

## Key Vocabulary

|  |   |
|--|---|
| <b>mechanism/<br/>mechanical<br/>systems</b> | Something that uses related components which act together to create a movement. |
| <b>motion</b>                                | Movement from one place to another.   |
| <b>pivot</b>                                 | To turn on a central point.   |

## Types of Motion in Mechanical Systems

|                             |  |
|-----------------------------|--|
| rotary <b>motion</b>        | Turning round in a circle, e.g. a wheel.                                   |
| linear <b>motion</b>        | Moving in a straight line, e.g. paper trimmer.                             |
| reciprocating <b>motion</b> | Moving forwards and backwards in a straight line, e.g. cutting with a saw. |
| oscillating <b>motion</b>   | Swinging from side to side in an arc, e.g. a pendulum in a clock.          |

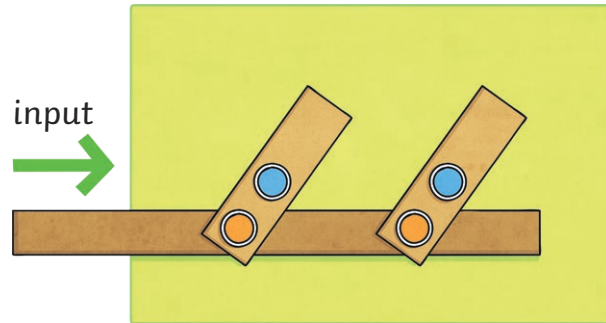
## The Design Process

| Design Brief  | Design Criteria  | Generating Ideas   | Prototype   | Make the Product  | Evaluation   |  |  |  |  |  |  |             |             |             |  |                 |            |  |  |  |  |  |  |  |  |
|---|--|--|---|---|--|--|--|--|--|--|--|-------------|-------------|-------------|--|-----------------|------------|--|--|--|--|--|--|--|--|
| <p>A planning document that explains <u>what</u> the project is, <u>how</u> it will be achieved and the <u>time frame</u> that it needs to be made in.</p>  | <p>Tells you what a product must do to be successful.</p>  | <p>Exploring different products and thinking about how they could be adapted. Creating an annotated sketch of your idea.</p> | <p>The first example of what the real thing will look like. It is used for testing, development and evaluation.</p> | <p>Using the annotated sketches and prototypes to help create your product.</p> | <p>Checking that the product meets the design criteria and has achieved its purpose.</p> |  |  |  |  |  |  |             |             |             |  |                 |            |  |  |  |  |  |  |  |  |
| <div><p>Design Brief</p><p><b>Setting the scene</b></p><p>We are the recycling unit of Twinkl City Council. We want to help you get the most out of your recycling services by highlighting all of the items that can be recycled but sometimes get overlooked.</p><p><b>Detailing the project</b></p><p>To help promote <u>recycle week</u> we would like you to design a moving poster to help encourage recycling and explain which items from the home can be recycled, what they can be recycled into and the benefits of recycling.</p><p>The poster will be aimed at getting families involved in recycling.</p><p>The project will be completed within 6 lessons.</p></div> | <div><table><thead><tr><th>Priority</th><th>Design Criteria</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table></div> | Priority   | Design Criteria   |   |  |  |  |  |  |  |  | <div></div> | <div></div> | <div></div> | <div><table><thead><tr><th>Design criteria</th><th>Evaluation</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table></div> | Design criteria | Evaluation |  |  |  |  |  |  |  |  |
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| Design criteria   | Evaluation   |  |   |   |  |  |  |  |  |  |  |             |             |             |  |                 |            |  |  |  |  |  |  |  |  |
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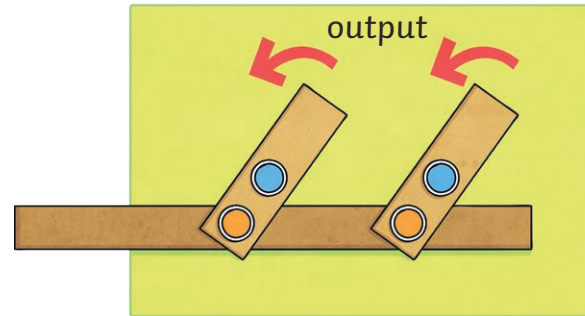
## Exploring Mechanical Systems

Many **mechanisms** take one type of **input motion**, and **output** it as a different type of **motion**.  
In lever and linkage **mechanisms**:

**Input** - The movement of the main lever by the user.

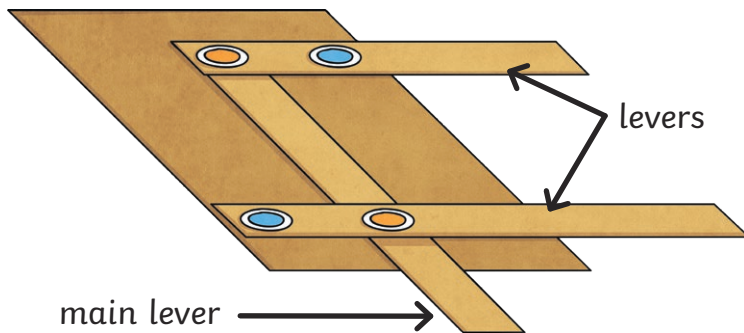


**Output** - The movement that is made by the smaller levers.



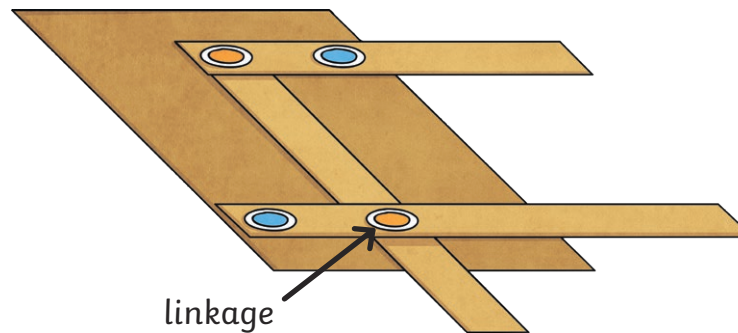
## Lever

The simplest type of **mechanism**. A lever is a stiff bar which moves around a **pivot**.



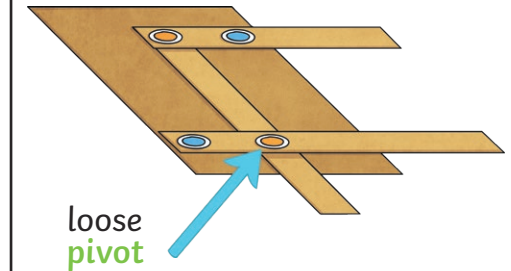
## Linkage

The part of the **mechanism** used to join one or more levers to produce the type of movement required.



## Loose Pivot

Joins the levers together.



## Fixed Pivot

Joins the levers to the overall object.

