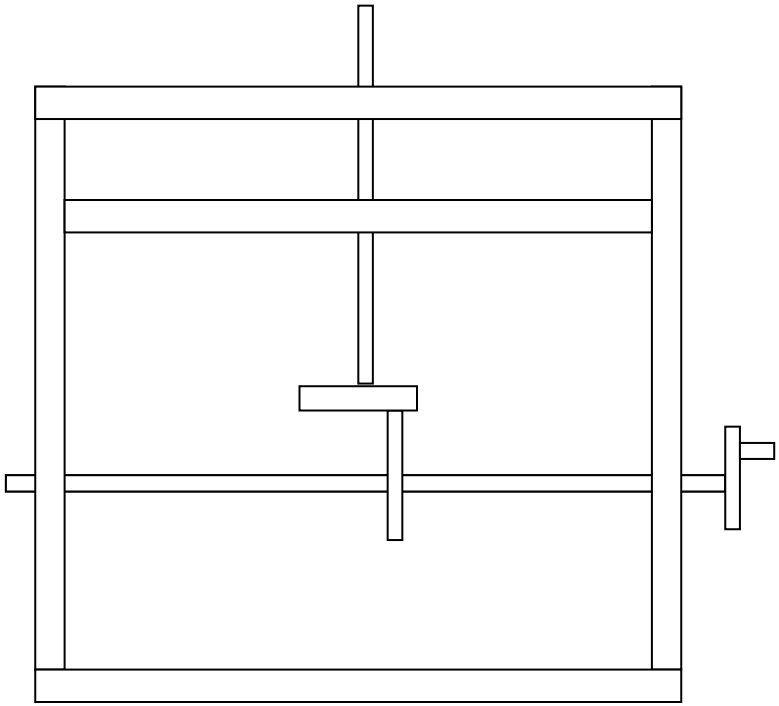


DESIGN TECHNOLOGY MOVING TOYS

How does my figure move?

How many different parts does it have?

What is linear motion?

We will be researching and investigating moving toys.

Why do we need cams mechanisms?

Does the shape of the cam make a difference to the motion?

We will also be learning how to make a moving toy using a cam mechanism for ourselves.

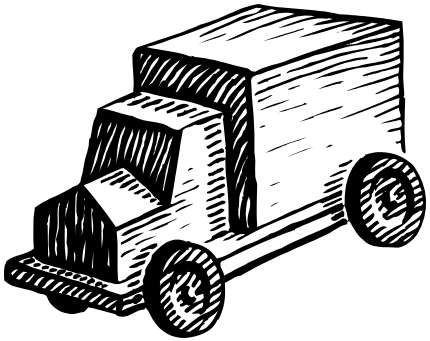
How does circular motion change to linear?

DT MOVING TOYS - 1 - Investigating toys 1 date.....

Draw a labelled diagrams of one of the moving toys

Show:

- Which parts turn?
- Which parts move?
- How are the different parts attached?
- How the moving parts are guided into place
- Label the different types of motion – linear, rotary etc



List the materials used to make this toy

How has this toy been finished? eg. painted, polished etc

Who do you think this toy has been designed for?

DT MOVING TOYS - 1 - Investigating toys 2

date.....

Draw a labelled diagram of one of the moving toys

Show:

- which parts turn
- which parts move
- how the different parts are attached
- how the moving parts are guided into place
- label the different types of motion – linear, rotary etc

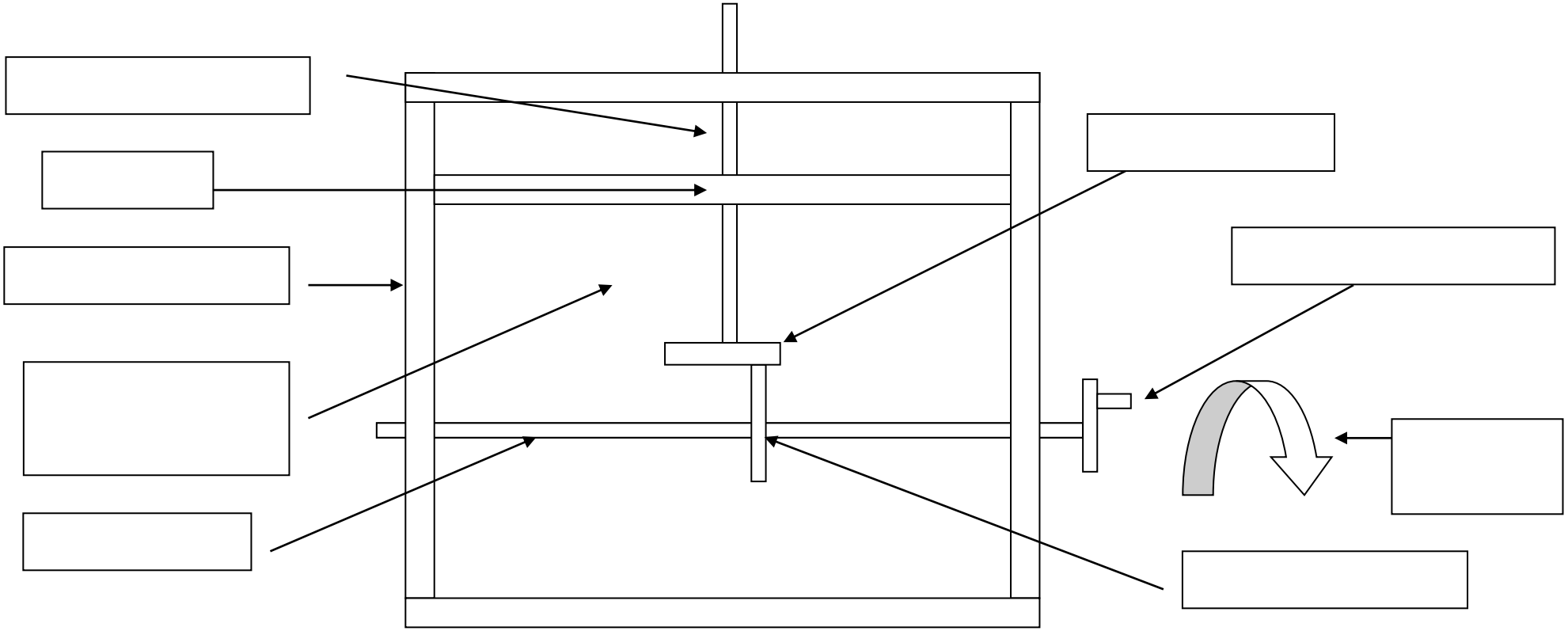
List the materials used to make this toy

How has this toy been finished? eg. painted, polished etc

Who do you think this toy has been designed for?

DT MOVING TOYS Investigating Cam Mechanaisms name.....

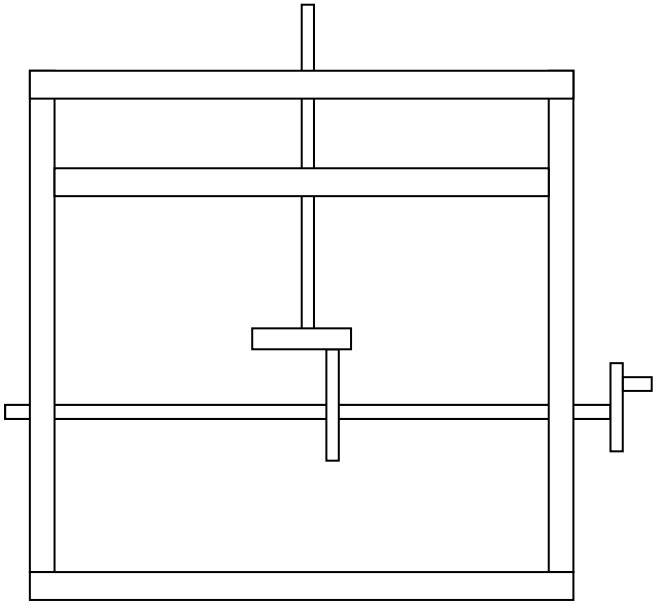
Look at how the cam mechanism works.
Label the diagram.
Draw a design on top of the mechanism to suit an eccentric cam



Useful words: cam, movement, linear motion, rotary motion, off-centre, crank handle, axle, frame structure, cam mechanism, cam follower

DT MOVING TOYS Investigating Cam Mechanaisms name.....

What do all the parts of the cam mechanism do?



cam follower

cam

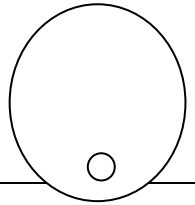
frame structure

axle

crank handle

DT MOVING TOYS 3 Investigating Cams - 1 date.....

We are investigating the different movements made by different shaped cams. Choose at least 6 – I have done the first one for you

	Shape of cam with name	Does it work Yes or No	Description of movement	What sort of toys would this suit
1	 Eccentric or circular cam	Yes	Smooth up and down movement 	Caterpillar moving toy-
2				
3				
4				

DT MOVING TOYS 3 Investigating Cams - 2 date.....

We are investigating the different movements made by different shaped cams. Choose at least 6 – I have done the first one for you

	Shape of cam with name	Does it work Yes or No	Description of movement	What sort of toys would this suit
5				
6				
7				
8				

DT MOVING TOYS 4 Design Criteria & Developing Ideas

date.....

Design Criteria

I am going to make and decorate a moving toy

I am going to make my toy for:

…….. (person)

I want my toy to:
(list in order of importance)

1. ……
2. ……
3. ……
4. ……

I am going to use 1/2 cams (circle)

I am going to use ……shaped cams

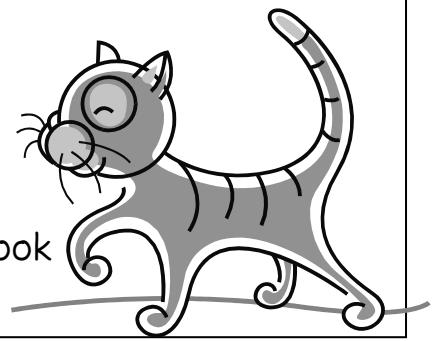
The theme for my decoration is:

……

Start to draw your ideas for your moving toy here.
Show materials used and measurements

Remember to think about:

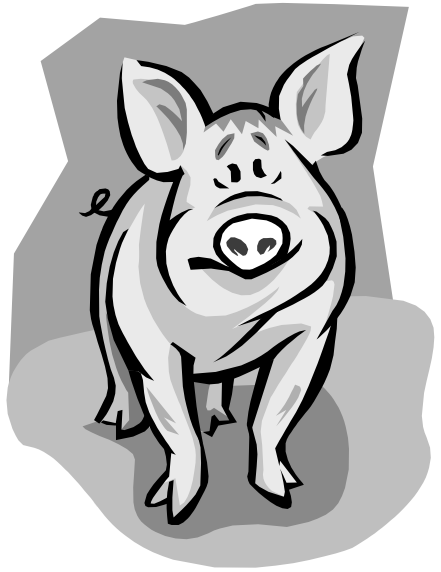
- how you want your toy to look
- who you are making it for



DT MOVING TOYS 5 Design Specification

date.....

This is my final moving toy design



Draw detailed drawings of the character on the top

DT MOVING TOYS 6 Planning

date.....

What will you need to make your design? List it here:

1..... 2.....

3..... 4.....

5..... 6.....

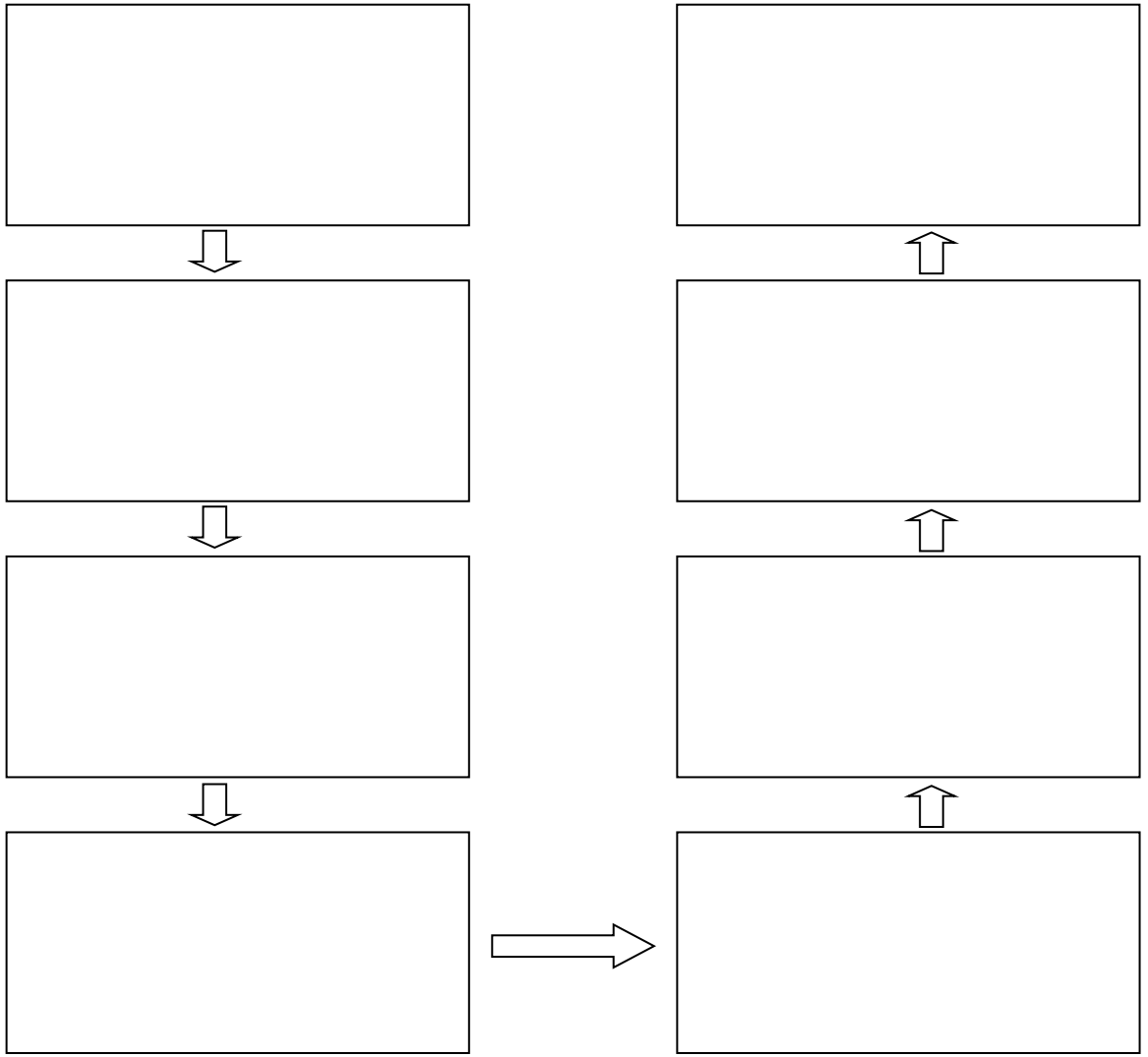
7..... 8.....

9..... 10.....

11..... 12.....

Useful words: dowel strip, cm sq wood, wheels, framework, cam, crank, axle, junior hacksaw, bench block, hand drill, drill bit, mechanism, follower, guide, shaft, G-clamp, decoration template.

Draw a flow diagram to show the order in which you will make your moving toy



DT MOVING TOYS 7 Evaluating

date.....

You said you wanted your design to do these things:
(copy down your design criteria here)

How well does your toy do each of these things?

5. ....

6. ....

7. ....

8. ....

What do you think of your moving toy?

If you were making it again what would you change and why?

useful websites

- http://ngfl.northumberland.gov.uk/dt/cam/cam.html different shaped cams examples
- http://www.kugelbahn.ch/3_link_automata.htm websites of automata
- http://www.keithnewsteadautomata.com/broadband.htm good examples of automata
- http://www.technologystudent.com/cams/camdex.htm good website on cams
- http://www.automata.co.uk/cat.htm examples of toys
- http://www.mystery-productions.info/hyper/Hypermedia_2003/Muirhead/website/main.htm moving toy mechanisms online fun
- http://www.coxhoe.durham.sch.uk/Curriculum/DT.htm examples of websites
- http://www.ngfl-cymru.org.uk/vtc/Phase2delivery/Wales/Designandtechno/Keystage2/Investigationof/Movingtoyscams/Introduction/default.htm interactive whiteboard activity
- http://www.woodlandwideweb.the-office.org.uk/year5toys.htm
- http://www.animatedworksheets.co.uk/webgate.html
- http://www.flying-pig.co.uk/ good examples of card automata
- http://www.constructionawards.co.uk/index.php?mode=stuact&t=f&f=ks2act8pre.swf&w=584&h=438 different shaped cams online quiz
- http://www.primaryresources.co.uk/dandt/swf/camstext.swf different shape cams make different movements