

Title: Problem Solving with the Wilderness Classroom

Subject: Mathematics

Grade Level: 3rd – 8th Grade

Time: Varies depending on ability

Objective:

Students will increase mathematical awareness and practice sample word problems.

Method:

Use the following problem solving questions to enrich students understanding of mathematics and mathematical operations. Select problems from the following worksheet that fit your students' needs. Problems are arranged from simple to complex.

Illinois State Goals and Learning Standards:

Problems assess all Mathematics Goals and Objectives for Late Elementary and Middle/Junior High School.

1. There are 4 team members from the USA and 2 from Peru. How many team members in total?

- a. 4
- b. 2
- c. 7
- d. 6
- e. 5

2. The team needs 50 lbs of rice for the adventure. Rice comes in 10 lb. bags. How many bags will the team need?

- a. 45
- b. 6
- c. 5
- d. 10
- e. 4

3. Tell how you would solve this problem. There are four team members from the USA and two from Peru. How many more team members are from the USA?

- a. Add
- b. Subtract
- c. Multiply
- e. Divide

4. Dave bought rubber boots for \$12 and a paddle for \$7. How much did he spend?

- a. \$16
- b. \$17
- c. \$21
- d. \$19
- e. \$18

Favorite Rainforest Animal

Sloth	X	X	X	X	X		
Jaguar	X	X	X				
Monkey	X	X	X	X	X	X	
Number of Votes	1	2	3	4	5	6	7

5. How many total people voted? Each person only voted once.

- a. 5
- b. 14
- c. 6
- d. 13
- e. 6

6. How many more people voted for the Sloth than the Jaguar?

- a. 5
- d. 6

- b. 3
- c. 2
- e. 4

7. When the 4 members of the team flew to Lima, Peru, each ticket cost \$473. When the team flew to Iquitos, Peru, each plane ticket cost \$110. How much more money was each ticket to Lima?

- a. \$310
- b. \$363
- c. \$573
- d. \$110
- e. \$463

8. The team has 12 backpacks. The team has 3 canoes. How many backpacks should go in each canoe?

- a. 4
- b. 3
- c. 6
- d. 2
- e. 5

9. What information is needed to solve this problem?

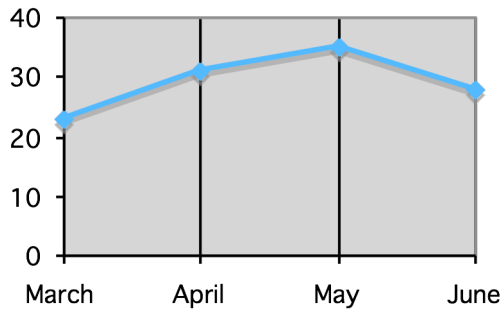
The team wants to buy 4 lbs. of yucca and 10 lbs. of bananas. They like bananas more than yucca. Bananas cost \$0.50 per lb. How much are they going to have to spend?

- a. How much money the team has
- b. How much bananas cost
- c. How much yucca costs
- d. Who is buying the food?
- e. Why they like bananas more

10. Dave has \$7.00. If he buys a rain hat for \$4.00, how much money does he have left?

- a. \$7
- b. \$4
- c. \$11
- d. \$3
- e. \$2

**Rainfall in Iquitos, Peru
In Inches**



11. What month did it rain the most?

- a. March
- b. April
- c. May
- d. June

12. What month saw the least amount of rain?

- a. March
- b. April
- c. May
- d. June

13. What operations do the underlined words tell you to do?

Dave has 10 M&Ms fewer than Eric. What is the difference between the number of M&Ms Dave and Eric have?

- a. add
- b. subtract
- c. multiply
- d. divide

14. If a paddle costs \$9. How much does it cost to buy 7 team members a paddle?

- a. \$63
- b. \$81
- c. \$54
- d. \$72
- e. \$56

15. If Eric and Amy go out to explore the rainforest. They tell the rest of the team they should be back in an hour, and it's 1:32 PM. About what time should the rest of the team expect Eric and Amy to return?

- a. 1:45
- b. 2:00
- c. 2:15
- d. 2:30
- e. 2:45

16. What operation should be used to solve the following problem?

There are 10 yucca plants growing on the farmer's land. In May, the farmer planted 6 more yucca plants. How many yucca plants does he have in total?

- a. addition
- b. 16
- c. subtraction
- d. division
- e. 4

17. What problem solving strategy would work best to solve the following problem?

Dave had \$3.00 in his pocket when he got to camp this afternoon. He spent \$2.00 on fish from the fisherman he met today, and spent \$0.50 buying a Coke for Amy. He found \$1.00 in the bottom of the canoe this morning. How much money did he start off with?

- a. Guess and Check
- b. Look for a Pattern
- c. Solve a Simpler Problem
- d. Work Backwards
- e. Make a Model

18. A sloth needs to eat 20 leaves to keep warm. It has already eaten 10 leaves and it has 3 more in its hand. After it eats the leaves in its hand, how many more leaves will it need to eat?

- a. 3
- b. 7
- c. 10
- d. 20
- e. 13

19. Which number sentence will correctly solve this problem?

The pirrana ate 8 smaller fish. There were 12 smaller fish in the lake. How many smaller fish are left in the lake?

- a. $12 - 8 = 4$
- b. $8 + 12 = 16$
- c. $8 + 4 = 12$
- d. $20 - 8 = 12$
- e. $20 - 4 = 16$

20. Two sisters can share the money from selling bananas picked from their family's banana plantation. They pick 100 lbs. of bananas and sell them for \$.20 per pound. How much money will each sister get?

- a. \$10.00
- b. \$20.00
- c. \$15.00
- d. \$200.00
- e. \$100.00

Paddle Strokes per hour	Team Member
180	Carol
250	Ruben
225	Amy
195	Eric
210	Dave
230	Hoeky

21. How many team members paddled more than 200 times per hour?

- a. 3 b. 7 c. 4 d. 2 e. 6

22. Which ratio represents the number of tree frogs to monkeys?



- a. $\frac{3}{4}$ d. $\frac{8}{3}$
b. $\frac{2}{3}$ e. $\frac{7}{8}$
c. $\frac{4}{3}$

23. The pirrانا has 11 brother and sisters. They have all been asked to help their mother find food. If each of the brothers and sister find 3 small fish, how many fish will they have in all?

- a. 11 d. 22
b. 23 e. 40
c. 33

24. The team has a list of 21 tasks to do while they are visiting the village. If all 7 team members do the same number of tasks, how many tasks will each team member have to do?

- a. 14
- b. 7
- c. 4
- d. 28
- e. 3

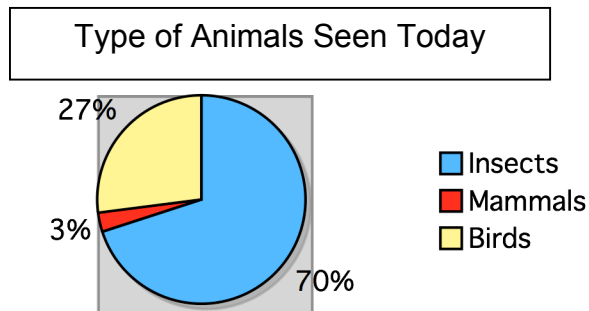
25. Estimate the answer.

If there is enough room on one leaf for leaf-cutter ants to cut 10 chunks, and 23 leaf-cutter ants each want 2 chunks. How many leaves will they have to cut up?

- a. 5
- b. 23
- c. 10
- d. 3
- e. 2

26. A shaman went into the rainforest to gather medicinal plants. She gathered 3 plants to cure pain, 14 plants for the stomach, and 9 plants for headaches. How many plants did she gather in all?

- a. 21
- b. 24
- c. 26
- d. 19
- e. 28



27. How many more insects did the team see today than birds?

- a. 40%
- b. 30%
- c. 33%
- d. 43%
- e. 70%

28. Eric's paddle is 4 feet long. Ruben's paddle is 52 inches long. How much longer is Ruben's paddle?

- a. 1 foot
- b. 4 inches
- d. 2 inches
- e. Not Enough Information

c. 6 inches

29. A paiche fish swims 4 miles per hour and does not change speed or make any stops. How long will it take the paiche to swim 20 miles?

- a. 5 hours
- b. 4 hours
- c. 6 hours
- d. 3 hours
- e. 20 hours

30. If it rains 20 inches every 30 days, how much rain would fall in 90 days?

- a. 60 inches
- b. 300 inches
- c. 150 inches
- d. 450 inches
- e. 30 inches

31. 40 bananas come in each bunch. 10 bananas were rotten. How many bananas were not rotten?

How would you find the answer?

- a. addition
- b. subtraction
- c. multiplication
- d. division

32. The team members each paddled 100, 63, 90, 85, and 92 in hour today. What is the mean (average) number of paddle strokes?

- a. 81
- b. 85
- c. 83
- d. 415
- e. 86

33. There are 60 leaves on a tree. If 8 leaf cutter ants get the same number of leaves, how many leaves will be left over?

- a. 52
- b. 8
- c. 11
- d. 4
- e. 0

34. Which letter in the words “Wilderness Classroom” would you expect a computer to randomly pick most often?

- a. o
- b. s
- c. w
- d. a
- e. n

35. The team searched all day for an anaconda. The team paddled up 3 miles, down 5 miles, up 2 miles, and then down 6 miles. The team ended up at mile-marker 4. Which mile-marker did the team begin?

- a. Mile-marker 13
- b. Mile-marker 15
- c. Mile Marker 8
- d. Mile-marker 10
- e. Mile-marker 2

36. Which expression correctly represents the formula to solve the following problem? Dave is 6 years older than Amy. The sum of their ages is 56. How old is Amy?

- a. $x + y = 56$
- b. $x - 56 = x + 6$
- c. $D + A = 56$
- d. $2x + 6 = 56$
- e. $x - 6 = 56$

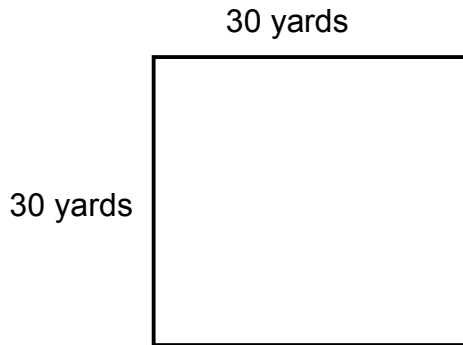
37. If the distance from Iquitos to the Brazilian border measures 25 inches on a map with a scale of 1 inch = 100 miles, how many miles is it from Iquitos to the Brazilian border?

- a. 25 miles
- b. 250 miles
- c. 10 miles
- d. 1,000 miles
- e. 500 miles

38. The ratio of the number of leaf cutter ants to bullet ants is 3 to 2 in a section of rainforest. There are 28 bullet ants in the section of rainforest. How many leaf cutter ants are in the section?

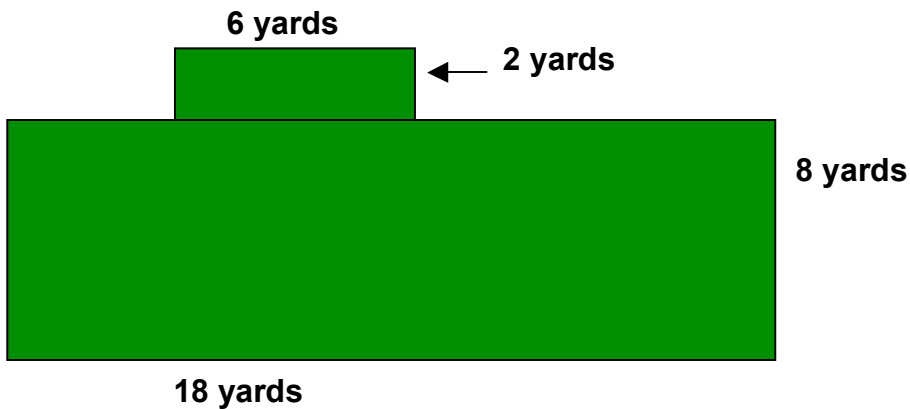
- a. 28
- b. 14
- c. 36
- d. 42
- e. 7

39. The area of banana farm is 900 square yards. What is the area of the farm in square feet?



- a. 900 square feet
- b. 300 square feet
- c. 2700 square feet
- d. 1,000 square feet

40. What is the area of the farm shown below?



- a. 180 square yards
- b. 144 square yards
- c. 120 square yards
- d. 156 square yards

41. Warren, the fisherman, went out to the river to check both of his nets. The fish in the nets are all the same size.

Net 1 has 2 pirana and 3 sabalo fish.

Net 2 has 4 pirana and 2 sabalo fish.

Warren will pull out one fish from each net without looking. What is the probability that he will choose a pirana from each net?

- a. $\frac{1}{5}$
- b. $\frac{7}{9}$
- c. $\frac{6}{7}$
- d. $\frac{7}{16}$

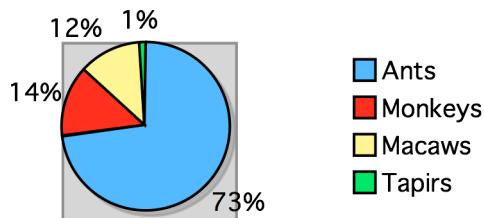
42. Last year the team saw a total of 120 species of animals. This year the number of animal species the team has seen has increased by 15%. What is the total number of animals seen this year?

- a. 135
- b. 138
- c. 150
- d. 102

43. The team decides to head into the forest to look for a heart of palm. After finding the perfect tree, they estimate that the tree's trunk is 20 feet tall with a diameter of 2 feet. Which is closest to the total estimated volume of the tree's trunk? Use 3.14 for π .

- a. 200
- b. 250
- c. 300
- d. 350

275 Total Animals Seen



44. How many macaws were seen?

- a. 12
- b. 20
- c. 61
- d. 33

45. Estimate how many more ants were seen than all other animals combined?

- a. About 75
- b. About 200
- c. About 125
- d. About 30

Answers for Word Problems

1. d. 6 $4+2=6$	18. b. 7 $10 + 3 = 13$ $20 - 13 = 7$
2. c. 5 $50 / 10 = 5$	19. a. $12 - 8 = 4$
3. b. Subtract $4 - 2$	20. a. \$10.00 $100 \times .20 = 20.00$ $20 / 2 = 10$
4. d. \$19 $\$12 + \$7 = \$19$	21. c. 4
5. b. 14 $5+3+6=14$	22. a. $\frac{3}{4}$
6. c. 2 $5 - 3 = 2$	23. c. 33 $3 \times 11 = 33$
7. b. \$363 $473 - 110 = 363$	24. e. 3 $21 / 7 = 3$
8. a. 4 $12/3 = 4$	25. a. 5 $23 \times 2 = 46$ $46 / 10 = 4.6$
9. c. How much yucca costs	26. c. 26 $3 + 14 + 9 = 26$
10. d. \$3 $7 - 4 = 3$	27. d. 43% $70 - 27 = 43$
11. c. May	28. b. 4 inches $4 \times 12 = 48$ $52 - 48 = 4$
12. a. March	29. a. 5 hours $20 / 4 = 5$
13. b. subtract	30. a. 60 inches $90 / 30 = 3$ $3 \times 20 = 60$
14. a. \$63 $9 \times 7 = 63$	31. b. subtraction
15. d. 2:30	
16. a. addition	
17. d. Work Backwards	

32. e. 86

$$100+63+90+85+92 = 430$$

$$430 / 5 = 86$$

33. d. 4

$$60 / 8 = 7 \text{ r } 4$$

34. b. s

35. d. Mile-marker 10

The team paddled a total of 5 miles up river
(3+2=5)

The team paddled a total of 11 miles down
river (5+6=11)

The team ended up 6 miles down river
from where they started. (11-5=6)

Mile-marker 4 is 6 miles below where they
started. (4+6=10)

The started at Mile-Marker 10

36. b. $x-56 = x+6$

37. b. 250 miles

$$25 \times 100 = 250$$

38. d. 42

$$28 / 2 = 14$$

$$14 \times 3 = 42$$

39. b. 2,700

$$1 \text{ yard} = 3 \text{ feet}$$

$$3 \times 900 = 2,700$$

40. d. 156 square yards

The smaller rectangle has an area of 12
square yards (6x2=12)

The larger rectangle has an area of 144
square yards (18x8=144)

The total farm has an area of 156 square
yards (144 + 12 = 156)

41. d. $\frac{7}{16}$

There are a total of 7 pirana in both nets
with a total of 16 fish.

42. b. 138

$$120 \times .15 = 18$$

$$18 + 120 = 138$$

43. b. 250

$$V = \pi r^2 h$$

$$V = (3.14 \times 4)(20)$$

$$V = 251.2$$

44. d. 33

$$275 \times .12 = 33$$

45. a. About 75

$$275 \times .73 = 200$$

$$275 - 200 = 75$$