



3

## Brooks River Brown Bears: Inheritance and Variation of Traits

● Identifying the Brown Bears



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## 3

## Identifying the Brown Bears



Students begin this lesson by sharing the question they wrote at the end of Lesson 2. They again use a data sheet to record their observations of individual bears on a live cam from Brooks River. When they are done with the live observations, students view photographs of four bears that belong to the same family. They identify the inherited and acquired traits of each.



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**GUIDING QUESTION**

*Why are there differences between the ways individual brown bears look and act?*



## Lesson 3: Identifying the Brown Bears

### MATERIALS

#### Teacher Materials

- **Identifying the Brown Bears** visuals:
  - Marilyn #216 photograph
  - BB #24 photograph
  - Weevil #790 photograph
  - Divot #854 with Snare photograph
  - Divot #854 with Scar photograph
  - Optional: **Brooks Falls Highlight 5** video

#### Student Materials

- **Brooks River Brown Bear Data Sheet** handout (1 per student)

### LESSON PREPARATION

1. Preview the explore.org live cams from Brooks River, Katmai National Park, and determine whether the class should continue watching the same cam they viewed in Lesson 2.
2. If none of the live cams are currently streaming, plan to have students watch the **Brooks Falls Highlight 5** video clip.
3. Set up a means for students to view digital photographs, video clips, and a live cam from explore.org. Options include:
  - Whole class viewing a large computer monitor or projector
  - Pairs viewing multiple computer monitors simultaneously
  - Pairs taking turns viewing a single computer monitor (appropriate for live cam viewing only)



## Lesson 3: Identifying the Brown Bears

### OPENING

#### Share Questions

1. Remind students that in the last lesson, they used what they learned about bears' fishing techniques in order to come up with a question they might answer while watching the live cams.
2. Call on student pairs to share their question with the rest of the class.
3. Write the questions on the board. Let students know that today they may have a chance to answer one of them.

### ACTIVITY

#### Watch Brown Bears

1.  Give each student a new **Brooks River Brown Bear Data Sheet** handout, and remind them that they can write or draw their observations. Also remind them that they are using the bears' traits to tell individuals apart. Encourage them to see if they can find an answer to any of the questions on the board.
2.  Show the live-streaming video you selected. As in Lesson 2, gauge how long to have students watch by the number of bears on camera and students' attention spans. (If no live cams are streaming, show the **Brooks Falls Highlight 5** video clip.)
3. Ask students whether they think they recognized any of the bears or were able to answer any of the questions.
4. Divide the class into pairs or small groups, and have them discuss and compare their observations and understanding.
  - Circulate around the room. Listen to students as they talk about the difficulty of telling bears apart, and observe their developing skills at identifying traits.
  - Use what you hear to determine whether students might continue watching the live cams as a class or at home.



Identifying the Brown Bears

Brooks River Brown Bear Data Sheet

Year	Age (Cubs, Subadult, or Adult)	Body Shape and Size	Head Shape and Size	Ear Shape and Size	Fur Color	Scars and Wounds	Claw Color	Fishing Techniques	Other Observations
7									
3									
1									

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Brooks River Brown Bear Data Sheet



Brooks Falls Highlight 5

## Lesson 3: Identifying the Brown Bears

5. Explain that the first few times anyone sees the bears, they will find it hard to identify individuals. However, with practice, they will be able to identify the most commonly seen bears along the Brooks River. (Every year, Katmai National Park puts out an updated ebook, [Bears of Brooks River](#), which has photos and descriptions that can be used for reference.)

### Identify Traits in a Family of Bears

1. Tell students that they will apply what they have learned about identifying traits by looking at photographs of bears that belong to the same family.

2.  Display the photograph of **Marilyn #216**. Explain that this is a bear that biologists at Katmai identify as Bear #216 (nicknamed Marilyn).



Marilyn #216

3. Have students identify Marilyn's different physical traits. Write students' ideas on the board. Make sure to include:

- Prominent shoulder hump
- Shaggy and dark blond fur
- Blond ears
- Straight muzzle

4.  Display the photograph of **BB #24**. Explain that this is a bear that biologists at Katmai identify as #24 (nicknamed BB).



BB #24

5. Have students identify BB's different physical traits. Write students' ideas on the board. Make sure to include:

- Long legs
- White claws
- Narrow, straight "Roman nose"

6.  Display the **Weevil #790** photograph. Let students know that Marilyn and BB are no longer seen at Brooks River, but they had offspring that grew up and returned. This is one of their offspring, identified as #790 (nicknamed Weevil).



Weevil #790

## Lesson 3: Identifying the Brown Bears

7. Tell the class that observers have noticed that Weevil has very long legs. Write the trait on the board. Have students identify Weevil's other physical traits, and write those on the board as well. Make sure to include:
  - Long legs
  - Shaggy and light brown fur
  - Straight muzzle
  - Small ears in proportion to her head
8. Ask the class which of her traits appear to have been inherited from her parents. Students should be able to answer: shaggy and light-colored fur, long legs, straight muzzle.

9.  Display the photograph **Divot #854 with Snare**. Tell the class that this is a bear that biologists at Katmai identify as Bear #854 (nicknamed Divot). Divot is also an offspring of Marilyn and BB, and she is one of Weevil's siblings. She still comes to Brooks River and has had cubs. She is an adult female with distinctive acquired and inherited traits.



Divot #854 with Snare

10. Explain the wire around Divot's neck:
  - In late July 2014, Divot came to Brooks River with one yearling cub and a wire snare (a trap) around her neck.
  - Rangers and park biologists tranquilized her and successfully removed the snare.
  - By October, the bear and her cub were both fat and healthy.

11.  Display the photograph **Divot #854 with Scar**. Describe Divot's distinctive physical traits:



Divot #854 with Scar

- Circular scar around her neck
  - Straight and short muzzle
  - Often has noticeable shed patch on forehead
  - Golden blond fur in July
- a. Have the class identify which of Divot's traits is acquired. Students should know that the scar is an acquired trait.
  - b. Ask the class to identify which of her traits appear to have been inherited from her parents. Students should be able to answer: light coat, straight muzzle.
  - c. Explain that some inherited traits might be from more distant ancestors, such as grandparents. In addition, siblings do not share exactly the same inherited traits.

## Lesson 3: Identifying the Brown Bears

### REFLECTION

1. Tell students to write:
  - 3 things they have learned about inherited and acquired traits
  - 2 personal connections to the topic of traits
  - 1 question they have about brown bears

### EXTENSION

#### Inquiry Science

1. Have students continue to watch the live streaming video of bears along Brooks River. Tell them to write all of their questions and “wonderings” about what they see.
2. Convene the class to have each student state at least one question they would particularly like to know the answer to (and that another student has not already posed). Record questions on the board or chart paper.
3. Work with the class to differentiate between questions that can be answered through three means:

- More observational study of the live cam
- Reading reference materials
- Asking an expert

4.  Provide students with opportunities to find their answers in each of the three ways. For the second and third ways:

- Online reference materials provided on the Katmai National Park website include the ebook [Bears of Brooks River](#), which is updated annually (enter the search terms “NPS Katmai ebook” with the current year). The site also includes a list of [Frequently Asked Questions](#).
- [explore.org](#) hosts live web chats with Katmai National Park rangers (see the CALENDAR section). Students may [submit questions](#) to be answered at that time.
- Several other websites have background information suitable for elementary students:
  - [WWF](#)
  - [PBS Nature](#)
  - [San Diego Zoo](#)



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Bear	Age (Cub, Subadult, or Adult)	Body Shape and Size	Head Shape and Size	Ear Shape and Size	Fur Color	Scars and Wounds	Claw Color	Fishing Techniques	Other Observations
1									
2									
3									



Marilyn #216



BB #24



June 2003

Weevil #790



Divot #854 with Snare



Divot #854 with Scar

