Down the divide

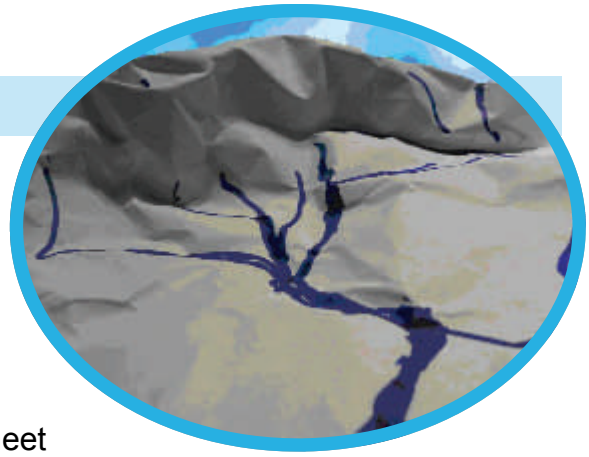
Have you ever walked along the edge of a river? If so, you have probably observed streams "feeding" the river's flow. Follow those streams uphill and you'll uncover even smaller streams and creeks that "feed" into them. The land that is drained by the pattern of neighbouring rivers, streams, and creeks is called a watershed. Within a watershed, all of the flowing water eventually collects in the same place.

Look down! No matter where you are right now, you're standing in a watershed. Even if you are located on a paved city street, water on that artificial surface runs off into sewers. Eventually that water drains into the collecting region of your watershed.

In this activity, you'll build a model of natural mountainous terrain. Next, you'll predict how water will behave when it "rains" upon this landscape. As you observe the water's collection and flow, you'll be able to identify rivers, streams and watersheds.

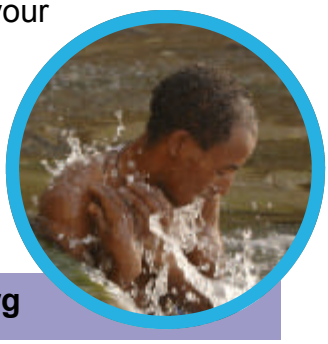
Materials

- ⇒ Spray bottle filled with water
- ⇒ Tape
- ⇒ Copy paper
- ⇒ Water soluble marker
- ⇒ Towel (for cleaning up)



Steps

1. Find a clean and clear desktop on which a small amount of water can collect without damaging the surface.
2. Crumple a sheet of paper. Then, open it back up and observe the pattern of heavy creases and folds.
3. Place the creased paper on the desktop. With two hands placed down on opposite edges of the paper, push the sheet together. As the sheet compresses and folds, it rises upwards forming a model of mountainous terrain.
4. Use tape to secure the edges of the crumpled model to the desktop.
5. Observe the landscape you created. Based upon its appearance, identify the path that rivers and streams might follow if the model's surface was wet by the spray bottle.
6. Use your water soluble marker to trace the predicted drainage pattern onto your mountain model.
7. Then, use your spray bottle to give the model a gentle soaking. Make sure to spray the water so that it falls evenly across the entire surface.



Down the divide: Questions

Name:

1. **What happened when you pushed together the crumpled paper?**

2. **What types of landforms did you observe in this "dry" model?**

3. **What sort of clues helped you predict where water might flow in your model?**

4. **What did the soaking from a spray bottle represent?**

5. **Did the appearance of the marked paths change? Explain.**

6. **How many watersheds are illustrated on your model?**

Water facts

⇒ **844 million people** in the world - one in ten - do not have clean water. (WHO/Unicef)

⇒ Globally, **31% of schools** do not have clean water. (Unicef)

⇒ Across the countries where we work, people have to walk an average of **30 minutes** to collect water and return home. (WHO/Unicef)

Find out more about the water and sanitation crisis and download more educational resources at **www.wateraid.org/schools**.

Teacher notes

This activity offers students the opportunity to model the drainage of water as it moves within a natural mountainous watershed. In addition to offering a facilitated process experience, the activity allows students to engage critical thinking skills as they analyse terrain and make predictions based upon what they see.

Make sure that you use standard inkjet paper or similar paper that is not porous to water. Do not use construction paper since it is more likely to absorb the spray. As you'll discover, most students will be surprised as they observe that the paper did not immediately become soaked, but instead repelled water as the liquid collected and ran down the model slopes.

Make sure you have towels or toweling on hand to soak up the mess. Review any safety or logistics issues associated with wetting desktops. Before performing the activity, caution the students about using too much water. They only need a light, but continual spray, to observe satisfactory results. To contain the water, you might build a "moat" around the paper landscape using waterproof clay.

Answers

1. It rose up along the creases, forming a model of a mountainous landscape.

2. Accept all reasonable answers such as mountains, peaks, ridges, valleys, gullies, etc.

3. The predictions were based upon the terrain. Water would flow down the slopes of the mountain and collect in the rivers that would be located in the valleys.

4. A rainstorm, or continued precipitation that would eventually collect and flow in rivers.

5. The most change occurred where model "rivers" flowed on top of the drawn lines. The increased flow helped dissolve and wash away the water soluble marks. Less change occurred on the marks which were drawn in places where the water did not flow.

6. Accept all reasonable answers, but make sure that all of the identified watersheds flow into a common river or region.

WaterAid

Photo: WaterAid/Marco Betti