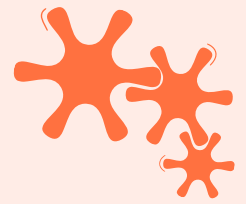


Spirit of Innovation

STEAM Resources



Engineering

Year One

Sliders, Wheels and Axles

On the Move

Links

Design

- Design purposeful, functional, appealing products for themselves and other users based on design criteria
- Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- Explore and evaluate a range of existing products
- Evaluate their ideas and products against design criteria

Technical knowledge

- Build structures, exploring how they can be made stronger, stiffer and more stable
- Explore and use mechanisms [for example, sliders, wheels and axles], in their products.

Resources

- Scissors
- Glue
- Sticky tape
- Cardboard
- Paper
- Split pins
- Pegs
- Dowel
- Drinking straws
- Wooden wheels
- Cardboard wheels
- Plastic wheels
- Hole punch
- String
- Boxes
- Lolly sticks
- Background templates
[\(Download\)](#)
- Plane Template
[\(Download\)](#)
- Blueprint Design Sheet
[\(Download\)](#)

Skills

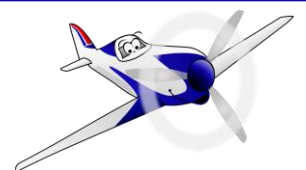
- Working as a pair
- Working as an individual
- Communicating ideas
- Selecting suitable tools and materials
- Demonstrate and range of joining techniques
- Improving and evaluating designs

Questions

- What are you going to make?
- What materials are you going to use?
- What tools will you require? Why?
- What will you use to join each material? Why?
- How will you make the image/propeller/wheels move?



PIONEERS OF POWER



Activity

Activity One

Individual
(20 – 30 mins)

Sliding images

Using a piece of A4 card design your own background or download a template ([Download.](#)) On a separate and smaller piece of card design an image that will move; templates available ([Download](#))

Using suitable tools, and with the guidance of an adult; pupils should cut a slit, wavy line midway across their background.

Next, pupils should cut around their intended moving image and attach it to a lolly stick or thick piece of card.

Place the lolly stick through the slit and move the image along the slit.

Activity Two

Individual/Pairs/ Small group
(40 – 60 mins)

Using the blueprint design sheet ([Download](#)), design own aircraft. Pupil or adult to label what materials are required and what parts are going to move.

The adult should to guide pupils towards safe handling of tools as well as appropriate choices of joining techniques and materials.

The aircraft should have at least one moving part; for example, a moving propeller and/or landing gear (wheels.) Split pins are good for a moving propeller.

To attach the landing gear to the aircraft please see below for a few suggestions.

Where possible these aircrafts could be displayed by hanging from the ceiling, or suspended against a 'sky' backed display board.

Making Tips

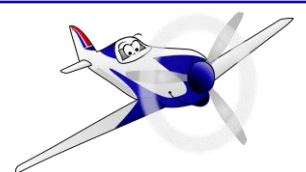
Make a 'u' shape within a strip of stiff card, secure each side with sticky tape. Make two in total and secure them where the axle is required. Pass the dowel or drinking straw, through the 'U' shape and attach the wheels each end.

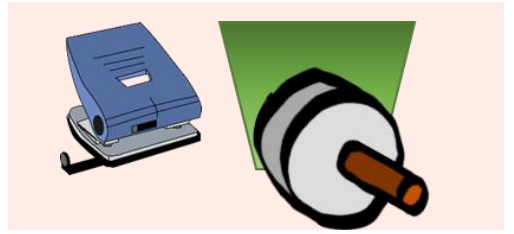
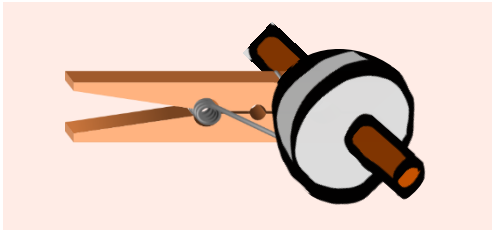
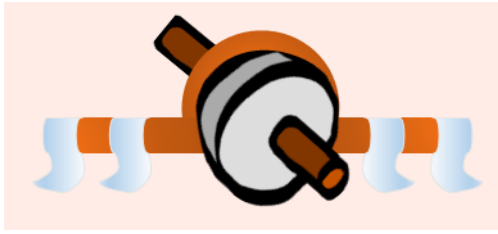
Attach two clothing pegs to where the axle is required. Pinch open the pegs and place dowel or drinking straw between the largest hole. Let go of the pegs and the axle will be secured in place.

Cut out two 'tabs' from a stiff piece of card. Use a hole punch to punch a hole in both pieces of card. Stick these 'tabs' securely where the axle is required. Pass the dowel or drinking straw, through the punch holes and attach wheels.



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