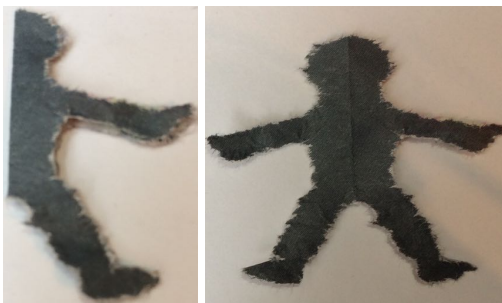


PAPER DOLLS

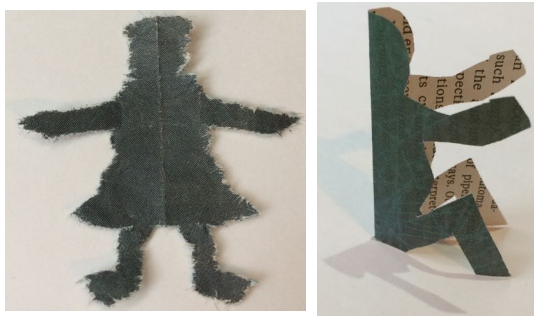


Fold a piece of paper in two and tear out half a person. An old newspaper is good for this. Now open out your little person and flatten it. You have made a paper doll that is **symmetrical** about the fold line. The two halves of the doll on each side of the fold line are **reflections** of each other.

We call the fold line a **mirror line**.

Other names for it are **line of symmetry**, **axis of symmetry** and **axis of reflection**.

Make some more paper people and other objects in the same way. You might like to experiment with making a line of people holding hands.



Now make 2 folds, tear out a star shape and flatten it out. The picture shows a shape made in this way with 2 axes of symmetry along the fold lines. Create your own pattern with 2 mirror lines.



The next shape was made by making 3 folds in the piece of paper and then cutting some holes along the edges of the fold lines to make a symmetrical pattern with 4 mirror lines along the folds.

What do you think happens if you turn this pattern through a right angle? What about turning it through 2 right angles? Or 3 right angles? Make a pattern like this for yourself and see what happens when you turn it round. We say this pattern has **4-fold rotational symmetry**. Create more patterns with 4-fold rotational symmetry.



The basket that this lady is making has **8-fold rotational symmetry**. Can you explain how we know that? You cannot fold this basket but can you find the mirror lines?

Can you find some flowers or other objects that have rotational symmetry.

Perhaps you would like to make a poster about symmetry or a display for your classroom.

HELP

You can make the dolls and other shapes by tearing the paper, as you see with some of the shapes above, or you can use scissors if you have them. Everywhere you go you will see symmetry around you.

NEXT

Shapes repeat themselves in patterns by 4 transformations:



Describe how these transformations appear in the line of paper dolls and in the other paper cuts that you make.