

Lesson 3: Investigating Exponential Relationships

Experiment Log Sheet (2 pages)

Describe your experiment:

I will be looking at the temperature of water over time. I will start with boiling water in a mug and will record the temperature every 5 minutes.

Identify your **independent variable**: Time

The units of the independent variable are: Minutes

Identify your **dependent variable**: Temperature of Water

The units of the dependent variable are: Degrees Celsius ($^{\circ}\text{C}$)

Write a **hypothesis** for your experiment:

I expect that as the time increase(s)
(independent variable)

the temperature of the water will
(dependent variable)

decrease at a fast rate and then slow down.
(description of how the dependent variable will change)

Experiment and Follow-Up

1. Use the table on the following page to record your experimental observations.
2. Use the space beside the table to identify any issues or sources of error in your experiment.
3. Create a scatter plot to represent your data. Include a line or curve of best fit. Be sure to label your independent and dependent variables properly, and to include an appropriate scale for each axis.
4. Get approval from Mr. Gilbert to recreate your graph on chart paper.

Data Table

Time (min)	Temperature (°C)
0	89.2
5	76.7
10	68.7
15	63.5
20	58.5
25	54.6
30	51.1
35	47.2
40	45.7
45	43.2
50	40.8
55	39.6
60	37.7

Sources of Error

- Missed some times by a minute or two
- Temp in room may have increased because of # of people in the room.

Scatter Plot

