



Grade Level: 1

Essential Skills: 3, 4, 5

NGSS: 1-LS3-1

CCSS: 1.RF.2, 1.SL.1, 1.SL.2

Math: 1.MD.1

Time: 30 minutes

Materials:

- Pictures to display of Frozen Characters: Elsa, Anna and their parents
- *The Barley Family* worksheet

[AITC Library Resources:](#)

More Lessons:

Barley and Beasts

Lesson to Grow

The Barley Family: Observable Traits of Barley

Description:

In this activity, students will observe barley seed heads and sort them to compare and contrast traits with parent barleys, showing that offspring are like, but not exactly like, their parents.

Background:

Barley is an important and ancient cereal crop grown worldwide. The barley seed heads used in this activity come from a set of barleys called the Oregon Wolfe Barleys that were bred specifically to show off the different combinations of traits that barley can display. Normally, barley breeds true, meaning that the offspring will look identical to the parents. However, the parent barleys in this activity were cross-bred together in a special way so that their different genetics would be visible in the offspring.

Directions:

Part 1: The Frozen Case Study

1. Explain to students that today they will be thinking about the similarities and differences between kids and parents.
2. Display Pictures of *Frozen* characters Anna and her father for students to see.
3. Ask students if they can identify the characters. This is Anna and her father from the movie *Frozen*.
4. Instruct students to look at the pictures of Anna and her dad, have them identify things that are the same in their appearance on both photos.
5. Then, have students do the same for Elsa and her mom.
6. After, discuss the following question with students: Anna and Elsa have some features that look the same as their mom and dad. Does that mean they are exactly the same in every way?

Part 2: The Barley Family

1. Explain to students that just like the characters in the movie *Frozen*, all living organisms have similar appearances as their parents. Today, we are going to observe some parents and offspring of barley. Barley is an important grain that is used to make food like bread, crackers and cereal.
2. Provide each student with a copy of the *The Barley Family* worksheet.
3. Instruct students to look at the differences and similarities between the parent barley and the barley offspring.
4. On the worksheet, students will be asked to categorize the offspring based on where they received the identified trait from. For example, students will first look at the color of barley. Students will draw a line from each offspring to the parent that has that same coloring. Students will do this for color, size, and presence of awns (hair-like projections).
5. After students have categorized, review with students where they categorized the barley offspring.
6. Discuss the following question as a class after students have completed their worksheet. If the offspring has one thing that is the same as their parents, will it always look exactly the same?



The Barley Family

Student Name: _____

Here are two barley parents:



Parent 1



Parent 2

Draw a line from the **offspring** below to the **parents** above that have the same or similar **colors**.

Here are the barley offspring:



Offspring 1



Offspring 2



Offspring 3

How many of the offspring have a similar **color** to **Parent 2**? _____

What is different about **Offspring 3** and **Parent 2**? (Circle the answer below)

Color

Awn (Hair)

Size

Here are two barley parents:



Parent 1



Parent 2

Draw a line from the **offspring** below to the **parents** above that have the same or similar **size**.

Here are the barley offspring:



Offspring 1



Offspring 2



Offspring 3

Here are two barley parents:



Parent 1



Parent 2

Draw a line from the **offspring** below to the **parents** above that have the same or similar **awns** (awns are like the hair on barley).

Here are the barley offspring:



Offspring 1



Offspring 2



Offspring 3

How many of the offspring have **awns** similar to **Parent 1**? _____

What is different about **Offspring 1** and **Parent 1**? (Circle the answer below)

Color

Awn (Hair)

Size