

Meet the Bears



Unit Summary

Working with older buddies, primary students become experts on the eight species of bears. Students engage in a variety of comparison activities, including estimating then measuring the differences between themselves and bears. They also compare the habitats, size, and needs of two species. Finally, students dig deeper to learn all they can about one bear, and apply their expertise as they make a guide for children who visit the local zoo.

Curriculum Framing Questions

- **Essential Question**
How are we like other animals?
- **Unit Questions**
Are we so different from bears?
What do animals need to live?
- **Sample Content Questions**
What do bears eat?
What is “family life” like for a bear?

Instructional Procedures

Getting to Know Bears

Prior to instruction, read [Teacher Background Information](#) for a basic introduction. Check out a mixed collection of fiction and non-fiction books about bears. Arrange for study buddies from a fifth grade class. Schedule times for older buddies to help younger students as they read, study, and write about bears.

Week One: Begin with a discussion of bears, enlisting ideas from students about what they know and would like to learn. Record vocabulary and ideas on chart paper for upcoming activities. Teach students the distinction between fiction and non-fiction, then engage in the following activity: Using a mixed set of books about bears, describe each one and read its summary from the flyleaf or back cover. Ask questions such as: Is this book fiction or non-fiction? How can you tell? Introduce students to Internet navigation by having them engage in a bears scavenger hunt with a fifth grade buddy at [Bears at Enchanted Learning*](#). Challenge students to answer the question: What makes a bear a bear? This question will elicit many ideas, and serves as the basis for a discussion about the characteristics of bears.

Week Two: Research time. Support teams as they spend the week researching different questions about bears. Topics might include:

At A Glance

Grade Level:

2

Subjects:Science
Math
Writing**Topic:**

Animals

Key Learnings:Natural History
Comparison
Measurement
Graphing**Time Needed:**3 – 4 weeks, three periods
weekly, 40 minutes each
period**Background:**[From the Classroom in
Arizona, United States](#)

Things You Need

[Standards](#)**[Resources](#)****[Print This Unit](#)**
(PDF; 16 pages)

1. "Bears Compare" Teams study and contrast two bear species. Brainstorm ideas of everything that can be compared: size, lifespan, biome and habitat, habits, diet, growth and development, and so on. This [Compare the Bears sheet](#) can be used. Have students write diet, weight and length for each bear on large "Bears Compare" posters. The information from this is used in **Bears and Me** activities, below.

Other group study questions might include:

2. Are there more bears in captivity or in the wild?
3. Are any bear species endangered?
4. Where's the closest place I can go to see a bear in the wild and what kind of bear would it be?
5. Why do bears hibernate? Do all bears hibernate?
6. Who has more to fear from the other, man or bear?

Using cooperative experts, such as wildlife biologists at the local ranger district, books, and these Web sites [Bear Den*](#), [Bears*](#), [Polar Bears Alive*](#), [Bears at Enchanted Learning*](#), students study their topic and present what they've learned to the class. As a nice break from all this mind-bending study, consider using this nice mother bear [movement activity*](#).

Bears and Me

Use the [Bears and Me](#) sample as a guide for activities 1 and 2. Have the class agree on one bear species to compare themselves to.

1. *Compare What We Eat* Using information from the "Bears Compare" poster, each student pair compares his diet to that of one bear species, and makes a Venn diagram of similarities and differences. For a greater comparison make a Venn diagram with three circles, comparing three bears. Show students how Venn diagrams display overlapping information.
2. *Compare Our Size* (Prepare your computer projection system for this demonstration) Ask this question: Let's guess how many of us would it take to weigh the same as a bear. What do you want to know before you make your best guess? Answer questions and write predictions on the board. Ask, How can we answer this question? Refer to the weight data of the different bear species from the "Bears Compare" poster and ask students to choose which they'd like to be compared to. Weigh students one at a time, and guide students as they add the weights until the pounds add up to the weight of the bear. Have students being weighed stay in a cluster at the front of the room until weighing is complete. Next, have students work with buddies to do repeated addition (or multiplication) of their individual weights to see how many "Andrews," for instance, it would take to make one. Try to get all the species represented. Show students how the information can be shown in a spreadsheet table, and model how the data can be presented in a graph or chart.

Week Three: Develop linear measurement concepts with the following activity: Using a piece of string the length of the bear, send students around the school finding objects that are the same length, or smaller and bigger. Help students illustrate their findings on chart paper. In cooperative groups, students and their buddies use butcher paper to create a life size image of their bear. Buddies trace and cut out students onto butcher paper as well as to compare height.

Week Four: In this activity, students complete research on bears and create a [brochure](#) about their bears to be distributed at the local zoo. Have each student collect information about their bear's habitat and compare with a bear found at [The Bear Den*](#). Color world maps showing the different ranges for different bears on the planet. Have buddies help with the next activity: Import a graphic of a bear, either by scanning original paintings or drawings by students or using photo galleries on the Internet (such as [123Spot*](#), [Yahoo*](#), [Animal Clipart*](#), [Desktop Publishing*](#)). Guide students as they write three sentences describing the physical features of their bear on their Bear Facts paper. Show students how to use the [Bears Rubric](#) and [Student Rubric](#) as a guide for content and quality as they make their brochure.

Prerequisite Skills

Students will need mini-lessons on spreadsheet and keyboarding use. Prior experience with word processing and file management is helpful. Previous cooperative learning and Internet use would be beneficial.

Differentiated Instruction

- **Resource Student**
 - Modifications as dictated in the student's IEP
 - Students work with a more able buddy
 - They will have access to more picture books about their bear
 - Work with parent volunteer or teacher's aide
- **Gifted Student**
 - Encourage broad and deep research
 - Add comparisons, such as life span
 - Students research more than one bear
- **English Language Learner (ELL)**
 - Encourage support from first language speakers who are more proficient in English
 - Provide extra time for completing assignments
 - Have parent volunteer or teacher's aide provide assistance
 - Teacher-created templates/graphic organizers for students to fill in
 - Use of visuals, manipulative learning tools, and illustrated text

Assessment

Use the project rubric, checklists, written assessment and informal observations for assessment.

Credits

Marika Koch and Leigh Pitts participated in the Intel® Teach to the Future program, which resulted in this idea for a classroom project. A team of teachers expanded the plan into the example you see here.

From the Classroom

Kindergarteners team up with older buddies

When she first thought about taking the Intel® Teach to the Future course, Marika Koch wondered if technology had a place in her Kingman, Arizona, kindergarten class. “As soon as I hit on the idea of having my students work with bigger buddies, technology for the ‘Bears’ unit fell right into place,” she says.

Before teaching the unit, Marika collaborated with an interested fifth-grade teacher to plan activities and schedule a common work time for their students. To make their cooperative venture work, each teacher had to accept trade-offs, such as missing a library session or a preparation period, but both thought the teamed instruction was worth it. In the process of helping kindergarteners learn about bears, fifthgraders learned technology and research skills that were appropriate for their grade. After helping younger students sort and count colorful gummy bears, older buddies learned to use a spreadsheet to graph color frequency and the results from a Favorite Flavors poll. Fifth- graders found interesting books and Web sites for their young friends, and in the process learned to make research queries on the Internet and cite references for a bibliography.

Measured approach

When deciding how to use computers in her kindergarten classroom, Marika took a measured approach. “At this grade level, I use technology predominately for presenting instruction,” she says. “Presentation technology such as a slideshow gives me one more method for delivering instruction, and it makes learning visual and exciting.” Marika takes student work and presents it electronically, too. Recently, she scanned student artwork and put it in a slideshow for a parent night presentation. In terms of using computers themselves, Marika found it made sense to pair students with older buddies when they worked on projects involving technology. “This unit is more of an introduction for kindergarteners, more of an exposure to computers to show what they can do,” she says, “And I think that’s appropriate, developmentally.”

Hualapai Elementary School “They’re really launched”

Marika’s instructor for the Intel® Teach to the Future course is also the technology teacher for Hualapai Elementary. “Between having the course and a great specialist on our staff, the technology competence has been raised at our school. The people who took the course in the fall really talked it up, and in the spring, other folks jumped right in.” When asked what she’d like to do next, Marika says, “A second class would be nice, for the opportunity to focus on another unit!”

Content Standards & Objectives

Student Objectives

Students will be able to:

- Describe a bear's physical characteristics
- Compare the size of different types of bears and humans
- Compare the basic needs of one bear species (habitat, diet) to humans
- Using a spreadsheet or graphing software, display measurements of bears and humans by collecting, sorting and displaying data
- Synthesize information into a brochure

Targeted Arizona Content Standards & Benchmarks Science & Math

- Describe the basic needs of living organisms
- Recognize and distinguish similarities and differences in diverse species
- Recognize that a single object has different attributes (e.g., length, color, size, texture) that can be measured in different ways
- Develop an understanding of number meanings and relationships

National Educational Technology Standards (NETS)

- Use technology tools to enhance learning, increase productivity, and promote creativity
- Use productivity tools to collaborate in constructing technology-enhanced models, prepare publications, and produce other creative works
- Use technology to locate, evaluate, and collage information from a variety of sources
- Use technology tools to process data and report results. availability of new technology itself often sparks scientific advances

[Return to Meet the Bears](#)

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Meet the Bears

Resources

Printed Materials

Fiction and non-fictional books about various types of bears such as:

- Feeney, Kathy, Pandas for Kids, Northwood Press, Minnetonka, MN, 1997.
- Tracqui, Valerie, The Panda, Charlesbridge Publishing, Watertown, MA 1998.
- Wexo, John, Giant Pandas, Wildlife Education, San Diego, CA 1997.
- Wexo, John, Polar Bears, Wildlife Education, San Diego, CA 1999.
- Wexo, John, Bears, Wildlife Education, San Diego, CA 2000.

Internet Resources

Polar Bears Alive: <http://www.polarbearsalive.org/>*

Bears at Enchanted Learning: <http://www.enchantedlearning.com/Bisfor.shtml>*

Bears Magazine: <http://www.bearsmag.com/photos/Grisham/photos.php>*

The Bear Den: <http://www.bearden.org/species.html>*

Canadian Wildlife Service: Grizzly Bear: <http://www.cws-scf.ec.gc.ca/hww-fap/grizzly/grizzly.html>*

National Geographic's Bear Beginnings: <http://www.nationalgeographic.com/ngm/0012/feature2/index.html>*

Videos

National Geographic Collection: The Great White Bear, The Grizzlies, Young Explorers: Secrets of the Wild Panda

Supplies:

Pictures of bears

Technology – Hardware

- Computer(s)
- Internet Connection
- Printer
- Scanner

Technology – Software

- Database/Spreadsheet
- Desktop Publishing
- Encyclopedia on CD-ROM
- Image Processing
- Internet Web Browser
- Multimedia
- Word Processing

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Teacher Background Information

There are eight different kinds of bears – brown bears, American black bears, polar bears, giant panda bears, Asiatic black bears, sloth bears, spectacled bears and sun bears.

- Koala bears are not real bears. They are marsupials.
- More bears are dying each year than are being born. Polar bears and American black bears are safe now. All other kinds of bears need protection. We need to save large areas where bears and other animals can live safely and not be hurt.

	American Black Bears	Asiatic Black Bears
Habitat (home)	Mostly in forests, but also in swamps and deserts throughout North America.	Prefer heavily forested areas, particularly in the hills and mountains and moist tropical forests in Southern Asia.
Diet	Plants, leaves, fruits, berries, nuts, roots, honey, insects, and small mammals.	Insects, small mammals, birds, carrion, bee nests, and fruit.
Physical Description	<p>Long, thick fur is brown or black. They are flat-footed and their front claws are longer than their back claws.</p> <p>6 feet long 300 pounds</p>	<p>Medium-sized bear. 50–74 inches long. 220–440 pounds. Females are smaller.</p> <p>They are normally blackish in color, with lighter muzzles and a distinct V-shaped patch of cream-colored fur on their chest. A brown phase also occurs. The ears of an Asiatic black bear appear much larger than those of other bear species.</p>
Special Features/Adaptations		
Interesting Info	<p>They are good swimmers and can climb trees. They have a good sense of smell but cannot see very well. They are afraid of grizzly bears.</p> <p>Two or three cubs are born during the winter while the mother is hibernating. They stay with their mom for one year.</p>	
Threats	Currently safe but real threat exists due to illegal poaching for the Asian medicinal market.	Poachers

	Brown Bears	Panda Bears	Polar Bears
Habitat (home)	Cool mountain forests and river valleys.	The mountains of China.	The Arctic (Greenland, Norway, former Soviet Union, Canada, and Alaska).
Diet	Plants, roots, berries, fungi, fish, small mammals, and large insects.	Bamboo (up to thirty-three pounds a day). Very rarely eat other plants or scavenge the meat of dead deer.	They are fierce predators who eat mostly seals and some walruses. Polar bears do not drink water but do occasionally eat berries or other plants when available.
Physical Features	Thick fur that can be black/brown or brown/blond. They have a big head, a long muzzle and a large hump on their shoulder. Females are about two-thirds the size of a male. 300–860 pounds Up to 9 feet and 6 inches long	3 to 4 feet tall 250 pounds	They have a small head and black nose. Their toes are slightly webbed so they can swim. They paddle with their front feet and steer with their hind feet. 10 feet long 1,700 pounds
Special Features/Adaptations	They can run up to 35 mph.		They can run up to 25 mph and are powerful swimmers. Polar bears have two types of fur: Thick, wooly fur close to their skin that keeps them warm, and hollow guard hairs that stick up and protect them from getting wet. These guard hairs are like drinking straws and are clear-colored (not white). Under the fur, they have black skin. This helps them absorb more heat from the sun. They also have a thick layer of fat under the skin that helps keep them warm. www.polarbearsalive.org/facts4.htm#anchor823832
Interesting Info	They are fierce predators and are mostly nocturnal. Although they sleep in dens during the winter, they are not true hibernators and can easily be awakened.		
Threats	Human encroachment and ensuing habitat loss. Illegal hunting.	Deforestation and poaching.	Massive oil spills and accumulating toxins in their food supply. A recent report said global warming is now affecting them as well.

	Sun Bears	Sloth Bears	Spectacled Bears
Habitat (home)	Lowland tropical rain forests in Southeast Asia.	Prefer to live in grasslands and forested areas at predominantly lower altitudes in India, Bangladesh, Nepal, Bhutan, and Sri Lanka.	They are most often found in what is called the cloud forest, a lush, misty ecosystem in the Andes Mountains.
Diet	Birds, small mammals, termites, the young tips of palm trees, and the nests of wild bees.	Mainly termites. Other items are fruit, plants, eggs, insects, honey, and carrion.	Fruit, rodents, and insects.
Physical Description	Smallest bear, 60–145 pounds, 48–60 inches long Short, sleek black fur with a golden or white colored crescent shape on their chest and the same lighter color around their muzzle and eyes. The muzzle is short.	Medium-sized bear, weighing between 175 and 310 pounds and is 60–75 inches long. It has a very shaggy coat of black fur, with gray and brown hairs mixed in. On the chest there is a white or cream colored U- or Y-shaped patch of fur. This same lighter color occurs around the muzzle and sometimes extends around the eyes.	Small black bear with cream-colored facial markings around its eyes. Females weigh about 150 lbs and males may weigh 250 pounds. They are about 60–72 inches long.
Special Features / Adaptations	The paws of the sun bear are large with naked soles, possibly an adaptation for better tree climbing.	Its upper incisors are missing, forming a gap, and its lips can extend to form a tube. With this, the sloth bear is able to suck up the termites, making a sound that can be heard over 330 feet away.	They are excellent tree climbers and tree foragers.
Interesting Info			Are thought to play a vital role in the forest by scattering seeds through their droppings.
Threats	Habitat loss and poaching.	Habitat loss and poaching. Natural predators such as wild dogs, tigers, and leopards.	Habitat destruction and hunting.

Name _____ Buddy _____

Compare the Bears

1) **Directions:** Pick two kinds of bears to study. Find out how big they are, what they eat, and where they live. Then think about how the bears compare.

(Note to the teacher: This page can be used as an assignment sheet by deleting the sample responses.)

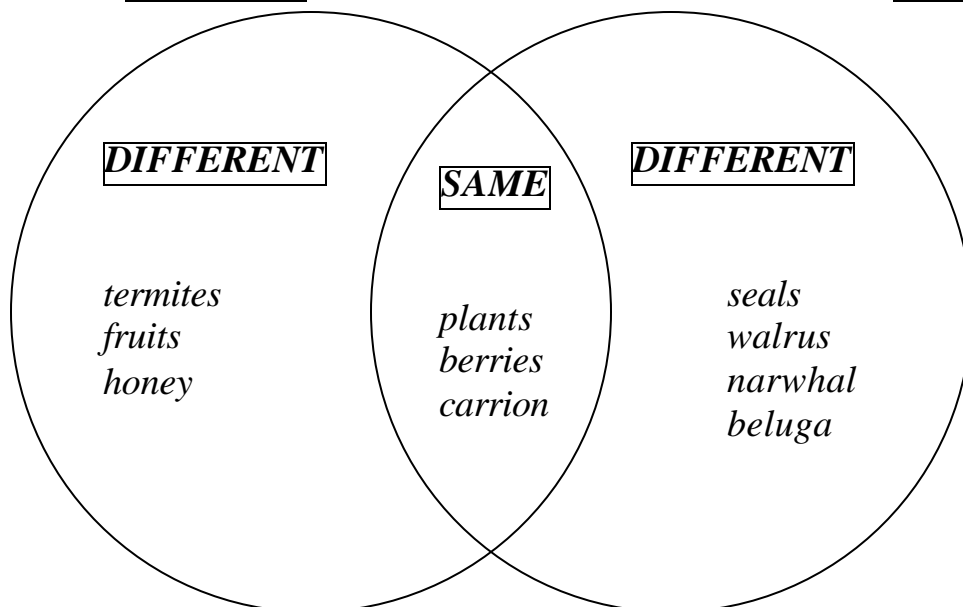
Species	<i>Sloth bear</i>	<i>Polar bear</i>
Length	<i>5 to 6 feet long.</i>	<i>7 to 10 feet long.</i>
Weight	<i>175 to 310 pounds.</i>	<i>440 to 1760 pounds.</i>
Food	<i>Termites, fruits, plants, eggs, insects, honey, and carrion (already dead animals).</i>	<i>Seals, walrus, a few narwhal or beluga, carrion (already dead animals), berries, plants (there are not many to eat).</i>
Range	<i>Grasslands, and forests around India.</i>	<i>Way north, Alaska, Canada, Europe, Russia, icy areas around the shorelines.</i>
Compare	<i>The biggest sloth bear is smaller than the smallest polar bear. Polar bears are hunters, sloth bears are not. A sloth bear eats nothing from the ocean. They both eat carrion and some plants, but their diets are very different. The polar bear lives near the north pole where it's really cold, and the sloth bear lives around India where it is hot. A polar and sloth bear would never meet, except maybe in the zoo.</i>	

What They Eat

2) **Directions:** Write what each bear eats. The foods they both eat goes in the center, where the circles overlap.

Kind of Bear: *Sloth Bear*

Kind of Bear: *Polar Bear*



3) Directions: Draw a picture of each bear on some art paper. Show the bear doing what it does most of the time. Write sentences to tell what is happening in the picture.

Have your fifth-grade buddy help you write down where you got the information.

The Bear Den – www.bearden.org/slobear.html

Wexo, John, Bears, Wildlife Education, San Diego, CA 2000.

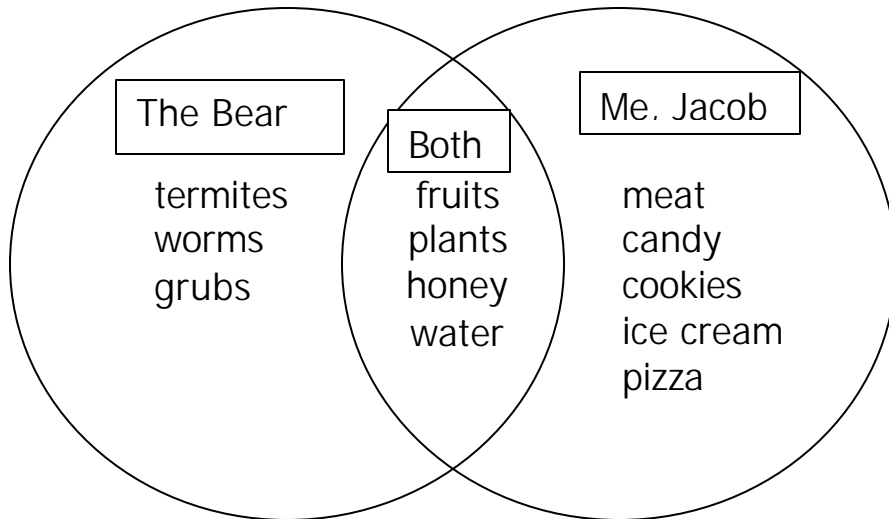
Meet the Bears

Two student activity examples – these could be made as posters, with drawings of the children, foods and bears.

Venn Diagram - Diet

Food comparison of one bear species' diet and a student's diet.

Bear Species: Sloth Bear Student: Jacob



How to make a bear out of me! By Angela
 I am comparing my weight to the weight of a mother polar bear!
 The bear weighs 650 pounds. I weigh 48 pounds.
 (Student does repeated addition until she gets close to the bear's weight, then draws herself that many times, as well as a picture of the bear.)

$$48+48=96+48=144+48=192+48=240+48=288+48=336+48=384+48=432+48=480+48=528+48=576+48=624+48=672$$



It takes thirteen of me and almost one more to weigh as much as a polar bear

Conclusion

I think sloth bears are cute and not scary. I hope I can travel to Asia one day to see a real one. I would like to know how many have Us and how many have Ys on their chest.

Work Cited

Bear Den www.bearden.org

Bears

www.bears.org/Slobear.html

Wexo, John, Bears, Wildlife Education, San Diego, CA 2000.

Microsoft Encarta E. Hanumantha Rao/Photo Researchers, Inc.

Student Names
School
Classroom
School Address

Sloth Bears



Where do sloth bears live?

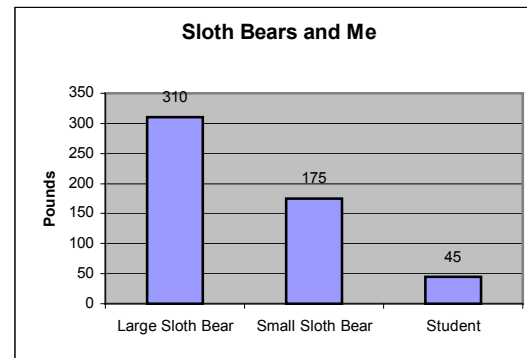
Sloth bears live in the grasslands and forests of Asia. They live in India, Bangladesh, Nepal, Bhutan, and Sri Lanka.

What do they look like?

They have shaggy black fur with some gray and brown hair. You can tell sloth bears apart from other animals because they have some white hair on their chest. The white hair usually looks like the letter U or Y. They also have some white hair on their muzzle and sometimes it goes all the way to their eyes.

How big are they?

Sloth bears are not very big for bears, but they are much bigger than me! They are not very tall. They are about 60 - 75 inches tall, but they are heavy. They weigh 175 - 310 pounds.



Even the smallest sloth bear weighs almost four times as much as me.

What do they eat?

You don't need to be afraid of a sloth bear if you see one, because it does not eat the meat of other animals. Sloth bears like to eat termites by sucking them up with their mouth. They can do this because they are missing two of their top teeth. This hole helps them make a tube with their lips and they suck them up.




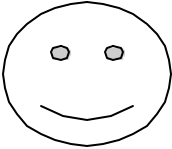
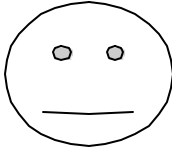
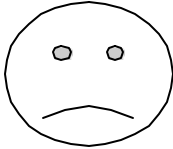

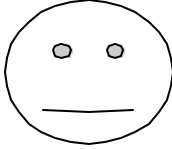
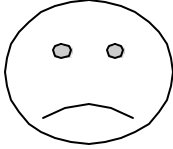
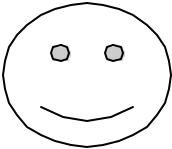
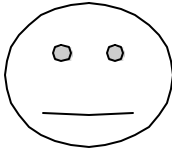
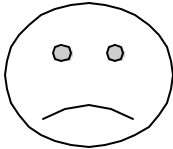
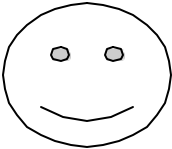
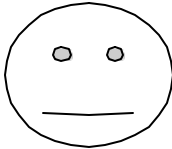
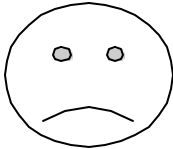
They also like to eat fruit, plants, eggs, honey, and carrion. I like to eat fruit, plants, honey, and eggs too. But I definitely don't eat termites!!!

GENERAL PROJECT RUBRIC (*Bears! Bears! Bears!*)

	4	3	2	1	0
<p>CONTENT and UNDERSTANDING</p> <ul style="list-style-type: none"> Describe a bear's physical characteristics. Compare the size of different types of bears and humans. Describe basic needs of a bear (habitat, diet). Compare the diet of bears and humans. Using a spreadsheet or graphing software, display measurements of bears and humans by collecting, sorting and displaying data. Import a graphic. Synthesize information into a brochure about a bear. 	<p>Completes all components of the task. Demonstrates in-depth understanding of relevant concepts and/or processes. Chooses efficient and/or sophisticated processes to complete the project. Offers unique interpretations or extensions (generalizations, applications, analogies).</p>	<p>Completes most important components of the task. Demonstrates understanding of major concepts, some supporting ideas/details may be overlooked or misunderstood. Chooses processes that allow him/her to complete the project. Offers expected interpretations or extensions.</p>	<p>Completes some components of the task, not most important ones. Demonstrates that there are gaps in conceptual understanding. Needs assistance in choosing processes for completing project. Offers few or no interpretations or extensions.</p>	<p>Work is incomplete. Shows minimal understanding, solution may be incorrect or irrelevant. Needs assistance in choosing processes. Needs assistance to complete basic steps of the project.</p>	<p>Blank, no response, or cannot be evaluated.</p>
<p>ORAL or WRITTEN PRESENTATION</p> <p>The student uses the presentation tools to effectively communicate their learning.</p>	<p>Communicates effectively. Conveys clear, focused main ideas supported by well-chosen details and examples. Designs presentation to match topic, audience, and purpose. Uses tools to enhance the communication of content.</p>	<p>Communicates completely. Conveys main ideas, supported by relevant details and examples. Designs presentation to match topic, audience, and purpose. Uses tools to support the communication of content.</p>	<p>Communicates partially. Conveys main idea but does not support effectively. Designs presentation that may not effectively match topic, audience, or purpose. Use of tools does not support the communication of content.</p>	<p>Communicates in a limited manner. Does not present or support main ideas. Does not match presentation to topic, audience, or purpose. Use of tools interferes with communication of content.</p>	<p>Blank, no response, or cannot be evaluated.</p>
<p>ORGANIZATION and MECHANICS</p> <p>The work shows thoughtful organization and attention to conventions.</p>	<p>Information is presented in a clear sequence. Clear connections and transitions are made among ideas or topics. Formatting is consistent throughout presentation. Clear evidence of proofreading. No noticeable errors.</p>	<p>Information presented in order. Ideas are connected. Formatting may vary, does not interfere with presentation. Adequate evidence of proofreading. Few errors do not detract from presentation.</p>	<p>Some information out of order. Ideas may not be connected. Formatting inconsistencies detract from presentation. Some evidence of proofreading. Errors detract from presentation.</p>	<p>Information is disorganized. Gaps in information exist. Inconsistent formatting interferes with presentation. Little or no evidence of proofreading. Errors interfere significantly.</p>	<p>Blank, no response, or cannot be evaluated.</p>
<p>Check:</p> <p>_____ Brochure/Newsletter</p> <p>_____ Slide Show Presentation</p> <p>_____ Web page</p>		<p>Content and Understanding (x2)</p> <p>8 6 4 2 0</p>	<p>Presentation</p> <p>4 3 2 1 0</p>	<p>Organization and Mechanics</p> <p>4 3 2 1 0</p>	<p>Overall</p> <p>/16</p>

Bear Brochure
Assessment

Name: _____

	Yeah! 2 points	Good! 1 point	Oops! 0 points
I described my bear.			
I made a graph comparing my size with my bear.			
I described where my bear lives and what he eats.			
I compared what my bear and I eat.			
I added a picture of my bear from the computer.			

Total points = _____ out of 10