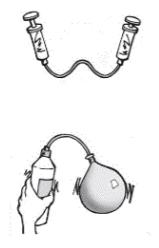

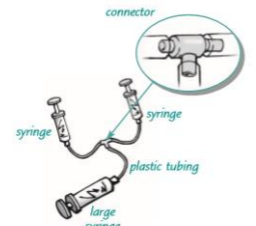
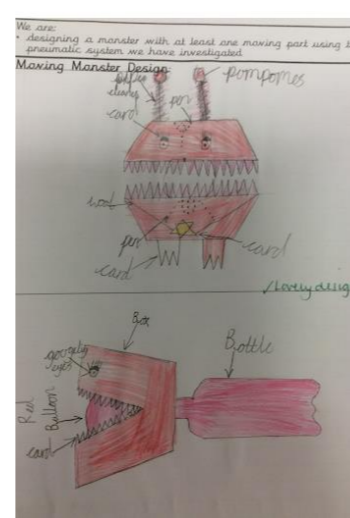


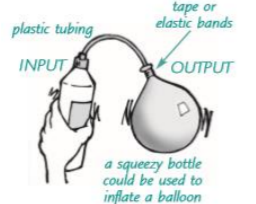
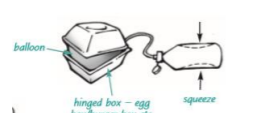


Leon and the Place Between Year 3 Mechanisms and Control, Pneumatics

Curriculum Links: Literacy: rich texts Leon and the Place Between Grahame Baker-Smith
Library books: Circuses 791, Magic 793

Preparation: collect boxes, scrap materials and washing up liquid bottles. Local food take-away shops may donate hinged boxes?

DESIGNING	MAKING	EVALUATING	TECHNICAL KNOWLEDGE								
<p>Understanding contexts, users and purposes</p> <p>Discuss ideas: How can air produce movement? Blow on hands to feel the flow of air. Experiment with blowing up balloons and letting the air out. Can they feel that the force is stronger?</p> <p>WARNING: Do not use syringes that have been used for injections.</p> <p>Explore the pneumatic function of the plunger, tube and balloon. Pupils have a go... If the plunger is pulled out (the input)...</p> <p>What will happen to the other plunger? Why does this happen? What could you use this mechanism for? What happens if you use a larger syringe? Observe the movement.</p> <p>What if there were a connector and two smaller syringes with a large syringe creating the movement?</p>   	<p>Planning</p> <p>How will you know that the toy is successful? (If it has a moving part) This will inform evaluations.</p> <p>Consider ways in which you might want the character to move.</p> <p>Children will draw their designs and label the parts. They will show which parts will move and how they will make it happen.</p>  <p>List the materials they will use. Discuss the order of making.</p>	<p>Existing products</p> <p>The children might look at models made by other children as inspiration for their own designs.</p>  	<p>Making products work</p> <p>Use understanding of pneumatics to create movement to inform designing.</p> <p>Know that mechanical systems have an input, process and output.</p> <p>Use the correct technical vocabulary with accuracy.</p>								
<p>Generating, developing, modelling and communicating ideas</p> <p>What will happen if the bottle is squeezed? What will happen to the balloon? Why does this happen? What could you use this mechanism for?</p> <p>Describe the parts of the bottle and tubing, input and output using technical vocabulary.</p>  <p>Model the movement using a hinged box. Develop ideas for bringing this movement to life using inspiration from the book. It could be a crocodile, unicorn, tiger, circus figure... Consider who might enjoy this toy.</p> 	<p>Practical Skills and techniques</p> <p>The balloon needs to be secured tightly to the tubing. Use a tight elastic band wound several times or use masking tape.</p> <p>A tight fit is also needed when attaching the tubing to the syringe, otherwise air will escape.</p> <p>If the tubing is difficult to get onto the syringe, soak the end in hot water to allow the plastic to soften slightly – it will tighten as it cools down.</p> <p>Measure, mark out, cut and shape materials. Assemble, join and combine with some accuracy. Apply finishing techniques.</p> <p>Key ideas and Individuals</p> <p>Air can produce movement and this can be used in a simple pneumatic system.</p>	<p>Own ideas and products</p> <p>A story at the end of the project the children to on processes, making, and understanding gained during the process. Evaluations could answer these questions: What was the most difficult part of making the model? How did you overcome any problems you came across? What changes did you have to make to make your model successful? Are you pleased with how your model looks? Are you pleased with how the pneumatic system works? What would you do differently if you had to do it again?</p> <table border="1"> <tr> <td>I chose a box</td> <td>I cut a hole in the top</td> <td>I attached a lid</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p>board of the allows reflect skills</p>	I chose a box	I cut a hole in the top	I attached a lid						<p>Design and technology vocabulary</p> <p>input output mechanism tubing compressed air plunger syringe pneumatic inflate tape movement</p> <p>Image resources</p> <p>Use the illustrations from Leon and the Place Between to inspire designs.</p>
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