

Key Skills and Knowledge:

Key Skills

Developing, planning and communicating ideas

- Designing a shape that reduces air resistance.
- Drawing a net to create a structure from.
- Choosing shapes that increase or decrease speed as a result of air resistance.
- Personalising a design.

Working with tools, equipment, materials and components

- Measuring, marking, cutting and assembling with increasing accuracy.
- Making a model based on a chosen design.

Evaluating processes and products

- Evaluating the speed of a final product based on the effect of shape on speed and the accuracy of workmanship on performance.

Key Knowledge

To know:

- To understand that all moving things have kinetic energy.
- To understand that kinetic energy is the energy that something (object/person) has by being in motion.
- To know that air resistance is the level of drag on an object as it is forced through the air.
- To understand that the shape of a moving object will affect how it moves due to air resistance.

Reading and Writing Opportunities (Long and Short Activities)

Creative Ideas and Hooks

Research opportunities

- Who designed the first car? How have cars changed and developed over time?
- Can you name any of the different car inventors?
- What materials could you use to make your car more aerodynamic?

Writing Opportunities

- Create a fact file about your favourite car
- Progress report for end product.
- Write a review of the mechanism which has been invented.

Hooks

- Investigate toy cars - What makes it move? How can I control it? What does it look like?
- Design and make own toy car - What do you want it to look like? How will you make it? What materials will they use?

Inventors

- Fredrick William Bremer- a plumber and gas fitter who built the first British four-wheeled petrol-engined motor car.

Books

- Let's find Wheels and Axles- Wiley Blevins

Links to PSHCE, Equality and British Values Work

British Values

Democracy

The children must take the views and opinions into account but still have the right to make their own choices.

The Rule of Law

- To understand the importance of safety rules when using tools.

Individual Liberty

- To understand that they are able to listen to others but can use their own ideas and design choices.
- To understand that many great design ideas originate from other cultures.

Mutual Respect

- To listen to and consider the ideas and opinions of others even if they differ from your own.
- To offer supportive comments in evaluations that will improve learning outcomes in a way that is objective but sensitive to the listener.

Resources Available / Visits/Visitors

- Wooden dowels or rods
- Wheels
- Drinking straws
- Paper clips
- Glue guns/ glue sticks/ PVA
- Lolly sticks
- Elastic bands
- Masking tape
- Toy cars
- Crayons
- Plastic cups/ building blocks- crash target
- Coloured card (decoration/ graphics)
- Scissors

Key Vocabulary:

Chassis, energy, kinetic, mechanism, air resistance, design, structure, graphics, research, model, template

Previous Knowledge:

Do I know how wheels and axels work?

Useful Websites:

<https://www.kapowprimary.com/subjects/design-technology/lower-key-stage-2/year-4/mechanical-systems-making-a-slingshot-car/>

