



All the Rivers Run - Teacher's Notes

Just as impactors and volcanoes can change landscapes, water has sculpted many famous locations around the world to form fluvial landscapes. Well known landmarks such as the Grand Canyon in Arizona and the gorges found in Karijini National Park in the Pilbara region of Western Australia were formed through the movement of water (rivers) which weathered and eroded the surrounding rock over long periods of time.



The Grand Canyon has been carved by the movement of the Colorado River

The many gorges in Karijini National Park, such as Hancock Gorge pictured on the right, have had the iron-rich rock of the area eroded away over millions of years



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In this activity students will build a model landscape then let a 'river' run through it to observe how the landscape changes.

Note: The student worksheet for this section is for use with the extension activity only.

Materials

- Sand pit or large tray (a foil BBQ tray or new plastic kitty litter tray is ideal)
- Clean sand
- Brick or block of wood to tilt the tray on
- Small rocks
- Water in a bottle or other container
- Optional: small pieces of plants to model vegetation.

Method

1. Get students to build a landscape out of sand in the sandpit or tray. The landscape should include some hills and shallow valleys where the river will flow. If building in the sand pit, there should be an overall slope to the landscape to help the 'river' flow.
2. Place the rocks in one or two locations in the landscape. Some should be placed in the path of the river and could be buried also. Add vegetation, if required.
3. If building in a tray, place the brick or block under one end of the tray to slope the landscape.
4. Pour water onto the tray from the elevated end of the tray or upslope end of the sandpit, ensuring the students do not pour it from a great height as this is meant to mimic a river flowing, not a torrential downpour!
5. Students should observe how the sand is washed away (mimicking rocks being weathered and eroded) and note how the water moves





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around the rocks (mimicking harder more resistant rocks), taking the path of least resistance.



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Extension Activity

To make this activity into an experiment, get students in groups to build landscapes of the same design, in trays, with the landscapes lowest point being level with the sides of the tray. You should provide each group with the design (either as a photo or diagram). Students could change the flow of water from the 'river' by using different sized holes in the tops of bottles. You could then capture the sand that is eroded away from the landscape in a container and measure the amount of sand moved for each of the different water flows.

Variables

In this experiment:

We will **change** the size of the holes in the bottle (amount of water flow) (independent variable)

We will **measure** the amount of sand moved (dependent variable)

The things we will keep the **same** (controlled variables) are: landscape design, material in tray (sand), height water flows from, volume of water used, volume of bottle used, shape of bottle used, placement of rocks in landscape, size of rocks, slope of landscape (size of brick or block of wood).

