

6 points



In 1939, a university mathematics student named Arthur H. Stone was playing with a strip of paper trimmed from a notebook. He discovered something interesting—flexagons.

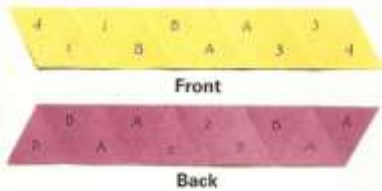
Flexagons are polygons made from folded paper that show different faces when “flexed.” The instructions below will give you a chance to play with two of these unique figures yourself.

For your first flexagons, it may be helpful to use paper with one color on the front and another on the back, as shown. Later, you can get creative by drawing designs on the flexagons, which have a kaleidoscopic effect when flexed.

Activity 1

HEXAFLEXAGON A hexaflexagon has three faces, but only two are visible at a time. Be sure to make your cuts and folds as precisely as possible to ensure that your flexagon will flex smoothly.

1. First cut a strip of paper divided into 10 equilateral triangles. Label the front and back of the strip as shown.



2. Fold the strip so that the triangles labeled 1 face each other.



3. Fold the strip so that the triangles labeled 2 face each other.



4. Fold the strip so that the triangles marked 3 face each other. Carefully glue together the triangles labeled 4, and let the glue dry.



5. Now you are ready to flex your hexaflexagon. Pinch together two triangles and push in the opposite side so that the flexagon looks like a **V** shape when viewed from above. Open the flexagon from the center. Repeat. How does the arrangement of the faces change as you flex the flexagon?