

Name \_\_\_\_\_

## **Using Math To Make Decisions About Animal Habitat**

You must make a decision about where to move 10 elephants. You have a choice of two different parks. Park A is 100 acres. It produces 40 pounds of vegetation per acre per day. Park B is 225 acres. It only produces 12 pounds of vegetation per acre each day.

If the 10 elephants require approximately 300 pounds of vegetation per day, to which park should you move the elephants?

Write up a proposal justifying your decision.

Name \_\_\_\_\_

## Using Math to Make Decisions About Moving Animals

You are in charge of determining how many elephants you can move to a game reserve. One of the factors in your decision is how well the land can support the food needs of the elephants. You know that the game reserve is 10,000 acres. 30% of that is desert, 50% is savannah, 10% is riverbed, and 10% is reserved for human population. You know that the desert produces 1 pound of food per acre per day. The river produces 9 pounds of food per acre per day. The savannah produces 6 pounds of food per acre per day. Elephants will not be able to roam and forage in the area reserved for humans.

If an adult elephant needs 300 pounds of food per day, how many adult elephants can you move into the park? Show your thinking.

What other factors do you need to consider?

Name \_\_\_\_\_

## Using Math To Make Decisions About Protecting Animals

Park rangers are setting aside a critical habitat area for the African Wild Dog. You must help the rangers buy fence to protect this area.

You start at the river and hike 3 miles north. Next you go 4 miles east. Then you turn and walk south for 3 miles. Finally you head west for 4 miles which returns you to your starting point at the river.

How many miles of fence do you need to buy?

If you convert that to metric, how many kilometers of fence would you need to purchase?

How many square miles of habitat will you be protecting?

If one wild dog needs 3 square miles in which to live, how many African Wild Dogs can be put into this area?

Write up a proposal to get funding for your project. Explain why you need the specific amount of fence in your proposal.

Name \_\_\_\_\_

## Using Math To Make Decisions About Animal Populations

You are in charge of giving advice to a village about protecting a pride of lions that has been moved into their territory. There are 4 male lions and 4 adult female lions. Each female lion will have 3 cubs each year, but 2 out of 3 cubs will die of natural causes. You also know that each female lion must be 4 years old to have cubs.

How many lions will there be after 3 years? \_\_\_\_\_

Explain your thinking in reaching this answer.

Added to this, is the fact that you can expect poachers to kill 25% of the pride each year.

How many lions will there be after the first year? \_\_\_\_\_

How many lions will there be after the second year? \_\_\_\_\_

How many lions will there be after the third year? \_\_\_\_\_

Can you really do the above problems? What information is missing? What does this tell you about the difficulty of predicting what will happen to a population of animals?

Name \_\_\_\_\_

## A Tricky Problem

### *The Story...*

Carol of the Wild Foundation is building two houses in Insandlawana, South Africa. One is for her and the other is for the tribal chief, Nkosi. Carol went away on a trip and when she returned she found many things had been stolen such as bricks, thatch pools, cement, tools, cinder blocks, paint and wheelbarrels. Carol suspected it was the sangoma, medicine man/witch doctor, who lived across the street. He had made some nice improvements to his home while she was gone.

After many hours of conversation with the sangoma and the Policing Forum Representative, the sangoma admitted to his thievery. They agreed he would return the things he hadn't used and work off the things he had used.

### *The Problem...*

The sangoma took a total of 588 red bricks. He was able to return 88 bricks to Carol. Each brick cost 3 South African rand or .35 cents. Carol will need to drive 50 miles to pick up the bricks and 50 miles back. Gas costs 8 rand or 1 US Dollar per liter. Her truck can travel 5 miles on each liter of gas. She will need to make two trips to pick up the 500 bricks the sangoma used. How much money does the sangoma owe Carol for the bricks? Remember to include the cost of transportation. Show your work.

### ***And Adding to the Problem...***

The sangoma doesn't have all of the money he needs to pay for the used bricks. He can give Carol \$5 US dollars and he can work off the rest. Carol has ten people working on the construction of the two houses. The sangoma is paid about \$3 dollars per day. Approximately how many days will the sangoma need work to pay back his debt for the used bricks?

### ***Extra – Extra!***

Sometimes we have information we just don't need to solve a problem. Make a list of the information you didn't need to help you answer the questions.