

Year 12 A2 Design Technology - Mechanisms Moving Vehicles 2018 –mechanisms

Key Skills to be covered:	
Taken from Level 1	Taken from Level 2
<p>I think of ideas and with help, can put them into practice.</p> <p>I know the features of familiar products.</p> <p>I use pictures and words to describe what I want to do.</p> <p>I have made a product that moves using a turning mechanism (e.g. wheels, winding) or a lever or a hinge (to make a movement)</p> <p>I cut materials using scissors.</p> <p>I describe the properties of the materials I have used.</p> <p>I talk about my own and others' work.</p> <p>I describe how a product works</p> <p>I have explored how moving objects work.</p> <p>I have looked at wheels, axels, turning mechanisms, hinges and simple levers.</p>	<p>I think of ideas and plan what to do next, based on what I know about materials and components.</p> <p>I select the appropriate tools, techniques and materials, explaining my choices.</p> <p>I use models, pictures and words to describe my designs.</p> <p>I have made a product that uses movement.</p> <p>The materials I use are just right for the job and this helps my product to work well.</p> <p>I have used a number of materials and joined them so they are strong.</p> <p>I use my art skills to add design or detail to my product.</p> <p>I recognise what I have done well in my work. I suggest things I could do in the future.</p> <p>I know that my product needs to be made from materials that are suitable for the job.</p>
National Curriculum Links:	
<p>Pupils should be taught to:</p> <p>Design:</p> <ul style="list-style-type: none"> • Design purposeful, functional, appealing products for themselves and other users based on design criteria • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <p>Make:</p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics <p>Evaluate:</p> <ul style="list-style-type: none"> • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria <p>Technical knowledge:</p> <ul style="list-style-type: none"> • Build structures, exploring how they can be made stronger, stiffer and more stable • Explore and use mechanisms (for example, levers, sliders, wheels and axles) in their products 	
Cross-curricular links, especially opportunities for Literacy, Numeracy and ICT within teaching:	
<p>Computing:</p> <p>Literacy:</p> <p>Writing Opportunities: labelling pictures, instructions of activity</p> <p>Numeracy:</p>	
Extended Opportunities including possible visits/visitors and local connections:	

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Visits/Visitors:
Local information:

	Key objectives as questions	Key Skills that can be covered	Possible activities including use of Computing and Technology	Outcomes/Evidence that teaching has taken place
1	<ul style="list-style-type: none"> • What did you learn in DT last time? • What do you already about mechanisms? • What skills do you think you need to improve your mechanism knowledge? 	<p>Level 1 I think of ideas and with help, can put them into practice. I know the features of familiar products. I use pictures and words to describe what I want to do. I talk about my own and others' work. I describe how a product works I have explored how moving objects work. I have looked at wheels, axels, turning mechanisms, hinges and simple levers.</p> <p>Level 2 I think of ideas and plan what to do next, based on what I know about materials and components. I use models, pictures and words to describe my designs. I recognise what I have done well in my work. I suggest things I could do in the future. I know that my product needs to be made from materials that are suitable for the job.</p>	<p>Discuss with the children a collection of books, cards and other products that have moving parts. <i>What does the moving part do? How does it work? What effect does it have? ... Surprise? Does it show how something works? Does it work well?</i></p> <p>Use a simple moving picture book to talk about how levers and sliders can be used to make movement and bring stories to life.</p> <p>Use some examples of simple lever and sliding mechanisms made from card or construction kits to discuss with the children how these mechanisms work. Introduce new vocabulary eg 'lever' and 'pivot'.</p> <p>Ask the children to investigate products that include levers eg a balance, a pair of scissors. Encourage children to make drawings with arrows to show movement and label parts/materials eg blade, handle, metal.</p>	Labelled drawings to show movement and moving parts.
2	<ul style="list-style-type: none"> • Can you make a picture move? • What tools might you use 	<p>Level 1 I think of ideas and with help, can put them into practice. I know the features of familiar products.</p>	Demonstrate how to make simple sliding mechanisms and lever mechanisms using card strips and paper fasteners. Ask the children	Moveable pictures.

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	<p>to create a moving picture?</p>	<p>I use pictures and words to describe what I want to do. I have made a product that moves using a turning mechanism (e.g. wheels, winding) or a lever or a hinge (to make a movement) I cut materials using scissors. I describe the properties of the materials I have used. I talk about my own and others' work. I describe how a product works I have explored how moving objects work. I have looked at wheels, axels, turning mechanisms, hinges and simple levers.</p> <p>Level 2 I think of ideas and plan what to do next, based on what I know about materials and components. I select the appropriate tools, techniques and materials, explaining my choices. I use models, pictures and words to describe my designs. I have made a product that uses movement. The materials I use are just right for the job and this helps my product to work well. I have used a number of materials and joined them so they are strong. I use my art skills to add design or detail to my product.</p>	<p>to explore the theme of 'appearing and disappearing' using sliders.</p> <p>Explore simple lever mechanisms using construction kits.</p> <p>Ask the children to draw a picture of themselves on card and make one part of their body move. Remind children not to draw too small. (A prepared drawing of a child/teddy could be given for this activity.)</p> <p>Ask the children to practise punching holes eg make a paper chain decoration or a chain with their names on.</p> <p>Children could model a pair of scissors with card or practise making levers and linkages by copying the examples.</p> <p>Children could practise stiffening - give them a picture from a newspaper, ask them to make the arms move by cutting and using paper fasteners. If the arms are too floppy, show how to make them stiffer with straws and pipe cleaners.</p> <p>Demonstrate how to make simple sliding mechanisms and lever mechanisms using card strips and paper fasteners. Ask the children to explore the theme of 'appearing and disappearing' using sliders.</p> <p>Explore simple lever mechanisms using construction kits.</p>	
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			<p>Ask the children to draw a picture of themselves on card and make one part of their body move. Remind children not to draw too small. (A prepared drawing of a child/teddy could be given for this activity.)</p> <p>Ask the children to practise punching holes eg make a paper chain decoration or a chain with their names on.</p> <p>Children could model a pair of scissors with card or practise making levers and linkages by copying the examples.</p> <p>Children could practise stiffening - give them a picture from a newspaper, ask them to make the arms move by cutting and using paper fasteners. If the arms are too floppy, show how to make them stiffer with straws and pipe cleaners.</p> <p>May go over 2 lessons</p>	
3	<ul style="list-style-type: none"> Can you create a moving picture to recreate a story? 	<p>Level 1</p> <p>I think of ideas and with help, can put them into practice.</p> <p>I know the features of familiar products.</p> <p>I use pictures and words to describe what I want to do.</p> <p>I have made a product that moves using a turning mechanism (e.g. wheels, winding) or a lever or a hinge (to make a movement)</p> <p>I cut materials using scissors.</p> <p>I describe the properties of the materials I have used.</p> <p>I talk about my own and others' work.</p> <p>I describe how a product works</p> <p>I have explored how moving objects work.</p>	<p>Discuss with the children the requirements for their 3 little pig story with a moving picture. Who is the story for? What might it be like? How could you do this?</p> <p>Divide up a familiar story into sections. Organise the children to work on different sections of the story. What must the individual picture do? How is it going to move?</p>	<p>Finished moving picture of a pig or wolf.</p>

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		<p>I have looked at wheels, axels, turning mechanisms, hinges and simple levers.</p> <p>Level 2</p> <p>I think of ideas and plan what to do next, based on what I know about materials and components.</p> <p>I select the appropriate tools, techniques and materials, explaining my choices.</p> <p>I use models, pictures and words to describe my designs.</p> <p>I have made a product that uses movement. The materials I use are just right for the job and this helps my product to work well.</p> <p>I have used a number of materials and joined them so they are strong.</p> <p>I use my art skills to add design or detail to my product.</p> <p>I recognise what I have done well in my work.</p> <p>I suggest things I could do in the future.</p> <p>I know that my product needs to be made from materials that are suitable for the job.</p>	<p>Discuss with the children the types of finishing techniques that could be used eg collage, paint, felt-tip pens.</p> <p>Discuss with the children the order in which things need to be done. How could you do this? What could you use? What do you need to do first?</p> <p>Ask the children to model their ideas first in paper or card (this mechanism could be used in the final picture or model).</p> <p>Talk through ideas with the children as they begin to make and during different stages of making. How well is this working? What could you do to make it better?</p> <p>Evaluate the final moving picture by discussing strengths and areas for development.</p> <p><i>May go over 2 lessons</i></p>	
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