

Biological sciences

Project 1

Sapling protector

TASK:

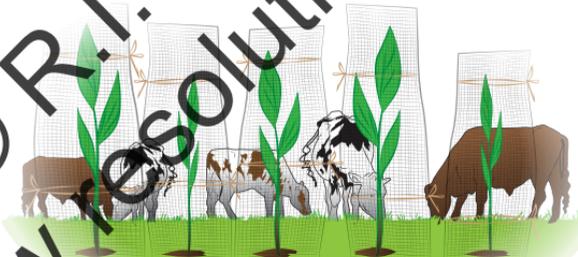
Design and create a protective device for a sapling that will allow it to reach maturity.

CRITERIA:

- It must be strong enough to withstand trampling from a human or animal.
- It must allow the plant room to grow.
- It must allow the plant to receive sunlight, water and air.

SUGGESTED MATERIALS:

- plastic tubing
- recycled plastic bottles
- rubber bands
- wire mesh
- toothpicks/skewers
- string
- sapling



Biological sciences

Project
1

Sapling protector

- Research the life cycle of a tree and its characteristics at each stage, from seed to mature tree. Focus on the sapling stage and what features make it vulnerable.
- Plan and draw a diagram of a device that could protect the plant during its sapling stage.
- Collect the materials you will need, including plastic tubing, recycled plastic bottles, rubber bands, wire mesh, toothpicks, string and a sapling.
- Create the protective device to look like your plan.
- Check that the device meets the criteria.
- Share what you made by placing it in the school garden and taking a photograph of the sapling each week to monitor its progress.



Chemical sciences

Project

Build a bridge

TASK:

Design and create a bridge from a material that is strong enough to hold a toy truck.

CRITERIA:

- The bridge should be 40 cm long.
- The bridge must be able to support the weight of a small toy truck for at least 20 seconds.
- The bridge must be smooth enough for the truck wheels to travel across it.

SUGGESTED MATERIALS:

- small toy truck
- building supplies such as craft sticks, dowelling, cardboard, plastic, metal rulers, newspaper
- string
- tape



Chemical sciences

Project

Build a bridge

- Research the best materials for building a bridge.
- Draw a plan of what your bridge will look like.
- Collect the materials you will need, including a small toy truck, building materials, string and tape.
- Create the bridge to look like your plan.
- Check that the bridge meets the criteria.
- Give a demonstration of the strength of the bridge, explaining which material was chosen and why.

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Earth and space sciences

Project 1

Rock box

TASK:

Design and create a collection box to display various rocks and gems.

CRITERIA:

- The box should contain partitions to place individual rocks and gems securely, organised into an array.
- It should hold at least 16 rocks.
- You should be able to see the rocks and gems clearly inside the box.
- The box should be transportable.

SUGGESTED MATERIALS:

- cardboard box, cardboard pieces
- plastic bottles
- egg cartons
- rocks, gems



Earth and space sciences

Project 1

Rock box

- Find out about different types of rocks you want to collect. Research other rock collection boxes and learn about the features you will need to include in your design.
- Draw a plan of what your rock box will look like.
- Collect the materials you will need, including cardboard, plastic, egg cartons, rocks and gems.
- Create the rock box to look like your plan.
- Check that the rock box meets the criteria.
- Give a presentation explaining how you made your rock box and what kinds of rocks and gems you have added to your collection.



Magnet maze

TASK:

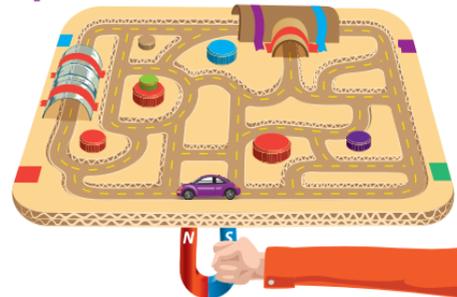
Design and create a maze to move a metal object through using a magnet.

CRITERIA:

- The maze should be made from cardboard and be no larger than 40 cm x 40 cm.
- The lines of the maze should be marked with tape.
- A magnetic object should be selected, to move around the maze. This may determine what the maze is designed around; e.g. a metal car would suit a racetrack maze.
- The maze should be raised above the ground to allow the magnet to be used on the underside of the cardboard.

SUGGESTED MATERIALS:

- sturdy cardboard
- coloured tape or narrow masking tape
- magnet
- magnetic object
- cardboard tubes or plastic bottles



Physical sciences

Project 1

Magnet maze

- Research magnetic forces and how they can work through materials.
- Draw a plan of the maze layout and design a theme you will decorate the cardboard with. You will also need to design a structure that the maze board will be placed on.
- Collect the materials you will need, including cardboard, tape, a magnet, a magnetic object and cardboard tubes or plastic bottles.
- Create the maze and supporting structure to look like your plan.
- Check that the maze meets the criteria.
- Give a demonstration of how your maze works and conduct a rotation to allow others to have a go moving the object through the maze.

