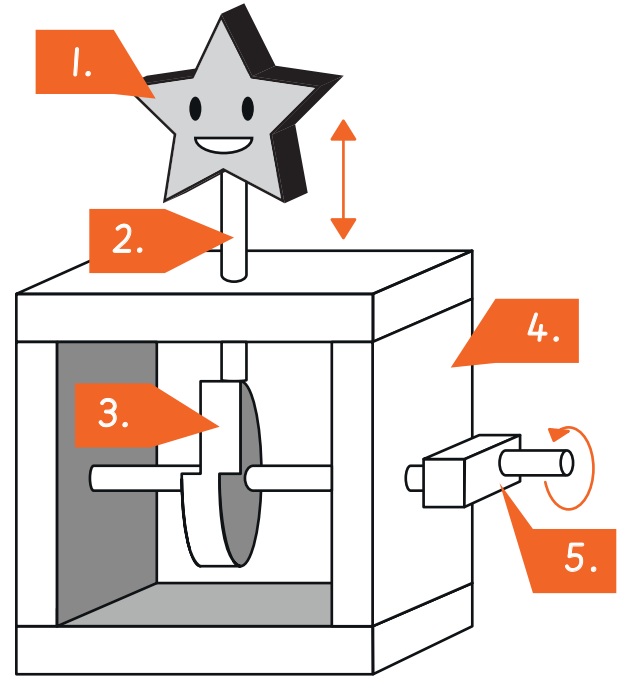
Mechanical Systems - Automata toys

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.

Key facts

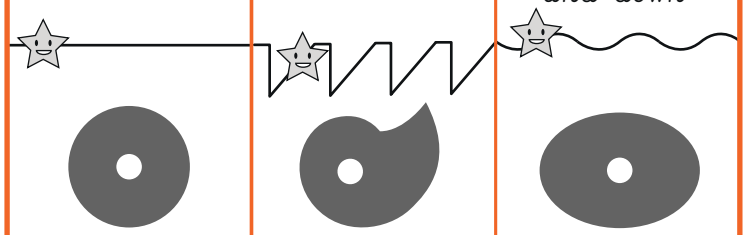
Automata toy **components**:

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



Cam shapes

Round	Snail	Ellipse
No movement	Drop and climb	Steady up and down



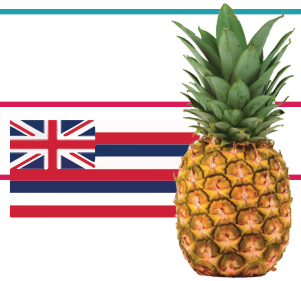
Changing the shape of the **cam** in your **Automata**, will create different movements.

Food - Come dine with me

Accompaniment	Something which goes well together with other foods and drinks.
Cookbook	A book which contains recipes to make various dishes or foods.
Cross-contamination	Cross-contamination is how bacteria can spread. It happens when liquid from raw meats or germs from unclean objects touch cooked or ready-to-eat foods.
Equipment	Items and objects which are needed to complete a task.
Farm	Land or water used to produce crops or raise animals for food.
Flavour	How food or drink tastes. (e.g. sour, sweet, bitter, salty)
Imperative verb	Also known as 'bossy verbs' because they tell you what to do. You put them at the beginning of a command or action. (e.g. bake, grill, add, heat).
Ingredients	Items that make up a mixture e.g. foods that make a recipe.
Method	A way of carrying out a certain process, following a list of instructions.
Nationality	Belonging to a certain group of people in a particular country.
Preparation	The process of getting ready to make something.
Processed	When foods are passed through multiple processes in a factory to change or preserve it so it keeps for longer.
Reared	To breed and raise livestock. e.g. cows.
Recipe	A set of instructions for making or preparing a food item or dish.
Target audience	A particular group or person who a product is aimed at.
Unit of measurement	The unit which you use to measure a quantity. (e.g. litres)

Did you know?

Hawaii produces about 1/3 of all pineapples in the world.



⚠ You cannot mix raw meat with other ingredients, it is not safe. Remember to also wash your hands after handling raw meat.

Key facts

The five different food groups are:
1. Carbohydrates
2. Fruits and vegetables
3. Protein
4. Dairy
5. Foods high in fat and sugar

Many countries have traditional dishes. For example:
India is known for hot curries, whilst England is known for the fish'n'chips which were historically served in newspaper.

Structure - Playgrounds

Apparatus	Equipment designed for recreation and play, such as seesaws and swings.
Bench hook	A tool which hooks onto the edge of the workbench. It's used to hold woodwork still when sawing.
Coping saw	A saw with a narrow D-shaped metal blade, used for cutting curves in woods.
Dowel	Wood in the shape of a cylinder. Dowels come in all different sizes and thicknesses.
Jelutong	A type of softwood, it is lightweight, easy to cut and shape.
Mark out	To measure and mark where a piece of material needs to be cut or shaped.
Modify	To change something to improve or fix it.
Natural materials	Materials which come from nature. (e.g. wood comes from trees)
Plan view	A two-dimensional diagram used to describe a place or object from above with annotations and other details such as measurements.
Playground	An outdoor area for children to play in. They usually have different apparatus to play on such as climbing frames and slides.
Prototype	A simple model that lets you test out your idea and how it will look and work.
Reinforce	To make a structure or material stronger, especially by adding another material or element to it.
Structure	Something which stands, usually on its own.
Tenon saw	A saw with a flat blade, used for cutting wood in straight lines or angles.
User	A person that uses something.
Vice	A piece of equipment used to hold an object still while you work on it.

Did you know?

The first children's playground was built in 1859 in a park in Manchester, Great Britain.

Key facts

There are many types of **apparatus** in a **playground**, such as slides, swings, monkey bars, tunnels, see-saws and treehouses. Which do you like?

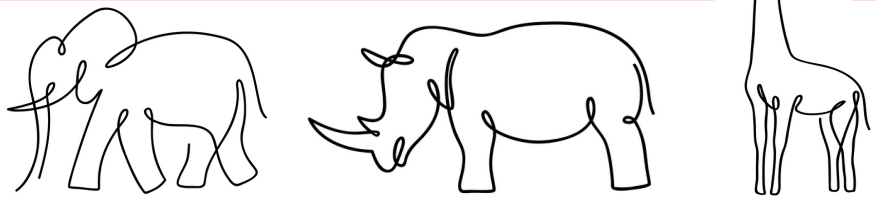
Remember to fix or hold your wood securely on the **bench hook** or **vice** when sawing, and keep your fingers out of the way of the blade.

Electrical Systems - Steady hand game

Backboard	A background designed for the steady hand game.
Battery	A cell or connected group of cells which store electrical energy.
Bulb	A component which gives light when electricity passes through it.
Buzzer	A component which makes a loud noise as electricity passes through.
Circuit	A collection of components which make an electrical system.
Conductor	A material that allows electricity to flow through it. e.g. metal.
Copper	A metal material that is one of the best conductors of heat and electricity. It is often used to make wires and pipes.
Function	How an object or product operates or works.
Insulator	A material that does not allow electricity to flow through it. e.g. plastic.
LED	A light emitting diode which lights up as electricity passes through.
Magnetic field	The area around a magnet where there is magnetic force.
Net	A 2D flat shape, that can become a 3D shape once assembled.
Pliers	A metal tool used for holding, twisting or cutting wire.
Prototype	A simple model that lets you test out your idea, how it will look and work.
Series circuit	A closed circuit where the current only follows one path.
Side view drawing	An engineering diagram which shows the dimensions (width, depth, length) of the side (left or right) of a product.
Switch	A component which opens and closes to turn the circuit on or off.
Side view drawing	An engineering diagram which shows the dimensions (width, depth, length) of the side (left or right) of a product.
Test	To find out whether something works as it should.
Top view drawing	An engineering diagram which shows the dimensions (width, depth, length) of the top of a product.

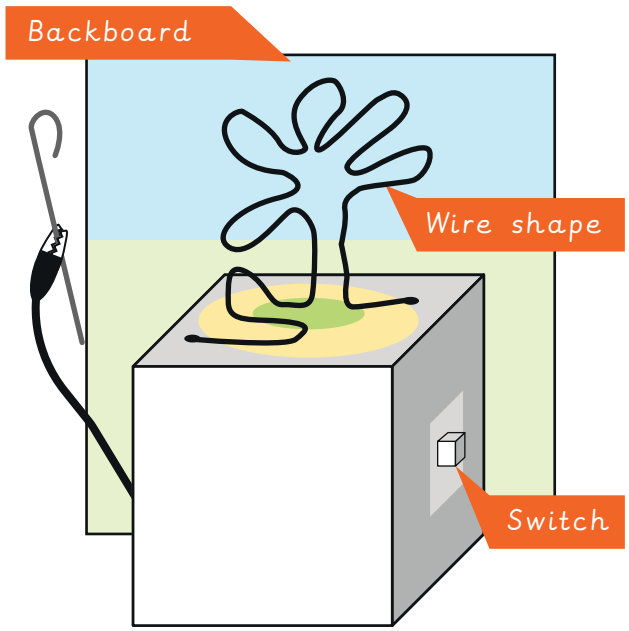
Check it out!

Check out continuous line drawings, such as Picasso's single-line animals for inspiration!

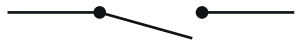
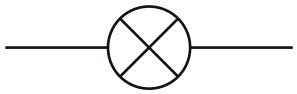


Key facts

The more complex your wire shape, the harder your steady hand game will be, especially if the bends are close together.



Circuit symbols:

wire	
switch open	
switch closed	
battery	
buzzer	
bulb	

Textiles - Waistcoats

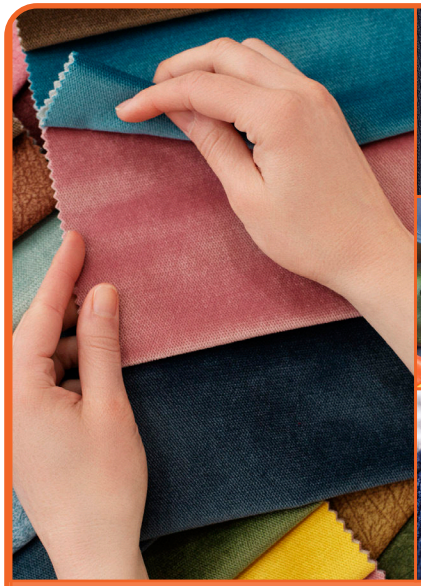
Adapt	To change or alter something to fit a given purpose, or to improve it.
Annotate	To add notes which explain a plan or design.
Detail	The small features of an object.
Fabric	A natural or man-made woven or knitted material that is made from plant fibres, animal fur or synthetic material.
Fastening	A closing and opening detail on clothing such as buttons, zips and press-studs.
Knot	A join made by tying two pieces of string or rope together.
Properties	The way in which we describe materials for their appearance, strengths and weaknesses. (e.g. absorbent, flexible, transparent).
Running-stitch	A simple style of sewing in a straight line with no overlapping.
Seam	A line along the two edges of cloth that are joined or sewn together.
Sew	To join or fasten by stitches with thread and a needle.
Shape	The form of an object.
Target audience	A particular group of people who the product is aimed at.
Target customer	A particular type of person who the product is aimed at.
Template	A stencil made of metal, plastic, or paper, used for making many copies of a shape or to help cut material accurately. (e.g. biscuit cutter)
Thread	A thin string of cotton, wool or silk used when sewing.
Unique	One of a kind, original.
Waistcoat	A formal vest-type jacket with no arms, usually worn over a shirt and under a jacket. They sometimes have buttons or pocket detailing.
Waterproof	Material that does not allow water pass through it.

Did you know?

The first waistcoat was created in Britain in 1630 by King Charles II.

⚠ Be careful when sewing your material together. Watch your fingers and ask an adult if you're unsure.

Key facts



Think carefully about your **target audience** or **customer**.
What do they like (colour, texture)?
What material would be best?
What type of **fastening** will you use?

It is very important that you are **accurate** in your measurements for the waistcoat, otherwise it will not fit the person it is designed for.