Graphing Stories: Match the Picture to the Story

Go both ways: tell the story a graph shows, and sketch a graph from a story. Four shapes: climbs, levels off, drops, jumps. Flat means not changing, steeper means faster. Read the axis label first.

1 THE VOCABULARY

Words we use

Climbs the output is growing (increasing). Steep if fast, gentle if slow.

Levels off, flat the output is not changing: stopped, resting, holding steady.

Drops the output is shrinking (decreasing).

Jumps a sudden change all at once: a deposit, a crowd, a price change.

Steeper means faster a steep stretch changes more each minute than a gentle one.

Distance graph, speed graph same shape, different story. Flat on distance: stopped. Flat on speed: steady pace.

- Watch out for these.
- Reading a distance graph as a speed graph: flat does not mean steady motion, it means stopped.
- Drawing a paycheck as a climb. Money arriving all at once is a jump.
- Drawing the trip home as a climb because you are moving. Distance from home is shrinking: it drops.
- Worrying about exact numbers when sketching. Shape first, then labels.

2 THE METHOD

Graph to story, story to graph

1. GRAPH TO STORY walk left to right. Name each stretch: climbing (growing), flat (not changing), falling (shrinking). Say the intercepts and the highest point in story words.
2. CHECK THE AXIS what does y measure? Distance, height, money, speed? Flat means that thing is not changing.
3. STORY TO GRAPH one stretch at a time: climb, level off, drop, or jump? Fast or slow? Draw the piece and join it on.
4. LABEL THE AXES time along the bottom, what you are measuring up the side. Numbers optional.

> WHY STEEPER MEANS FASTER
> A steep stretch covers more of the output in each minute: 6 blocks in 3 minutes rises faster than 6 blocks in 6 minutes. Next lesson measures exactly how much per minute.

3 GRAPH TO STORY

Distance from home, one afternoon

(0, 0) to (3, 6): climbs	distance growing: walking away from home, 6 blocks in 3 minutes
(3, 6) to (5, 6): flat	distance not changing: stopped 6 blocks from home for 2 minutes. This is the maximum, the farthest point
(5, 6) to (8, 0): drops	distance shrinking: walking home, 6 blocks in 3 minutes, the same pace as going out, so the drop is as steep as the climb
y-intercept (0, 0), x-intercept (8, 0)	started at home, back home at 8 minutes

> THE TRAP
> Draw the same afternoon as a speed graph: flat up high while walking, flat at zero while stopped, flat up high again walking home. Two different pictures of one story, because the axes measure different things.

> SAY IT OUT LOUD
> Walk the graph left to right: climbing, flat, falling. Check what the axis measures. Steeper means faster.