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KALEIDOSCOPE

If three mirrors are formed into a triangular reflecting tunnel as pictured, they form the basis of a kaleidoscope.



Make a kaleidoscope and experiment with it in various situations.

What happens if instead of three mirrors in a triangle tunnel, you use:

four in a square?

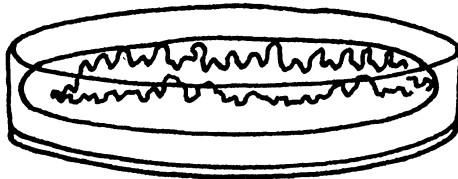
five in a pentagon?

More?

IN THE MOULD

One of Earth's most important rotting agents is mould. You can have a lot of fun collecting moulds (a form of fungi) using the following method:

- * Get some agar from a chemist.
- * Sterilise some petrie dishes and lids.
- * Set some agar in the petrie dishes, ensuring the lid is on as much as possible to prevent stray spores from settling.
- * Now collect fungal spores by leaving the petrie dishes open for thirty minutes each in a range of different places where you think fungi may exist, indoors and outdoors.
- * Replace the lids and leave the dishes (marked with where the samples were collected,) in a warm dark place for a week, checking each day to see what has grown.

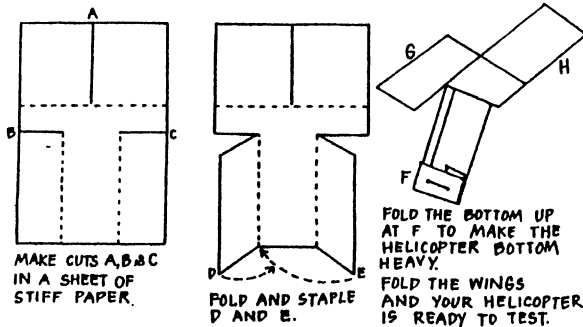


(You may also have collected and grown some bacteria by this method so be sure to avoid contact with these in case they are harmful. It pays to destroy your samples by fire when you have finished with them, just in case.)

There are a number of books available, with identification features and names of fungi. ("Lots of Rot" by Vicki Cobb, published by A & C Black of London is a very simple text) Find one and try to identify the fungi you have grown.

HELICOPTER SCIENCE

Make this paper helicopter as shown. Fly it by dropping it from a height.



Answer these questions through studying and experimenting with the helicopter's behaviour in trials:

Does it always spin the same way?

Can you change its direction of spin?

How can you make it spin faster? Slower?

Make it fly for 3 seconds. Can you make 5? Longer?

How does changing what it is made from affect it?

How small can it be? How big?

What influence does adding weight to the bottom have?

What influence does lightening it have?

What changes can be made to its shape?

What influence do these changes have on its performance?

Make a different design for a helicopter.