

# Population Calculation



## Objective

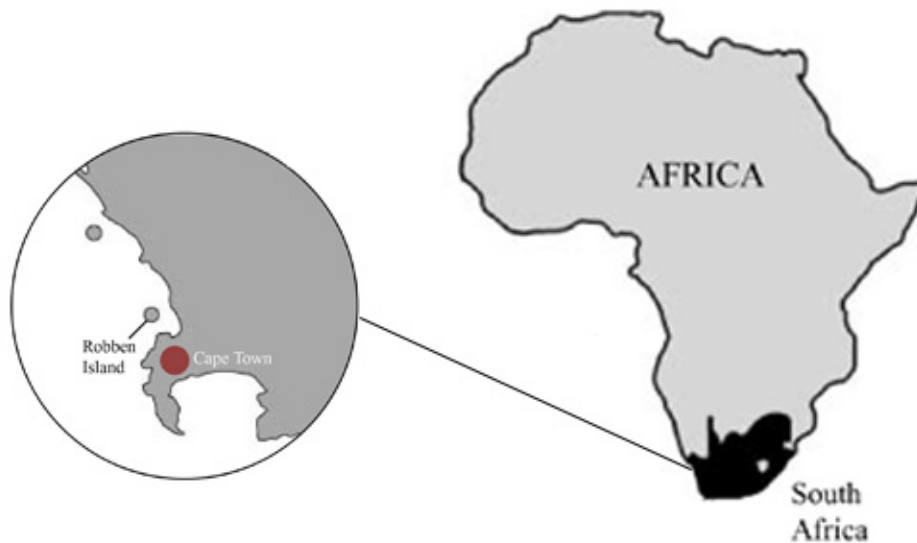
Students make decisions about how to solve problems using math skills.

## Materials

- Population Calculations** worksheet
- calculators
- pencils
- paper

## Background

In June 2000 an iron ore carrier, the MV Treasure, sank off the coast of South Africa, leaking tons of oil into the sea. The oil spill threatened the African penguins inhabiting Dassen and Robben Islands, which comprise about 40% of the total African penguin population. The Southern African National Foundation for the Conservation of Coastal Birds (SANCCOB) coordinated rehabilitation efforts for nearly 19,000 oiled penguins and the rescue of another 19,000 un-oiled penguins that were relocated until the area was cleaned up. SeaWorld penguin experts flew to Cape Town, South Africa to assist with the cleaning and care of the oiled penguins.



## Action

1. Have students work individually or in cooperative learning groups.
2. Distribute the **Population Calculations** worksheet.
3. Review new concepts or words before starting.
4. They can use another sheet of paper for calculations.

# Population Calculation



## Answers

You are a member of a team of scientists studying African penguins off the coast of South Africa. In early 2000, your team estimated that there were 55,000 African penguins on Dassen Island and 18,000 penguins on Robben Island.

1. If the total African penguin population is 182,500 penguins, what percentage of the world's African penguins inhabit Dassen Island?  $55,000 \div 182,500 = 0.301$  or 30%
2. What percentage of African penguins inhabit Robben Island?  
 $18,000 \div 182,500 = 0.099$  or 10%
3. On June 23, 2000, a huge ship sank off the African coast between Dassen and Robben Islands. The ship leaked fuel oil, diesel, and lube oil into the sea. Ocean currents spread the oil toward Dassen and Robben Islands. What percentage of the African penguin population was threatened by this oil spill?  $30\% + 10\% = 40\%$  [Or,  $(55,000 + 18,000) \div 182,500 = 40\%$ ]
4. Bird rescue experts worked quickly to collect oiled penguins and move them to an emergency rehabilitation facility. They collected 3,516 oiled penguins from Dassen Island, 14,825 oiled penguins from Robben Island, and another 500 oiled penguins from other nearby areas of the coast. At the rehabilitation facility bird experts washed and cared for the oiled birds. How many birds arrived at the rehabilitation facility?  $3,516 + 14,825 + 500 = 18,841$  penguins
5. Wildlife experts also collected another 19,506 healthy, un-oiled penguins from Dassen and Robben Islands and moved them about 800 kilometers (about 500 miles) out of harm's way until the oil could be cleaned up. How many total penguins were removed from the oil spill area?  $18,841 + 19,506 = 38,347$  penguins
6. What percentage of the total African penguin population was handled during the oil spill?  
 $38,347 \div 182,500 = 0.21$  or 21%
7. Remarkably, bird rehabilitation experts were able to save most of the penguins that were rescued. Experts estimate that about 2,000 penguins died as a result of the oil spill. What percent of the population is this?  $2,000 \div 182,500 = 0.01$  or 1%
8. What was the population of African penguins after the oil spill?  
 $182,500 - 2,000 = 180,500$  penguins

# Population Calculation



Name \_\_\_\_\_

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