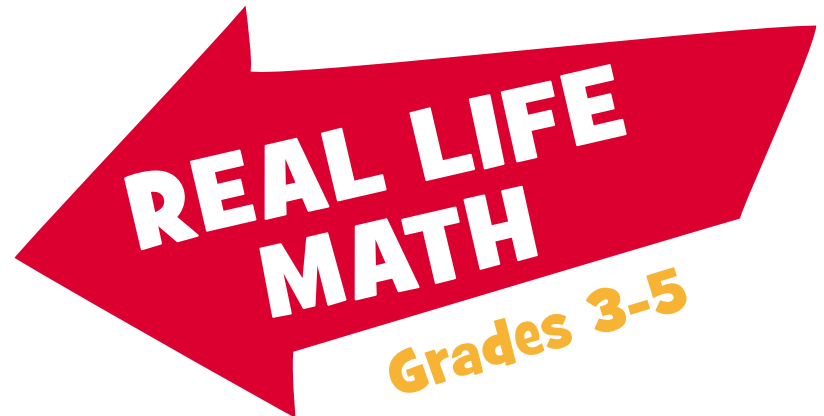


Keep this sheet.  
Collect them all!



## Explore your world with this Science-to-Go backpack



### Books in this backpack

- **The Boy Who Loved Math: The Improbable Life of Paul Erdős**  
by Deborah Heiligman
- **G is for Googol: A Math Alphabet Book**  
by David M. Schwartz
- **Seeing Symmetry**  
by Loreen Leedy
- **Mysterious Patterns: Finding Fractals in Nature**  
by Sarah C. Campbell
- **Explore Money! With 25 Great Projects**  
by Cindy Blobaum

More books  
at your  
library

Fractions in Disguise: A Math Adventure. Edward Einhorn. J513.26  
Full House: An Invitation to Fractions. Dayle Ann Dodds. E DODDS  
Math-terpieces: The Art of Problem-Solving. Greg Tang. J510  
Sir Cumference and the First Round Table. Cindy Neuschwander. J516  
The Grapes of Math: Mind-stretching Math Riddles. Greg Tang. J793.74

**Local Connection**

Take a trip to the Washington State History Museum, or look at a picture of it. Check out the architecture. What shapes do you see? Can you find patterns? Is there any symmetry? You can also check out a Museum Pass at the library for free!



Line symmetry is all around us—from butterflies, to buildings, to your own face in the mirror. Rotational symmetry is all over, too. You can see it in sunflowers, hubcaps and sea stars. Snowflakes have line symmetry and rotational symmetry. Let's make paper snowflakes and explore.

## What you need:

- Square sheets of paper (any size between 4"x 4" and 8"x 8" works well)
- Sharp scissors

## Try this:

1. Fold the square of paper diagonally to make a triangle.
2. Fold in half again to make a smaller triangle.
3. Then fold into thirds. (This is the tricky part! It's OK to try it and then re-fold until you get it just right. If you want to use a protractor, each third should be 30°.)
4. Cut the top off at an angle. Check to make sure all the layers of paper are the same size.
5. Now use your creativity! Cut away at the sides. Try different sizes and shapes. If it is spring or summer, can you create a pattern that looks more like a flower than a snowflake?
6. Unfold the paper. Can you see the rotational symmetry? What about the shapes you cut out—are they symmetrical?
7. Use a marker to draw the lines of symmetry that you see.

## Going Further

We've done a lot of two-dimensional symmetry, but both line and rotational symmetry can be in three dimensional, or 3D. Peel an orange or grapefruit and see if the pieces inside are symmetrical. Then go on a scavenger hunt around your house or yard. Find five 3D items that have line symmetry and five that have rotational symmetry.