# JAVELIN ANALYSIS

CONTENT: Determine whether two quantities are in a proportional relationship. (Grades 6–8)

LANGUAGE SUPPORT: Students may have never heard of the javelin event. Show students a video of a javelin throw and ask what they notice and what they wonder. Have students discuss what sports they play, watch, or find interesting. Have them share their discussions with the class. How is the javelin throw similar and different from the sports they name?

SUPPORT FOR ALL LEARNERS: Students may struggle with what is and isn't a proportional relationship. It may help to have students identify examples of ratios, such as the ratio of width to height of a TV screen or the ratio of cats to dogs in a shelter. Explain that in a proportional relationship the ratio between the two quantities remains the same. For example, a screen can maintain its proportions even as its size expands. See below for examples of proportional and nonproportional relationships. This activity requires measuring and graphing imperfectly. Explain that proportions in the real world are not always exact.
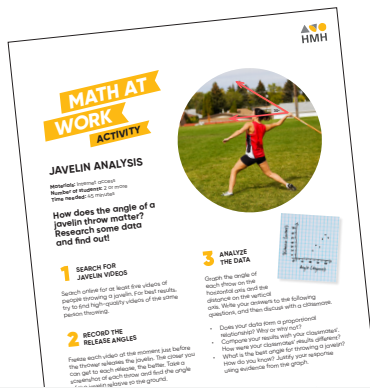
TECH FIX: Do some students have limited technology access? Find at least five videos of an athlete throwing a javelin, ideally from the same event or athlete. (Over the years the rules on how to construct and hold a javelin have changed.) Freeze each video at the moment just before the thrower releases the javelin. Then take a screenshot. Print or share these screenshots with students so they do not need to stream videos.
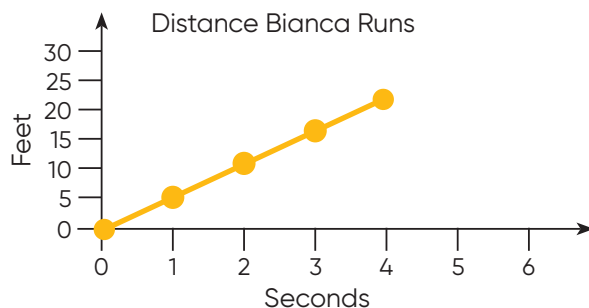

Proportional Relationship Example:
Bianca runs 6 feet per second.

Equation: $y = 6x$

TABLE:

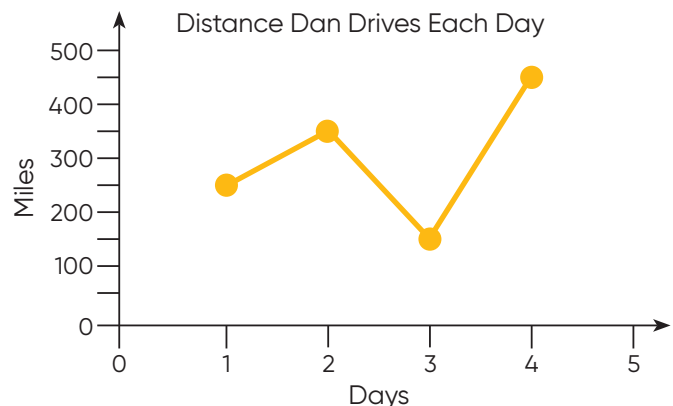| x (sec)	y (ft)
1	6
2	12
3	18
4	24

GRAPH:

Distance Bianca Runs

Nonproportional Relationship Example:
Over four days, Dan drove 1,200 miles. The length driven each day is given by the table below.

TABLE:

x (days)	y (mi)
1	250
2	350
3	150
4	450

GRAPH:

Distance Dan Drives Each Day

To learn more about math in sports, visit **hmhco.com/mathatwork**.