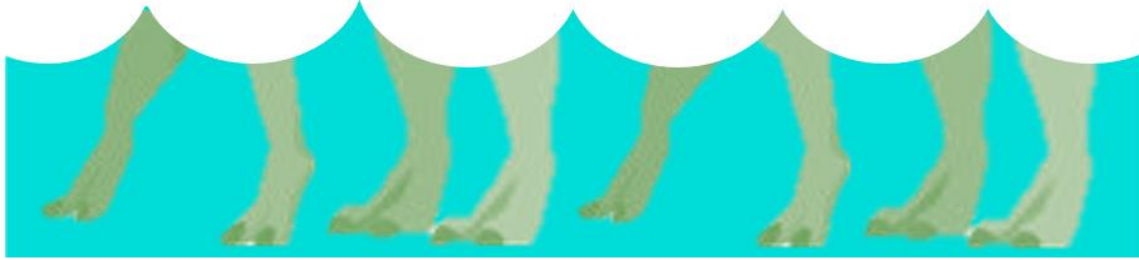## Digging Dinosaurs

Level A

You are swimming underwater in a lake and you see dinosaur feet in the water. You don't want to go to the surface in case they are not friendly dinosaurs. Below is a picture of what you see.

How many dinosaurs are standing in the lake?

Explain how you know. Use words and mathematical language to explain your solution.

Image credit: Alfadanz / iStock / Stock illustration ID:1158240390

Digging Dinosaurs

Level B

You want to go with your sister to the museum to see the dinosaur exhibit. The museum has three different plans to pay for going to see the dinosaurs.

Museum Rate Plans

Plan A: Pay $3.00 per person to visit the museum.

Plan B: Monthly membership is $8.00 for each person, but you can go as many times as you like during the month.

Plan C: A family membership for a month is $17.00. Everyone in your family can go as often as they like for a month.

You and your sister want to go see the dinosaur exhibit three times this month. Which plan should you buy to save money?

Explain your reasoning.

Digging Dinosaurs

Level C

Students are given the following rate plans and are asked to determine which rate plan is best for the situation.

Museum Summer Rate Plans

Plan A: Pay $2.75 per person to visit the museum.

Plan B: Monthly membership is $7.50 for each person, but you can go as many times as you like during the month.

Plan C: A family membership for a month is $15.25. Everyone in your family can go as often as they like for a month.

If you and your brother want to go to the museum eight times during the three months of summer, which plan should you use and when should you go to save the most money?

What if you can't go as you originally planned? What other plans might you use? State when you would attend and the best plan(s) to use. Explain your thinking.

Digging Dinosaurs

Level D

The following problems involve a linear relationship.

You are going on an expedition to dig for dinosaur fossils. In digging, you come across a small trunk left by another archeologist. In the trunk is a paper that lists how deep you need to dig to reach dinosaur fossils. Unfortunately, something spilled on part of the paper and it is damaged.

Years ago by thousands	Feet to Dig
10,000	14
20,000	22
30,000	30
40,000	
70,000	

Using your knowledge of mathematics, find the missing numbers in the chart. Write a generalization or rule to determine the number of feet you must dig given the number of years.

If the Jurassic period was 200 million years ago, how deep would you need to dig at this location to uncover fossils of that era? Explain why your answer is or is not reasonable.

Digging Dinosaurs

Level E

You are going on an expedition to dig for dinosaur fossils. In digging, you come across a small trunk left by another archeologist. In the trunk is a paper that lists how deep you need to dig to reach dinosaur fossils. Unfortunately, something spilled on part of the paper and it is damaged. You look at the data and say, "Well, the functional relationship should not be linear. I think the difference in the depth diminishes as one digs deeper."

Years ago, by thousands	Feet to dig
10,000	14
20,000	22
30,000	30
40,000	
70,000	

Determine a functional relationship that approximates the data in the table and continues to increase, but by an ever-decreasing rate of change.

Explain the function and generalize it.

Use your function to determine the depth you would need to dig at that location to uncover a fossil from the Jurassic era 200 million years ago. How deep would you need to dig?

Explain whether your answer seems reasonable.