NAME \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_

**HOW MANY BEARS CAN LIVE IN THIS WOODS?**

1. Bears are described as: Carnivores Herbivores Omnivores Detritivores Decomposers

because they eat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- |
| Table 1. Food Collection and nutritional requirements – from page 3 | |
| Food Collected by your bear  Plants \_\_\_\_\_\_\_ pounds  Berries \_\_\_\_\_\_\_ pounds  Nuts \_\_\_\_\_\_\_ pounds  Insects \_\_\_\_\_\_\_ pounds  Meat \_\_\_\_\_\_\_ pounds | The average food required for a bear for 10 days is:  Plants 20 pounds = 25% of diet  Berries 20 pounds = 25% of diet  Nuts 20 pounds = 25% of diet  Insects 12 pounds = 15% of diet  Meat 8 pounds = 10% of diet  80 pounds = 100% |

|  |
| --- |
| Table 2. Calculated percentages for your bear’s diet |
| Plants are \_\_\_\_\_\_\_ % of my bear’s diet. This is \_\_\_\_\_\_\_\_% higher / lower that an average bears diet.  Berries are \_\_\_\_\_\_\_ % of my bear’s diet. This is \_\_\_\_\_\_\_\_% higher / lower that an average bears diet.  Nuts are \_\_\_\_\_\_\_ % of my bear’s diet. This is \_\_\_\_\_\_\_\_% higher / lower that an average bears diet.  Insects are \_\_\_\_\_\_\_ % of my bear’s diet. This is \_\_\_\_\_\_\_\_% higher / lower that an average bears diet.  Meat is \_\_\_\_\_\_\_ % of my bear’s diet. This is \_\_\_\_\_\_\_\_% higher / lower that an average bears diet. |

2. Calculate the % of food in your bear collected, based on weight, compared to the amount required: \_\_\_%

3. If this amount of food collecting continues for 1 year, will your bear survive or die? \_\_\_\_\_\_\_\_\_\_\_\_\_

4. Thinking ecologically explain why only 10% of a bear’s calories come from meat.

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5. How does the fact that they are crepuscular impact their hunting?

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6. Do some research to determine the caloric densities of these foods American Black Bears happily eat.

Pine Nuts = \_\_\_\_\_\_\_\_\_\_ cal / oz. Grass leaves = \_\_\_\_\_\_\_\_\_\_ cal / oz.

Sockeye Salmon = \_\_\_\_\_\_\_\_\_\_ cal / oz. Caribou = \_\_\_\_\_\_\_\_\_\_ cal / oz.

Acorns = \_\_\_\_\_\_\_\_\_\_ cal / oz. Buffalo Berries = \_\_\_\_\_\_\_\_\_\_ cal / oz.

7. Describe “autumn hyperphagia” and how it changes the life style of a bear: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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8. For a bear to gain the 30 pounds of fat it needs for its hibernation period describe what it must do.

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8a. Is this different for a human to gain 30 pounds? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class Data Analysis

9. Total pounds of food in the environment = \_\_\_\_\_\_\_\_\_

10. Approximately how many bears should be able to survive if all the resources were divided evenly among all the bears? \_\_\_\_\_\_\_\_\_\_

11. How many survived in this forest? \_\_\_\_\_\_\_\_\_

12. How many starved? \_\_\_\_\_\_\_\_\_

Did the mother of the cubs survive? YES NO

Did the baby bears survive? YES NO

Did the injured bear survive? YES NO

13. What type of interaction is at work in this simulation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Why do you think more bears died than expected? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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15. Which bear(s) were most likely to die? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Give 2 reason WHY they were likely to die: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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16. If your bear is not eating a balanced diet, what do you think might happen to him/her?

(Don’t say it will die… most teenagers don’t eat the way they should and they aren’t dead.)

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17. What kind of limiting factor was at work in this Bear simulation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Name at least 3 other things organisms have to compete for in an ecosystem in addition to food.

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19. How do limiting factors affect an ecosystem’s carrying capacity for a given species?

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20. In real life, if there is not enough food, the mother bear will choose to eat the food herself and let her babies starve. Why is this a good strategy for bear populations in general?

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FOOD COLLECTION SCORE SHEET

Talley the cards you collected in your foraging, do not count cards that were stolen from you.

P-10 \_\_\_\_ X 10 = \_\_\_\_\_\_\_ N-10 \_\_\_\_ X 10 = \_\_\_\_\_\_ M-4 \_\_\_\_\_ X 4 = \_\_\_\_\_

P-20 \_\_\_\_ X 20 = \_\_\_\_\_\_\_ N-20 \_\_\_\_ X 20 = \_\_\_\_\_\_ M-8 \_\_\_\_ X 8 = \_\_\_\_\_

TOTAL PLANTS = \_\_\_\_\_\_\_\_ TOTAL NUTS = \_\_\_\_\_\_\_\_ TOTAL MEAT = \_\_\_\_\_\_

I-6 \_\_\_\_ X 6 = \_\_\_\_\_\_\_ B-10 \_\_\_\_ X 10 = \_\_\_\_\_\_

I-12 \_\_\_\_ X 12 = \_\_\_\_\_\_\_ B-20 \_\_\_\_ X 20 = \_\_\_\_\_\_ TOTAL POUNDS OF FOOD = \_\_\_\_\_\_\_\_\_

your bear collected

TOTAL INSECTS = \_\_\_\_\_\_\_\_ TOTAL BERRIES = \_\_\_\_\_\_\_\_\_