

## Activity 7.2.3 Seed Storage

### Purpose

Imagine biting into a slice of watermelon on a hot summer day. The annoyance of those pesky little black seeds offsets your enjoyment of the watermelon. Have you ever noticed a pattern of seed placement in the fruit and wondered how the seeds got there? What other types of fruit have seeds arranged throughout the fleshy fruit like watermelon? How does seed development and protection differ from one species to another?

### Materials

#### Per pair of students:

- Sticky notes
- Markers
- Kitchen knife
- Dissection kit
- Colored pencils
- Ruler

#### Per class:

- (20) samples of mature fruit, grain heads and seed pods

#### Per student:

- Pencil
- *Agriscience Notebook*

### Procedure

Using a good resource describing the various seed-bearing structures of plants, you will develop a dichotomous key to identify various structures. You will then make observations of the anatomy of seed-bearing structures provided by your teacher and test your dichotomous key.

#### Part One – Making the Key

1. Label a sticky note with each fruit type presented during the PowerPoint® *The Role of Fruit*. Use Table 1 on the student worksheet to ensure that you have included all seed-bearing structures discussed in the presentation.
2. In your work area, use sticky notes and markers to brainstorm questions to create categories and groupings for the different fruit structures.
3. Use the sticky notes from Step 1 and categories from Step 2 to create a rough draft of a working dichotomous key in your work area.

4. In the space provided on the student worksheet, sketch a final version of your dichotomous key.

### **Part Two – Observing Seed-Bearing Structures**

1. Obtain two seed-bearing structures from your teacher.
2. Observe the exterior of Fruit 1, recording details in Table 2. Sketch and label the structure with measurements, markings, and any other items that might help distinguish what type of seed-bearing structure it is.
3. Use the kitchen knife and/or dissection kit to open the first structure.
4. Repeat the observation process for the interior of the structure with colored diagrams, measurements, numbers, and labels.
5. Repeat Steps 2 – 4 for Fruit 2.
6. Return the materials to the teacher. Clean up your work area.

### **Part Three – Testing the Key**

1. Review the types of inflorescence from *Project 4.5.4 Flowers to Fruits*.
2. Use the observations in Table 2 to go through your dichotomous key for each of the two fruits. Record your conclusion in Table 2.
3. Work through or describe the process of observing and identifying the type of seed-bearing structure for Fruit 1. Perform an oral narration of the process, explaining how and why you performed each step you used.
4. Your partner will provide feedback about how you observed and identified the fruit using the dichotomous key.
5. Allow your partner to repeat the same process for Fruit 2.
6. Discuss the process used to observe and identify fruit. What worked well? What could you do differently?
7. Your teacher will have several pairs of students demonstrate the process used to identify one fruit. Students should share observations, assumptions, and conclusions.
8. Your teacher will lead a class discussion and confirm the types of seed-bearing structures.

## **Conclusion**

1. What type of seed-bearing structure is the easiest to identify? Why?
  - I think that the pod and nut are the easiest to identify because they have very specific identifiers that make it easy to identify. While other structure seem like they are very similar and can be interchanged.

5. What major differences did you see in the seed-bearing structures examined by your class?

- Each person had a very unique fruit that is easily identified. (I.e. it's an apple, watermelon, and avocado). But just because the item its self is easily identified it does not make the seed structure easy to identify. Some people had an easier time identifying the seed structure like the avocado, while others had a harder time like the kiwi.

6. How are plants identified by the type of seed-bearing structures?

- They are identified by the seed structure first varied by whether or not it is a dry fruit or a fleshy fruit. From there it is broken down into more categories

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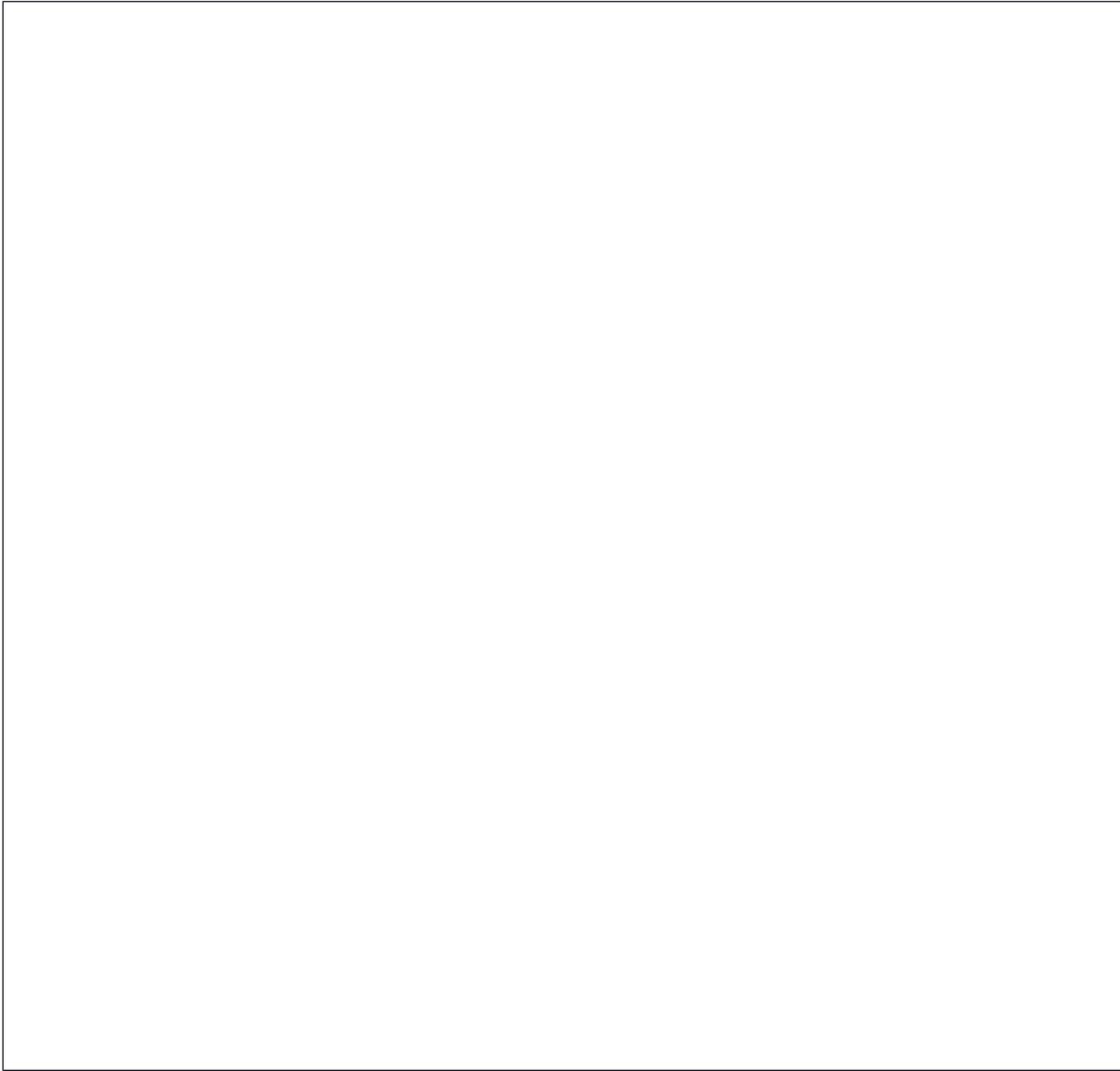
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## Activity 7.2.3 Student Worksheet

**Table 1. *Types of Seed-Bearing Structures***

Achene	Nut
Aggregate	Pepo
Berry	Pome
Drupe	Pod
Grain	Samara
Multiple	

Seed-Bearing Structure Dichotomous Key:



**Table 2. *Seed-Bearing Structure Observations***

<b>External Description of Fruit 1:</b>	<b>External Description of Fruit 2:</b>
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<ul style="list-style-type: none"> <li>• About 2.5cm long.</li> <li>• Brown in color</li> <li>• Has a black spot in center.</li> <li>• Fibrous at the end of pod</li> <li>• Flat</li> <li>• Very fragile, breaks and snaps easily.</li> <li>• Very rough and bumpy</li> </ul>	<ul style="list-style-type: none"> <li>• About 4cm long</li> <li>• Round</li> <li>• Brown in color</li> <li>• Has 'hairs'</li> <li>• Rough in texture</li> <li>• On both ends there is an enlarged bump...</li> <li>• Very soft and squishy</li> <li>• Fleshy fruit indicated</li> </ul>
<p align="center"><b>Internal Description of Fruit 1:</b></p>	<p align="center"><b>Internal Description of Fruit 2:</b></p>
<ul style="list-style-type: none"> <li>• About .5 cm long</li> <li>• Winged shaped</li> <li>• Light brown</li> <li>• Black at the conjoining spot</li> <li>• Flat</li> <li>• Smooth feeling</li> </ul>	<ul style="list-style-type: none"> <li>• Dark green inside</li> <li>• White core</li> <li>• Black seeds</li> <li>• Smaller than .5 of a cm</li> <li>• Seeds are in a circle</li> <li>• Each seed is in a row</li> <li>• Under that seed is another seed.</li> </ul>
<p><b>Structure Type:</b> _____ <b>samara</b></p> <p>_____</p>	<p><b>Structure Type:</b> _____ <b>Berry</b></p> <p>_____</p>