

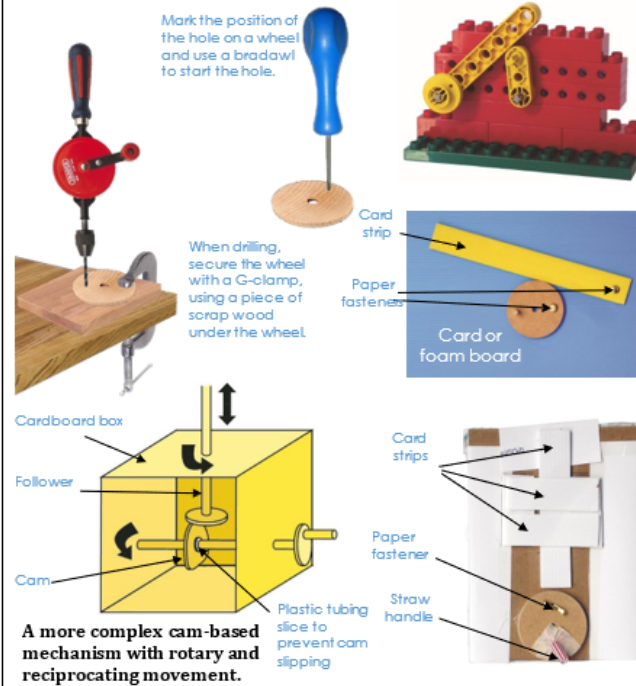
Years
5/6

Mechanical systems Cams

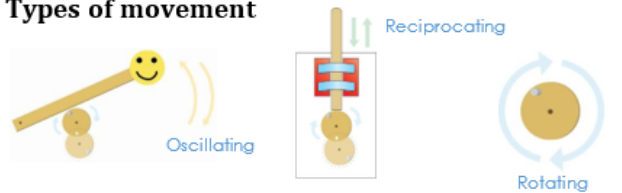


- ✓ Easy teaching aids can be made by mounting wheels on cardboard, foam board or corrugated plastic sheet. Card or foam wheels are easy to cut to different shapes.
- ✓ Avoid decorating teaching aids as this can influence the children's designs. Encourage discussion about what could move up and down and in rotation.
- ✓ Use pre-drilled wheels
- ✓ When making a cam and lever mechanism, remember the distance between the cam and the pivot point of the lever will affect the amount of movement, with more movement close to the pivot.
- ✓ When making a cam and slider mechanism, position the cam, slider and guides correctly. Measure where the cam will go to at the base of its cycle so that it does not overlap the bottom of the board. The guides should be positioned so that there is enough clearance for the cam to turn at the top of its cycle.
- ✓ Investigate alternative methods of evaluating. Try making video or photographic diaries that help develop ongoing evaluation.
- ✓ Don't be afraid to include any failed designs into displays of final products. Include evaluations of why the designs didn't work and how children would make them work. This links to design in the real world and the concept that designs don't always work first time around.

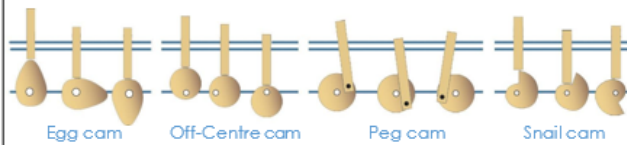
Making teaching aids to demonstrate cams



Types of movement



Types of cams



Designing, making and evaluating a moving toy for children in a particular age range

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 type of moving toy shall I make? What will be its purpose? Who will use it?	Discussing ideas, drawing annotated sketches or exploded diagrams Generating a simple design specification
What type of movement will it have? Will it be a moving vehicle or be stationary and have moving parts?	Discussing, modelling and evaluating different systems using mechanical components
Which materials will I use to make it? How will I make it fit for purpose?	Investigating and testing possible materials and components
How will I make the body or housing for the moving parts?	Discussing, exploring and evaluating prototypes
What tools and materials will I need? What order will I work in? What constraints am I working to?	Negotiating, developing and agreeing a step-by-step plan
Do I need to change anything?	Discussing, testing and modifying the design
Will my product meet the needs, wants and interests of the user group?	Evaluating the product with the intended user group and against the original design specification