

Topic: Moving monsters

Year 2/3 and 3

Strand: Mechanisms

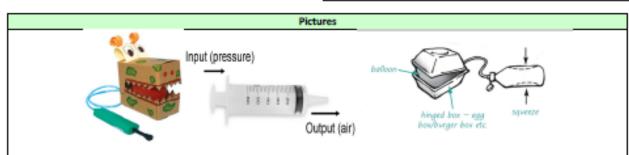
What should I already know?		
	How to join and combine materials	
•	How to cut and shape card (and other reclaimed materials)	
•	How to make hinges	
•	How to use a construction kit to make strong and stable structures.	
•	How wheeled vehicles move	
•	How to make a winding mechanism	

What will I know / be able to do by the end of the unit?			
What are pneumatics?	Pneumatics is the use of pressurized air to create a motion The input is the pressure and the output is the air that results in mechanical outcome		
Where do we find mechanisms that use pneumatic systems in the real world? How could we create a mechanism using	Examples of pneumatic systems include: a) Air brakes on buses and trains b) Inflatable structures c) Rollercoasters d) Pneumatic Launchers (a type of spud gun) A syringe will be attached to a plastic tube which will be attached to a balloon inside a cardboard box Pressure from the syringe will push		
pneumatic systems?	 air into the balloon through the tube The balloon will expand and open the cardboard box (the mouth of the animal) 		
How can we evaluate our models to check their reliability?	My moving monster will be able to open its mouth at least 10cm wide My pneumatic system has airtight connections I know how much air pressure will be needed to inflate the balloon to open the monster's mouth a sensible height		

Vocabulary			
Designing			
Collect ideas			
The rules to work within			
to judge the merits of something			
An idea to consider			
Making			
to join, fasten, or connect			
a part of something			
to make stable or steady; fasten firmly; attach			
a small tube, usually fitted with a piston			
or bulb, for drawing in a quantity of			
fluid/ gas and pumping it out			
a long, hollow piece of glass, metal, or			
rubber used to hold or carry liquids or			
gases			
Knowledge and Understanding			
to cause to shrink or collapse by letting			
out air or gas			
a device made of two pieces connected			
so that one piece can open, close			
to make larger or expand by pumping in			
air or gas			
To put into			
Something produced			
The use of pressurized air that creates a			
motion			
a steady force upon a surface			
a machine for moving a liquid or gas			
from one place to another			

Key Design Decisions & Skills

- Evaluate pre-existing models that use pneumatics
- Practise assembling a pneumatic system to inflate a balloon
- Design a monster with a moving mouth using a pneumatic system
- Choose from a range of tools and equipment accurately, such as tubing, syringes and balloons
- Measure, mark out, assemble and join materials and components with some accuracy
- Work as part of a team to make a model monster
- Evaluate own models and begin to relate their work in the classroom to products in the wider world
- Suggest what could be changed to improve the design, beginning to link this to the design brief



Tools and resources

Syringes, balloons, scissors, rulers, burger boxes/egg boxes/cereal boxes, plastic tubing, felt tip pens, pencils