

Are Machines Creative?

You may not think of machines as being creative, but it takes a lot of creative thinking to invent a new one or even redesign an old one. Now machines are an important part of our daily lives.

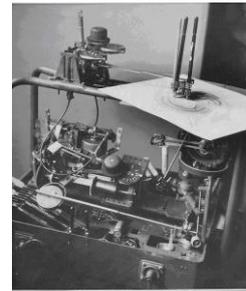
Can you think of a time in the day when you don't use a machine to help you do things?

Some machines give us creative ways to have fun, like these cotton reel racers that we can turn into drawing machines! One machine that can both draw and race. Ready to get making?



To the right are two drawing machines.

Which one do you think is older? Which one is more complicated. Why?



1

Gather together everything you need to make your machine: a cotton reel, 2 matchsticks, an elastic band (or 2 in case one snaps!) and sticky tape.

Chose a pen (with a lid) or pencil for your racing and drawing machine.

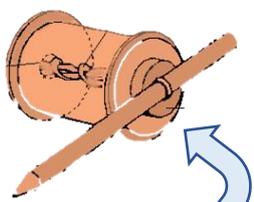
2



This end is loose.

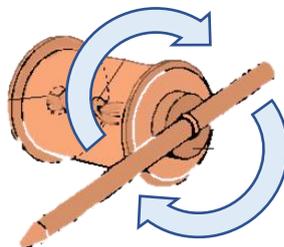
Thread the elastic band through the middle of the reel leaving it dangling out both ends. At one end, thread the washer on and then a matchstick. At the other end, secure the band by putting a matchstick through the loop and taping it down securely. This end won't move.

3



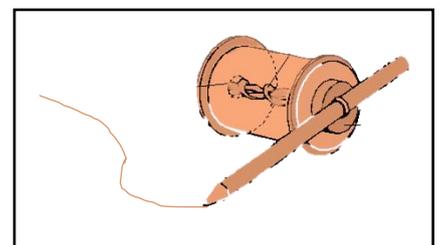
At the washer end, take off the matchstick and replace it with your pen or pencil.

4

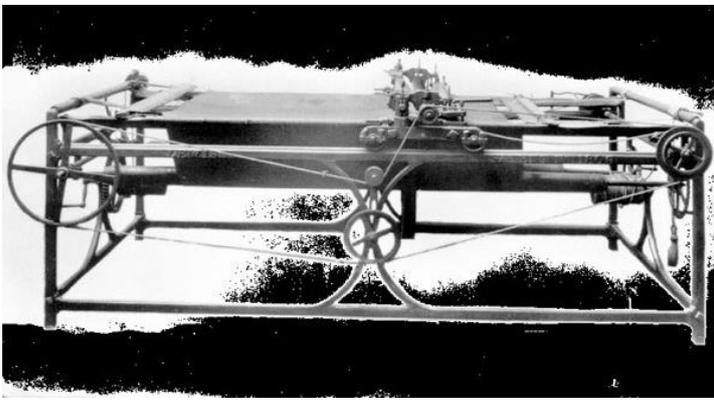


To race, wind the pen round and around to twist the band inside. Don't snap the band though. Put it on a flat surface and watch it race off as the band untwists!

5



To turn it into a drawing machine, point the nip down and if it is a pen, take the lid off. Place paper down on a flat surface. Wind it up, put it down and watch it go drawing!



Look at this old photo from www.kirkleesimages.org.uk

It is an old industrial machine from the early 1900's. But what do you think it might have done? Look at all the different parts for clues and write down your guesses on the note section below to the left.

A large rounded rectangular box containing ten horizontal lines for writing notes.



Some machines are very complicated and others are not. A pin hole camera is a very simple machine to make and use.

Pin hole cameras were spoken about as far back as 500 BC. They are still used today, particularly to capture the movements of the sun over a long time. This is solography.

How to Make a Pin Hole Camera



1

2

3

1. Use a pencil to draw lines to opposite corners on the box to find the centre of that side.

Carefully make a very small hole in the centre with a very sharp pencil.

Ask for help if you want to as it is very important that it is very small and the pencil will be very sharp.

2. On the opposite side of the box, carefully cut out a large square.

3. Cover the square hole with wax paper. Tape it down, then close the box.

Make sure that no light can get into the box. Now your camera is ready to test. Will it work?

Go into a dark room and switch a lamp on. Get a towel or blanket and put it over your head and the camera with just the pin hole end pointing out.

If you point the camera at the lamp you will see an upside down image of it appear on the wax paper.

Look at the diagram below to see how it works.

