

Energy in food

Question: Do different types of chips give off a different amount of energy?

Hardware:

- Thermometer
- Tap water
- Boiling tube
- 3 kinds of chips
- Clamp stand
- Tweezers
- Candle
- non-flammable plate
- Graduated cylinder
- Digital scale

Hypothesis: (1 pt)

Variables: (3 pts)

Independent variable:

Dependent variable:

Controlled variables:

Procedure: (1 pt)

1. Measure _____ chips and put them in the flammable dish.
2. Use a graduated cylinder to measure _____ of water in the boiling tube and squeeze it to a height on the clamping stand that will allow the chips to be placed underneath (as close as possible).
3. Measure the temperature of the water at the start using a thermometer and record it.
4. Use a candle and a splint to light the burning chips and move the boiling tube directly over the burning chips.
5. Turn them back on if they turn off. When the food is completely burned, take the temperature of the water again and record it.
6. Repeat using different kinds of chips.
7. Keep the same mass of food and volume of water each time. Keep the boiling tube tight at the same height.

Reminder: It takes _____ Joules of energy to heat _____ of water.

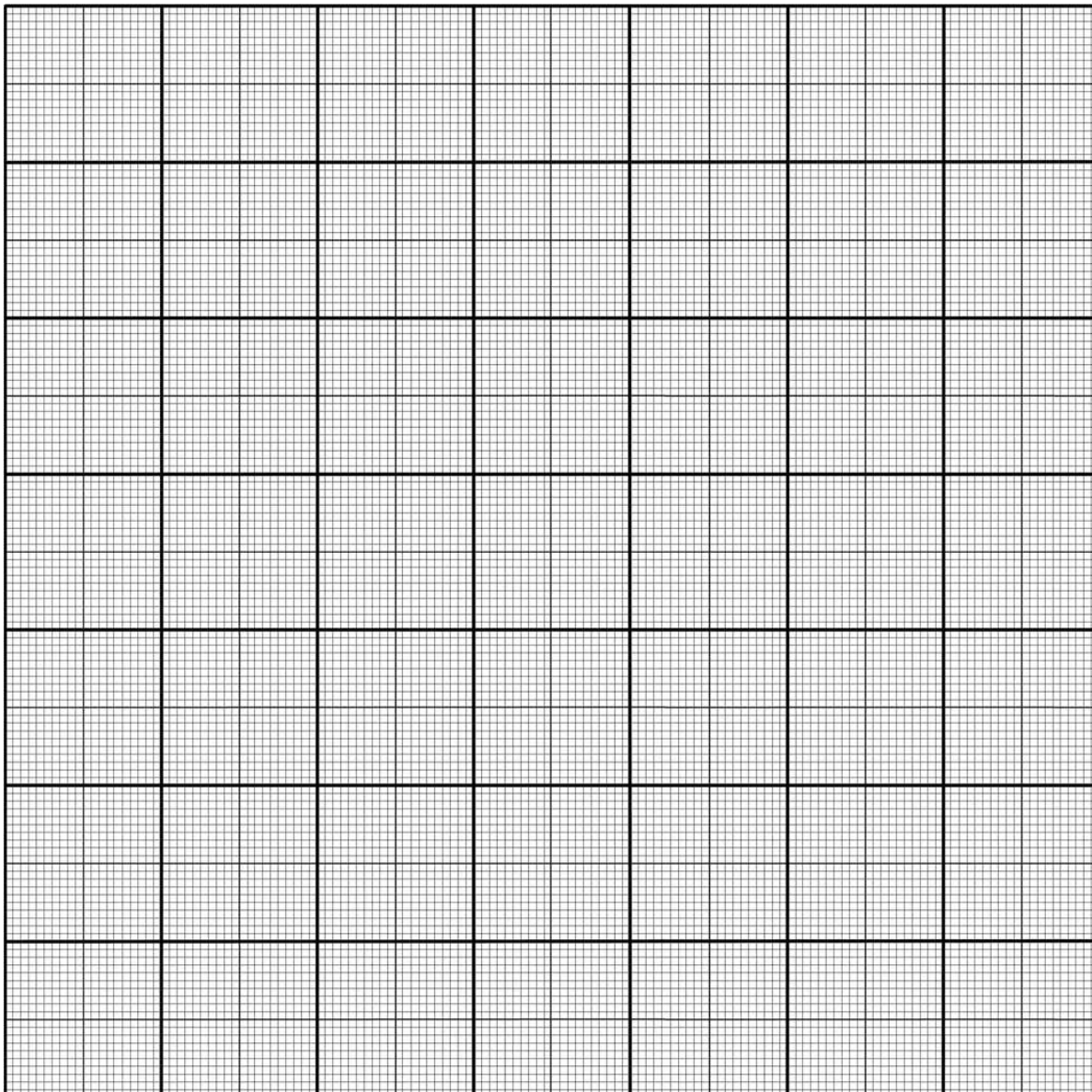
Data: (6 pts)

Type of Potato Chip	Water temperature (°C)		
	Beginning	End	Change

Type of Potato Chip	Energy released (J)

Show your calculations (1 pts)

Results: (4 pts) *HINT: the independent variable is X, the dependent variable is Y*



Conclusion: (9 pts – 3 pts each)

1. What kind of potato chip released the most energy? How do you know?

2. Look at the food labels for each type of potato chip. Do the labels support your conclusion well? Explain.

3. With the support of your results and the labels, write at least 1 thing you would do differently if you had the chance to redo the challenge and **explain** your choice.
