

Collecting Rocks

Children love collecting rocks, and it provides so many fun ways to engage in science and math (as well as art and imaginary play)!

Be a Rock Collector

Tell your child that they can be a geologist—a scientist who searches for and studies rocks! You might want to share the following read-aloud:

If You Find a Rock, by Peggy Christian: <https://www.youtube.com/watch?v=Q7l1b3ZqRs>

Take your child on a rock collecting walk. Give them a bag, bowl, or basket to hold their rocks. Encourage them to look in different places and to collect rocks in a range of shapes, sizes, and colors that interest them. Create your own rock collection, too! It will be fun to compare your finds later.

As you walk, talk with your child about the rocks you each find. *Do they feel rough? Smooth? Heavy? Light? Pointy?* The math activities on the next page suggest some other concepts you might talk about and language you might use as you walk, talk, and collect rocks.

When you get home, encourage your child to rinse the rocks. Prompt them to observe like a scientist. It might be fun to explore questions like the following:

What happens when the rocks get wet? Do they look different? Do they feel different? How long do they take to dry?

How hard is it to break the rock? If we rub it against another rock, does anything come off? How does the rock look if you shine a flashlight on it? (Under your supervision and with your help, you might wrap a rock in an old towel and try to break it with a hammer to see what's inside and how hard it is to break. Wear goggles and hold the hammer so no one gets injured.)

In addition to doing science and math with their rocks (see next page), children may enjoy painting their rocks, choosing a pet rock to take care of, building with their rocks, or other creative activities!

Doing Math with Rocks

Children can do lots of math with their rock collection. For example:

- They can count their rocks. They can also count your rocks. *Who has more? Who has fewer?*
- They can sort the collections in different ways. For example, they might sort into categories like:
 - big rocks and small rocks (or maybe heavy rocks and light rocks)
 - single-color rocks and multi-colored rocks
 - smooth rocks and rough rocks
 - rocks with cracks and rocks without cracks
 - etc. (Let them choose the categories)

Encourage them to count the rocks in each group and compare how many are in each group.

- They can talk about the sizes of rocks in different ways. *Which is heaviest? Which is lightest? Which is tallest? Which is widest? If we put them in a cup of water, which rock makes the level of the water in the cup go up the most? You can also help them measure the rocks using rulers, tape measures, string, or scales.*
- They can look for shapes and shape features in rocks. *Do they see curves, straight lines, angles? Do any of their rocks look like ovals, or circles? What about triangles or rectangles? What would need to change to make it exactly an oval, circle, triangle, rectangle, etc.?*
- They can use the rocks as counters for number stories and other math problems. For example: *I had three rocks and I gave one to my friend. How many are left? I put two of my rocks with three of yours. Now how many do we have?*

If you are interested, please share photos, drawings, and videos of your obstacle courses on the “UChicago Ready, Set, STEM!” Facebook group in the Topic: **Collecting Rocks**.

Find more activities like this at: <http://www.ucreadyssetstem.com>
Ready, Set, STEM is developed at the University of Chicago and sponsored by The Boeing Company