

This data was gathered by students in SC 120 Biology in Dr. Buden's biology laboratory at the Palikir national campus of the College of Micronesia-FSM. The students were studying the variation with temperature of the respiration rate of yeast. The respiration was measured by counting the number of bubbles of carbon dioxide (CO₂) per minute produced by the yeast in a water and sugar bath on a warming plate. The warming plate allowed the temperature to be controlled. Temperatures are in degrees Celsius, the metric system measure of temperature. At zero degrees Celsius water freezes, at 100 degrees Celsius water boils.

Temperature (x) in °Celsius	CO ₂ (y) bubbles per minute	1. x difference	2. y difference	3. y difference/x difference	4. coordinates (x, y)
20	1				(,)
25	3				(,)
30	10				(,)
35	16				(,)
40	22				(,)

Fill the the x difference, y difference, y difference/x difference, and coordinates columns in the table above.

5. Plot the coordinates on the graph at the right.

6. Draw a best fit line through the points.

7. _____ Find a run for the best fit line

8. _____ Find the rise for the run you found above.

9. _____ Calculate the slope for the best fit line.

10. _____ Find the y-intercept for the best fit line using the graph.

11. _____ What is the predicted bubble rate for 22.5 °Celsius?

12. _____ What is the predicted temperature in Celsius for a bubble rate of 19 bubbles per minute?

13. _____ Critical thinking and analysis toughie: What is the predicted bubble rate for 100 °C?

