

AFTERSCHOOL TRAINING TOOLKIT

Tutoring to Enhance Science Skills

Tutoring Four: Learning to Make Line Graphs

Guidelines for Making a Line Graph

The effect on increasing coils on the number of paperclips an electromagnet picks up.

Number of Coils	Number of Paperclips			Average Number of Paperclips
	Trial 1	Trial 2	Trial 3	
5	3	5	4	4
10	7	8	6	7
15	11	10	12	11
20	15	13	14	14

Step 1: Identify the variables

Independent Variable (purposefully changed by the experimenter): *Number of coils*

Dependent Variable (changes with the independent variable and is measured):

Number of paperclips

Step 2: Determine the variable range

Subtract the lowest data value from the highest data value for each variable.

Range of paperclips: $14 - 4 = 10$

Range of coils: $20 - 5 = 15$

Step 3: Determine the scale of the graph

Determine the numerical value for each grid unit that best fits the range of each variable.

Number of lines on graph: 36 (y axis)

$$\frac{\text{Range}}{\# \text{ of lines}} = \frac{10 \text{ paperclips}}{36 \text{ lines}} = .28 \text{ paperclips/line} \text{ — round to } .5 \text{ paperclips/line}$$

Number of lines on graph: 25 (x axis)

$$\frac{\text{Range}}{\# \text{ of lines}} = \frac{15 \text{ coils}}{25 \text{ lines}} = .6 \text{ coils/line} \text{ — round to } 1 \text{ coil/line}$$

Step 4: Number and label each axis and title the graph

Step 5: Determine the data points and plot on the graph

$(5, 4)$ $(10, 7)$ $(15, 11)$ $(20, 14)$

Step 6: Draw the graph

Draw a curve or a line that best fits the data points. Do not connect the dots.

Average Number of Paperclips vs. Number of Coils

