Seed Dispersal Hands-on Lesson

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Activity 36. Seed Dispersal Techniques (pre-K-8)

Plants have developed an amazing repertoire of creative seed dispersal techniques. First, ask students to identify different kinds of seeds and then challenge them to figure come up with 10 ways seeds are spread to new areas where they can grow. Once they have come up with several ideas, they can find seeds in various habitats around the school. While many may be familiar with common flower and vegetable seeds, encourage them to think about trees, grass, burdock, and other plants they may see. Students can then collect different types of seeds and compare how they work to move the seed to a new location. Things like dandelions, fruit (apples, pears, and berries), helicopter seeds from maples, acorns from oak trees, sunflowers, and pinecones are all good examples. Students should think about how the seeds from a raspberry or from local shrubs are moved to new place where they can germinate. The teacher may need to introduce the idea of using an animal's digestive tract to help with dispersal. Students can look at the features of plants whose seeds are dispersed by wind. Challenge students to find at least 8 examples of wind-dispersed seeds. What are some other ways animals help with seed dispersal? This can lead to examples like burdock and other seeds that cling to fur and clothing to be transported.

Once students have had a chance to examine and compare different seeds, challenge them design their own giant seed. They can determine how it will be transported, and then build it using classroom materials such as paper, string, paperclips, and other craft supplies. Encourage them to take the seeds outside and try them out to see how they work! (Lord & Travis, 2011)

5E description and sample preK–3 grade level lesson based on Activity 36 Seed Dispersal Techniques

	Description	Example
Engage	A brief activity, question, demonstration, or film "snippet" that whets the students' appetite and gets their attention focused on the topic.	Bring in a dandelion that has gone to seed and ask students what happens when they blow on it, or when the wind blows. If dandelions are not available, substitute a brief film clip showing the same thing, (e.g., *www.youtube.com/watch?v=u8_gDqZGSq4*)
Explore	An activity in which the students develop questions and attempt to answer them or challenge questions that encourage the students to think in depth about the topic.	Once outside, ask students to work in small groups to locate five different types of seeds from flowers, trees, and shrubs in the schoolyard. When they have collected the seeds, have them determine how their seeds are likely to be moved around. You might offer suggestions as necessary, including wind, animal fur, water, or as a food source.
Explain	Groups share their results, whether they have done an experiment or worked through a question. At this point, the teacher can also clear up misconceptions and misinformation to ensure that students understand the material.	Groups will share their seeds and dispersal ideas with the rest of the class. Have students compare similarities and differences among the seeds collected. Throughout this discussion, the teacher will clarify ideas and clear up misconceptions about what is or is not a seed, how seeds move, etc.
Elaborate	Groups might do further laboratory work, do research, give presentations, or simply discuss more complex questions within their groups, allowing them to build a deeper understanding and to relate this information to other material covered in class.	Have each group (or each student) design their own seed. They can use paper, string, glue, crayons, and other craft supplies. Older students might be given a pumpkin or sunflower seed and asked to devise a new "pod" to help it spread to other areas. Take the models outside to see how they work. In their nature journals, if age-appropriate, each student can write an entry describing their seed and dispersal method. They can also include what they might change after their trials.
Evaluate	Evaluation can take numerous forms, including standard quizzes or tests, written assignments, oral presentations, student self-evaluations or observation of student participation in group activities.	Have students do a creative writing assignment, describing the life of their seed, how its structure helps it move from place to place, and what it might observe as it moves to a new germination spot. Younger children can draw a picture showing where their seed ends up or what it looks like when it becomes a plant. Close the lesson by reading a book such as *The Tiny Seed* by Eric Carle or *A Dandelions's Life* by John Himmelman (see Additional Resources section for publication information).

5E description and sample 4–8 grade-level lesson based on Activity 36 Seed Dispersal Techniques

	Description	Example
Engage	A brief activity, question, demonstration, or film "snippet" that whets the students' appetite and gets their attention focused on the topic.	Show a brief video clip of seed dispersal, such as *www.youtube.com/watch?v=u8_gDqZGSq4* Ask students (or groups of students) to list at least six different kinds of seeds. For each seed, have them describe how it is dispersed. Have groups share the example they feel is most unusual.
Explore	An activity in which the students develop questions and attempt to answer them or challenge questions that encourage the students to think in depth about the topic.	Take student groups outside and ask each group to find 10 different seeds. Determine the dispersal mechanism for each, and evaluate the effectiveness by counting the number of each kind of seed they find and the average distance from the parent plant. They may need to use field guides to identify the parent plant for each seed. (The Peterson and Audubon Field Guides [listed in Additional Resources] include pictures of seeds or fruits from many common plants.) If necessary, include time to research their seeds online or in the library.
Explain	Groups share their results, whether they have done an experiment or worked through a question. At this point, the teacher can also clear up misconceptions and misinformation to ensure that students understand the material.	Have each group share their results, looking at which seeds were moved farthest away from the parent plant. Have students offer suggestions about which characteristics seemed to be most effective and which ones did not work as well.
Elaborate	Groups might do further laboratory work, do research, give presentations or simply discuss more complex questions within their groups, allowing them to build a deeper understanding and to relate this information to other material covered in class.	Groups will design a research project to test their observations from the Explore activity, choosing one type of plant. This may be most effective using those that are wind-dispersed, but that can be left up to the discretion of the teacher, based on what students find in the schoolyard. These research projects will include a hypothesis, experimental design, data collection and analysis, and conclusions. Have the groups carry out the research projects to check their hypothesis.
Evaluate	Evaluation can take numerous forms, including standard quizzes or tests, written assignments, oral presentations, student self-evaluations or observation of student participation in group activities.	Students will write a formal lab report using the data they collected and graphing results. Conclusions should include discussion of how the adaptations of that plant aid in the effectiveness of seed dispersal, and a critique of the experimental design used, including changes that could be made to improve the accuracy of their results.

The activity used in the examples was taken from:
Lord, T.L. and Travis, H.J., 2011. Schoolyard Science: 101 Easy and Inexpensive Activities. NSTA Press, Arlington, VA.

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