Coleman Primary School

Key Knowledge Organiser: ***Year 6- Summer 1***

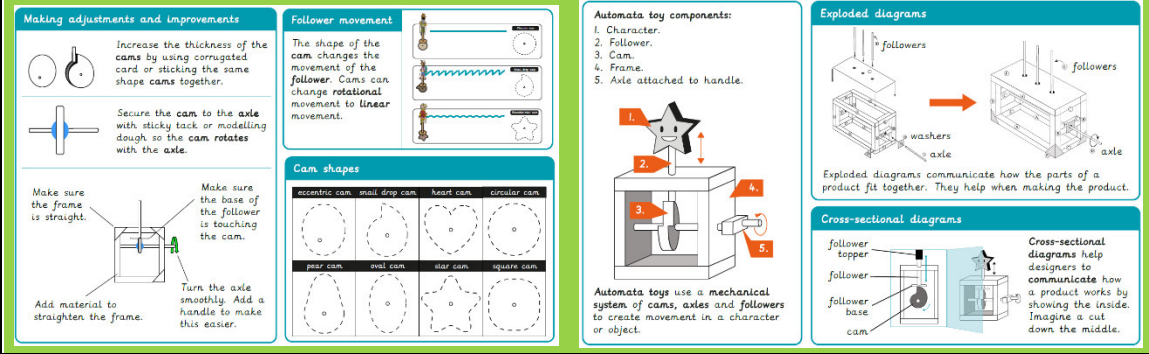
DT: Mechanical Systems: Automata Toys

This unit focuses on children developing functional automata toys for a window display using cams, followers and axles to create movement.

Key Vocabulary

Accurate	Correct shape, size and pattern with no mistakes.
Automata	A mechanical toy that uses mechanisms to create movement in characters.
Bench hook	Used to keep wood still when sawing.
Component	Part of something which is made.
Design brief	A plan that identifies a problem to be solved.
Design criteria	What needs to be done to complete a project successfully.
Communication	Sharing information or ideas by drawing, speaking or writing.
Designer	Someone who creates drawings, products or ideas to plan how something is made.
Diagram	A way to communicate ideas and instructions using pictures.
Exploded diagram	A diagram that shows how components fit together.
Visual	A picture, diagram or illustration to show how something will look.
Axle	The part the cam rotates on.
Cam	A rotating part of a mechanism that changes rotary to linear movement.
Cam profile	The shape of the cam which changes how the follower moves.
Cross-sectional diagram	A diagram to show the inside of a product.
Dowel	Used to create axles and followers.
Follower	Part of a mechanism that traces the shape of the cam, rising and falling in a linear motion.
Mechanism	The parts of an object or product that move together.
Evaluate	Looking at what went well and what could be improved.
Form	How something looks.
Function	How something works.
Housing	A casing that encloses and protects a mechanism.
Storefront	The part of a shop that faces the high street, path or road.

Images:



Skills:

- Noticing wider-reaching problems or needs in the community.
- Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design.
- Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality.
- Producing lists of equipment, materials and tools that they need for a task.
- Understanding and explaining the importance of each safety rule.
- Selecting materials, components or ingredients based on research or user needs.
- Consistently apply safety instructions.
- Cutting in a back-and-forth sawing motion where appropriate.
- Considering which equipment will work well together.
- Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost.
- Providing feedback that is helpful, specific and encouraging.
- Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.
- Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly.

Knowledge:

-To understand that the mechanism in an automata uses a system of cams, axles and followers.
-To understand that different shaped cams produce different outputs.
-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.
-To understand how to use a bench hook and saw safely.
-To know that a set square can be used to help mark 90° angles.