

## Activity #4:

### Which Grass is Greener?

While 65 percent of water used in Southern Nevada is used by residents, as much as 90 percent (in the summer) of that water is used to maintain outdoor landscaping. While green grass can be valuable for recreation areas, it requires a tremendous amount of water for maintenance. Some varieties of grass require more water than others. To make meaningful strides in water conservation, families must address their outdoor water use in addition to their indoor consumption. This activity allows students to explore various types of grass and their water needs.

**Objective:** Upon completion of this activity, students will be able to:

- control variables in an experiment.
- identify different types of grass and their respective water needs.
- recognize the need for water conservation in landscaping.

NEVADA SCIENCE STANDARDS 16, 17, 22

**Time:** This entire investigation takes several days to complete; however, it does not require class time each day. Session one may take a full class period; follow-up sessions may require 15-20 minutes for observing and recording observations.

**Materials:** This activity is best done in the spring, when three different kinds of sod are available.

Purchase 3 different pieces of sod (rye, Bermuda and fescue) from a nursery. You must order the sod 4 to 5 days in advance. Also obtain 3 bedding plant trays (about 18 inches by 18 inches). These trays are usually surplus items and yours for the asking.

#### **Procedures:**

1. Allow students to observe and discuss the physical characteristics of each type of grass. You may wish to also let them walk on the sod.
2. As a class, discuss why grass in general is desirable and why people might choose one type of grass over another. Have students choose the type of grass they would prefer and why. What factors influenced their decisions? (color, texture, cost, water use, etc.)
3. Have students design an experiment to find out which grass will last the longest with a fixed amount of water. Place slabs of grass in each of the 3 trays. They will need to cut the grass to fit the tray and it must fit tightly to minimize drying along the edges of the grass.
4. Have students discuss the variables to control. Each tray needs to receive the same amount of sunlight, temperature and water. (Suggest that when

watering, place the trays of grass over a basin to catch any surplus water. Slowly sprinkle about 2 quarts of water over each tray until drenching wet. Place the trays in the controlled environment. Do not add any more water throughout the entire experiment!

5. Daily, watch the grass and record observations. Local veteran horticulturist Linn Mills suggests observing the following:

- Note how each kind of grass grows by looking down inside the fold. New fescue and rye grass blades grow out of a fold. As it begins to stress for water, these folds become tighter. Also, note the older leaves.
- As the grasses further stress for water, they become a smoky blue color.
- Just for fun, have the students look at the grass through sunglasses. Using shades, you may be able to pick up drought a day or two prior to visual symptoms.
- Note how the Bermuda blades hug the ground. (Blades growing horizontally are more water efficient.)

6. After several days, discuss the following as a class.

- \* Which grass is the greenest?
- \* What properties of this grass allow it to thrive on less water?
- \* Would you change your mind about which type of grass you prefer?
- \* In what areas of a landscape do you think grass is appropriate?

**Extension:**

1. Would results have been different in a different environment (outdoor, summer vs. winter, etc.)?
2. Can adding water now revive any of these grasses? (Rye will not come back. Fescue is known as a drought-tolerant grass and will come back providing it does not thirst too long. Bermuda will come back under any kind of circumstance.)
3. Explore the economic side of decision making. When landscaping a large area, would cost of water influence decisions? Have students research the cost of water per square foot of lawn for different types of grasses. (One square foot of Bermuda costs \$0.11 and fescue costs \$0.15 per square foot. Bermuda will use 67 gallons of water per square foot per year and fescue 88 gallons per square foot per year. In Southern Nevada, water costs range from approximately \$1.00 to more than \$2.00 per 1,000 gallons, depending on the total amount used, because water rates are tiered to encourage

conservation.)

4. How does aesthetics compare with economics in making these decisions?  
(Bermuda turns brown during the winter, which is why most people now use fescue.)

**Activity #4:**

**Student Answer Sheet**

1) What type of grass do you prefer?

Why (color, texture, water usage, etc.)?

2) Describe the experiment to determine which grass needs the least amount of water to stay green. How much water will the sod be given, and how will variables be controlled?

3) Observations by Day (number of days may vary)

**Day One**

**Day Two**

**Day Three**

**Day Four**

**Day Five**

## Day Six

4) After several days, which grass is greenest?

What properties of this grass allow it to thrive on less water?

5) Did you change your mind about which type of grass you prefer?

In what areas of a landscape do you think grass is appropriate?