

Design and Technology

Year 3 Mechanical Systems:
Moving Monsters

Autumn

Challenge:

To make a monster with a moving pneumatic part.

Competition Ideas (Choose 1)

1

Hold an open event for groups to share their final products with parents/ guardians. Parents/ guardians vote on the best design.

2

Upload monsters (as videos) to the school website and hold a web vote to decide the best design.

3

Gallery - Selected classes visit the gallery and vote for their favourite monster.

Objectives

To investigate a variety of familiar objects that use air to make them work.

To investigate techniques for making simple pneumatic systems.

To be able to gather ideas for creating moving monsters.

To be able to design a monster including a moving pneumatic system.

To be able to make a monster with a moving pneumatic part.

The Journey

Technical Knowledge

How does pneumatics mean?

The word Pneumatics comes from the Greek word Pneumatikos which means— wind or breathe. Pneumatics is movement by compressed or pressurised air.

Compressed – something that is squashed, such as air in a tube.

Input – what goes into a system.

Output – what comes out of a system.

Design

- 1) Clearly understand the criteria for the project.
- 2) Explore a range of existing products.
- 3) Complete Skills Practice
- 4) Children will use their previously learnt skills to design a monster .
- 5) Create a resource list of materials needed for final design

Make

Skills Practice

- ◆ Children explore techniques for making simple pneumatic systems. (syringe, tubing, balloon, straws, plastic bottle)
 - ◆ Children investigate how they can use pneumatic system to make a moving monster (selecting which parts could move).
- 1) Children to follow their designs to create their monsters, using the skills they have previously learnt.
 - 2) Adapt design to improve the monster.

Evaluate

Before Making

- ◆ Explore and investigate familiar objects that use air to make them work (whistle, foot pump, recorder beach ball).
- ◆ Evaluate learning from skills practice and use this to adapt the final design.

After Making

- ◆ Evaluate how effectively the final product meets the 'challenge'.

Resources (Not an exhaustive list)

Syringes, tubing, balloons, plastic bottles, straws, card, 'burger' boxes, masking tape, scissors, craft knives