

# Analyzing Graphs

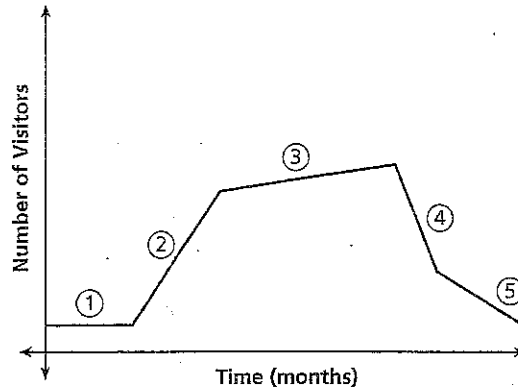
**Essential question:** *How can you describe a relationship given a graph and sketch a graph given a description?*

**COMMON CORE**

CC.8.F.5

## 1 EXPLORE Interpreting Graphs

A roller coaster park is open from May to October each year. The graph shows the number of park visitors over its season.



**A.** Segment 1 shows that attendance during the opening days of the park's season stayed constant. Describe what Segment 2 shows.

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**B.** Based on the time frame, give a possible explanation for the change in attendance represented by Segment 2.

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**C.** Which segments of the graph show decreasing attendance? Give a possible explanation.

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### REFLECT

**1.** Explain how the slope of each segment of the graph is related to whether attendance increases or decreases.

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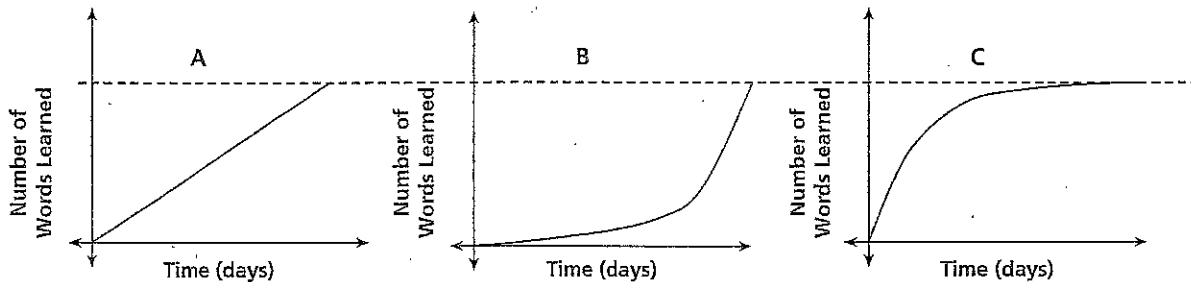
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## 2 EXPLORE Matching Graphs to Situations

Grace, Jet, and Mike are studying 100 words for a spelling bee.

- Grace started by learning many words each day, but then learned fewer and fewer words each day.
- Jet learned the same number of words each day.
- Mike started by learning only a few words each day, but then learned a greater number of words each day.

Match each student's study progress with the correct graph.



A Describe the progress represented by Graph A.

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B Describe the progress represented by Graph B.

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C Describe the progress represented by Graph C.

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D Determine which graph represents each student's study progress and write the students' names under the appropriate graphs.

### REFLECT

2. What would it mean if one of the graphs slanted downward from left to right?

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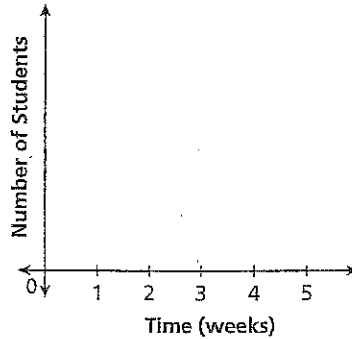


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### 3 EXPLORE Sketching a Graph for a Situation

Mrs. Sutton provides free math tutoring to her students every day after school. No one comes to tutoring sessions during the first week of school. Over the next two weeks, use of the tutoring service gradually increases.

- A Sketch a graph showing the number of students who use the tutoring service over the first three weeks of school.

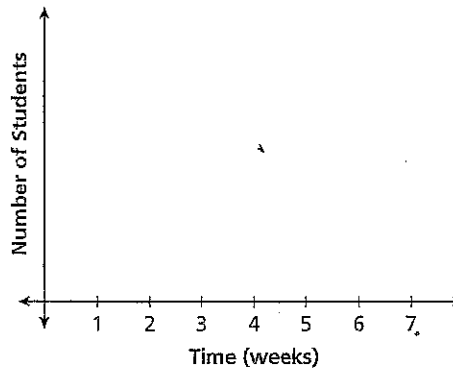


- B Mrs. Sutton's students are told that they will have a math test at the end of the fifth week of school. How do you think this will affect the number of students who come to tutoring?

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- C Considering your answer to B, sketch a graph showing the number of students who might use the tutoring service over the first six weeks of school.



### REFLECT

- 3a. Suppose Mrs. Sutton offered bonus credit to students who came to tutoring sessions. How do you think this would affect the number of students who come to tutoring?

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- 3b. How would your answer to 3a affect the graph?

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# PRACTICE

In a lab environment, colonies of bacteria follow a predictable pattern of growth. The graph shows this growth over time.

1. During which phase is growth slowest? During which phase is growth fastest? Explain.

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2. What is happening to the population during Phase 3?

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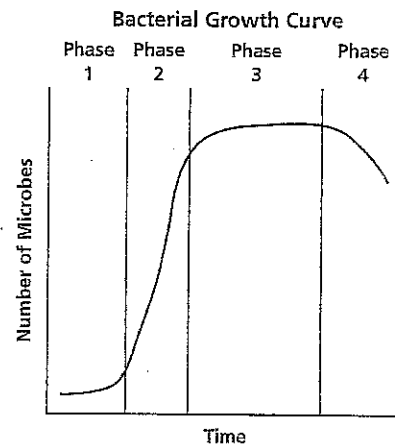
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3. What is happening to the population during Phase 4?

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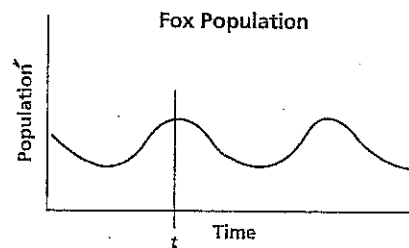
A woodland area on an island contains a population of foxes. The graph describes the changes in the fox population over time.

4. What is happening to the fox population before time  $t$ ?

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5. At time  $t$ , a conservation organization moves a large group of foxes to the island. Sketch a graph to show how this action might affect the population on the island after time  $t$ .

6. At some point after time  $t$ , a forest fire destroys part of the woodland area on the island. Describe how your graph from problem 5 might change.

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