How Fast Does the Water Level Change?

Name: _____ Date: _____

Fictional example: the readings are chosen to compare changes. Your own measurements may differ.

1. Make predictions

Imagine the family's experiment and make your predictions.

What happens if you add water slowly or quickly?

Will the level always rise by the same amount? Why?

What happens if pouring stops and then water is allowed to drain?

2. Complete the fictional example table

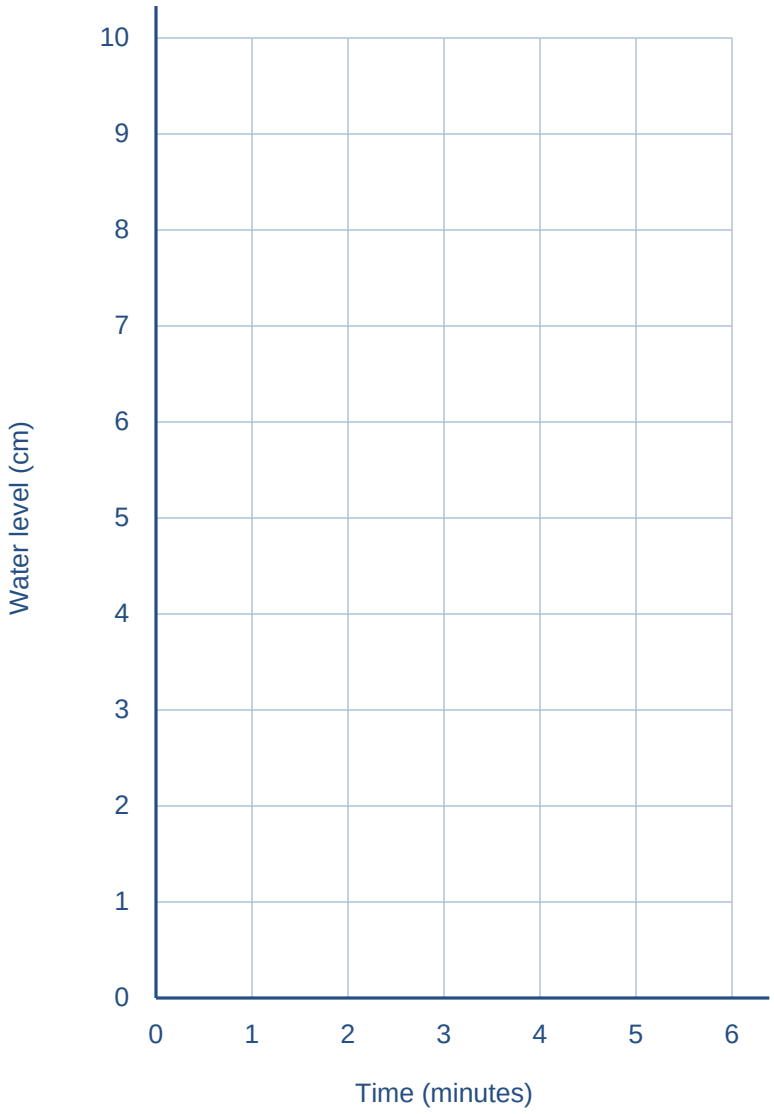
Find each change: current level minus previous level. Use + for an increase, 0 for no change and - for a decrease. Each interval lasts one minute.

Time (min)	Level (cm)	Change (cm)
0	0	-
1	2	
2	6	
3	8	
4	8	
5	6	
6	0	

Show one calculation: _____

3. Graph the example

Use all seven readings on page 1. Each square represents 1 minute horizontally and 1 cm vertically. Plot the points, then join consecutive points with a ruler.



During which minute does the water level rise fastest?

When is the water level constant? When does the water level fall fastest?

Compare the levels at minutes 2 and 5. What do you notice?

4. Your own measurements (optional, with an adult)

This experiment is optional. With an adult, use a transparent, straight-sided container marked in centimeters to observe filling. Measure every minute and record your actual readings below. You can imagine the draining stage without performing it. If a suitable ready-made container with a faucet is available, an adult may demonstrate draining over a sink. Do not modify a container or install a faucet. For any hands-on activity, an adult should choose a small, unbreakable container and place it on a stable surface in a tray. Use a small amount of cool water. Keep water away from electrical devices and clean up spills.

Time (min)	Level (cm)	Change (cm)
0		-
1		
2		
3		
4		
5		
6		

5. Apply and reflect

Imaginary rain-gauge challenge: use these invented measurements; you do not need to perform an experiment. The water level is 1 cm at minute 0, 4 cm at minute 1, 4 cm at minute 2, and 2 cm at minute 3. In this story, an adult removes some water between minutes 2 and 3. These values are fictional and are intended to help you practice comparing changes. They do not represent actual rainfall measurements. Find each one-minute change. When did the level rise, stay unchanged, and fall? Which change was fastest?

Imagine another familiar situation, such as a growing plant, weather-report temperatures, or imaginary savings. Describe what you would measure, the units, and how often. You do not need to carry out an experiment. How would a graph show a faster change?

Rate of change tells us how quickly something increases or decreases over time. If it stays the same, its rate of change is zero.