

# Science Fair Projects



Prepared by: Hamilton County SWCD  
29 Triangle Park Drive, #2901 Cincinnati, Ohio 45246-3411  
Phone: (513) 772-7645

---

## Science Fair Project Ideas!!

- A water “balance sheet” for your state - maps, tables, uses, trends, and proposals.
- Groundwater - Its travels. Use diagrams, models (animated or static).
- Conservation Agencies - how many; functions, support.
- Food chains - diagrams and examples.
- Development of rocks - diagrams, modeling clay, models, etc.
- 1,000 years of weather (What we learn from tree-ring chronology).
- The weather of your state - climate; contributing factors.
- A home-made weather station.
- The web of life (interrelationships of living things).
- Comparison of water yield and erosion in two different plots (one with grass, one without).

## Run Off

Purpose: To demonstrate how rain affects topsoil.

Materials: soil  
red powdered tempera paint  
measuring spoon, teaspoon (5 ml)  
stirring spoon  
funnel  
wide-mouthed jar, 1 qt. (1 liter)  
coffee filter paper  
measuring cup, 1 cup (250 ml)

## Procedure:

- Add  $\frac{1}{4}$  teaspoon (1.25 ml) of red tempera paint to  $\frac{1}{4}$  cup (75 ml) of soil. Mix thoroughly.
  - Set the funnel in the jar.
  - Place the coffee filter inside the funnel.
  - Pour the colored sand into the paper filter.
  - Add  $\frac{1}{4}$  cup (75 ml) of water to the funnel.
  - Observe the water dripping into the jar.
- Pour this water out of the jar and add another  $\frac{1}{4}$  cup (75 ml) of water to the funnel.

Results: The liquid dripping out of the funnel is red.

Why? The red stain represents nutrients in topsoil that are soluble in water. Nutrients dissolve in rainwater and feed the plants growing in the soil. If the rain is too heavy, the water runs across the land, taking the dissolved nutrients with it. Excessive rains can leave the topsoil lacking in necessary nutrients.

## Protection

Purpose: To demonstrate how water protects plants from freezing temperatures.

Materials:	2 thermometers	2 saucers
	aluminum foil	refrigerator
	paper towels	

## Procedure:

- Fold pieces of aluminum foil to make a holder for the thermometers. Loosely cover each thermometer with foil, leaving an opening at one end so it can be easily removed.
- Wrap two dry paper towels around each of the aluminum pouches.
- Wet the paper around one of the thermometers with water. Do not get water down inside the aluminum holder.
- Lay each covered thermometer on a saucer and place them in the freezer of a refrigerator.
- Read and record the temperature on each thermometer after 2 minutes.
- Continue reading and recording the temperature on each thermometer over 2 minutes for a total of 10 minutes.

Results: The readings on the thermometer inside the holder covered with wet paper are higher.

Why: Changing the water in paper towel from a liquid to a solid is called a *phase* change. A phase change requires a change in heat energy. When water freezes, it gives off energy to change from its liquid phase to its solid phase. As indicated by the difference in the thermometer readings, this lost energy heats up the area surrounding the changing water. Plants can be protected from freezing weather by spraying them with water. This method of protecting plants is not successful during prolonged freezing spells.

*Both activities from: 200 Goopy, Slippery, Slimy, Weird & Fun Experiments, Janice Van Cleave, 1993, John Wiley & Sons Inc. N.Y.*

## Resources for Science Fair Projects

Butler County SWCD (513-887-3720)  
Hamilton County SWCD (513-772-7645)  
Hamilton County Public Health (513-946-7800)  
Hamilton County Solid Waste Management District (513-946-7734)  
Keep Cincinnati Beautiful (513-352-4380)  
ORSANCO (Ohio River Valley Water Sanitation Commission) (513-231-7719)  
Rumpke (513-851-0122)