

Have Seed, Will Travel

Grade Level: 4-8

In a Nutshell

Students will discover the function and importance of plant seeds. Methods of seed dispersal as a plant adaptation are emphasized in this lesson, and students will invent a seed, which could be dispersed by one of the methods. Comparisons to actual seeds will be made and implication of the adaptation discussed.

Objectives

Upon completion of this lesson, students will be able to:

- Describe the purpose or function of a seed;
- List four essential ingredients necessary in order for seeds to grow;
- Describe five methods of seed dispersal, and give an example of a plant that uses each one;
- Relate seed dispersal to human activities and give at least two examples of ways that humans have affected seed dispersal across the globe.

Have Seed, Will Travel Pre-Visit Activities

The following materials are aids to help prepare your students for their visit to the Central Wisconsin Environmental Station. The vocabulary list contains terms and concepts your students will encounter in their first visit. Please modify the definitions as needed. The activities listed below are merely options- it is not necessary to do them all or to follow any particular order. Keep in mind that your students' learning experiences at CWES will be enhanced if they are familiar with these concepts and terms prior to the on-site activities.

Vocabulary

Adaptation:	a physical or behavioral characteristic that helps an animal survive in it's environment.
Embryonic Plant:	a plant in the early stages of development from the first cell divisions following fertilization to germination (when it breaks through the seed coat).
Pollination:	the transfer of pollen grains from the male portion (anther) of a flower to the female portion (stigma) of the same or another flower
Seed:	a fully mature ovule that contains the plant embryo and has a protective covering (seed coat)

Activity #1

Give each student the assignment of defending in writing one of the following statements (do not tell the students the part in parenthesis):

A seed is like

- A suitcase (contains everything the young plant needs for its "journey");
- A baby (contains the embryonic plant);
- A spaceship (provides the necessities for a young plant until it encounters a favorable environment);
- A hitchhiker (is often "given a ride" by some means);
- An egg (contains the young plant as well as a food supply, "hatching=germination");
- A suit of armor (provides protection for the young plant);
- A time capsule (can remain dormant for a period of time);
- Sleeping Beauty/ Rip Winkle (can remain dormant for a period of time).

You may wish to add more choices to the list. Encourage students to be imaginative. After an appropriate length of time, have the students share what they have written. Use the presentation and discussion of their assignments to explain the characteristics and functions of a seed.

Central Wisconsin Environmental Station

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Activity #2

Write a story from the perspective of a seed that is “traveling” from one place to another. From where did the seed originate? What are some of the seed’s “encounters” on its journey to a final “destination?” Share your Seed Travelogues with others!

Activity #3

Collect a variety of seeds. Have the students observe them under magnification. Then, challenge them to draw detailed pictures of the seeds showing interesting features. Strive for scientific accuracy in the detailed drawings- as if these would be published in a “field guide to seeds.” Challenge each student to name “their” seed based on detailed, magnified observation. Encourage them to share interesting discoveries about the seed shapes and features.

Have Seed, Will Travel Post-Visit Activities

A visit to the Central Wisconsin Environmental Station can be a school-year highlight for both students and their educators. We feel the knowledge and concepts gained during a Station visit apply outside the Station as well. The following activities will allow students to expand their knowledge and help them incorporate those lessons into their everyday lives. Feel free to pick from and modify the activities as best suits your group.

Activity #1

With the help of the students, develop a list on the chalkboard of things necessary for a seed to germinate and grow successfully (water, warmth, space, sunlight, proper nutrients, minerals, etc.). After the list is completed, allow the students to set up an experiment to test one of these variables.

Explain to the students that this will be an ongoing experiment that will take a few weeks to complete. Provide them with two starter pots for planting a variety of seeds. Tell them to set up the two pots identically, changing only the variable selected (e.g., five reddish seeds and black dirt in each pot, water both each day, put one in the windowsill (with sunlight) and one in the closet (without sunlight)). Have the students observe and record daily the growth of their plants. Following the completion of the experiment period, have the students write up their results, and the conclusions they can make based upon their results. In addition to their results and conclusion, have them list possible ways people affect their variable in either a positive or negative sense. How does this affect the growth of plants in general? These findings and inferences should then be shared with the entire class.

Activity #2

Ask the students whether or not they think that their life would be “rough” if they were a seed. Ask, “What would be your chances of survival? Would your chances of survival be better or worse today than they were 100 years ago?” Ask the students to form small groups and brainstorm ways human activity has made the job of a seed tougher (i.e., deforestation, increased urbanization, cleared land for agriculture, use of herbicides). Have them share their lists and make a master list on the chalkboard. Then go outdoors and survey the area to determine how “seed friendly” it may be.

Activity #3

Bring in a “Mystery Seed of the Week” for others to try and identify. Each week classify the seeds by their methods of dispersal. If you can identify the species of plant from which seed comes, try to classify them by habitats (woodlands, fields, etc.). Does there seem to be a pattern of dispersal mechanism related to habitats? To weedy species?

Have Seed, Will Travel Resources

Teacher Resources

Lower, H. Peter. 1996. *The Definite Guide to Growing, History and Lore*. New York: Macmillan. 230pp.

Nabhan, Gary Paul. 1989. *Enduring Seeds: Native American Agriculture and Wild Plant Conservation*. San Francisco: North Point Press. 255pp.

Any field guide to Wildflower, Trees and Shrubs or Plants.

Wernert, Susan, J. 1982. *North American Wildlife*. Pleasantville, New York: Reader's Digest Association, Inc.

Youth Literature

Bates, Jeffrey. 1991. *Seeds to Plants*. New York: Gloucester Press. 32pp.

Henry, Peggy. 1992. *The Great Seed Mystery for Kids*. New York: Avon Books. 79pp.

Jennings, Terry J. 1988. *Seeds and Seedlings*. Chicago: Childrens Press.

Merrill, Claire. 1973. *A Seed is a Promise*. New York: Scholastic, Inc. (For grades PreK-4).