



## Activity 2: Graphic Design: Using Symmetry to Create Corporate Logos

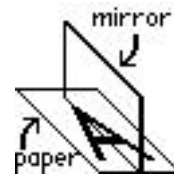
Three simple types of symmetry are *reflection*, *rotation*, and *translation*. In each case, we start with an original image and, using symmetry, we can transform it.

*Reflection* symmetry is sometimes called “mirror” or “flip” symmetry. It’s easy to see why. A butterfly (see below) may have reflection symmetry because one side is a mirror image of the other.



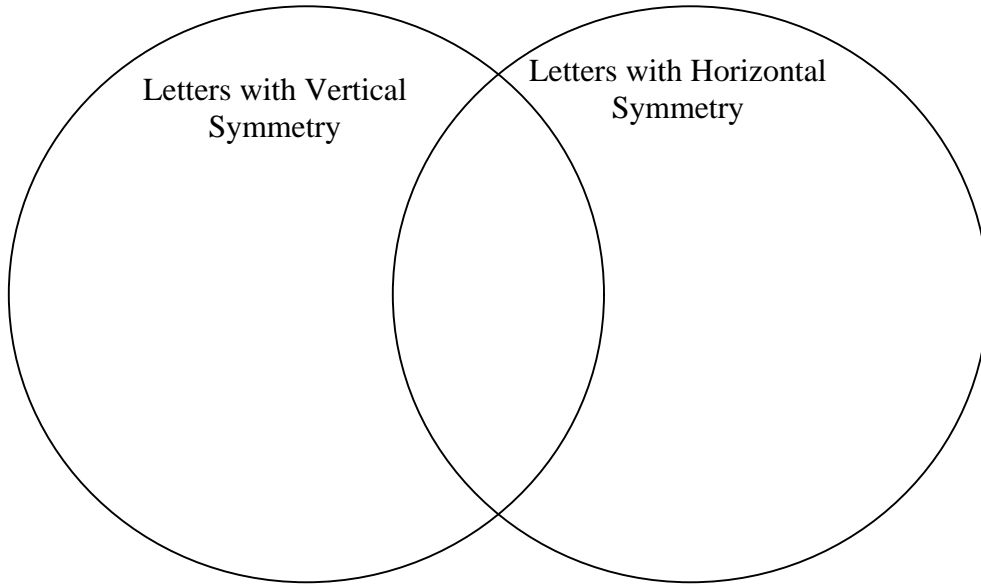
Notice that a vertical line down the center of the butterfly’s body serves as what is called the “line of symmetry.”

The letter **A** has reflection symmetry similar to the butterfly.

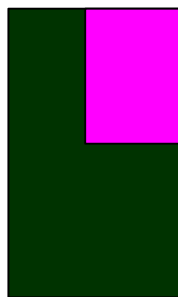
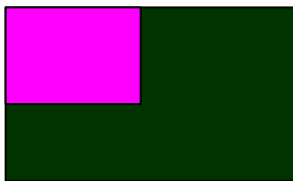


1. Look at the letters of our alphabet below. Organize the letters according to which ones have reflection symmetry into three groups: the letters that have reflection symmetry with a vertical line of symmetry (like the letter A), those with a horizontal line of symmetry, and those with both vertical and horizontal lines of symmetry.

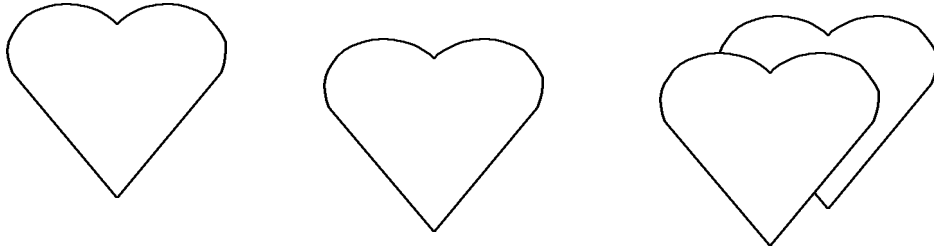
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z



A second type of symmetry is called *rotation* symmetry. You produce rotation symmetry by turning an object. By rotating the flag on the left 90 degrees, we produce a new flag.



The third type of symmetry is translation symmetry. It is produced by moving the object forward, backwards, or in any direction but do not flip or turn it. The heart shape below (which has reflection symmetry) was translated to three other shapes (or positions).



2. A graphic artist uses symmetry to create designs that become the symbol for companies. These are called corporate logos. Look at some of the examples below. Can you tell which ones have reflection, rotation, or translation symmetry? For each logo, describe the symmetry you find and how symmetry might have been used to create the logo.



3. Design your own logo. Notice that many logos start with a basic shape, a rectangle, a diamond, or an oval, and then the artist uses symmetry to create the design. The Mitsubishi company logo below began with a diamond that was rotated 120 degrees, then another 120 degrees from that.



- Pick a basic shape from among those below.
- Cut out at least three copies and use reflection, rotation, or translation symmetry to create your own logo.
- Write a description in our own words of the type or type of symmetry you used to create your logo.

