STEM Sims™

Bunnyland

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Do you need an idea for a scientific study?
Try out one of our ideas or make one of your own.

See the bottom of page 4 to check your answers.

1. What are baby rabbits called?
   a. fluffies
   b. cubs
   c. kits
   d. pups

2. Which rabbit teeth grow their entire lives?
   a. none of their teeth keep growing
   b. all their teeth keep growing
   c. their back teeth keep growing
   d. their front teeth keep growing

3. All the following are accepted names for a group of rabbits *except* a:
   a. fluffle.
   b. colony.
   c. herd.
   d. carrot.

4. About how long is a typical rabbit pregnant before they give birth?
   a. 1 day
   b. 1 week
   c. 1 month
   d. 6 months

5. How long did the oldest domestic rabbit live?
   a. 16 months
   b. 16 years
   c. 160 years
   d. 1,600 years

Too Many Bunnies!

Just like humans, the population of rabbits can grow exponentially. However, human pregnancy lasts for about nine (9) months, while a rabbit's for only about one (1) month. Additionally, rabbits have between one (1) to fourteen (14) babies with each liter, while humans typically only have one child per birth. Rabbits also reach their reproductive age in about four to five months, while humans reach theirs at about 12 – 13 years. All these facts mean that rabbits can reproduce very quickly as compared to humans. So, just how quickly?

Assume one adult male rabbit and one adult female rabbit start breeding at Month = 0. Also, assume the reproductive age of rabbits is four (4) months and the breeding rabbits produce six (6) babies with each litter. All the rabbits breed at the earliest time, there are equal numbers of female and male births, and all births are successful. For Month 7 in Table 1 below, enter the number of Breeding Pairs, the number of New Pairs from Breeding, and the number of Total Rabbits present.

Table 1. Rabbit Population Over Time

Month	Breeding Pairs	New Pairs from Breeding	Total Rabbits
0	1	0	2
1	1	3	8
2	1	3	14
3	1	3	20
4	1	3	26
5	4	12	32
6	7	21	56
7			

Questions

1. Explain why the rabbit population grows so rapidly.

2. What are some things that could help keep the rabbits from overpopulating?

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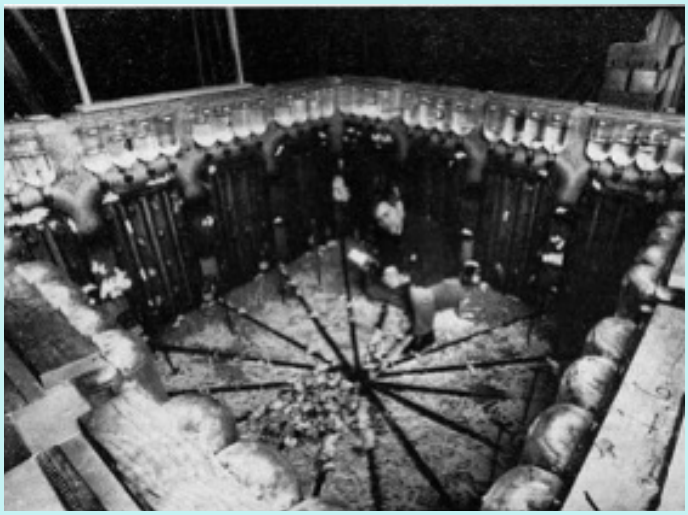
The Stress of Overpopulation

Around 1950 a scientist named John Calhoun conducted a study using mice. He created a small living space for mice and supplied the mice with all the food and water they needed. The space was also free from any predators. He started the study with several pairs of breeding mice.



As expected, the mouse population quickly reached around 2,200 mice. However, when that population was reached some unexpected things started happening with the mice. First, the mice divided into many smaller groups. Some mouse groups were higher on the social order than others and those groups began “bullying” the other mouse groups. Eventually, the groups began fighting and all the mating stopped. This resulted in a decline of the mouse population over time. After some time, all the mice in the living space died and the population became extinct.

After the release of his studies, other scientists wondered if humans might face a similar fate if the population of people on Earth continues to grow. The human population on Earth is expected to be 9.5 billion by the year 2050. Hopefully, people will be more educated and not fall into the same bad group behaviors as the mice in Calhoun’s study.

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Answers: **Page 2 Answers:** 1) c, 2) d, 3) d, 4) c, 5) b. **Page 3 Answers: Too Many Bunnies!** For Month 7 the number of Breeding Pairs would be 10 (3 more than the previous month), with each pair having 3 more breeding pairs for a total of 30 new breeding pairs, and a new total of 80 rabbits. **Questions** 1) Answers will vary. Might include the early reproductive age, short gestation cycle, and the increased number of babies born with each birthing cycle. 2) Answers will vary. Might include reduce resources for the rabbits and increased predators to limit the rabbit population.