

HYDROLOGY WITH DR EMILE ELIAS

TALKING POINTS

- 1) Why is there a water scarcity problem in America's southwest? (See *What is it like in the southwestern region of the US?* p1)
- 2) What effect can water scarcity have on local farmers? (See *What is it like in the southwestern region of the US?* p1)
- 3) What is causing the increasing depletion of water supplies? (See *Why is the water scarcity problem getting worse?* p1)
- 4) What is the study of hydrology? (See *What have hydrological models shown?* p1)
- 5) What are simulation models and why is it important to use them? (See *What have hydrological models shown?* p1)
- 6) Dr Emile Elias and her colleagues have found that snow is melting sooner in the year than usual. Why is this a problem for farmers? (See *What have hydrological models shown?* p1)
- 7) Suggest some strategies for managing agricultural water. (See *What can be done?* p2)
- 8) Is water scarcity or flooding a problem in your area? What is your local community doing to deal with problems with drought or flooding? (See *Is water scarcity a global problem?* p2)

ACTIVITIES YOU CAN DO AT SCHOOL, COLLEGE OR AT HOME

14 FUN ACTIVITIES TO HELP YOU UNDERSTAND CLIMATE CHANGE

The Asombro Institute for Science Education, in partnership with the Southwest Climate Hub, has created 14 science activities for middle and high school students, all of which are completely free of charge. The activities are divided into two categories: Climate Change and the Water Cycle, and Climate Change and Agricultural Systems: <https://asombro.org/climate-hub/>

Be a climate scientist or hydrologist, like Dr Emile Elias, and learn how to assess soil quality in areas where there's too much rain; or learn about the water cycle and how climate change is affecting our water resources worldwide; or try the activity below.

USE YOUR OWN BODY HEAT TO MODEL THE GREENHOUSE EFFECT

For this experiment, you'll need a calculator, hand towel, space or emergency blanket, stopwatch, thermometer (preferably with a probe) and binder clips. You'll also need a friend to help you. Use the binder clips to attach the thermometer to your clothing on your thigh, making sure the probe is in contact with your leg and not suspended in air. Wait a few minutes and then make a note of the temperature. Now lay a towel over the thermometer (keeping it in the same place on your thigh) and tuck it under your legs. Start the stopwatch and record the temperature every minute for 5 minutes. Take the towel away and wait for the temperature to fall until it reaches the same temperature as before (when there was no towel on your leg). Now place the towel AND space blanket over the thermometer and tuck them under your legs. Start the stopwatch and record the temperature every minute for 5 minutes. What happened to the temperature as more layers were added on?

Imagine that your body is Earth and the blanket is the natural atmospheric layer of greenhouse gases. What are the greenhouse gases doing to our planet? Now imagine that the space blanket is additional carbon dioxide, which, when pumped into the atmosphere as we burn coal, oil and gas, adds to the layer of greenhouse gases. What does this mean for Earth?

This activity, created by the Asombro Institute, is in the Climate Change and the Water Cycle module. To view it in more detail, and access classroom resources, visit: <https://swclimatehub.info/education/climate-change-and-water-cycle/day1>