

Snowshoe Hare

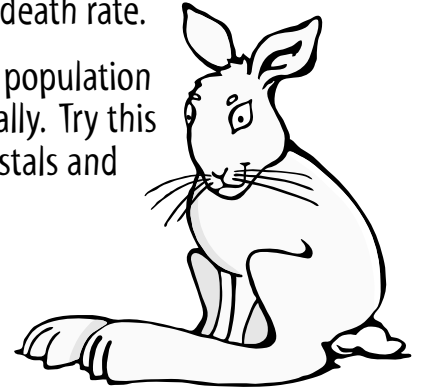
Lagomorph Logarithm

What you need!

- 1 1/2 cups white sugar
- 1 cup boiling water*
- Food colouring (optional)
- Shallow dish (pie plate)
- Chopstick/pencil
- Cotton thread

You've heard the joke and it's true. Hares can multiply pretty fast. They have large litters and short gestation, which would populate an area pretty fast if they didn't also have a high death rate.

Crystals are like an unchecked population of hares; they grow exponentially. Try this activity to see how quickly crystals and hares multiply.



What you do:

1. Dissolve 1 1/2 cups sugar in 1/2 cup boiling water.

*Ask an adult to help you handle the boiling water. This makes a thick, hot syrup, which will burn you and keep on burning your skin because it is sticky, so be very careful not to spill it on yourself!

2. Put your solution in a 3 cm deep dish
3. Place the chopstick across the top of the dish and suspended the cotton thread into the solution.
4. Put the dish somewhere out of the way.
5. Check in on it every few days to see how fast the crystals grow.



Ask yourself

- Make a chart or use diagrams to record changes you observe in the dish each day.
- Design a method to measure the crystal growth each day.
- Compare the amount of crystals that have grown each day to previous days.
- Are there some days when the crystals grow more rapidly?
- Make a graph showing the rate of crystal growth over a period of several days.

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What did you find out?

Logarithmic or exponential growth is much faster than simple addition, where we usually add a constant number of things to the total every time. This isn't the case in nature; especially with hares. Each time they reproduce, a greater number of hares is added to the total population; the more hares there are the more babies they will have, and the more babies they have, the more hares there will be to have babies. Some animal populations would grow very quickly in a short period of time if there were not factors, like predators and disease, to keep them in check. Exponential growth basically doubles itself every time and this can lead to a very rapid increase in hares or crystals.

Specific Learner Expectations (SLE)

Grade 5 Topic C: Classroom Chemistry

SLE 4: Demonstrate a procedure for making a crystal.