

# Recipe for Hydropower



Grades: K-5

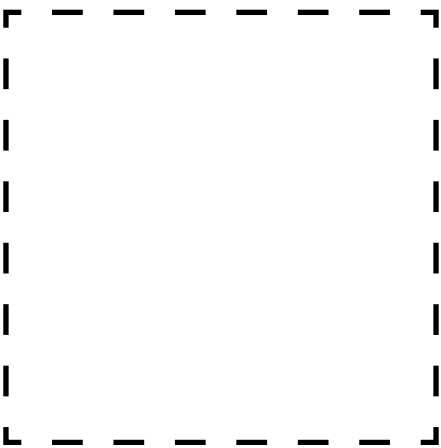
Suggested category/unit: Physical Science: Pushes and Pulls; Energy

Energy companies like PGE use the wind, sun, natural gas and other resources from the earth to create electricity. One method, known as **hydropower**, captures the power of rushing water with a dam on a river, then turns this energy into electricity we can use at home.

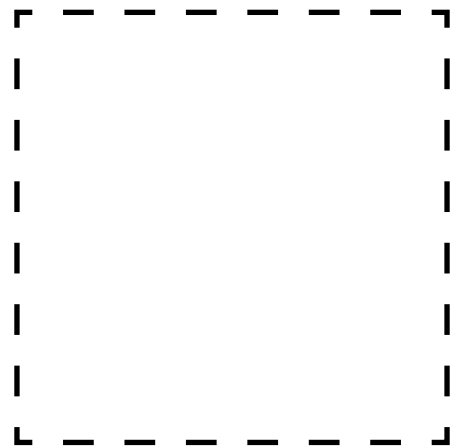
More than just water is needed in our *recipe for hydropower*. Cut out each of the “ingredients” on page 3, and glue or tape each one below the step where it’s needed in the recipe.

## Recipe Instructions

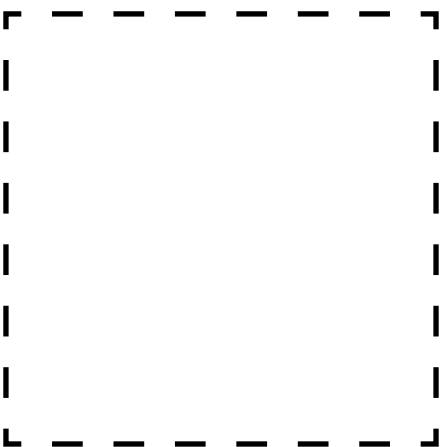
1. Start with a source of flowing water.  
The Pacific Northwest has many powerful rivers that could work.



2. Use something hard and heavy (made of rocks, dirt or concrete) to stop the water from flowing downstream.



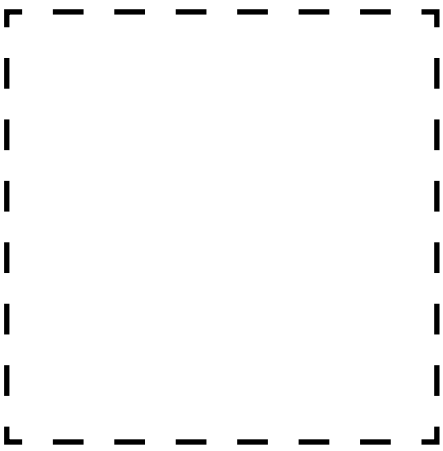
3. Move the water through a pipe into a big round wheel. When the water hits blades inside the wheel, it will spin, (like blowing air through a pinwheel).



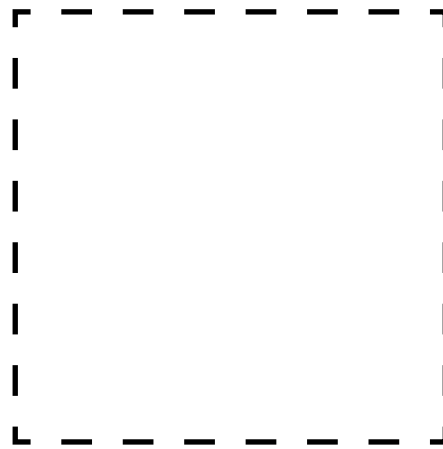
4. The spinning wheel causes a shaft (long pole) to spin. The shaft turns a rotor above it. The outside edge of the rotor is covered in magnets.



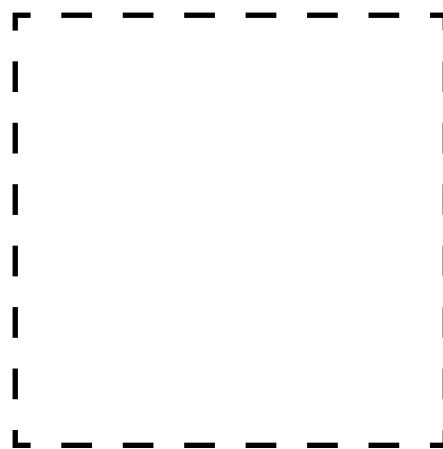
5. Surrounding the rotor are coils made of a special kind of metal. When the magnets spin, electrons in the metal become excited and start moving. Now you have an electric current!



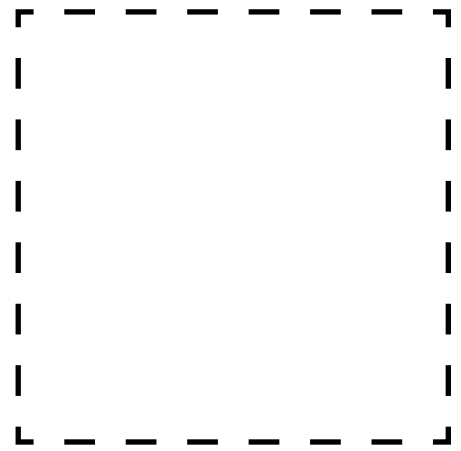
7. Bundle together a bunch of small wires to form an extra-strong wire. Send the electric current along these wires over long distances.



9. Flip a switch, press a power button or plug in a device that uses electricity.



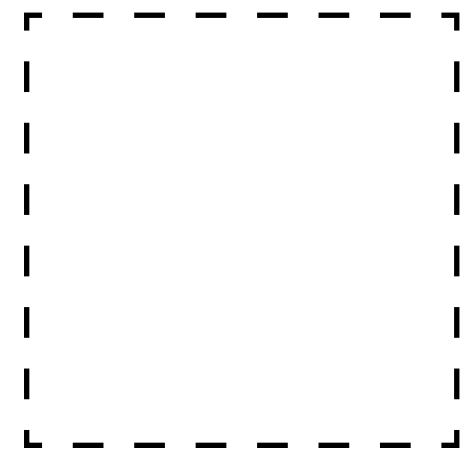
6. To help the electrons travel across long distances, we need to make the electric current more powerful. Use a special piece of equipment to increase the voltage (electric force).



8. Now that the electricity is close to your house, we need to lower the voltage so it's safe for your family to use.



10. Your electricity is ready to use! Enjoy safely and responsibly.



## Ingredients:

1. Cut out each hydropower ingredient along the dotted lines.
2. Look for clues in the recipe above.
3. Glue or tape the ingredient needed for each step of the recipe in the box provided.

\*Note: ingredients are *not* in order here.

