LESSON MAKER PRO

Track the Change

Use numbers to explain how life science variables are related.

GRADES 7-8 · LS.1.d.i

LS.1.d.i "constructing and critiquing conclusions and explanations construct explanations that include qualitative or quantitative relationships between variables"

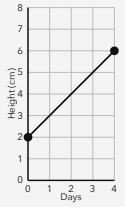
NAME _____ DATE _____

DESCRIBE THE PATTERN

To describe a relationship, compare how one variable changes when another changes. State the rate or amount of change, then tell whether the variables increase, decrease, or stay the same.

WORKED EXAMPLE

The graph shows a bean plant's height over time. Find its average growth rate.



1. Height change: 6 - 2 = 4 cm.
2. Time change: 4 - 0 = 4 days.
3. Rate: 4/4 = 1 cm per day.

Answer: The plant grew 1 cm per day.

PRACTICE 4 problems

1 A cell culture has 55 cells on day 11 and 132 cells on day 22. What is its average increase per day?

ANSWER _____

2 At 15°C, crickets chirp 45 times per minute. At 25°C, they chirp 135 times per minute. What is the average change in chirps for each 1°C increase?

ANSWER _____

3 A tadpole grows from 27 mm to 108 mm in 9 days. What is its average growth rate?

ANSWER _____

4 Plant A grows 72 mm in 12 days. Plant B grows 91 mm in 13 days. Which plant has the greater average growth rate?

ANSWER _____

APPLY IT Show your work

1 Use the table. Write one sentence that describes the relationship, then predict the growth for a basil plant given 70 mL of water each day. Assume the pattern continues.

BASIL PLANT TEST

Water each day (mL)	Growth in 2 weeks (cm)
14	7
28	14
42	21
56	28

ANSWER _____

2 On two similar soccer practice days, Jordan drinks 360 mL of water and cools down in 27 minutes. On another day, Jordan drinks 540 mL and cools down in 21 minutes. Assuming a linear pattern, how does cooldown time change for each 90 mL more water? Predict the cooldown time at 720 mL.

WORK SPACE

ANSWER _____

CHALLENGE One step up

In an ant activity test, 17 ants cross a line at 15°C, 31 cross at 30°C, and 31 cross at 45°C. Nia says that every 15°C increase raises activity by 14 ants. Critique Nia's conclusion and write a supported conclusion.

WORK SPACE AND ANSWER

ANSWER KEY

Track the Change

GRADES 7-8 · LS.1.d.i

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A cell culture has 55 cells on day 11 and 132 cells on day 22. What is its average increase per day?	**7 cells per day**
2	At 15°C, crickets chirp 45 times per minute. At 25°C, they chirp 135 times per minute. What is the average change in chirps for each 1°C increase?	**9 more chirps per minute for each 1°C increase**
3	A tadpole grows from 27 mm to 108 mm in 9 days. What is its average growth rate?	**9 mm per day**
4	Plant A grows 72 mm in 12 days. Plant B grows 91 mm in 13 days. Which plant has the greater average growth rate?	**Plant B. Plant A grows 6 mm per day, and Plant B grows 7 mm per day.**

PART 2 · APPLY IT

1. **For every 14 mL more water each day, the basil plant grows 7 cm more in two weeks, so 70 mL predicts 35 cm of growth.** The growth rises 7 cm whenever water rises 14 mL. From 56 mL to 70 mL is one more 14 mL increase.
2. **Cooldown time decreases 3 minutes for each 90 mL more water. At 720 mL, the predicted cooldown time is 15 minutes.** An increase of 180 mL changes cooldown time by 6 minutes, so each 90 mL changes it by 3 minutes. Another 180 mL beyond 540 mL lowers 21 minutes by 6 minutes.

CHALLENGE

Nia's conclusion is not supported because the number rises by 14 ants from 15°C to 30°C but does not rise from 30°C to 45°C. Activity increased at first, then stayed the same.

Accept equivalent unit rates and clear statements that include both variables and the numerical change. For the challenge, accept wording that notes the first increase of 14 and no increase in the second interval.