

California Grizzly Bear Reintroduction Unit

The California Grizzly Research Network



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Lesson 2

Grizzly Kit: Object Based Learning

Background Information:

Object Based Learning is an extremely effective manner of experiential learning. For an interesting look at how to use objects to stimulate critical thinking and discussions we encourage teachers to read the following:

Schultz, Lainie. "Object-based learning, or learning from objects in the anthropology museum." *Review of Education, Pedagogy, and Cultural Studies* 40.4 (2018): 282-304.

[A Teacher Trunk](#) can be ordered from [The Wolf and Bear Discovery Center](#). It is free for teachers to use in their classrooms but does cost shipping. It is likely that your local Natural History Museum has grizzly artifacts such as skulls, pelts, or claws available for checkout. Schools and teachers can make special arrangements with local museums to obtain artifacts from natural history collections. Object based learning encourages teachers to reach out to community members and organizations who might have grizzly bear artifacts. Perhaps, experts are even willing to visit your classroom!

*Option to put the grizzly artifacts around the room accessible to students for the remainder of the unit.

To supplement teacher knowledge of grizzly bears and anatomy check out this National Geographic [website and watch the video on grizzly bears](#). There is also a slide show of high quality grizzly photos to show to students in the case that teachers cannot access actual artifacts.

Time:

45 Minutes

Supplies:

1. Pencils
2. Kit Worksheet
3. Grizzly Bear artifacts from your local Natural History Museum or the Teacher Trunk from Wolf and Bear Discovery Center.

Vocabulary:

1. Wildlife Conservation: the practice of protecting wild species and their habitats in order to prevent species from going extinct. Major threats to wildlife include habitat destruction, overexploitation, poaching, pollution and climate change.
2. Organism: an individual animal, plant, or single-celled life form.
3. Conservation Status: the state of an organism that indicates whether that group of organisms still exists and how likely the group is to become extinct in the near future.
4. Ecosystem Service: The many and varied natural benefits a species provides to its ecosystem.

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Educational Outcomes:

1. Students can use objects as a data source.
2. Students can analyze artifacts to interpret the type of behaviors of the organism.
3. Students can construct an argument supported by empirical evidence.
4. Students will understand how an ecosystem can shape the physical structure of an animal.
5. Students can evaluate competing design solutions for maintaining biodiversity and ecosystem services.
6. The students will be able to discuss the ecosystem services that the bears provided.

NGSS Standards fulfilled:

1. SEP-1
2. SEP-4
3. SEP-8
4. Environmental principle I, II, III, V
5. LS2.C

Steps:

1. Show the kit to the class by pulling one artifact out at a time and passing the object around in silence before beginning.
2. Pass out the worksheet or use worksheet questions to stimulate group discussion.
3. Explain to the students that this worksheet/activity is to allow for critical thinking while making observations. Encourage students to make hypotheses if they do not know the actual answer.
4. Give the students about 30 minutes to answer the worksheet questions (in dyads or alone).
5. Re-gather the class for a larger group discussion about the worksheet answers and the objects in the kit.
6. Ask the class if there are any other questions or observations that the students noticed.



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Animal Artifacts Worksheet

Name:

Date:

1. Do you know what kind of bear is on the California flag? What is the conservation status of that bear?
2. Have you ever seen a bear in the wild? If so, what kind of bear was it and where did you see it?
3. What are some basic observations that you notice about the grizzly bear? (size, colors, what do you see?)
4. What do you think a grizzly bear uses its claws for? Why are they so big?
5. How fast do you think an adult grizzly bear can run?
6. Why do you think its snout is so big?

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7. What are some things that you notice about the teeth? How are the teeth different from yours?

8. What do you think a grizzly bear eats?

9. What is an ecosystem service?

10. What ecosystem service might a grizzly bear provide? In other words, how are grizzly bears important for ecosystem health?

11. Explain the interaction between grizzly bears and ungulates (hooved animals like deer).

13. How might changes to an ecosystem (like global climate change) affect grizzly bears?

14. Summarize how the grizzly bear ecosystem shaped the structure of the grizzly bear's body.



Lesson 2

Animal Artifacts Worksheet

Name:

Date:

1. Do you know what kind of bear is on the California flag? What is the conservation status of that bear?

The California grizzly bear. Extinct.

2. Have you ever seen a bear in the wild? If so, what kind of bear was it and where did you see it?

Various answers possible. Black bears are the only bear in California.

3. What are some basic observations that you notice about the grizzly bear? (size, colors, what do you see?)

Larger than black bears; brown, blonde, or greyish fur; hump on shoulders; huge paws, claws, jaw, teeth; large snout; no tail; etc.

4. What do you think a grizzly bear uses its claws for? Why are they so big?

Grizzly bears eat a large amount of tubers or roots. They use their huge claws for digging for food.

5. How fast do you think an adult grizzly bear can run?

Up to 45 mph.

6. Why do you think its snout is so big?

Grizzlies need an excellent sense of smell to smell underground vegetation, fish, or other prey miles away.

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7. What are some things that you notice about the teeth? How are the teeth different from yours?

They are very large. Also helpful for digging into roots and consuming a large amount of food at one time.

8. What do you think a grizzly bear eats?

Many different insects, a variety of flowering plants, roots, tubers, grasses, berries, small rodents, fish, carrion (roadkill and other dead animals), other meat sources (e.g. young and weakened animals), and even human garbage if it is easily accessible.

9. What is an ecosystem service?

The many and varied natural benefits a species provides to its ecosystem.

10. What ecosystem service might a grizzly bear provide? In other words, how are grizzly bears important for ecosystem health?

Grizzlies consume so many berries that they are considered excellent seed dispersers spreading the berry seeds far and wide seeing that they have a large range of some 1,000 miles. They also aerate soil by disturbing the earth to uncover roots to eat. Because grizzlies forage for roots, plants, or rodents they increase species richness and nitrogen availability. They regulate ungulate populations. They fertilize soil and increase nitrogen levels in areas where salmon carcass are dispersed about by their sloppy eating.

11. Explain the interaction between grizzly bears and ungulates (hooved animals like deer).

Grizzlies consume ungulates and can help regulate their population.

12. How might changes to an ecosystem (like global climate change) affect grizzly bears?

Grizzlies consume ungulates and can help regulate their population.

13. Summarize how the grizzly bear ecosystem shaped the structure of the grizzly bear's body.

Students can use a number of examples from previous questions to relate the bear to its environment.

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Video Resources for After Completion of the Worksheet:

[This video](#) dives into the biology of grizzly bears and their role in their ecosystem and can be shown after exploring the OBL portion of this lesson.

In [this video](#), a filmmaker and ecologist interviews Washington state residents about grizzly bears. The video explores different bear facts and information about their biology, while also showcases different points of view that people may have on the bears (think ranchers, families, etc.). This would be a good summary of bear biology to show after the previous video and begins to introduce the roles portion of this unit.