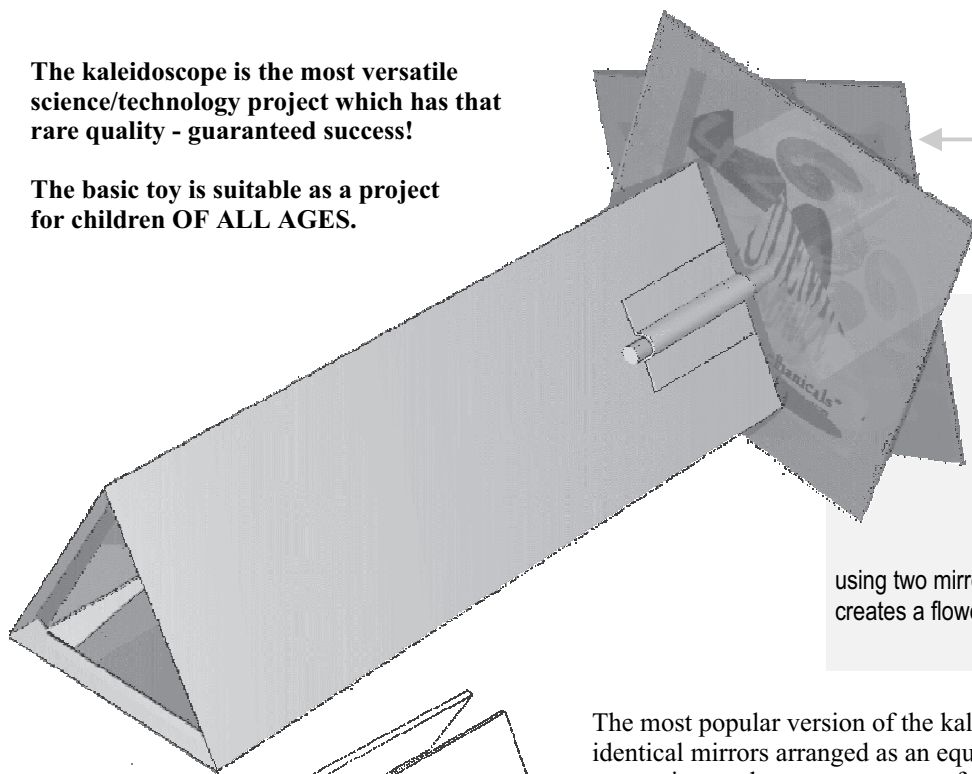


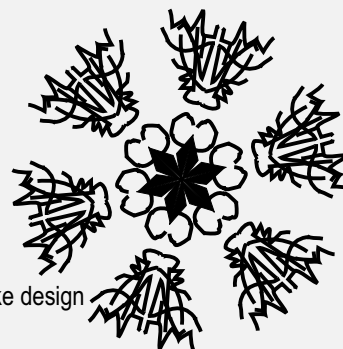
The kaleidoscope is the most versatile science/technology project which has that rare quality - guaranteed success!

The basic toy is suitable as a project for children OF ALL AGES.



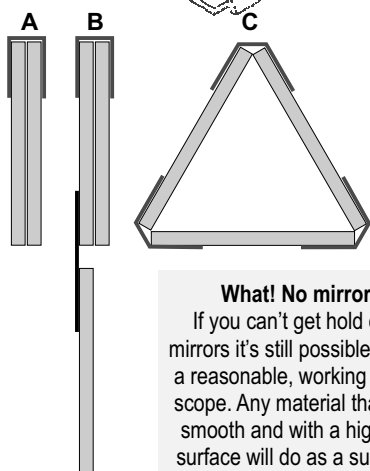
Two 'discs' give a great variety of patterns: three discs give even more (though they must not be too dense).

using two mirrors creates a flower like design



The most popular version of the kaleidoscope is one which uses three identical mirrors arranged as an equilateral triangle. This type gives you an image that seems to go on forever - very exciting!

You can make a similar kaleidoscope with two mirrors and a rectangle of matt black card taking the place of the third. This produces a finite, flower like design.



#### What! No mirrors?

If you can't get hold of any mirrors it's still possible to make a reasonable, working kaleidoscope. Any material that is flat, smooth and with a high gloss surface will do as a substitute. Even clear acetate sheet will work. Fold into triangular prism, case in stiff card, put a bit of tape round and try it. You'll be surprised.

If you can afford it, use rigid plastic mirror. You can get 15cm square mirrors from school science and technology catalogues, and these can be cut with a sharp knife to give three 15 x 5cm mirrors for your kaleidoscope. Cut along a straight edge with a sharp knife, then carefully 'break' off the pieces.

Fasten together with sticky tape - something like masking tape is best. It isn't a difficult task, but we like to get the children doing this in pairs, so one can hold, while the other applies the tape. A successful method is as follows.

**A** Place two mirrors face-to-face and stick a length of tape along one side.

**B** Open out the joined pair, and place the third mirror face-to-face with one of the others. Tape.

**C** The rest is all 3D. Put a length of tape along one edge of one mirror and fold up the assembly to make the triangle. Now push the tape over the other edge to secure the triangle.

Things may be a little loose, so wrap a couple of lengths of tape right round the kaleidoscope to hold it all tightly together.

At this stage you have a kaleidoscope. Put your fingers in the end and look at them through the instrument. Keep looking and investigate printed matter, or trays of building bricks, or coloured beads. Yes! You have a kaleidoscope.

The model illustrated is a **disc kaleidoscope**, although the discs are square! The mirror assembly is wrapped in an A5 sheet of coloured card, to which a short length of dowel or paper stick is glued. This join is re-inforced with pieces of thin card. Onto this dowel 'spike' the discs can be fitted. With two discs you can have a virtually infinite collection of patterns.

**DISCS** - If you have access to a laminator, then arrange scraps of tissue, petals and leaves, and/or pieces of coloured wool inside the pouch and laminate. If you are using an A4 pouch, you can cut it into six 'squares.'

If you have no laminator then try sandwiching the scraps, etc. between an old overhead transparency and a piece of sticky backed plastic, preferably clear. Poke a hole in the centres (paper drill?) and put them on the dowel. Hold up to the light, look inside - and witness magic!