

Plant Enzymes & Heat – Student Activity

As discovered with the experiment where a human hand was plunged into freezing water, enzyme activity in organisms is temperature dependant.

An agricultural scientist was concerned about the effect of possible global warming on wheat crops. They grew groups of 100 seedlings under different temperature conditions and measured the amount of carbon dioxide produced by the group.



Why did they measure carbon dioxide produced? _____

Why did they measure groups of 100 seedlings? _____

Graph the data from the experiment below. Remember, graphs require

1. A title
2. Labelled axes
3. Units on axes
4. A scale to fill the paper provided

Temp °C	Vol. CO ₂ mL	Temp °C	Vol CO ₂ mL	Temp °C	Vol. CO ₂ mL	Temp °C	Vol. CO ₂ mL
1	0	11	430	21	532	31	130
2	0	12	500	22	532	32	80
3	0	13	520	23	535	33	55
4	10	14	523	24	505	34	40
5	90	15	528	25	490	35	10
6	175	16	530	26	430	36	5
7	250	17	529	27	370	37	0
8	270	18	532	28	300	38	0
9	345	19	530	29	250	39	0
10	380	20	530	30	190	40	0

In the experiment, which is the dependent (measured) variable? _____

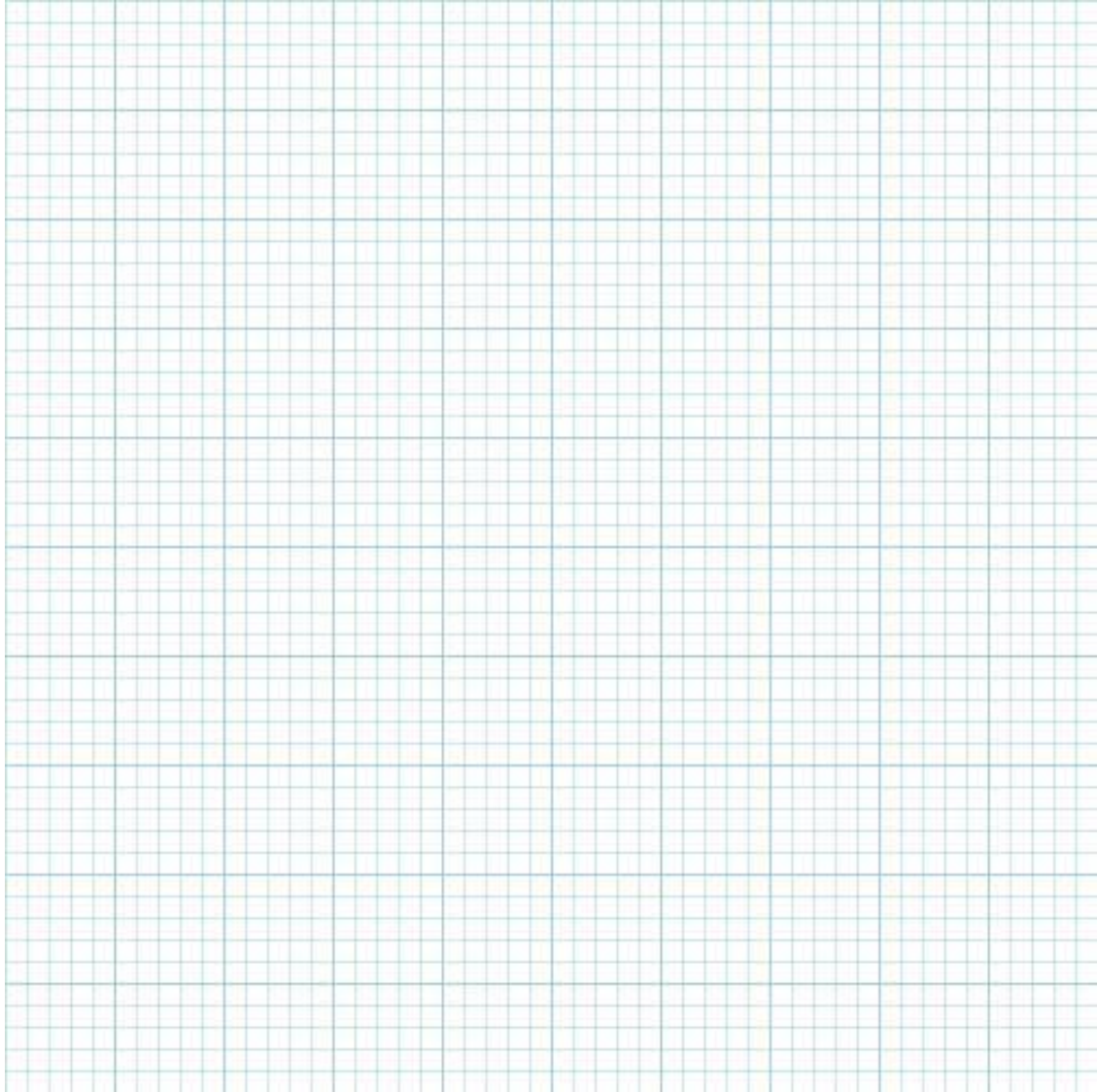
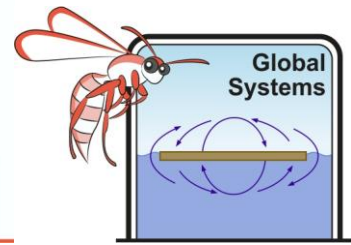
And which is the independent (experimental) variable? _____

Which variable should be on your horizontal axis (Temperature or volume of CO₂) and explain why.

_____ should be on the horizontal axis because _____

Should your graph be a line graph or a bar graph? Explain your answer. _____

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This graph is typical for the effects of temperature or pH on enzyme activity.