Activity 4: Apples to Apples

60 Minutes

Objectives:
Students will…
- understand living things get traits from parents.
- use senses to make observations.
- compare characteristics of objects.
- identify objects using observable traits.
- graph and interpret data based on class input.

Vocabulary: senses, characteristics, traits

NGSS or Common Core Standards addressed:
- 1-LS3-1 Make observations to construct evidence-based account that young plants and animals are like, but not exactly like, their parents.
- CCSS.ELA-LITERACY.CCRA.R.1 Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- CCSS.ELA-LITERACY.CCRA.R.7 Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.
- CCSS.MATH.CONTENT.1.MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
- CCSS.MATH.CONTENT.2.MD.D.10 Draw a picture graph and a bar graph to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.

The Pillar of Ag Lit it relates to:
The Relationship Between Agriculture and Food, Fiber and Energy
The Relationship Between Agriculture and Lifestyle

Materials:
- Activity 4 **Apple Characteristics Data Sheet**
- Apples, 2 each of 1 varietal per group- gala, red delicious, granny smith, fuji, honey crisp and golden delicious; you will need one slice per student
- Orange
- Gallon bag (1 per varietal of apple)
- Knife (teacher only)
- Cutting Board
- Activity 4 **Apple Graphing Icon Sheet**
- Crayons
- Tape
- Activity 4 **Apple ID Cards** (2-sided)

🍎 Teacher Prep:
1. Place 1 of each apple varietal in a gallon bag and label each bag (A, B, C, D, …).
2. Copy and cut apart **Apple Graphing Icons** (1/student).
3. Copy and cut apart a set of **Apple ID Cards** (1/group).

Procedures:

1. Show students an apple and an orange and ask students, "What am I holding?" After they identify each item, ask, "How can you tell the difference between an apple and an orange?" Lead students to the fact that we use our senses (ways our bodies gather information) to identify characteristics (features or qualities used to identify specific items). Review the fives senses (sight, smell, hearing, taste, and touch) with students.

2. Draw a large Venn diagram on a whiteboard or shared screen space with title "Fruit Characteristics." On one side, write "Apples" and on the other side write "Oranges." Work as class to complete the Venn diagram to include characteristics, such as:
   a. Apples have/are: red, green, crunchy, thin skin, etc.
   b. Oranges have/are: orange, sections, thick skin, etc.
   c. Both have/are: skins, sweet, juicy, seeds, grow on trees, etc.

3. Ask students, "How do apples and oranges get these characteristics?" Lead to fact that many of the characteristics of each fruit are traits (genetically determined characteristics) they got from their parent plant.

4. Ask students, "Are all apples the same?"

5. Explain that even the same fruits can have different characteristics or traits, depending on the type of tree they grew on.

6. Divide class into 4-6 small groups. Give each group a labeled gallon bag (A, B, C, D, …) containing a different apple varietal.

7. Have students work in teams to complete their exterior apple observations with the **Apple Characteristics Data Sheet** for the apple in their group (color, smell, texture).

8. Have groups rotate labeled bags with apples between groups until all groups have observed the exterior characteristics of each apple.

9. Cut apple A into slices. Pass out slices to students to complete interior observations with the **Apple Characteristics Data Sheet** (taste and sound).

10. Repeat step 9 for each type of apple.

11. Have students individually rank the apples, starting at 1 for their most favorite to their least favorite.

   Tip: Younger students can just circle or star their favorite.

   Note: Make sure there are no allergies before students eat the apples.

12. Give each group a set of **Apple ID Cards** and instruct them to only use the front side of the card with the characteristics of each type of apple. Have them work in teams to match the characteristics they observed to the description of the apple varietal to identify the type of apple and learn about the best uses of each varietal. Once matched, cards can be flipped over to confirm correct identification with image.

    Tip: For younger students, do this as a class.

13. Give each student an **Apple Graphing Icon** piece. Have them color the apple to match their favorite apple varietal. While they are engaged with that, draw a simple bar graph on the whiteboard with Type of Apples (A-Gala, B-Red Delicious, C-Granny Smith, D-Golden Delicious, …) on the X-axis.

14. Have students "vote" for their favorite type of apple using their icon and tape to the whiteboard to build the class bar graph. Interpret, analyze and discuss the class results.

Optional extensions:

Have students…

- rank apple varietals by their US popularity, then compare the class popularity ranking to the US popularity ranking.
- measure weight and/or circumference of each type of apple, then rank by those characteristics.
- conduct an experiment to test the length of time to brown after being cut for each varietal.

Apple popularity rankings found at:

- https://www.tastingtable.com/769418/the-most-popular-types-of-apples-explained/
- https://www.hgtv.com/shopping/news-and-trends/step-aside-red-delicious-the-next-wave-in-apple-picking-pictures

Activity 4 - Apple Characteristics Data Sheet

Directions: Use your senses to observe each apple. Record your observations with words and/or pictures.
Look for something that is unique for each apple.

Apple	👁	👃	✋	👄	👂
A					
B					
C					
D					
E					
F					