Resources and Populations

How food, water, and space change who survives



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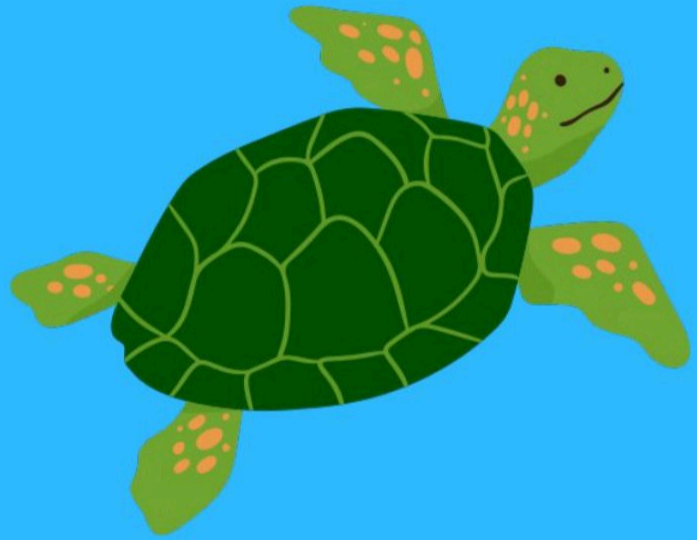
Today we will...

WE ARE LEARNING TO

- Analyze data on resources and population size
- Explain cause and effect when resources are abundant and scarce



SUCCESS LOOKS LIKE

✓ I can use data as evidence for a claim

✓ I can predict how competition changes growth

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What Do Organisms Need to Grow?

🌱

Food

Gives energy for growth and making offspring.

💧

Water

Needed for body processes and plant growth.

💨

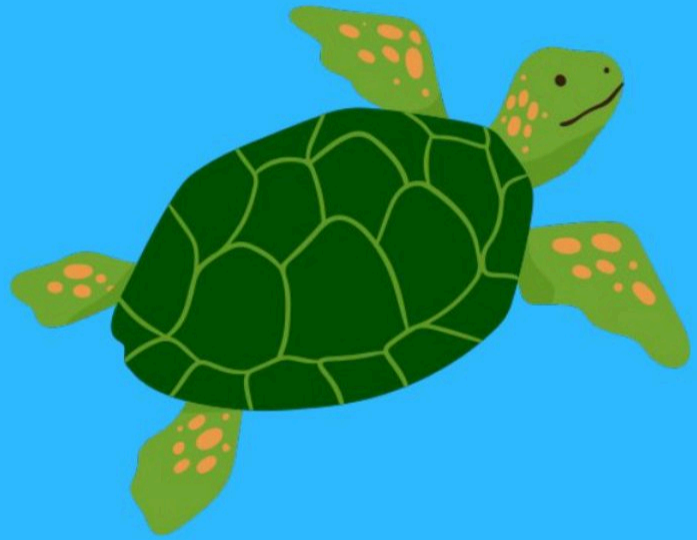
Oxygen and Air

Needed to release energy from food.

🏠

Shelter and Space

Safe place to live, grow, and reproduce.



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From One to Many

🦌

Organism

One living thing, like one mouse.

🐭

Population

All mice of one type in one area.

🌲

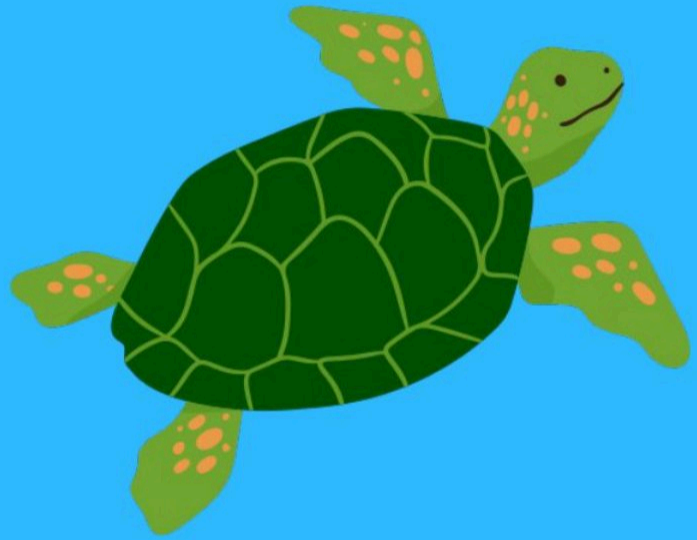
Community

All populations living together in one place.

🌍

Ecosystem

Community plus water, air, and soil around it.



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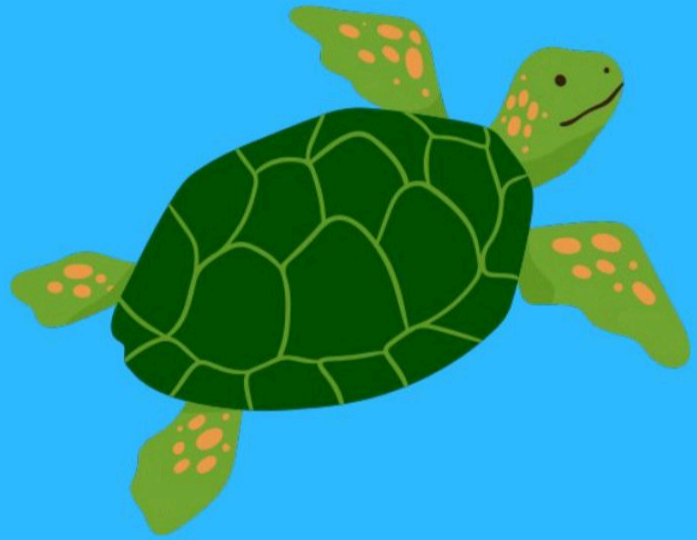
Which Resource Matters Most?

If you studied the field behind our school, which resource would you track first?



- **A** Food
- **B** Water
- **C** Shelter and space
- **D** Air and oxygen

Vote with your hands, then explain why.

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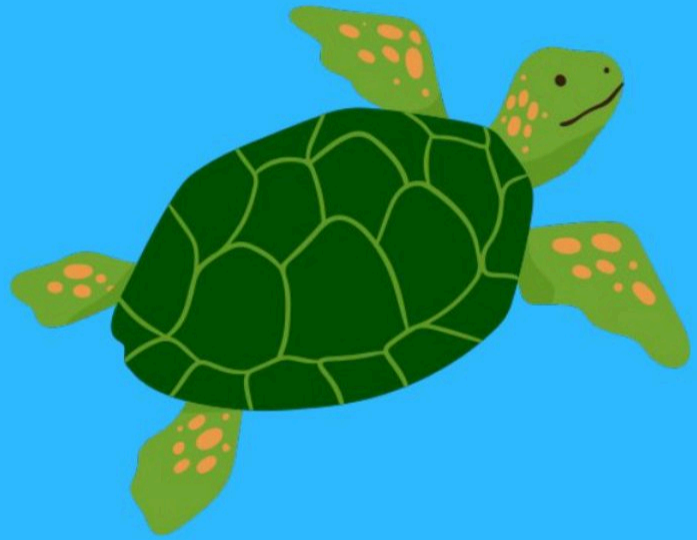
Why Can't Populations Grow Forever?



▶ 0:00 – 3:38

- Listen for: what makes a resource limited?
- Watch what happens as locust food runs out



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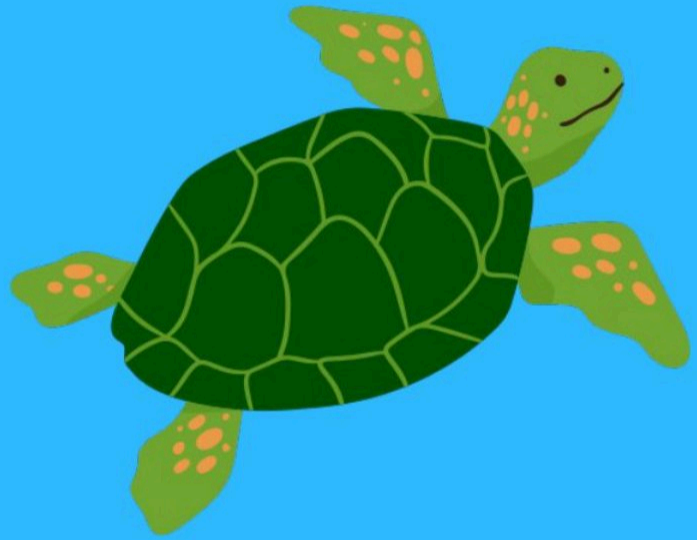
Abundant vs. Scarce

Abundant Resources

- Faster individual growth
- More offspring survive
- Population numbers rise quickly

Scarce Resources

- Slower growth, fewer offspring
- More competition for food and water
- Population levels off or drops



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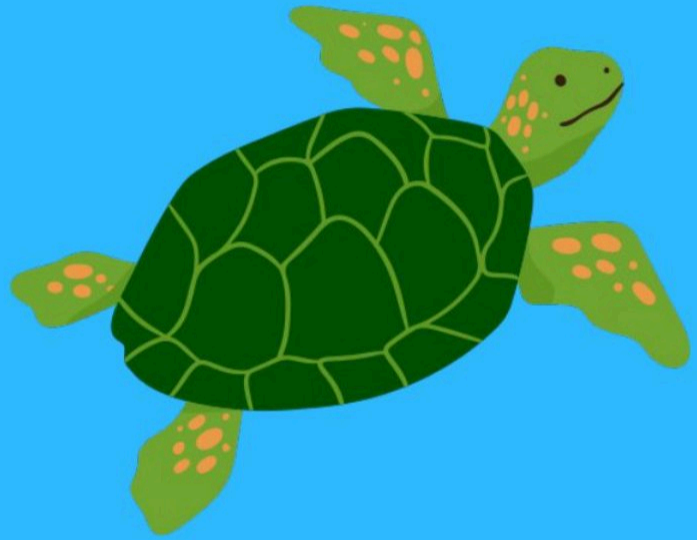
Reading Population Data



▶ 0:00 – 4:30

- Watch how the line rises and flattens
- Spot which resource limits growth



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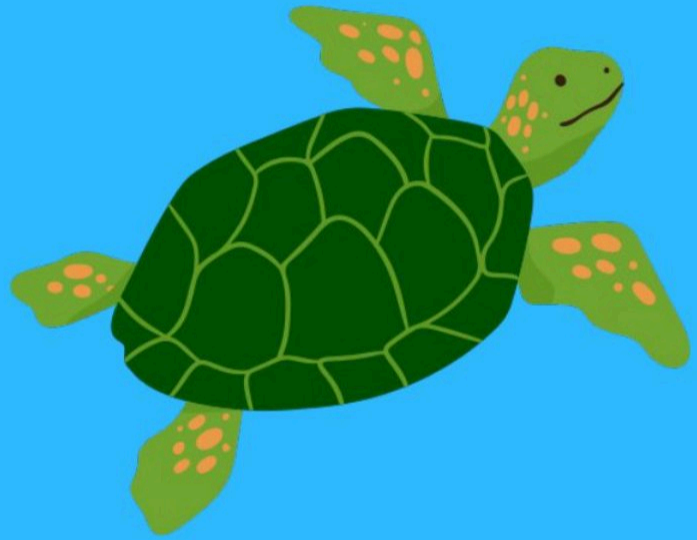
Your task

Wet pots: 12, 18, 24 plants. Dry pots: 12, 9, 4 plants over weeks 1-3. Graph both and make a claim about water.

1. Graph both lines and label axes with numbers.
2. Compare growth and note competition for water.
3. Write claim plus two data points as evidence.



15 min

In pairs

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When Resources Explode

A locust swarm grows huge when food and water are plentiful, then shrinks when food runs out.

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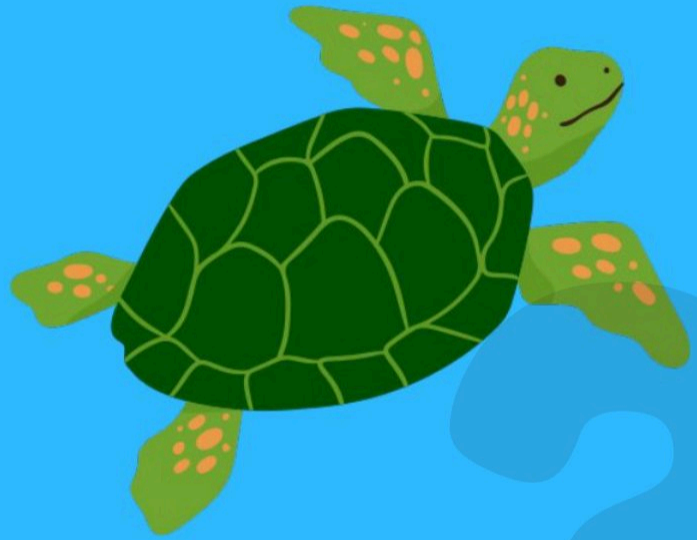
Think, pair, share

Two mouse groups need the same seeds and seeds become scarce. What happens next, and what data would prove it?



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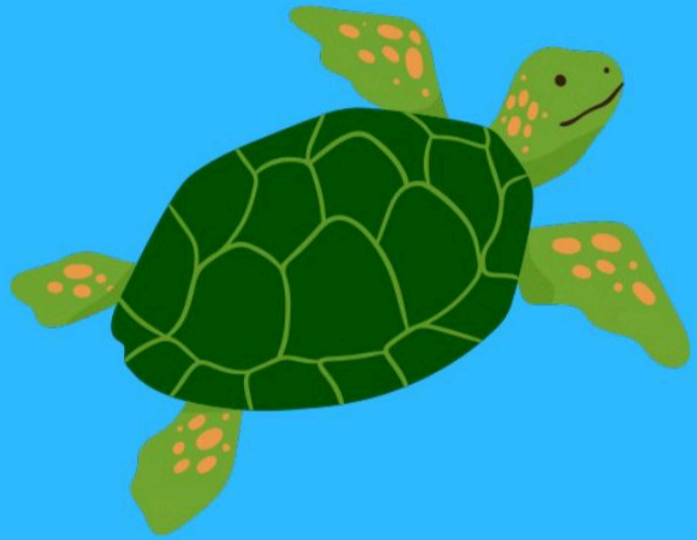
Quick quiz

1. What is a limited resource? Give one example.

2. What happens to a population when water is scarce for weeks?

3. Two populations need the same food. What will they do?



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