

## Lesson 3: Seeds

### **Common Core:**

Next Generation Science Standards:

NGSS.3.LS1.1

Develop models to describe that organisms have unique and diverse life cycles, but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]

**Time:** 1hr

### **Objectives:**

To state how seeds can be dispersed.

To describe how seeds are adapted to ensure dispersal.

To explain why it is important that seeds are dispersed.

### **Key words:** Vocab Tree

Adaptation; Tuber; Classification

*(Using Key words: Students can create a glossary, in books or on wall in classroom. Students are encouraged to practice using vocab in written or verbal sentences - perhaps writing example sentences and displaying them. Students could earn points for using the vocab in novel sentences each week).*

### **Resources:**

- Examples of seeds (foxtails, dandelion, apple seeds), fruit, and tubers (potatoes, yams, sweet potatoes)
- PowerPoint - 'Some Seeds Travel On Water'
- Materials to adapt the seeds - balloons, plastic bags, pipe cleaners, shoe laces, clear tape, rubber bands, paper, card stock, paperclips, etc.
- Bowl or Cups of water

### **Activities:**

#### **Introduction**

Ask students to put the collection of seeds, fruit, and tubers into groups, and then ask them to suggest reasons for their groups.

*Advanced Discussion - (discuss with high level classes that this is the basis of classification).*

### **Class Discussion**

Q: Where does a new plant come from? (Seed)

Q: Where do the seeds come from? (Plants grow them to reproduce more of the same kind)

*(Advanced Discussion - pollen lands on the female part of the plant - stigma; style; ovary, and develops into seeds)*

Q: What is the difference between pollen and seeds? (There is a common misconception, but the difference is that pollen has to land on the female parts of the plant, and this makes the seed).

Q: How does a seed get to a certain place? (Airborne - dandelion; floating on water - coconut; carried by animals – bees, burrs, fox tails).

Q: How are these seeds adapted to these methods of transport?

(Show PowerPoint)

### **Group Activity**

#### *Adapting a Seed*

Divide the class into groups. Within each group, each child gets a seed (could use same collection of seeds from beginning). Each group has to adapt their seeds for a different method of transport:

Water - must be able to float for a few minutes.

Air - Must be able to travel, when thrown, a few feet away.

Animal - must attract a bird or animal (then be eaten or attached to fur) (can use shoelaces as animal).

Students are shown the materials they will use and have 5 minutes to design/draw their adaptation. Groups are paired up and they present their ideas to each other. The group critiques the ideas and gives constructive criticism. Improvements are made to plans, and then construction begins. Students are given 15 minutes to create adaptations. Students then demonstrate to class how their adaptation works.

### **Recap**

Discussion: Why do seeds need to move from the plant that made them?

### **Further Activity or Homework**

- Cut open a pepper, count the seeds inside. Ask how many pepper plants could grow

from the seeds in that one pepper? If one pepper produces 30 peppers, how many seeds could be grown from all the seeds of those 30 peppers? Why don't peppers cover the earth?

**Healthy Growing Session (if participating):**

Plant seeds either in seed trays or directly in garden, as well as in student's creative pots.

Discussion:

What do seeds need to grow well?

How will you ensure all of your seeds have all these things?

How close together will you plant your seeds?

What should go next to what?

How will you keep pests out? What kind of pests do you expect?

How will you know what you have planted when you have planted it? (map, weather resistant labels)