


Knowledge Organiser

Year: 3

Subject: Design & Technology

Unit: Moving Monsters

Overview		
<p>Children will learn about pneumatic systems and describe how they work. They will make a variety of simple pneumatic systems according to given instructions using basic equipment. They will design, make and evaluate their own moving monster.</p>		
What should I already know?		Vocabulary:
<p><b>Design</b></p> <ul style="list-style-type: none"> <li>Can name and describe the features and functions of an existing design (fire engine)</li> <li>Can investigate ways to combine wheels, axles and chassis</li> <li>Can make a design for a fire engine that includes wheels, axles, chassis and a body</li> <li>Can list and select the appropriate materials and explain their choices</li> <li>Can communicate their ideas and plan by describing them to someone else including what the purpose is.</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>Can follow a design to make a fire engine that moves</li> </ul> <p><b>Working with tools</b></p> <ul style="list-style-type: none"> <li>Can use tools such as ruler, scissors, hack-saw, glue spreaders, tape dispensers accurately and safely.</li> <li>Can join card, paper, dowelling and straws using glue, tape (sellotape/masking tape) and threading through</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>Can recognise what they have done well and talk about what could be improved</li> <li>Can assess how well their product works</li> </ul> <p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>To know that a wheel is a circular object that revolves on an axle</li> <li>To know that an axle is a rod that passes through the centre of a wheel</li> <li>To know that a chassis is the base frame of a wheeled vehicle.</li> <li>To know that there are two ways of attaching a wheel to an axle: -</li> <li>Fixed (the axle and wheel move together)</li> <li>Rotating (the wheel rotates separately to the axle)</li> </ul>	<p>design brief</p> <p>components</p> <p>construct</p> <p>movement</p> <p>pneumatic</p> <p>precise</p> <p>testing</p>  <p>refine</p> <p>accuracy</p> <p>discuss</p>	<p>a set of instructions given for a designer to follow to create</p> <p>a part or element of a larger whole; wheels are components of a car.</p> <p>to build from a variety of materials</p> <p>a change or development</p> <p>the use of gas or air under pressure</p> <p>with the greatest of accuracy</p> <p>enabling a product to be tried and refined to ensure it meets its designed function</p> <p>make minor changes to improve</p> <p>exact in all detail</p> <p>talk about (something) with a person or people</p>

## What will I know by the end of the unit?

### Design

- Be able to identify familiar products which use air to make them work.
- Create an accurate labelled diagram of a pneumatic system
- To be able to investigate ways of using pneumatic systems with other materials to control movement
- Apply what they know about pneumatics to create a design that has a simple pneumatic system (e.g syringe, plastic tube, balloon) that works
- Identify areas that could be improved upon in their design

### Make

- Can follow a design to make a monster that moves by a pneumatic system.
- To create an air tight seal using tape
- To create an air tight seal using tape, pushing a tube on to a syringe hub

### Working with tools

- Can select the most appropriate materials, tools and techniques to use and can use them safely (syringe, balloon, piping, straws)

### Evaluate

- Be able to identify familiar products which use air to make them work.
- Recognise what has gone well, but suggest further improvements for the finished article
- Suggest which elements they would do better in the future
- Can assess how well their product works in relation to the purpose

### Technical Knowledge

- To know that pneumatic is used to describe a mechanical device that is moved by air pressure (compressed air).
- Know that in pneumatics, an object moves or a sound is made because compressed air is pushed through a tube by a force.

