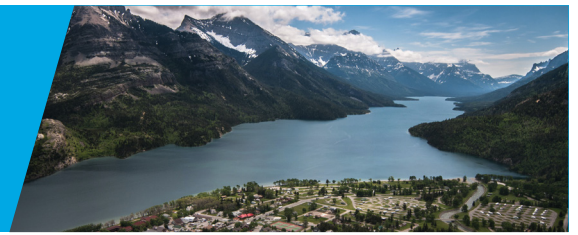


CURIOSITY AT HOME

WATERSHED EXPLORATION



*When it rains, where does all that water go? How does it interact with the land it falls on? Some soaks into the ground, and plants drink some of it, but a lot of it flows over the top of the ground. That water eventually ends up in streams, lakes, and other bodies of water. All that water, and anything it picks up on its trip, is called **runoff**. The area of land that directs water to a specific body of water is called a **watershed**. Watersheds are usually really big, so they're hard to observe, but you can make your own watershed model and explore how water interacts with the land! A **model** represents something really big or really small at a size that we humans can see better.*



MATERIALS

- Plain paper
- Non-permanent markers or water color paint (something that will run when it gets wet)
- Something to protect your surface from water (e.g. a plastic bucket, a towel, layers of cardboard or newspaper)
- A spray bottle to represent rain (or substitute a dropper, watering can or even fingers dipped in water)
- Science notebook or extra paper
- Something to write with

Experiment continued on next page...



Show us how you're being curious! Share your results with us.

PACIFIC
SCIENCE
CENTER



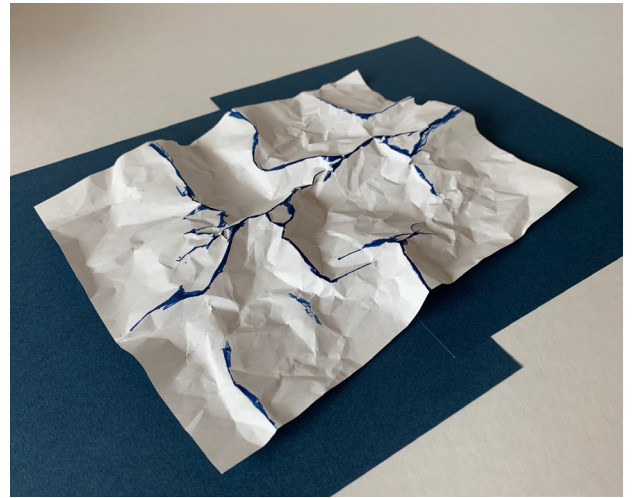
CURIOSITY AT HOME

WATERSHED EXPLORATION



PROCEDURE

- Start by lightly crumpling your paper into a loose ball. Then mostly uncrumple it so that the paper is somewhat flat but still has bumps all over it from the crumpling you just did. This represents your mountain range! You can name it if you'd like. The high folds are ridges and low folds are valleys.
- Take one of your markers, blue if you have it, and color the ridges, using lots of ink. Copy a drawing of the mountain range and its ridges into your science notebook to start making a map of your mountain range.
- When it rains over your mountains, where do you think the water will go? Make a prediction and draw it in your science notebook. You can also draw your prediction on your mountains using a pencil.
- Now it's time for rain! Put down your surface protection and put your mountain range on top of it. Then, use the spray bottle or substitute to make it rain over your mountain range, concentrating on the ridges you colored.
- Observe where the water and the ink (representing runoff) go. Were your predictions right? Why might the water have gone a different way than you predicted?
- Record your results in your science notebook by drawing the location of the ridges, rivers, and lakes. Can you identify which ridges separate your mountains into different watersheds? Mark those ridges and write down any observations you want to remember. Once it's dry, you can put your original mountain range in your notebook too!



TRY THIS

- Add people to your model! Give locations names, and draw roads, farms, towns, mines, factories, and anything else you want on your model where you think they should go.
- Look up your watershed you live in. Search your town or city name and see what watershed (or multiple watersheds) you are a part of!

Experiment continued on next page...



Show us how you're being curious! Share your results with us.



CURIOSITY AT HOME

WATERSHED EXPLORATION



TRY THIS *continued...*

- Can you find a tiny watershed outside of your home? Look for a puddle, and then try to figure out where the ridges are that separate your puddle's watershed from other puddles.
- Make another model watershed and try to make it different. Can you make a lake in the mountains, called an alpine lake? Can you make an island? Can you use other materials to build your mountains?

DID YOU KNOW?

There can be smaller watersheds inside of larger watersheds! The Pacific Science Center is a part of the Puget Sound Watershed, which means that when it rains on us, any water that isn't collected in our ponds, by plants, or by the city sewer system ends up in the Puget Sound. It is also a part of a larger watershed, the Pacific Ocean watershed, because the Puget Sound is connected to the Pacific Ocean.

The United States can be split into two large watersheds based on which ocean, either the Pacific Ocean or the Atlantic Ocean, the runoff will eventually reach. The line dividing these two watersheds is called the continental divide and follows the Rocky Mountain Range.

Some mountain ranges on earth are made a lot like the mountain range you just made. Earth's crust, which is the rocky outer layer of earth we all live on, is made up of lots of giant, separate plates that move around the surface. When two plates crash into each other, they can crumple up just like your paper to make mountains!

Did you notice the ink changing colors when it rained on your mountain range? This is because of a process called chromatography. Black markers, and some other colors, are made up of several different colors of ink. When the marker gets wet on the paper, the ink dissolves in the water. The different kinds of ink move at different speeds on the paper, causing the colors to visibly separate as the faster colors leave the slower colors behind.



Show us how you're being curious! Share your results with us.

CURIOSITY AT HOME

WATERSHED EXPLORATION



K–2 GRADE EXPLORATION

Here are some questions you can explore together:

- What is the highest peak, or highest singular point, in your mountain range? What is the lowest valley in your mountain range? Is there a lake at either of these places?
- When drawing people onto your model, where should roads go? Should they point straight up the mountainside? Should farms go on the top of the mountain or in the bottom of a valley? Why? There's no right answer, but put some thought into where you put things on your model.
- Where on your model would you most like to live? Why?



@pacsci

Show us how you're being curious! Share your results with us.

PACIFIC
SCIENCE
CENTER



CURIOSITY AT HOME

WATERSHED EXPLORATION



3–5 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- When you add towns and other landmarks to your model, create symbols or colors for each thing you want to put on it, and make a key that tells someone else what each symbol or color represents. For example, the color red might represent a farm, or a square might represent a house.
- What effect do you think humans will have on your watershed? Put different colors on your mountain range for different human-made things you have on your model and make it rain again. What happened? What do you think that represents in real life? Write down your observations in your science notebook.



@pacsci

Show us how you're being curious! Share your results with us.

PACIFIC
SCIENCE
CENTER



CURIOSITY AT HOME

WATERSHED EXPLORATION



6–8 GRADE EXPLORATION

Explore the following questions and write your observations in your science notebook.

- What effect do you think humans will have on your watershed? Put different colors on your mountain range for different human-made things you have on your model and make it rain again. What happened? What do you think that represents in real life? Write down your observations.
- What might you be able to do to keep your watershed healthy? Share 3 ideas with someone you live with.
- What issues might arise if one watershed is a part of multiple countries? An example is the Colorado River Watershed, which is a part of five U.S. states and two Mexican states.



@pacsci

Show us how you're being curious! Share your results with us.

PACIFIC
SCIENCE
CENTER

