

# D&T MTP

## Year 2 Autumn 2

Context							
Unit		<a href="#">Making a Moving Monster</a> Linked to Reading / Writing					
Assessment		Evaluation of product at end of unit.					
Concepts - How does this unit fit in?		<b>Significant Designers / Products</b> George Stephenson ('Rocket' steam train)		<b>Noteworthy Products in our Daily Lives</b> The letter press, mechanical puppets on stage (War Horse), 'Mechanical Bull' of 2022 Commonwealth Games, anamorphic dinosaurs at the Natural History Museum, <b>more to be added by classteacher</b>		<b>Purpose and Use</b> To serve a function once connecting parts are moved by hand / motor.	
Kapow Lesson		Learning Intention	DT Skills Skills Progression	Knowledge Concepts	Diversity	Local Art	Curriculum Links
1	<a href="#">L1 - Pivots, Levers and Linkages</a>	To <b>organise</b> my ideas to help devise a whole-class design criteria	D5,D6,D9,M5			Beck Theatre	History/ STEM
2	<a href="#">L2 - Making Linkages</a>	To <b>apply</b> my knowledge of linkages to make a mechanism which uses pivots and levers.	D7,D8,M5,M6				
3	<a href="#">L3 - Designing my monster</a>	To <b>compare and contrast</b> two different moving monster designs.	D10,M5				History
4 & 5	<a href="#">L4 &amp; 5 - Making my moving monster</a>	To <b>apply</b> my knowledge of linkages and mechanisms to build a moving monster	M6,M10				
6	L6 - Evaluate my design	To <b>analyse my</b> product and explain what went well and what design adjustments are needed.	E4,E5,E6				

## Lesson 1

<b>Lesson 1</b>	
<b>Kapow Lesson</b>	<a href="#">L1 - Pivots, Levers and Linkages</a>
<b>Learning Intention</b>	To <b>organise</b> my ideas to help devise a whole-class design criteria
<b>SOLO SC: Uni- Structural</b> <i>Bronze</i>	I can <b>identify</b> a lever and a pivot in a mechanism.
<b>SOLO SC: Multi- Structural</b> <i>Silver</i>	I can <b>describe</b> how a linkage works.
<b>SOLO SC: Relational</b> <i>Gold</i>	I can <b>organise</b> my ideas to help devise a whole-class design criteria
<b>SOLO SC: Extended Abstract</b> <i>Platinum</i>	I can <b>justify</b> my ideas by using technical vocabulary.
<p style="text-align: center;"><b>Activity</b></p> <p>(What will the children do to demonstrate their understanding of the LI?)</p>	<p><b>Children will be introduced to mechanisms where a lever turns on a pivot and that a linkage is a system of levers that are connected by pivots. Chn should know how mechanisms in history, using these linkages revolutionised our modern age, namely during the Victorian Industrial Revolution, where machine boosted commerce and productivity. George Stevenson invented the steam train ‘The Rocket’ where the engines wheels primarily move due to linkages and pivots. This new mode of transport allowed England to flourish by sending goods and mail around the country at great speed. Chn should become familiar with notable designers through history to make connections between the past and the present. Chn will look at objects and understand how they move and then devise a class design.</b></p> <p><b>Show chn a variety of other inspirational products that they may have seen</b> - mechanical puppets on stage (War Horse), ‘Mechanical Bull’ of 2022 Commonwealth Games, animatronic dinosaurs at the Natural History Museum (class teacher rto add other examples) - all of which house the basic pivots, levers and linkages which the chn will be introduced to in this lesson.</p> <p><a href="#">Follow Kapow lesson.</a></p> <p>Ideally, class teacher should have a pre-prepared model, which will be used later in the lesson, as a live demonstration tool.</p> <p><b>Kapow design brief given is ‘Design a Moving Monster Toy for children, using levers and linkages.’</b></p>

	<p>An alternative, more exciting design brief, which encompasses a local landmark and the puppets of War Horse could be: 'Design a Moving Monster for the Beck Theatre, for their production of Pixar's Monsters Inc (or alternative adaptation of a Fairy Tale / Book that the children enjoy.) Class teacher could mock up a design brief sent by the Beck Theatre to WDA, requesting the children's help and to become Professional Prop Designers! - Bring the lesson to life and to design 'in-role'.</p> <p>As a class, brainstorm monster ideas that they can make - create a buzz and excitement.</p> <p>Design sheet and success criteria must be stuck into sketchbooks neatly.</p> <p><b>Chosen design brief and success criteria should be displayed prominently in the classroom, on DT working wall.</b></p> <p><i>Do not mark drawn work but do correct incorrect spellings of mechanism parts. Encourage the use of neat handwriting and presentation.</i></p>
<b>Key Vocabulary for the lesson</b>	Axel, design criteria, input, linkage, mechanical, output, pivot, wheel, prop designer, animatronic, puppetry
<b>Curriculum Links</b>	History, Science (forces)
<b>Resources</b>	Kapow sheet downloads, images of various mechanisms (incl Stephenson's Rocket, War Horse puppets, etc), sketchbooks

## Lesson 2

<b>Kapow Lesson</b>	<a href="#">L2 Making Linkages</a>
<b>Learning Intention</b>	To <b>apply</b> my knowledge of linkages to make a mechanism which uses pivots and levers.
<b>SOLO SC: Uni- Structural</b> <i>Bronze</i>	I can <b>identify</b> the input and output of a mechanism
<b>SOLO SC: Multi- Structural</b> <i>Silver</i>	I can <b>describe</b> how a linkage works.
<b>SOLO SC: Relational</b> <i>Gold</i>	I can <b>apply</b> my knowledge of linkages to make a mechanism which uses pivots and levers.

<b>SOLO SC: Extended Abstract</b> <i>Platinum</i>	I can <b>evaluate</b> and <b>explain</b> to my partner how I fixed problems in my mechanism to make it work.
<p style="text-align: center;"><b>Activity</b></p> <p style="text-align: center;">(What will the children do to demonstrate their understanding of the LI?)</p>	<p><b>Chn to understand that all designers must test their design before making the final product. They create a test piece - prototype. By making a prototype they can make sure the mechanism works before spending time and money on the final product. Chn will be experimenting with making linkages and various lengths of card and pivots.</b></p> <p>Show children how <a href="#">Stevenson designed many prototype trains, as did other designers</a>, so that they could build the best performing machine. Can the children identify the linkages in these historic designs?</p> <p><a href="#">Follow Kapow lesson.</a></p> <p>Watch the tutorial videos, which demonstrate how to construct the mechanisms.</p> <p>Give the chn the downloadable linkages diagrams / display on the board. Chn to try and make the different linkages. Throughout the lesson, encourage children to use the technical vocabulary that has been taught during this unit.</p> <p><b>Encourage resilience during the assembly process</b> - children MUST TRY and RE-try before adult intervention. Children should rely on peer help and peer discussion to resolve construction problems, especially the ‘fiddly bits’.</p> <p>The adult can demonstrate but the child must try and complete the task themselves.</p> <p><b>Take photos of children working and experimenting. Print and add these to sketchbooks, to show the design process. Photos can also be added to DT working wall.</b></p> <p>Chn can write explanation on Post_it Notes, to demonstrate their understanding of what they were doing in the photos, which can also be displayed on DT working wall.</p>
<b>Key Vocabulary for the lesson</b>	Axle, design criteria, input, output, linkage, mechanical, pivot, wheel, prototype
<b>Curriculum Links</b>	History, Science (forces)
<b>Resources</b>	Strips of pre-cut card / paper, split pins, pencils, plasticine / rubbers, scissors and glue.

### Lesson 3

<b>Kapow Lesson</b>	<a href="#">L3 - Designing my monster</a>
<b>Learning Intention</b>	To <b>compare and contrast</b> two different moving monster designs.

<p><b>SOLO SC: Uni- Structural</b> <i>Bronze</i></p>	<p>I can <b>draw</b> two different moving monster designs.</p>
<p><b>SOLO SC: Multi- Structural</b> <i>Silver</i></p>	<p>I can <b>describe</b> the parts that move and the direction they will move in.</p>
<p><b>SOLO SC: Relational</b> <i>Gold</i></p>	<p>I can <b>compare and contrast</b> two different moving monster designs.</p>
<p><b>SOLO SC: Extended Abstract</b> <i>Platinum</i></p>	<p>I can <b>predict</b> which <b>design</b> will be better by discussing the different parts of the mechanism.</p>
<p><b>Activity</b> (What will the children do to demonstrate their understanding of the LI?)</p>	<p><b>Chn will be designing and drawing two different moving monster ideas. They will only be designing the face of the monster in this lesson. They will get the chance to draw and label their design by drawing upon previous knowledge of what materials are needed and what features a monster has.</b></p> <p>Start the lesson by presenting pictures of the moving monster examples and discuss: (if time, have a moving monster example ready for the children to look at in person)</p> <ul style="list-style-type: none"> <li>● What do monsters look like?</li> <li>● What famous monsters do the children know about?</li> <li>● What features do monsters have?</li> </ul> <p>They need to think about 3 more design criterias that they would like to include in their design (scary, scaly, strong etc). Add these ideas onto flipchart paper to support children who may be struggling.</p> <p>Chn to then independently design and draw ideas in sketch books. Share success criteria:</p> <ol style="list-style-type: none"> <li>1.Sketch two different design ideas and colour them in.</li> <li>2.Add arrows to indicate the parts that move and the direction of movement.</li> <li>3.Draw a diagram of the linkage systems they have cohen based on the parts they want to move and the direction of movement.</li> </ol> <p>Chn to then swap sketchbooks with partners and discuss which design they prefer and why. Encourage chn to use technical language (design, linkage, movement etc)</p>
<p><b>Key Vocabulary for the lesson</b></p>	<p>Axle, design criteria, input, output, linkage, mechanical, pivot, wheel</p>
<p><b>Curriculum Links</b></p>	<p>History, Science (forces)</p>

**Resources**

Moving monster design brief (downloadable on kapow), demonstration model of moving monster, pencils, colouring pencils

## Lesson 4 and 5

**Kapow Lesson**

[L4 & 5 - Making my moving monster](#)

**Learning Intention**

To **apply** my knowledge of linkages and mechanisms to build a moving monster

**SOLO SC: Uni- Structural**

*Bronze*

I can **identify** tools and materials that I will use to make my product.

**SOLO SC: Multi- Structural**

*Silver*

I can **combine** materials to make a product.

**SOLO SC: Relational**

*Gold*

I can **apply** my knowledge of linkages and mechanisms to build a moving monster

**SOLO SC: Extended Abstract**

*Platinum*

I can **evaluate** my product during construction and **justify** my changes.

**Activity**

(What will the children do to demonstrate their understanding of the LI?)

**Chn will construct their moving monsters during the next 2 lessons. Chn will have the choice to use templates from kapow to support them or can use materials (card) to draw and create their own monster. Model both ways to give chn the choice. During demonstration, ensure you cover any safety aspects (when using scissors, when creating the holes using the plasticine)**

Watch the videos on kapow with the class as they will demonstrate how to make the moving monster.

Provide chn with their design briefs from lesson 3 to refer back to. If they decide to change any aspects of their design, ask chn to record this onto their design brief. Encourage chn to take their time and be resilient as some parts of this process may be tricky for the children. Ensure resources are ready (pre-cut strips of card).

Once the children have made their moving monsters, ensure pictures are taken and are stuck into sketch books. Ask chn to discuss process of making the moving monster with peers, what did they enjoy? What was difficult?

	<p>In the next lesson they will continue to finish their moving monster and will move onto decorating them. Remind chn that if they stick too many things on the monster, it will become too heavy and may break.</p> <p><b><u>DO NOT</u></b> send moving monsters home.</p>
<b>Key Vocabulary for the lesson</b>	Axle, design criteria, input, output, linkage, mechanical, pivot, wheel
<b>Curriculum Links</b>	History, Science (forces)
<b>Resources</b>	Monster head and jaw template (downloadable on kapow), card cut into strips for linkages, rulers, pencils, plasticine, glue, scissors, masking tape, decorative materials (foil, cotton wool, felt, buttons etc)

## Lesson 6

<b>Kapow Lesson</b>	L6 - Evaluate my design
<b>Learning Intention</b>	To <b>analyse my</b> product and explain what went well and what design adjustments are needed.
<b>SOLO SC: Uni- Structural</b> <i>Bronze</i>	I can <b>identify</b> what went well with my design.
<b>SOLO SC: Multi- Structural</b> <i>Silver</i>	I can <b>describe</b> what went well and what I must improve.
<b>SOLO SC: Relational</b> <i>Gold</i>	To <b>analyse my</b> product and explain what went well and what design adjustments are needed.
<b>SOLO SC: Extended Abstract</b> <i>Platinum</i>	I can <b>reflect</b> upon the design process and discuss what designers must consider when creating a product.
<b>Activity</b> (What will the children do to demonstrate their understanding of the LI?)	<p>Chn will be evaluating their own products and design process as well as providing feedback to their peers.</p> <p>Tell the chn that they will be having their own gallery exhibition in school. Have their products ready on their tables. Ask the chn to having some reflecting time and think about 3 things they like about their product and 2 things they would like to improve. Have a class discussion about this and ask chn what they would do differently next time.</p> <p>Now ask the chn to think about the design process and making process. Have a discussion about what they enjoyed about the process and what they found difficult.</p>

	<p>Ask chn to stand up with a whiteboard and pen and walk around different tables. They must now pick at least 3 moving monsters they like and why they like them. They must then respectfully give suggestions of improvement to 1 person (use this sentence frame to help chn when giving back critical feedback:</p> <p>I really like the way you used _____ to create your moving monster. In the future I think you should _____.</p> <p>Ensure photos of the final moving monsters are printed and stuck into sketch books, ask chn to now write down 1 or 2 things that went well and what they need to improve in the future. This could be feedback that they received from their peers.</p>
<b>Key Vocabulary for the lesson</b>	Evaluate, reflect, design
<b>Curriculum Links</b>	History, Science (forces)
<b>Resources</b>	Moving monster, photo of finished product, sketch books, pencils

## Lesson 7

<b>Kapow Lesson</b>	
<b>Learning Intention</b>	To
<b>SOLO SC: Uni- Structural</b> <i>Bronze</i>	Define Match Find Identify Draw Name Follow a simple procedure
<b>SOLO SC: Multi- Structural</b> <i>Silver</i>	Describe Continue Outline Enumerate List Combine Complete Perform serial skills
<b>SOLO SC: Relational</b> <i>Gold</i>	Sequence Organise Form an analogy Argue Criticise Justify Explain Relate Analyse Apply Classify Distinguish Compare and contrast Question
<b>SOLO SC: Extended Abstract</b>	Generalise Justify Prove Formulate Generate

<i>Platinum</i>	Predict Evaluate Reflect	Argue Compose Prioritise	Create Hypothesise Theorise	Perform Construct Design
<b>Activity</b> (What will the children do to demonstrate their understanding of the LI?)				
<b>Key Vocabulary for the lesson</b>				
<b>Curriculum Links</b>				
<b>Resources</b>				