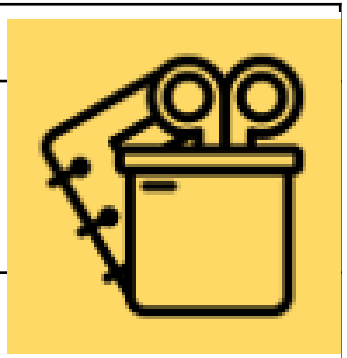
Objectives and Sticky Knowledge – Automata



Previous Knowledge Recap:
I can use correct tools safely.
I can identify key design features.
I can say how my design has been successful.

Land Objectives and Sticky Knowledge:

To understand that the mechanism in an automata uses a system of cams, axles and followers.	To know that an automata is a hand-powered mechanical toy.	To know that a cross-sectional diagram shows the inner workings of a product.
-Linkages change the direction of a force. -Drawing cross-sectional diagrams to show the inner-workings of my design.	-For the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles.	Assemble components accurately to make a stable frame Measuring, marking and cutting components accurately using a ruler and scissors.

Sea:
Links with 'Stewardship and Sustainability':

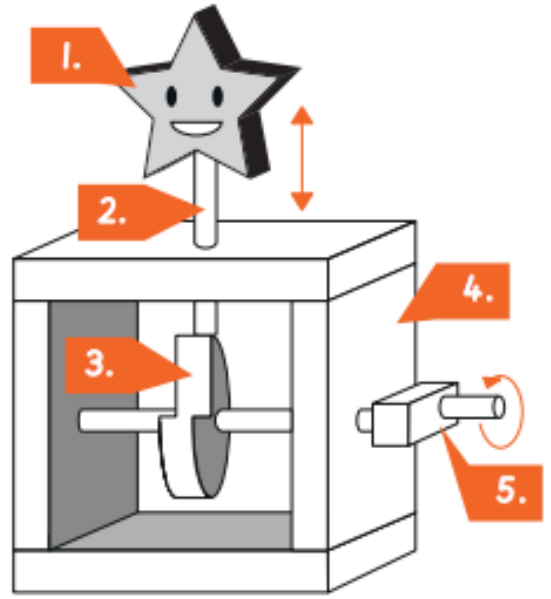
Links with CST and CKA Values Crown:

Year 6 Design Technology Lent 2 Knowledge Organiser

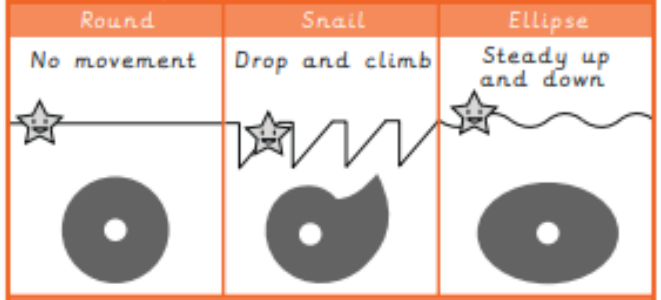
Assembly-diagram	An exploded view diagram of an object, that shows you how to construct an object or order of assembly of various parts.
Automata	Automata toys are sometimes known as mechanical toys or kinetic art. They use hand-powered mechanisms to create movement in a scene of characters.
Axle	In an Automata the axle rotates, turning the cam with it. It is attached to the handle.
Bench hook	A tool which hooks onto the edge of the workbench. It's used to hold woodwork still when sawing.
Clamp	A tool for holding objects together, such as when you are waiting for glue to dry on something that you have glued together.
Cam	A cam is a rotating or sliding piece in a mechanism. It changes rotary motion to linear motion.
Component	One of several parts of which something is made.
Cutting list	An outline drawn true to size on paper, which shows the size and how many of each piece which you need to make for the project.
Dowel	Wood in the shape of a cylinder. Dowels come in all different sizes and thicknesses.
Drill bits	The cutting tools that go in drill to make different sized holes.
Exploded-diagram	A diagram which shows all of the internal and external parts of a product.
Finish	To complete your product with a high quality appearance.
Follower	The post which traces the shape of the cam, rising and falling in a linear or reciprocating motion.
Frame	The rectangular structure which holds the Automata together.
Function	How an object or product operates or works.
Hand drill	A small portable drilling machine for making holes which is operated by hand.
Jelutong	A type of softwood, it is lightweight, easy to cut and shape.
Linkage	A set of bars linked together to form a mechanism.
Mark out	To measure and mark where a piece of material needs to be cut or shaped.
Set square or Engineer's square	A right-angle triangular plate, wood or metal tool used for drawing lines at 90°, 45°, 60°, or 30°.
Tenon saw	A saw with a flat blade, used for cutting wood in straight lines or angles.

Automata toy **components**:

1. Character
2. Follower
3. Cam
4. Frame
5. Axle attached to handle



Cam shapes



Changing the shape of the **cam** in your **Automata**, will create different movements.

Sky Objectives:

1. Designing a stable structure able to support its own weight, with focus on triangulation
2. Select appropriate tools and equipment for particular tasks, using these safely and accurately e.g. saws.
3. Suggesting points for improvements for own design and those designed by others