Subject: DT	Assessment Y1/2	Design Technology

YEAR 2 –: Making a Moving Monster

KS1 Programmes of Study
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].To use a range of materials creatively to design and make products

When designing and making, pupils should be taught to:

Design
♣ 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

Make
♣ 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

Evaluate
♣ explore and evaluate a range of existing products
♣ evaluate their ideas and products against design criteria

Technical knowledge
♣ 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.

Cooking and nutrition
As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life. Pupils should be taught to:
♣ use the basic principles of a healthy and varied diet to prepare dishes
♣ understand where food comes from.

Additional guidance
Purpose of study
Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims
The national curriculum for art and design aims to ensure that all pupils:
♣ produce creative work, exploring their ideas and recording their experiences
♣ become proficient in drawing, painting, sculpture and other art, craft and design techniques
♣ evaluate and analyse creative works using the language of art, craft and design
♣ know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.

Attainment targets
By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Knowledge, skills and concepts

In this unit, the children will:

Skills

- Creating a class design criteria for a moving monster.
- Designing a moving monster for a specific audience in accordance with a design criteria.
- Making linkages using card for levers and split pins for pivots.
- Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.
- Cutting and assembling components neatly.
- Evaluating own designs against design criteria.
- Using peer feedback to modify a final design.

Knowledge – Technical

- To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.
- To know that there is always an input and output in a mechanism.
- To know that an input is the energy that is used to start something working.
- To know that an output is the movement that happens as a result of the input. To know that a lever is something that turns on a pivot.
- To know that a linkage mechanism is made up of a series of levers

Knowledge – Additional

• To know some real-life objects that contain mechanisms.

Key Questions

- What is it that we are making?
- Who is it for or who will use it?
- What will it do?
- Why will people want to have it?
- What do you think will move?
- How will you make it move?
- What are levers and linkages?
- What are pivots used for in linkages?
- What products use levers and linkages?
- What are Design Criteria?
- Why is it important to use Design Criteria?
- What materials can you use to make your monsters?
- What bit do you like best and why?
- What was easy to make and why?
- What was hard to make and why?
- If you did it again, would you do anything differently?
- Did you find cardboard easy to work with or would you have liked to have used a different material?
- If something isn't working as well as it should be, do you know why?
- What bit of the finished product did they like best and why?
- Was the product easy to make and why?
- Was the product hard to make and why?
- If they were to make the product again, would they do anything differently?
- Was cardboard easy to work with or would they have liked to use a different material?
- If something is not working as well as it should, do they know why?

Key Vocabulary

Input Lever Linear motion, Linkage Mechanical Mechanism Motion Oscillating motion Output Pivot Reciprocating motion Rotary motion Survey

Cultural Capital

Opportunities

Invite in Mooky the clown – he makes moving animal props for the Tower circus – or see if he will do a Teams

Key Assessment Opportunity

Application - Designing and Making a moving Monster

<table>
<tr>
<td rowspan="2">Assessment Task Week 3/ 4 – Outcome of the finished moving monster

The assessment comes in week 3/ 4 – construction and testing and evaluation
• use lesson 4 to assess the application

Pupils needing extra support: (WT)
Should be given a simple linkage system to work with but should be encouraged to label the pivots and motion themselves.

Pupils working at greater depth:
Should be able to devise their own linkage systems as well as more sophisticated versions.</td>
<td>Working towards expectations 1
Progression Framework statement:
• Exploring mechanisms, learning that levers and sliders can make things move, creating moving models that use levers and sliders and using the vocabulary to describe movement (up, down, left, right, vertical and horizontal)
• Learning that a lever is something that turns on a pivot and that a linkage is a system of levers that are connected by pivots. Working with an adult to develop a Design Criteria
• Learning that linkages use levers and pivots to create motion.
• Drawing one moving monster design that satisfy the Design Criteria and includes a simple linkage to make the monster move
• Learning that linkages use levers and pivots to create motion. Making a simple linkage using card for the lever and a split pin for the pivot
• Creating a moving monster, making linkages by connecting a levers and pivot. Designing and making the features of the monster. Selecting materials according to their characteristics and evaluating how functional the monster is and whether it meets the Design Criteria</td>
<td>NOTES on children</td>
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<tr>
<td>Working at Expectations 1
Progression Framework statement:
• Using key terms accurately. Identifying the correct terms for levers, linkages and pivots. Analysing popular toys using some correct terminology
• Designing monsters suitable for children, which satisfy most of the design criteria. Selecting the suitable linkage system to produce the desired motions. Evaluating one design against the design criteria</td>
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	• Creating 2 functional linkages that produce the desired input and output motions • Selecting and assembling materials to create planned monster features. Assembling the monster to the linkages without affecting the function of them. Evaluating the final product against the design criteria	
	Working at greater depth 1 **Progression Framework statement:** • Applying technical knowledge to more sophisticated mechanisms. Using a wider range of observations when analysing products. Identifying a more sophisticated design criteria • Producing more sophisticated and suitable monster designs using more complex linkage systems of their own creation (rather than selected from a stock of suggested systems). Explaining in greater depth why they have selected their chosen design • Creating a finished product with multiple parts that move purposefully as planned. Where parts do not move as planned they are able to explain why and how they would be fixed. • Evaluating the main strengths and weaknesses of a finished product and suggesting meaningful alterations that will address any weakness	
	Working towards expectations 2 **Progression Framework statement** • Understanding that mechanisms are a collection of moving parts that work together in a machine, learning that there is always an input and output in a mechanism and identifying mechanisms in everyday objects. Learning that a lever is something that turns on a pivot and that a linkage is a system of levers that are connected by pivots. Devising a whole-class Design Criteria • Learning that linkages use levers and pivots to create motion. Drawing two moving monster	

	designs that satisfy the Design Criteria and include the linkage required to make the monster move • Learning that linkages use levers and pivots to create motion. Making linkages using card for levers and split pins for pivots, experimenting with the linkages by changing the widths, lengths and thicknesses of card • Creating a moving monster, making linkages by connecting levers and pivots. Designing and making the features of the monster. Selecting materials according to their characteristics and evaluating how functional the monster is and whether it meets the Design Criteria	
	Working at Expectations 2 **Progression Framework statement:** • Using key terms accurately. Identifying the correct terms for levers, linkages and pivots. Analysing popular toys with the correct terminology • Designing monsters suitable for children, which satisfy most of the design criteria. Selecting the suitable linkage system to produce the desired motions. Evaluating two designs against the design criteria, and deciding selecting a favourite based on this and the feedback of their peers • Creating functional linkages that produce the desired input and output motions • Selecting and assembling materials to create planned monster features. Assembling the monster to the linkages without affecting the function of them. Evaluating the final product against the design criteria	

	Working at greater depth 2 **Progression Framework statement:** • Applying technical knowledge to more sophisticated mechanisms. Using a wider range of observations when analysing products. Identifying a more sophisticated design criteria • Producing more sophisticated and suitable monster designs using complex linkage systems of their own creation (rather than selected from a stock of suggested systems). Explaining in greater depth why they have selected their chosen design • Creating imaginative and functional linkages that produce the desired input and output motions. Deviating from original designs with intent, working out how to produce more complex designs. Producing work of a high quality (neatly cut and assembled components) • Selecting, assembling and using materials creatively to make planned monster features with sophistication and greater complexity. Assembling the finished monster to linkages without impeding the function. Evaluating the final product against the Design Criteria and determining ways to improve the design to be more effective	
Assessment notes / evaluation – include SEN / PP next step learning and areas that need more focus		

	Working below expectations	Working within Expected Standard	Working above expected
Target	**14 – 20%** **(no more than 2 children)**	**80 %- 86%**	**20%**
Term 1			
Term 2			
Term 3			