

Years 1/2

Mechanisms Sliders and levers

Instant CPD



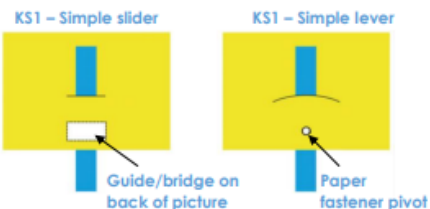
Tips for teachers

- ✓ Using books and prepared examples of simple mechanisms, ask children to explain how the sliders and levers work.
- ✓ Prepare plenty of pre-cut strips of card for making the levers and sliders.
- ✓ To make a small hole for the pivot, a pencil can be used by placing the thin card over a piece of Plasticine or Blu Tack and pressing the pencil through.
- ✓ Guides/bridges can be made using strips of card fixed with masking tape.
- ✓ Display technical vocabulary and encourage the children to use it when discussing mechanisms and when designing and making.
- ✓ Make sure the existing books children investigate include moving pictures that are similar to the teaching aids.
- ✓ Mechanisms are operated directly by the children e.g. the slider is pushed and a snail appears from behind a stone.
- ✓ The mechanisms that children use are found in everyday products in the classroom or the school grounds. For example, levers are used to make door handles and sliders are used to make children's trays.
- ✓ Think about directional language e.g. sliders move in a straight line and levers move in a curve.
- ✓ Children may need extra support when they are attaching paper fasteners to levers.

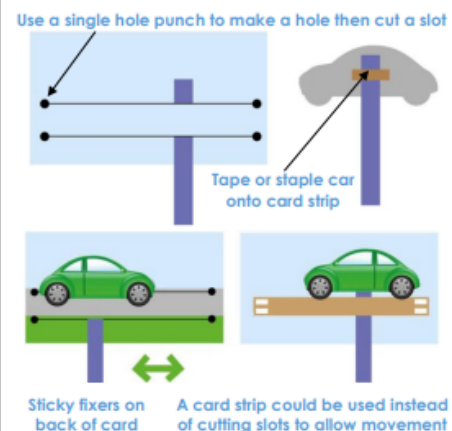
Useful resources at www.data.org.uk

- [Moving Pictures](#)
- [Moving history book](#) (Yrs 3/4)
- [Working with sliders and levers](#)
- [Levers and linkages - Poster and Support Pack](#)
- [Mechanisms with a message](#) (Yrs 5/6)
- [D&T Primary Issue 17](#) Focus on Mechanisms

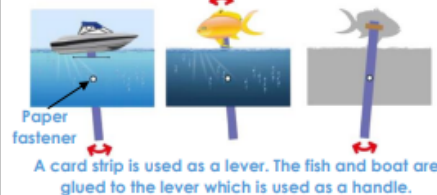
Teaching aids to demonstrate sliders and levers



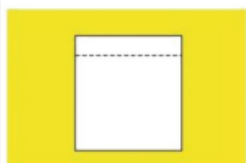
Sliders move from side to side and up and down



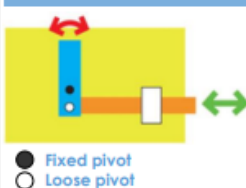
Levers can be used with or without a slot



As an enhancement to this project children could add flaps to their moving pictures. Some children may find flaps, which can be used to make a picture appear and disappear, easier to make than levers or sliders.



Where children have a particularly good understanding of levers and sliders in Key Stage 1, they could be introduced to the simplest lever and linkage mechanism used in Key Stage 2. This will introduce them to the idea of loose and fixed pivots.

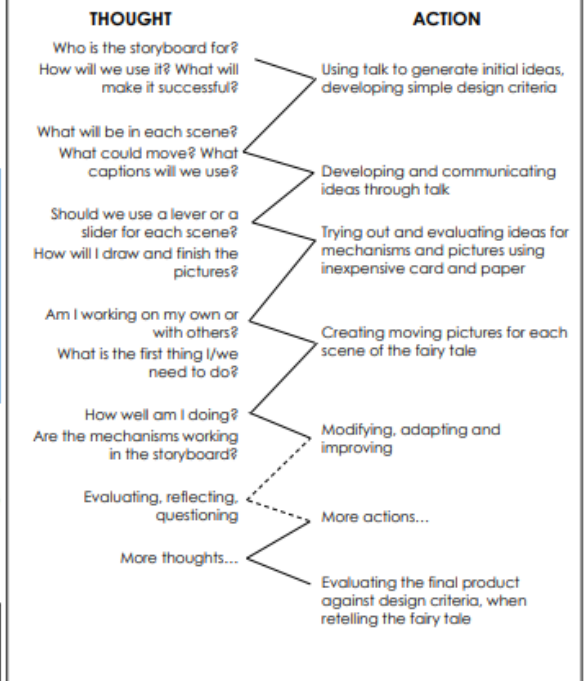


Simple mechanisms move...



Designing, making and evaluating a moving storyboard to retell a fairy tale to the class

An iterative process is the relationship between a pupil's ideas and how they are communicated and clarified through activity. This is an example of how the iterative design and make process might be experienced by an individual pupil during this project:



Glossary

- **Mechanism** – a device used to create movement in a product.
- **Lever** – a rigid bar which moves around a pivot. Levers are used in many everyday products. In this project children will use card strips for levers and paper fasteners for pivots.
- **Slider** – a rigid bar which moves backwards and forwards along a straight line. Unlike a lever, a slider does not have a pivot point.
- **Slot** – the hole through which a lever or slider is placed to enable part of a picture to move.
- **Guide or bridge** – a short card strip used to keep sliders in place and control movement.

Years 1/2

Structures Freestanding structures

Instant CPD



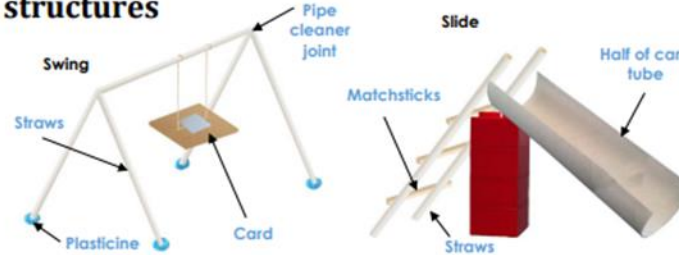
Tips for teachers

- ✓ Create a PowerPoint or range of pictures showing a variety of freestanding structures relevant to the product the children are designing and making.
- ✓ Exploring structures in the local area provides a good opportunity to develop children's observational drawing.
- ✓ Create and display a word bank of relevant technical vocabulary in the classroom.
- ✓ Ensure that work with construction kits and materials builds on children's prior experience in the Early Years Foundation Stage (EYFS).
- ✓ Ensure that different types of construction kits are available for children to explore through focused tasks.
- ✓ It is perfectly acceptable for children's final products to include both construction kits and consumable materials.
- ✓ Demonstrate measuring, marking out, cutting, joining and strengthening techniques and provide help sheets showing instructions for the children to practise independently.
- ✓ Prior to producing their designs, have a range of materials available for children to access and create models.

Useful resources at www.data.org.uk

- [Door hinges helpsheet](#)
- [Let's Get Building and Using Construction Kits Effectively](#)
- [Chairs for Three Bears](#)
- [Hinges and Catches](#)
- [Bird Hide Design and Make Challenge \(Yrs 5-6\)](#)
- [Working with paper straws \(Yrs 3-4\)](#)

Techniques for assembling freestanding structures

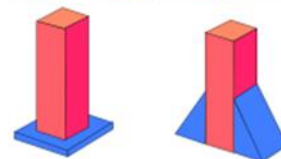
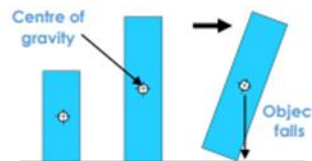


Show children how to join sheet materials and reclaimed boxes together using different tapes and glues.



Technical knowledge and understanding

Build walls with these different patterns. Tap away the centre brick in the bottom row of each wall in turn. What happens? Which wall is the strongest?



As a freestanding structure becomes taller its centre of gravity rises. Stability in a structure can generally be increased by making the base wider, making the base heavier or adding buttresses.

Ask the children to build and explore a variety of freestanding structures through focused tasks. Use a range of construction kits.

Wider bases and buttresses for stability

Designing, making and evaluating a strong chair for Baby Bear

An iterative process is the relationship between a pupil's ideas and how they are communicated and clarified through activity. This is an example of how the iterative design and make process might be experienced by an individual pupil during this project:

THOUGHT	ACTION
What sort of chair shall I make? Who is it for and what is it for?	Choose an appropriate soft toy Generating ideas through talking and drawing based on own experiences.
How can I make sure it is strong, stiff and stable?	Developing ideas using construction kits to create mock-ups.
Which joining techniques will work best for the chair?	Exploring and evaluating joining techniques.
What media, materials and kits will I use?	Exploring and evaluating construction kits, new and reclaimed materials.
What shall I do first? What tools and techniques will I use? What materials shall I use?	Selecting from a range of tools, techniques and materials Explaining choices.
More thoughts... judging, planning, generating new ideas.	More actions... making, testing, modifying.
Will the chair meet the needs of the user and achieve its purpose?	Evaluating the chair with a soft toy and against design criteria.

Glossary

- **Freestanding structure** – a structure that stands on its own foundation or base without attachment to anything else.
- **Frame structure** – a structure made from thin components e.g. tent frame.
- **Shell structure** – a hollow structure with a thin outer covering.
- **Stability** – in relation to a freestanding structure, the extent to which it is likely to fall over if a force is applied.
- **Buttress** – a structure added to a wall, tower or framework to make it more stable and/or reinforce it.
- **Brick bonding** – arranging bricks in a wall to improve the performance of the structure or improve its appearance.
- **Mock-up** – 3-D representation of a product.

Years 1/2

Food

Preparing fruit and vegetables

Instant CPD



Tips for teachers

- ✓ Display fruit, including photographs and associated technical vocabulary, to encourage the children to use it when discussing, designing and making a food product.
- ✓ Ask the children to sort a selection of fruit and vegetables – which is which? Photo cards could be used for this.
- ✓ Include fruit that is less likely to be known to the children.
- ✓ Stories and poems about food could be used for inspiration and as an introduction to the project.
- ✓ Visit a local shop or food market to give your project a real-life context.
- ✓ Carrots can provide a relatively cheap food for examining the effects of using different equipment such as grating, slicing into thin rings, slicing into sticks.
- ✓ Serrated knives with rounded ends are the best.
- ✓ Foods for chopping/slicing could be cut in half lengthways to provide a flat base and held still with, for example, a fork so that children cut safely.
- ✓ Before you organise any food tasting in your class, you need to check your school and local authority health and safety policy. Seek parental consent.
- ✓ As homework ask children to keep a weekly fruit and vegetable diary and ask them to record their results in a chart/table. If more appropriate, focus on fruit and vegetables served in school.

Useful resources at www.data.org.uk

- [Caribbean fruit cocktails](#) (7-9 years but contains useful information)
- [Are you teaching food in Primary D&T?](#)
- [Super salads](#) (7-9 years but contains useful information)
- [Fantastic fruit](#)

Other useful web-based resources:

- www.foodafactoflife.org.uk
- <http://www.nhs.uk/livewell/5aday/pages/5adayhome.aspx>

Teaching aids to demonstrate food processing skills



Peeling



Cutting



Slicing



Grating



Squeezing

Food Processing Equipment

Utensil	Food	Effect	Mouth feel
 Juicer	Orange	Makes juice	Liquid
 Peeler	Apple	Unpeeled apple	Crunchy
 Knife	Carrot	Thin rings	Crispy hard

Hygiene – some key pointers

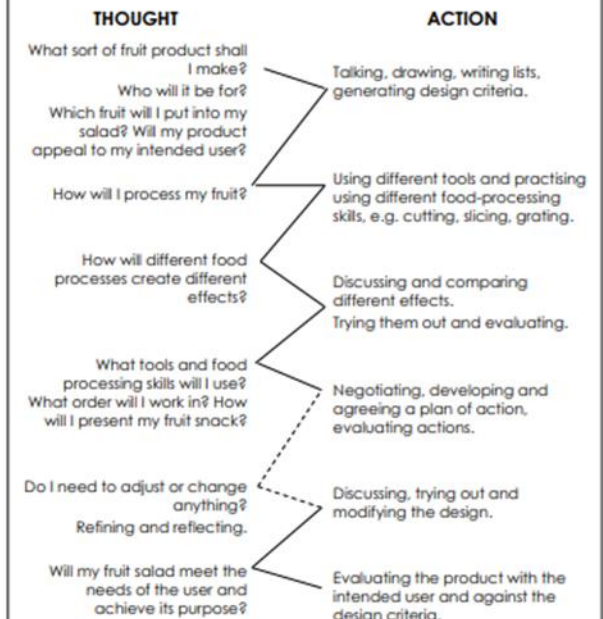
- Jewellery is removed
- Hair is tied back
- Sleeves are rolled up
- Aprons are on
- Hands are washed
- Cuts are covered with blue waterproof dressing



Further information from www.foodafactoflife.org.uk

Designing, making and evaluating a fruit snack for a class picnic

An iterative process is the relationship between a pupil's ideas and how they are communicated and clarified through activity. This is an example of how the iterative design and make process might be experienced by an individual pupil during this project:



Glossary

- **Fruit** – plant or tree's edible seed with envelope.
- **Vegetable** – plant used for food.
- **Nutrients** – all the things in food that the body needs to remain healthy.
- **Pith** – the soft white lining inside fruit such as oranges.
- **Salad** – a cold dish of fresh and/or cooked vegetables or fruit.
- **Sensory evaluation** – subjective testing of foods where senses are used to evaluate qualities such as appearance, smell, taste, texture (mouth feel).
- **Kebab** – cooked and/or fresh ingredients on a skewer.