EDSTAR ANALYTICS | Deep Dive 5
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Graphing Stories: Match the Picture to the Story

Tell the story from a graph, sketch a graph from a story, and match them. Four shapes: climbs, levels off, drops, jumps. Flat means not changing, steeper means faster.

Name _____ Date _____

Words we use

say the math word, then the plain English

WORD	PLAIN ENGLISH	WHAT YOU DO
Flat, or level	The output is not changing: stopped, resting, holding steady.	On a distance graph it means stopped. Check what the axis measures before you say what flat means.
Steeper means faster	A steep stretch changes more in each minute than a gentle one.	Compare two climbs or two drops by how steep they are.
Climbs	The graph is increasing: the output is growing.	Draw it rising, left to right. Steep if fast, gentle if slow.
Drops	The graph is decreasing: the output is shrinking.	Draw it falling, left to right.
Jumps	A sudden change all at once: a deposit, a crowd getting on, a price change.	Draw a vertical step.
Increasing, decreasing, intercept, maximum, minimum	The Lesson 4 words. Climbing, falling, where it crosses an axis, the highest and lowest points.	Use them to tell the story.

Part A Tell the story

A graph of height above the ground (feet) against time (seconds) for a drone: climbs from (0, 0) to (4, 40), flat to (10, 40), climbs to (12, 60), drops to (20, 0). Write one sentence for each stretch, then answer the questions.

1. Which climb is steeper, and what does that mean?

2. What are the intercepts, in story words?

Part B Sketch from the story

Sketch each graph. Shape matters, exact numbers do not. Label the axes.

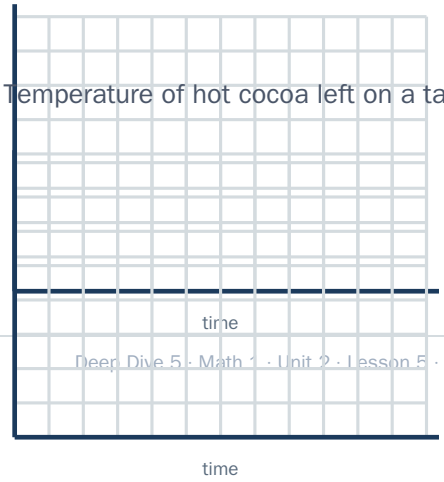
1. Water in a tub: fills for 4 minutes, you soak for 10, drains in 2.

2. Money in a jar: $20 goes in, nothing for a week, then $5 out each day for 4 days, then $50 goes in.

3. Distance from home: jog away steadily for 10 minutes, stop 5 minutes, walk home slowly.



4. Temperature of hot cocoa left on a table for an hour.



Part C Which shape?

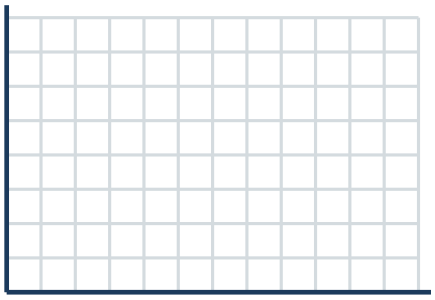
Write C (climbs), L (levels off), D (drops), or J (jumps).

STRETCH OF A STORY	SHAPE
Height of an elevator waiting on the fourth floor	
Distance from school while riding the bus home	
People in a stadium the moment the gates open and a crowd rushes in	
Battery charge while the phone is plugged in	
Water level in a pool on a hot day with no one adding water	

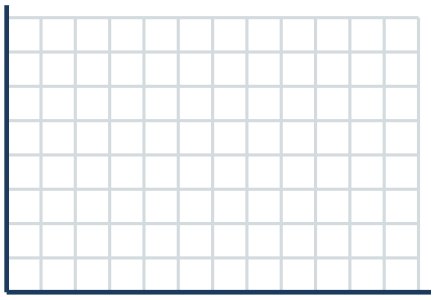
Part D Distance or speed?

A cyclist rides away from home at a steady speed for 3 minutes, waits at a light for 1 minute, then rides on at the same speed for 3 more minutes.

1. Sketch the distance-from-home graph.



2. Sketch the speed graph.



1. What does the flat stretch mean on each graph?

Part E Exit ticket

1. On a distance graph, what does flat mean? What does a steep climb mean?

2. A plane at the gate 20 minutes, taxiing 10, then a fast climb: describe the height graph stretch by stretch.

Answer key

Part A. Rises 40 feet in 4 seconds; hovers at 40 for 6 seconds; rises 20 more feet in 2 seconds; descends 60 feet in 8 seconds. The second climb is steeper (20 feet in 2 s beats 40 in 4 s): faster. Intercepts: (0, 0) starts on the ground, (20, 0) lands at 20 seconds.

Part B. 1. Gentle climb, long flat, steep drop. 2. Jump up, long flat, four small steps down (or a gentle drop), jump up. 3. Steady climb, flat, gentle drop (slower than the jog, so less steep). 4. Drops, steep at first and flattening toward room temperature.

Part C. L, D, J, C, D (slow evaporation).

Part D. Distance: climb, flat, climb at the same steepness. Speed: flat up high, flat at zero, flat up high (with jumps between). Flat on the distance graph means stopped; flat on the speed graph means a steady pace.

Part E. Flat: stopped. Steep climb: moving away fast. Plane: level at zero for 20, level at zero for 10 (still on the ground), then a steep climb.