How Do Plants Spread Their Seeds?

Have students walk across a field of weeds and then check their socks and clothing for seeds sticking to them. Ask: How many different kinds of seeds were there? Have students observe each seed with a magnifier and draw it, showing the structure that “grabbed” the fabric. Point out that seeds stick onto the fur of passing animals, too. Ask: What other ways can seeds move to a new place to grow? (wind, acorns buried by squirrels, birds eat fruit and the seeds are dispersed in bird droppings)

### Analyzing Plant Growth

**30 minutes**

**Small Groups**

**Objectives**
- Students analyze data collected from seed germination and plant growth.
- Students make a line graph and a bar graph.
- Students compare predictions about germination and growth with actual results.

**Materials**

For each group
- terrarium with growing plants, from Investigate 2

**Student Resources**
- 1.3 Terrarium Log Part A, from Investigate 2
- 1.6 Calculating Germination Rate

**In Advance**

Allow 1½ to 2 weeks between the time the seeds are planted in Investigate 1 and the time students analyze their results in this Investigate.
Calculating Germination Rate

1. Record the number of seeds you planted.
2. Record the number of seeds that germinated.
3. Write a fraction that compares the number of seeds that germinated to the number of seeds that were planted.
4. Change each fraction to a fraction that has a denominator of 100.
5. Show each fraction as a percentage.

For example, if you planted 50 radish seeds and 35 seeds germinated, you would write $35/50 = 70/100 = 70\%$. The germination rate is 70\%.

<table>
<thead>
<tr>
<th>Kind of seed</th>
<th>1. number of seeds planted</th>
<th>2. number of seeds that germinated</th>
<th>3. fraction of seeds that germinated</th>
<th>4. fraction with denominator of 100</th>
<th>5. percentage of seeds that germinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radish</td>
<td>50</td>
<td>35</td>
<td>$35/50$</td>
<td>$70/100$</td>
<td>70%</td>
</tr>
</tbody>
</table>

Data will vary.

Assessment

Ask: Suppose you planted 50 pea seeds, and 45 pea plants sprouted. What is the percentage of seeds that germinated? ($45/50 = 90/100 = 90\%$)

Teaching Tip

Step 4: Tell students that terrariums were discovered by accident in 1827. Dr. Nathaniel Ward, an English doctor, noticed that tiny plants grew well in covered jars, although the same kinds of plants often died in the polluted London air in his back yard. The covered jars became popular and were called Wardian cases.
Graphing Percent Germination

1. Make copies of Student Resource 1.7, *Graphing Percent Germination*, and distribute to the class.

2. Have students make a bar graph showing the percent germination of each kind of seed planted.

### Student Resource 1.7 (p. 21)

### Section Assessment

**Materials**

For each station

- 1 metric ruler

**Student Resource**

- 1.8 Section 1 Assessment

1. Set up enough materials stations around the room to allow one-third of the class to work alone at a station during the hands-on portion of the assessment.

2. Make copies of Student Resource 1.8 *Section 1 Assessment* and distribute to students.

3. Divide the class into three groups. While one group is working at the stations to complete the hands-on portion of the assessment, the other two groups can be completing the top part of the assessment. Rotate the groups through the stations until each has completed the hands-on portion of the assessment.

4. Discuss the answers as a whole-class activity.