



Make an aquifer

In Los Alamos, we get our household water from an aquifer. But what is an aquifer? Have you ever touched one? An aquifer is not something you can touch, but is water that is underground in the spaces between the rocks. It can be hard to picture this. So, today we are going to build a model of an aquifer and figure out how to get water out of it.

Materials: Container, measuring cup, sand or small gravel, water, cloth or other filter material, clean hand soap pump

There is a sheet at the end that you can print out and use to record your information. But you can also just write it on a piece of paper if you (like me!) don't have a working printer.

1. Measure out 2 cups of sand or gravel and put them in your container.
2. Measure out 2 cups of water in your measuring cup, but don't pour it in yet!
3. Make a prediction: how much of this water do you think will fit in the spaces between the rocks. Write it down!
4. Then slowly pour in the water until it is just at the top of the rocks but not over it.
5. How much water is left in your measuring cup? If you started with 2 cups, how much is now in the rocks?
6. This is your aquifer! It is also known as groundwater and is the source of the water in your home that you drink and use every day.



7. Draw a picture of how the water and the rocks share space in the aquifer.
8. Add a layer of dry rock on top of the aquifer model.
9. How can we get the water out? Brainstorm some ideas and write them down. Remember that the aquifer is the size of a landscape, so you can't just pick it up and pour it out!

10. One method to get the water out of the aquifer is to use a pump. We can use a soap pump as an example pump.
11. But, what will happen if we just put the soap pump into the gravel or sand? It will try to pump up the rocks. That wouldn't be good for the pump.
12. Construct a filter by putting a small piece of cloth over the end of the pump that will go into the aquifer. Or come up with your own idea on how to make a filter!
13. Use the filtered pump to get water out of the aquifer. Draw a picture of how you did it.
14. How do you think this is the same as the water pumping station for Los Alamos county? How do you think it is different?
15. We'd love to see or hear about your solutions. With your parent's approval, send us an email or a photo to takeitoutside@peechnature.org



Adding a filter to the bottom of the filter



Pumping water out of the aquifer



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Aquifer Model

Prediction: How much water do you think will fit in the spaces of the aquifer?

Results: How much water did fit? (You started with 2 cups of water. Subtract how much you had left after you poured the water in.)

What do you think about these results? Did you expect them or did they surprise you? Do you think it would change if you used different rocks or If you used sand?

Draw how the water and the rocks share space in the aquifer.

How can you get the water out? Remember: this model is of the landscape, so you can't just pick it up and pour it out.

On the back of your paper: draw your solution. Did you make any changes after testing it? What worked the best? Send us drawing or photos of your experiment.