

8.1 Investigating Inverse Variation TEKS a.3, 2A.1.B, 2A.10.G

MATERIALS • tape measure or meter stick • centimeter ruler • masking tape

QUESTION How can you model data that show inverse variation?

EXPLORE Collect and record data

STEP 1 Mark distances

Work with a partner. Have your partner stand against a wall. Place the end of the tape measure against the wall between your partner's feet. Use tape to mark off distances from 3 meters to 9 meters away from the wall.



STEP 2 Measure apparent height

Face your partner, with your toes touching the 3 meter mark. Hold a centimeter ruler at arm's length and line up the "0" end of the ruler with the top of your partner's head. Measure the apparent height of your partner to the nearest centimeter.



STEP 3 Repeat for other distances

Repeat Step 2 for each marked distance and record your results in a table like the one shown.

Distance (m), x	3	4	5	6	7	8	9
Apparent height (cm), y	?	?	?	?	?	?	?

DRAW CONCLUSIONS Use your observations to complete these exercises

- Does apparent height vary directly with distance? *Justify* your answer mathematically.
- Find the product $x \cdot y$ for each ordered pair in the table. What do you notice?
- Based on your results from Exercise 2, write an equation relating distance and apparent height.
- Use your equation to predict your partner's apparent height at an unmeasured distance. Then test your prediction by measuring your partner's apparent height at that distance. How close was your prediction?