

Plot the Pairs

Organize paired data and build paper and digital scatterplots

GRADE 8 • 8.PS.3.c

8.PS.3.c "Excerpt: Organize and represent numeric bivariate data using scatterplots with and without the use of technology"

NAME _____

DATE _____

Build understanding

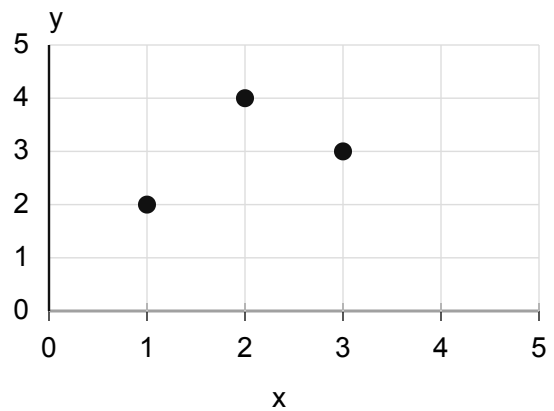
Use a pencil, ruler and a device with a spreadsheet or graphing tool. A scatterplot represents paired numeric measurements, one dot per observation. Numeric spacing must be consistent. Keep pairs together when sorting and choose an XY scatterplot, not a connected line chart.

Worked example

Represent these three observations: $x = 1, 2, 3$ paired with $y = 2, 4, 3$.

Keep each x -value paired with its own y -value. Use numeric axes and do not connect the observations in sequence. Plot $(1, 2)$, $(2, 4)$, $(3, 3)$ as separate dots.

Worked scatterplot



Work through the numbered tasks. Label every constructed graph with a title and units.

1. Organize paired data

Organize these raw observations into a two-column table with headings: 2 hours and 3 goals; 4 hours and 6 goals; 6 hours and 5 goals; 8 hours and 8 goals; 3 hours and 4 goals; 7 hours and 7 goals. One row represents one participant.

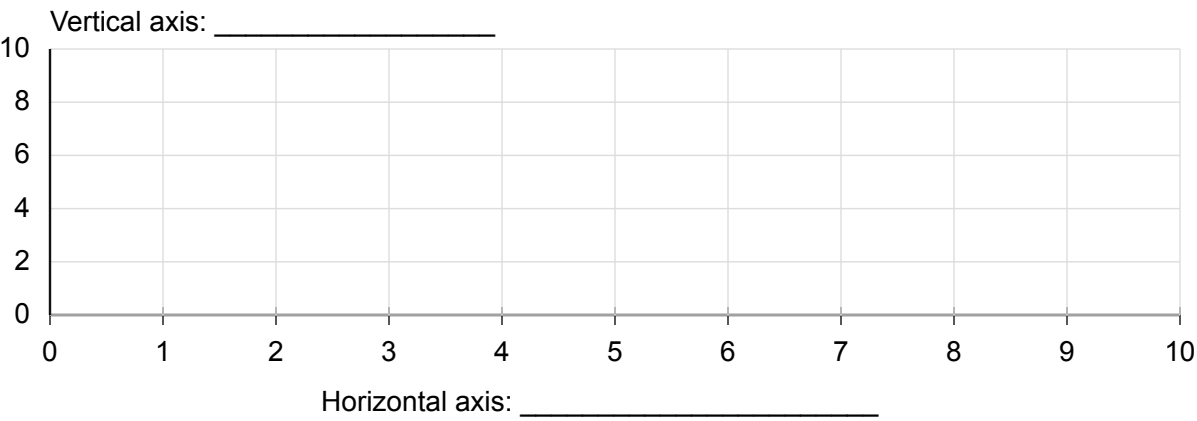
Organize your data

Hours x	Goals y

2. Build a scatterplot by hand

By hand, plot all six observations from your Task 1 table. Label the title, horizontal hours axis and vertical goals axis. Keep the observations as separate dots.

Plot title: _____



3. Build a scatterplot with technology

Create a technology scatterplot of Task 1 using a spreadsheet or graphing tool. Enter one pair per row in two numeric columns. Select an XY scatterplot with dots only; use hours for x and goals for y. Add a title and axis units, then show or save the plot for your teacher. Record your tool and one point you checked.

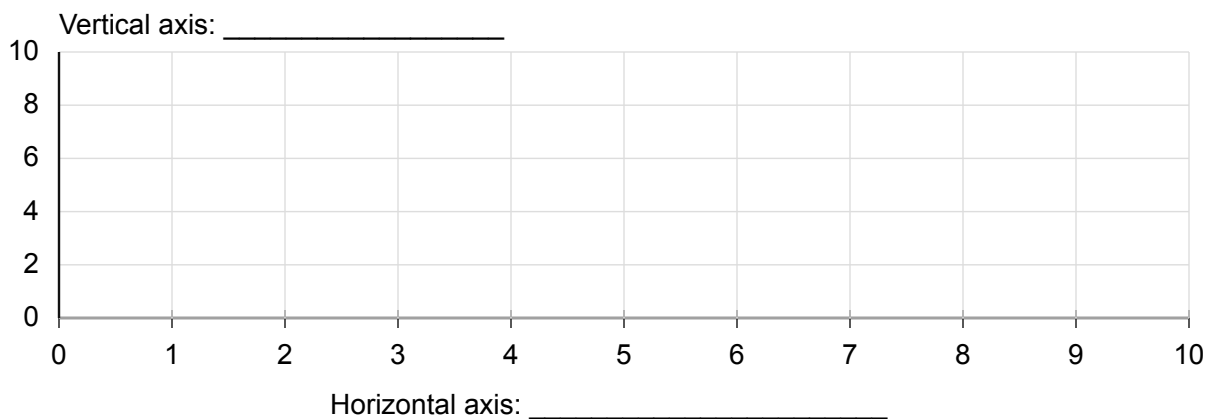
4. Protect each observation

A student sorts only the hours column in increasing order before graphing, leaving goals in the original order. Explain why this changes the data. Show the false pair that the second row would become.

5. Organize and plot another set

Hours since watering x and soil moisture index y: (1, 8), (3, 7), (5, 4), (7, 5), (9, 2), (4, 6). List the pairs below by increasing x, then plot them by hand.

Plot title: _____



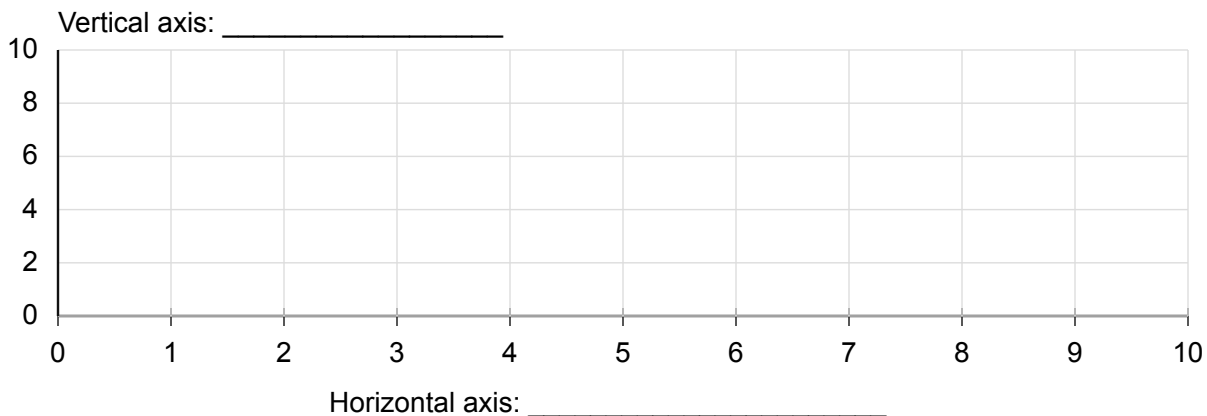
6. Check across representations

Enter the Task 5 readings in your tool and make another XY scatterplot. Compare its points with your hand plot, correct any difference and record one matching point. Show or save the graph for your teacher.

7. Represent without adding a path

Construct a scatterplot by hand for $(1, 4)$, $(3, 8)$, $(5, 3)$, $(7, 7)$, $(9, 5)$, $(4, 2)$. A partner claims these should be connected in the order listed. Explain why separate points are appropriate here.

Plot title: _____



TEACHER NOTES

All datasets are simulated. The practice datasets each contain six observations; the worked example contains three. Require both hand plots and technology-created plots, which students show or save separately; written claims alone do not complete Tasks 3 and 6. Check axis meanings, units, point positions and preservation of pairs. Table row order may vary without changing the scatterplot.

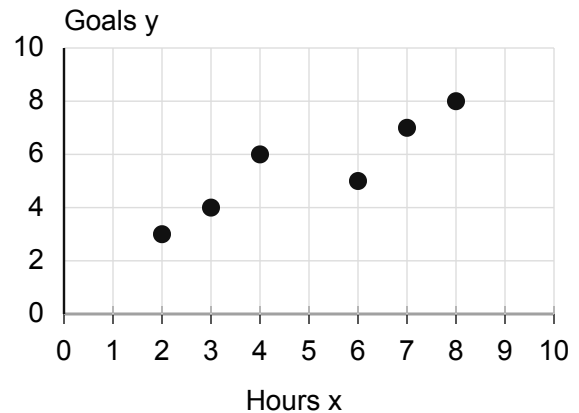
TASK 1

Rows (hours, goals): (2, 3), (4, 6), (6, 5), (8, 8), (3, 4), (7, 7).

TASK 2

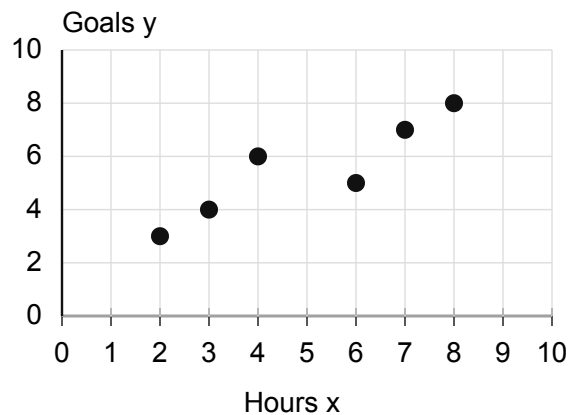
Six dots at (2, 3), (4, 6), (6, 5), (8, 8), (3, 4), (7, 7).

Practice hours and goals

**TASK 3**

The technology graph has the same six points and axis meanings as the hand graph. Example check: (6, 5).

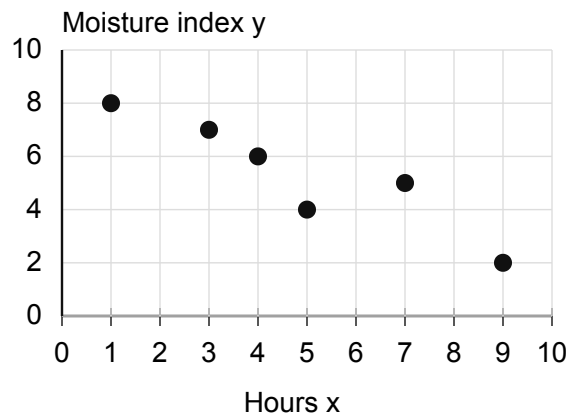
Technology reference: practice

**TASK 4**

The second row becomes (3, 6) instead of (4, 6). The value 3 originally belonged with 4 goals. Sort entire rows to preserve each observation.

TASK 5

Ordered pairs: (1, 8), (3, 7), (4, 6), (5, 4), (7, 5), (9, 2).
Use one dot per reading; label hours and moisture index. Do not connect the dots.

Hours and moisture readings**TASK 6**

Both plots must contain the same six pairs.
Example check: (4, 6); different axis limits are acceptable if all points and units remain accurate.
Verify numeric axes, paired rows and all six observations; a connected line chart is not the requested scatterplot.

TASK 7

Plot the six pairs as separate dots. Listing order is not a continuous path between observations.

Six separate observations