

Learning From Home

Booklet - Mechanical Toy

This booklet explains the work needed to be completed at home
it has basic KS3 facts

The **Booklet** is split into two sections.

Each section will need to be completed over several weeks.

At least **60 minutes** should be spent on this project every Design
& Technology lesson

It is suggested that you present any written tasks on A4 paper.

My Design & Technology lesson day is:

Section One MUST be handed in by:

Weekly

Section TWO MUST be handed in by:

weekly

If you have a problem completing any part of this project please
speak to your Design & Technology teacher **BEFORE** the hand
in date.

tony.airey@bromleytrustacademy.org.uk

For any work if you use information from the internet you **MUST**
edit it, be selective and put it into your own words.

You can use paper and scan or present you work in a PowerPoint
- lack of will not be acceptable as an excuse for non-completion.

Name:

Group:

Section ONE

Lesson	Task	Done	Mark
1	Create an image board of pictures or drawings of mechanical toys you find interesting. You will need to give a brief reason why you selected the mechanical toy.		
2	Complete the home lesson by visiting the Rob Ives website and completing the questions....you will need to search the website for the answers		
3	Complete the Levers home lesson. You will need to do some research and watch YouTube videos to understand		
4	Time to run around your home and find loads of mechanisms. Remember if doesn't move it's not a mechanism.		
5	Look at the example and use the internet/YouTube to work out the movements.		

Please email in lessons weekly for grading and feedback

Section TWO

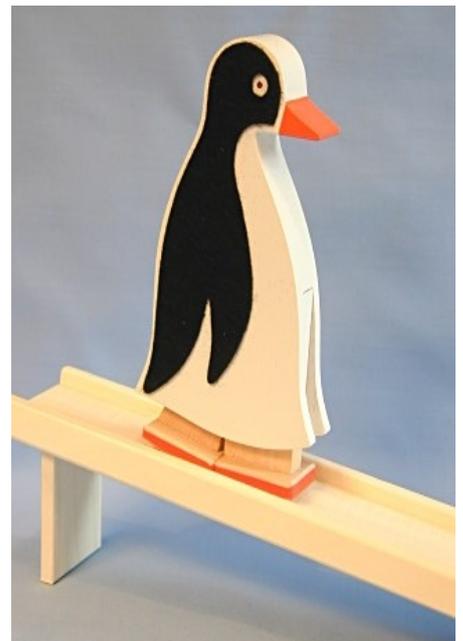
Lesson	Task	Done	Mark
6	Time to look up some keywords in a dictionary or online and fill in the gaps. Complete the extension task on a separate piece of paper		
7	Time for a reminder on how keywords are spelt for mechanisms and find them in a wordsearch.....can you see any other words in the wordsearch.		
8	Can you solve the keyword crossword. You will need to use the computer for some of these or a dictionary.		
9	This is a trickier one. Look at the keywords and match them to the pictures. You will need to research these and work hard.		
10	Can you work out the correct CAM movement for the mechanical toy. Add some colour and design to make them more fun.		

Please email in lessons weekly for grading and feedback

These tasks are the least we expect you to do. Extra credit will be awarded for work over and above the instructions on this page.

Mechanical Toy Image Board Example

On this page is a collection of images of various types of mechanical toys. You need to create your own image board by finding pictures of mechanical toys you like and then pasting them onto the following page. You should find at least 9 toys and write a short paragraph why you chose those particular toys.



Mechanical Toy Image Board Example

L1

Grade :

Reasons for toy choice:

Place your chosen images in this space or on
a separate sheet and add to this booklet



Go to: www.robives.com

*Type exactly the web address above

You can view the toys below by clicking on the 'Printed Kits' tab and visiting the shop.

All the following toys that you will be looking at are specifically **designed to move using a mechanism**. They are made using card material. **MAKE SURE YOU WAIT FOR THEIR GRAPHICS TO MOVE.** Look at all the designs first on the web-site before attempting the

1 - Can you find the following toys and name them?



Name:

Name:

Name:

2 - What does Rob Ives recommend you use to build the card models? _____

Return to Robives.com to answer the following questions

3 - How much does the 'Cardboard Engineering Source Book' cost? _____

4 - Now use the following headings to evaluate **four toy models of your choice**.

Name the toy then score each criteria out of 10 (1 = low) and finally complete the results:

<u>Name of toy:</u>	<u>Cost:</u>	<u>Appearance</u>	<u>Difficulty to make:</u>	<u>Total:</u>

5 - What **Mechanisms** are used in the design shown. Can you name them?

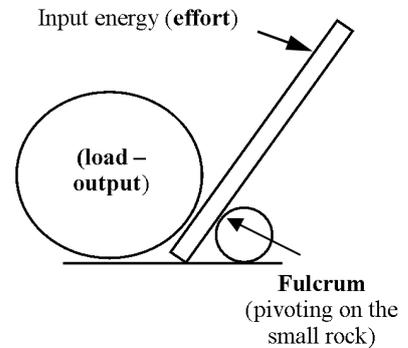
6 - Can you explain how they work? Describe what happens to the chicken and show how it moves by drawing arrows on the diagram.



After doing this page you will understand that a lever comprises three areas. You will also learn that they are categorised by their class and you will also be able to identify the class of a lever.

A lever/mechanism is made up of three parts. These parts include:

1. The **'Load'** which is obviously the area which deals with the load. The load is know as the **'Output'**
2. The **'Effort'** which is the part we put energy into in order to deal with a load. The effort is known as the **'Input'**
3. The **'Fulcrum'** which is the **'pivot'** point and takes the majority of the pressure.



Task 1: Using the information above have a go at labelling the three parts of these levers e.g. Effort, Load and Fulcrum.

Scissors

Wheelbarrow

Nut cracker

Kitchen tongues

Classifying a Lever

To classify a lever you need to identify where the Fulcrum, Load and Effort are. Using the first letter of each part makes up the word **'FLE'**.

The part in the middle is what determines the class.

For example:

F in the middle = **1st class**

L in the middle = **2nd class**

E in the middle = **3rd class**

Task 2: using this 'FLE' classification method ring the middle letters and identify the class of these levers:

Class= _____

Class= _____

Class= _____

Task 3: using this 'FLE' classification method identify the class of these levers for the objects drawn for task 1.

Extension: draw diagrams of: a **'crow bar'** lifting a large nail, a pair of **'tweezers'**, a **'joy stick'** and a **'bike brake'**. For each of these label where the fulcrum, effort and load are and identify which class of lever each one is.