

Real-World Problem Solving


Math and Science



Populations on the RISE

About the Cover

What animal populations are on the rise?



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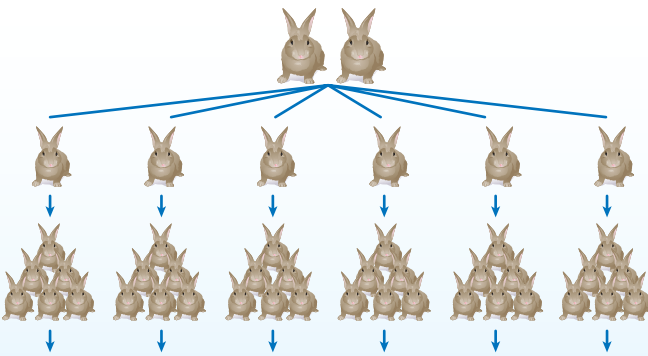
Populations on the RISE

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On the Rise

Think about this family of rabbits. What if each rabbit in the family soon has its own family? What happens when those rabbits have babies? The number of rabbits will multiply. The total number of something in one place is called a **population**. Sometimes a population of animals can outgrow its habitat. How does this population growth affect the environment?



Suppose two adult rabbits have about six baby rabbits. When those six rabbits grow up, they each have six babies. This would be 6×6 , or 36 rabbits. How many rabbits will be born in the third and fourth **generations**?

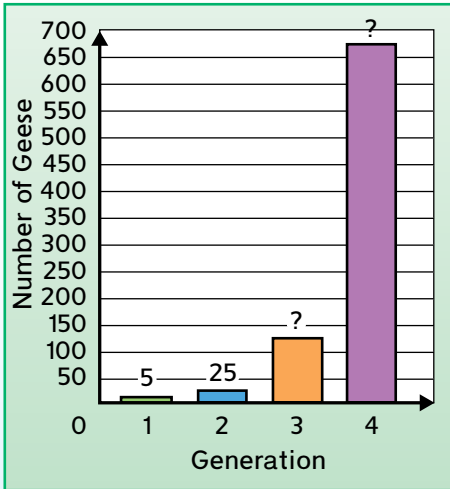
Did You Know?

One female rabbit can have up to 8 babies every month.



Lots of Geese

Many species of animals have rising populations. During the last 25 years, the number of Canada geese has increased. Geese often stop to find food in farm fields or lawns as they migrate south. They might stop to eat and rest. Some birds like the rest area so much that they remain there and do not fly south.



Suppose two geese have five goslings. If these five goslings each have five babies, there will be 5×5 or 25 goslings. How many goslings will be born in the third and fourth generations?



Pairs of Canada geese
will stay together for life.

A **predator** can limit population growth. However, if there are no predators and there is enough food and shelter, the population of a species will increase.

Problems arise if populations grow too large for any one place.



Some states along the Atlantic coast have a population of over 100,000 Canada geese.

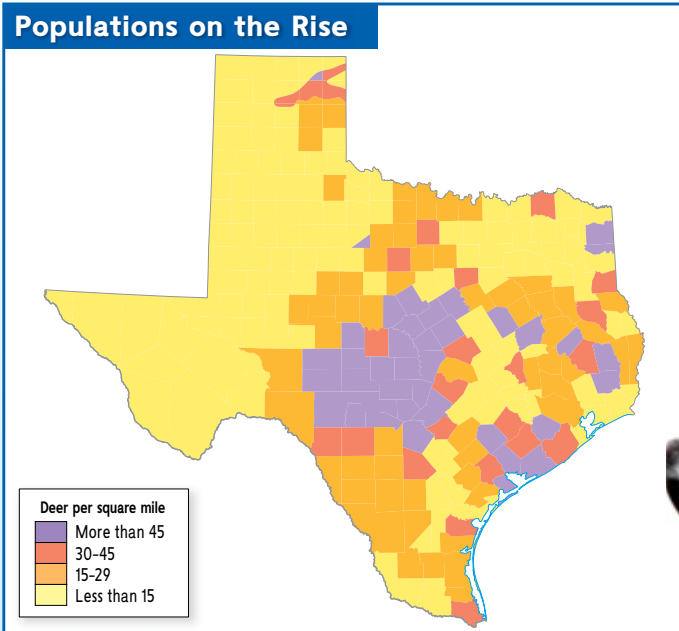
Canada geese can create problems due to their large populations. They eat the plants that other large birds need to survive. Also, many geese in one location create a large amount of droppings that **pollute** rivers and streams.



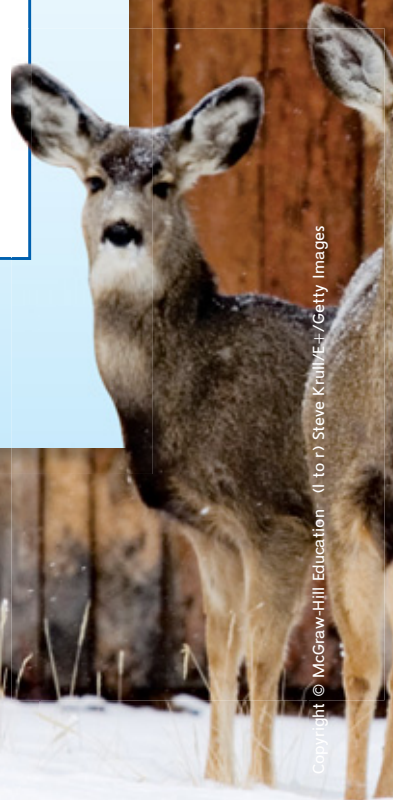
As more and more geese arrive, they can create problems in parks. Skip count by 2s to see how their number can grow if 2 geese arrive at a time. Now, what happens if you skip count by 3s? 5s? 10s?

Dealing With Deer

People are now building their homes in the fields and forests where deer are living. Because the deer find plenty to eat in people's gardens and in farmers' fields, the population of deer has increased.



Central Texas has more than 45 deer per square mile.





Wolves and bears no longer threaten deer populations. Since the deer's predators are limited, the populations of deer are increasing. There are now more deer than wolves and bears.



Deer sometimes eat farmers' crops.

Did You Know?

The state of New York is home to about one million deer.

As deer populations rise, so do the problems they cause. Deer can wander onto roads and highways, endangering drivers and causing serious accidents. Many states are making laws to limit the size of the deer population.

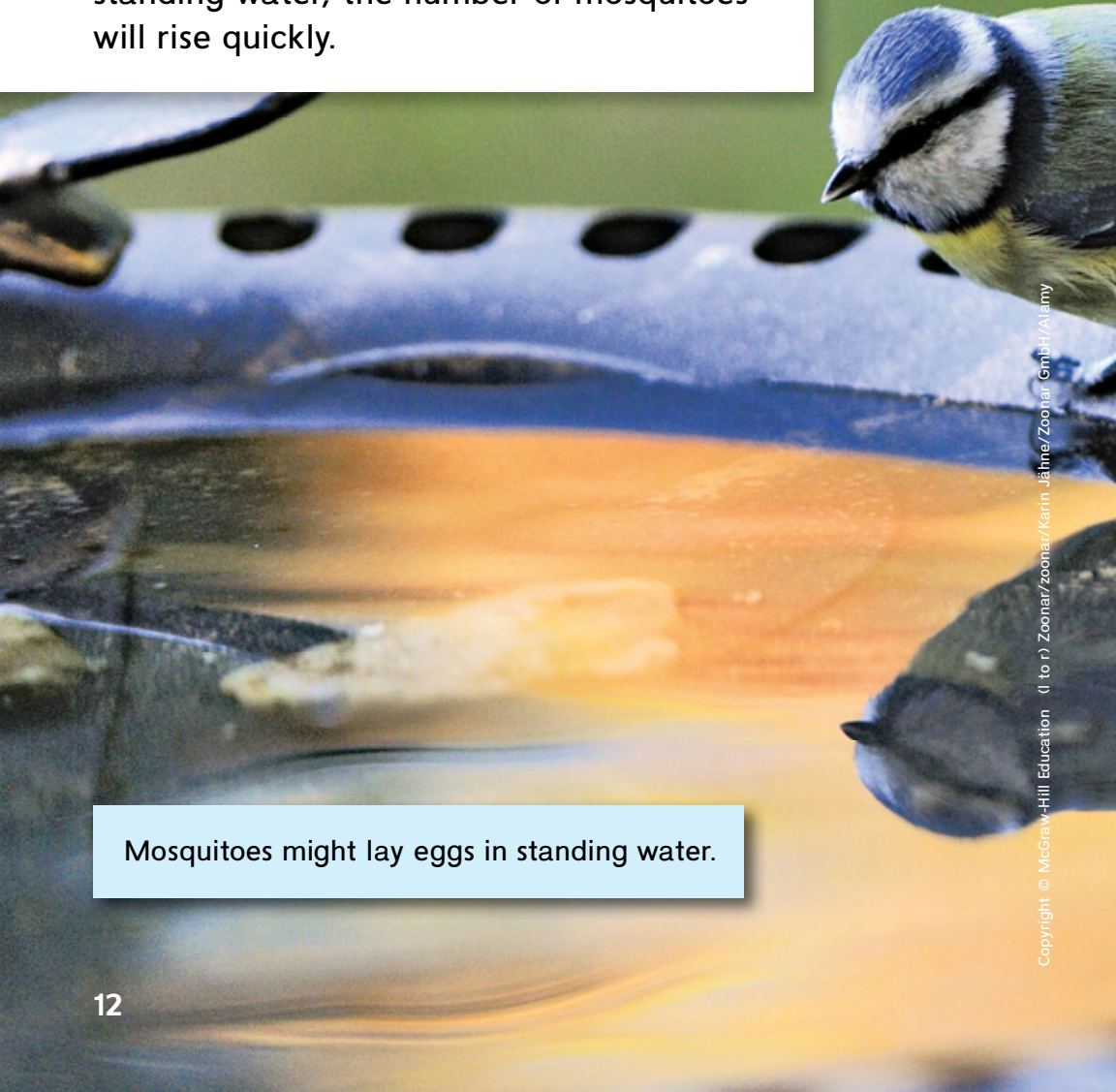


Deer have caused many car accidents. If 3 accidents are caused each day for one week on a roadway, how many accidents are there in all for the week?

More and More Mosquitoes

Mosquitoes are attracted to wet areas. Their eggs cannot develop in dry spots because they need a lot of rain or still water to grow. The mosquito eggs might lie dormant, or inactive, for years without water.

Mosquito eggs hatch in standing water. When heavy storms provide plenty of standing water, the number of mosquitoes will rise quickly.



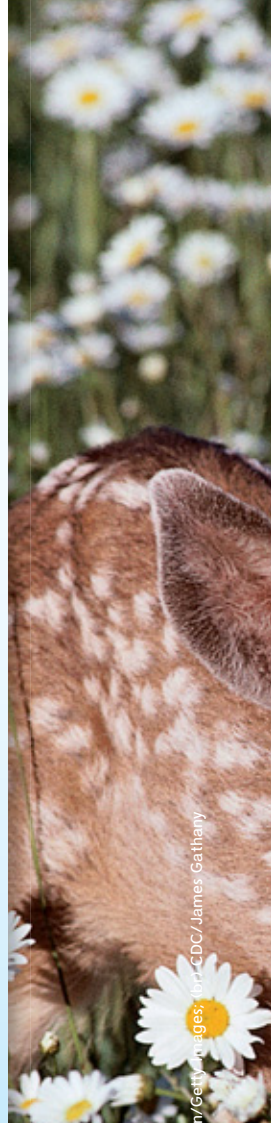
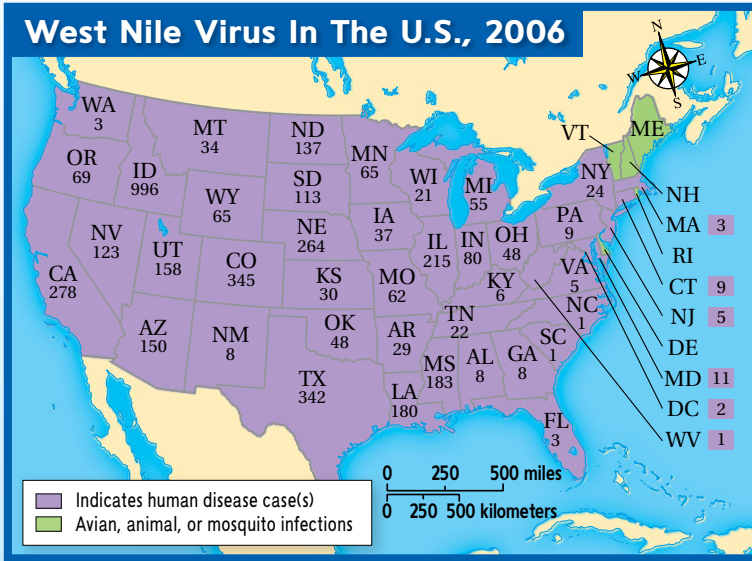
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Mosquitoes might lay eggs in standing water.



Cities and towns are trying to get rid of this harmful insect. Why? Mosquitoes spread disease.

There are many reasons that a population might change in size. Two main reasons are fewer predators and plentiful food. Also, the number of animals in a species is affected by changes in how and where people live, and changes in the weather.



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TALK ABOUT IT

Mosquitoes have brought West Nile virus to the U.S. Which state had the most human cases in 2006?





Changes in conditions can make populations rise or fall.



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Glossary

generations

Entire groups born at the same time. *(page 3)*

predator

An animal that hunts other animals for food.
(page 6)

population

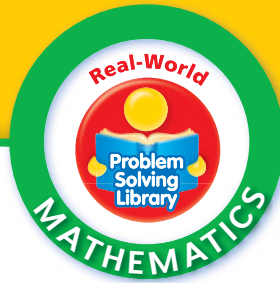
All the members of a single type of organism in one place. *(page 3)*

pollute

To add harmful substances to air, land, or water.
(page 7)

Real-World Problem Solving

1. Suppose a female rabbit has 8 babies each month for four months, and 6 babies each month for the rest of the year. How many babies does it have in all for the year? [Section 1]
2. Suppose there are 10 geese in a pond. Every other year, half of those geese have 3 babies. How many geese are there in all after 6 years? [Section 2]
3. About how many deer are there in 3 square miles of central Texas? [Section 3]
4. A female mosquito can lay up to 250 eggs at a time. If 5 mosquitoes lay eggs in standing water, about how many mosquitoes would hatch? [Section 4]
5. What is the difference in the number of human cases of the West Nile virus in 2006 between California and Florida? [Section 4]

**Math and Science**

Animal Habitats
Ecosystems All Around
Think About It!
Populations on the Rise
Water in Our World
Food, Energy, and You
Light, Sight, and Colors
So Bright
Moon Gazing

Math and Social Studies

Making a Budget
Craft Store Supplies
The Places We Live
Understanding Our
Government
Money Around the World
Appalachian Journey
Students at Work

