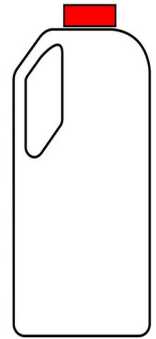


## No-cost School Garden Drip Irrigation System

**OVERVIEW:** Vacations and weekends when nobody is around to water can be tough on the school garden. It's discouraging for teachers and students to return from a much-needed break only to discover that the garden plants are dry and suffering. The solution is simple – collect some empty gallon milk jugs or other large plastic containers. Poke some holes in the bottom, fill the jugs with water, and place them strategically around your plants. Ta da! A drip irrigation system that doesn't cost a cent.



**OBJECTIVES:** The student will be able to:

- create a no-cost irrigation system for the school garden
- experiment with the number and size of holes made in the milk jugs and the way the jugs are spaced in the garden to determine the optimum watering system for their plants.

**GRADES:** K-5

### MATERIALS:

A collection of empty gallon milk jugs or other plastic juice containers (2-liter soda bottles can be used as well)

Large pins, small nails, or pointed scissors to cut holes

*Older students can make the holes in the jugs with adult supervision. Younger students can discuss the project while the teacher makes the holes.*

### PROCEDURE

Rinse the containers out thoroughly with soap and water. Don't discard the caps. You will need them later.

Cut a few pin size holes or slits into the bottom of each jug, or one hole with a small nail. Start with one container, as you may have to experiment with making the holes until you get the right "drip." Test the drip over your sink. Fill your milk jug with water, put the cap on, and watch to see that the water drips slowly, but does not pour out. If it does, the holes may be too big.

Take the jugs out to the garden. Have your students survey the garden area to decide the best placement of the jugs. You want to choose places where the water will reach the root zones of several plants. Space the jugs around the plants. To prevent them from blowing away when the water level gets low, tell your students to bury the bottom of the jugs one-

inch deep in the soil. Or you can fill the bottoms of the jugs with about three inches of gravel or small rocks. Fill each jug with water — the opening should be a perfect fit for a hose.

Have your student monitor the drip system for a few days to see how long the jugs take to empty, and to make sure that your plants are not too wet or too dry. Make modifications to the jug placement or to the drainage holes if needed. Refill the jugs when needed.

*NOTE: If rain is forecast, have your students remove the caps of each container, so the rain will refill them!*

### EVALUATION:

Students take notes of their initial observations of the new irrigation system and brainstorm ways to make changes if needed.

Students write sentences or paragraphs on how they built the irrigation system, their observations of the garden, any corrections they made, and the system's effect on the garden.

### EXTENSION:

Students can create alternative irrigation systems for the garden.

### New Jersey Learning Standards

*Science:*    *K:ESS3.C*    *1:LS1.A*    *2:LS2.A*    *3:ESS2.D*    *4:ESS2.A*    *5:LS1.C*

*English Language Arts:*    *K:W.K.2,3*    *1:W.1.2,7*    *2:W.2.2,4,8*  
*3:W.3.2.A-D, W.3.4,8*    *4:W.4.2.A-E, W.4.4,8*  
*5: W.5.2.A-E; W.5.4,8*