Great Moor Junior School
"Learning Together"

Design and Technology Knowledge Organiser

Topic: Moving Toys | **Year 5** | **Mechanical Systems**

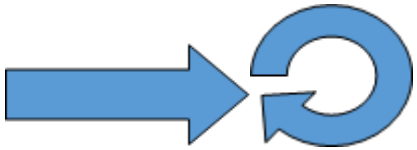
What should I already know?

- How to use some tools safely.
- Glue and sticky tape can be used for joining materials.
- Simple **mechanisms** can be made using wheels and **axles**.

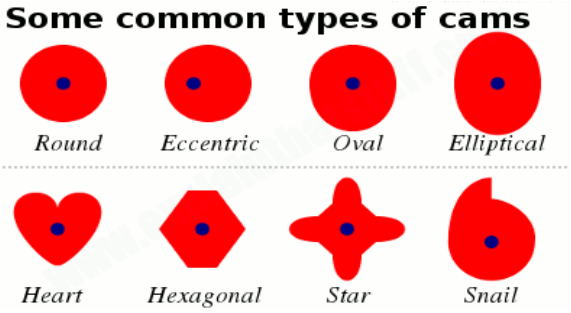
What will I know by the end of this unit?

Technical knowledge

- A **cam** mechanism changes the input motion from **rotary motion** to a **linear motion**.
- The **axle** supports the **cam** wheel. When the crank handle is turned, the **axle** and **cam** turn (**rotary motion**). The **cam follower** rests on the **cam** and follows the outline of the **cam** wheel, moving up and down as a result (**linear motion**).
- Different shaped **cams** will cause the **follower** to move up and down in different ways.

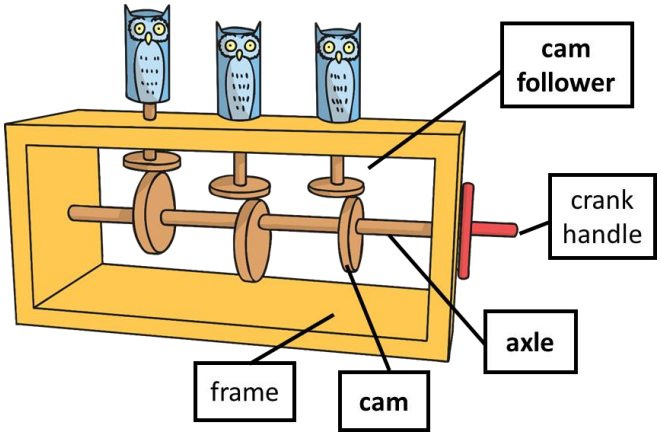


Linear motion – straight line/ Rotary motion – turning in a circle



Design

Annotated diagram of a **cam mechanism**



What will I be able to do by the end of this unit?

Design

Draw **annotated diagrams** to show how a simple **cam** can be used to move a rod up and down, labelling key vocabulary.

Make a step by step plan of the making process, including the which materials will be used for each step.

Make

Use appropriate tools.

Measure and cut dowel to the nearest cm.

Evaluate

Compare my finished product to the original design. Explain what went well and what could have been improved.

Vocabulary

annotated diagram	A labelled drawing.
axle	A rod passing through at least one wheel.
cam	An unusual shaped wheel which converts **rotary motion** to **linear motion**.
cam follower	A rod which rests on top of the **cam**. It moves up and down following the shape of the **cam**.
linear motion	Movement in a straight line eg up and down or side to side.
mechanism	A system of parts working together.
prototype	A practise version of your final product.
rotary motion	Circular movement around a fixed point.

Design and Technology: Skills and Enquiry

- Investigate how different shaped **cams** affect the movement in your toy.
- Consider how your **prototype** can be improved and use these ideas in your product design.

Health and Safety

Glue gun

Allow time for the glue to cool before handling your product.
Always work with an adult when you are using the glue gun.