



CIRCUS IN TOWN

TEACHER'S
NOTES

Outline of the unit

Targets To learn about cam and follower action;
To design and make products incorporating a cam and a follower;
To model by loose fitting and testing prior to permanent assembly.

Contents Starting from a scenario in which Baby Bertha visits a circus, the children are encouraged to design and make simple toys based on what might be seen at a circus.

Materials Needed Mainly recycled materials; card; paper fasteners.

Answers to Assessment Questions

- (1) An acceptable explanation - much as for clown action (1 mark);
the tube is the guide for the follower (1 mark);
which is inside the tube (1 mark);
the cam is the lid (1 mark);
the pivot is the off-centre nail in the lid (1 mark).
- (2) The rabbit rises slowly and falls quickly. (allow 2 marks)
- (3) The cam would have two bumps in it. (allow 1 mark);
allow a further 2 marks for an acceptable explanation.

Starting points and contexts

Topics Through D&T as a self contained topic; The Circus; Toys Which Move.

Starting Points The story of Baby Bertha's visit to the circus or some other similar story; a film or television programme about a circus; toy-making.

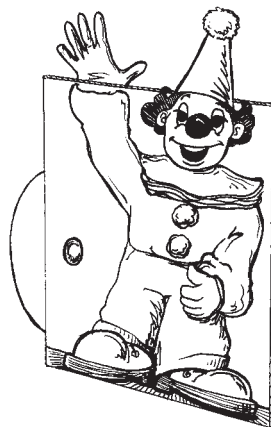
Development & Extension Ideas Santa popping out of the chimney; an animal popping out of a hole in the ground (a worm or mole, for example); an Easter chick popping out of an egg. Use coffee pot lids to make a cam; make cams with more than one high point.



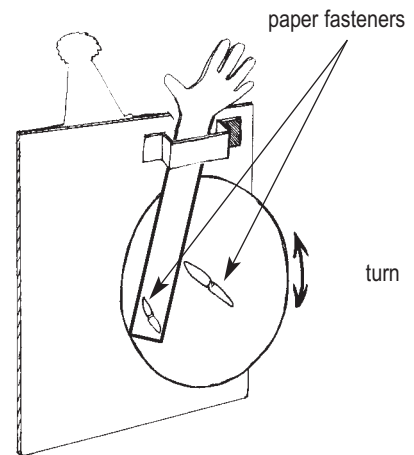
CIRCUS IN TOWN

TASK 1

Baby Bertha's Mum took her to the circus. Baby Bertha laughed a lot at the clowns. They waved to her and she waved back. At home, her Mum decided to make a toy clown to amuse her. It looked like this. Try it.



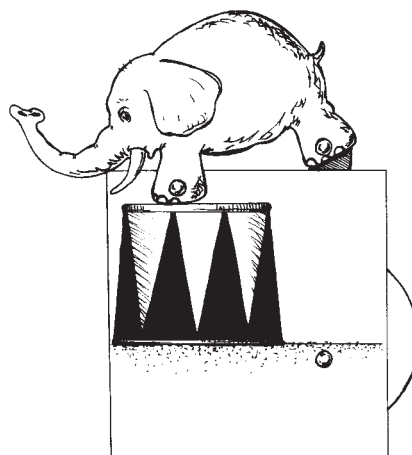
front view



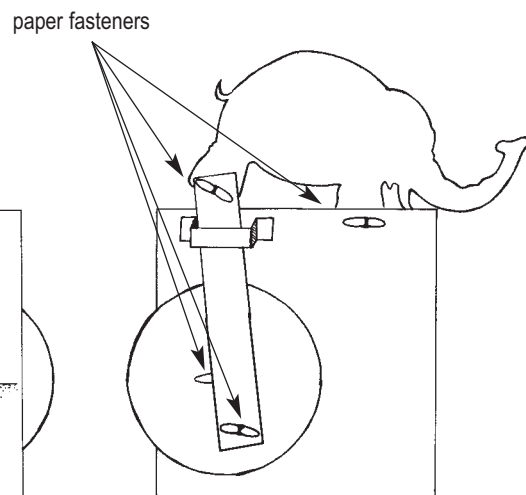
back view

Baby Bertha liked the clown so much, her Mum also made her an elephant which stood on its front legs. It looked like this.

You could try this, too.



front view



back view



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TASK 2

What else might Baby Bertha have seen at the circus? Draw three of these things in the box below.

Choose one of the things in the circus (not an elephant or a clown). Design a moving toy of it, like Baby Bertha's Mum did. Draw your design from the front and the back. Think about where the pivots should be.

front	back

Cut out the pieces you need. Fit them together loosely and try your toy. If it does not work properly, find out why. You may have to change a pivot or the guide or the size of the follower, or the cam. Colour the pieces and assemble the toy.



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ASSESSMENT

Use what you know about pivots and cams to answer the following questions.

1. The picture shows a pop-up rabbit toy. How does it work?

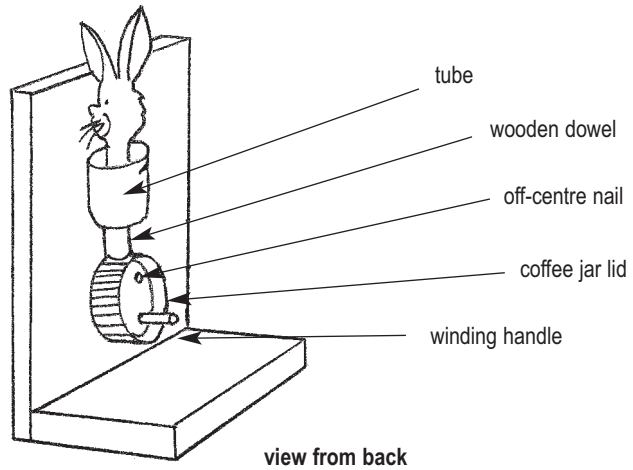
Look at the labels on the diagram.
Which part is:

the cam _____

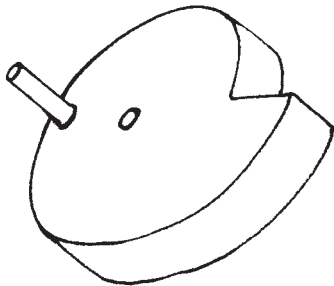
the pivot _____

the guide _____

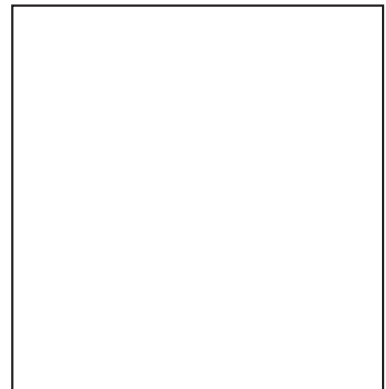
the follower _____



2. Baby Bertha's Mum took off the coffee jar lid. She used instead a piece of wood which looked like this. What difference does this make?



3. If you wanted the rabbit to pop up and down twice every time you turned the cam once, what would the piece of wood look like? Draw it.
Explain how it works.





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TEACHER'S
ASSESSMENT

	(A)	(B)	(C)	(D)
Evidence of designing skills (3 marks) 1. Generated a design for a moving circus figure. 2. Was able to draw a front and rear view to represent the design. 3. Was able to draw a design for a double movement mechanism.				
Evidence of making skills (3 marks) 1. Considered the aesthetic appearance of the end product. 2. Translated the design into a functioning product. 3. Used tools and materials appropriately.				
Evidence of knowledge and understanding (3 marks) 1. Described how the cam and follower mechanism works. 2. Labelled the parts of the mechanism correctly. 3. Described the action of the noise-creating cam.				
Personal qualities and attitude (1 marks) 1. Worked with care and accuracy.				

Pupil A _____

Pupil B _____

Pupil C _____

Pupil D _____

	(A)	(B)	(C)	(D)
Marks for tasks (10)				
Marks for assessment (10)				
Combined total (20)				