

Variables Practice

1. You water three sunflower plants with salt water. Each plant receives a different concentration of salt solutions. A fourth plant receives pure water. After a two week period, the height is measured.
 - a. Independent Variable: _____
 - b. Dependent Variable: _____
 - c. Control (Group): _____
 - d. Constants (List at least 2): _____
 - e. Write a hypothesis to test: How does salt affect plant growth?
 - i. If _____,
then _____
because _____
2. You decide to clean the bathroom. You notice that the shower is covered in a strange green slime. You try to get rid of this slime by adding lemonade juice. You spray half of the shower with lemonade juice and spray the other half of the shower with water. After 3 days of spraying equal amounts 3 times a day, there is no change in the appearance of the green slime on either side of the shower.
 - a. Independent Variable: _____
 - b. Dependent Variable: _____
 - c. Constants (List at least 2): _____
3. Suzie Q wants to know the effect of different colors of light on the growth of plants. She believes that plants can survive best in white light. She buys 5 ferns of the same species, which are all approximately the same age and height. She places one in white light, one in blue light, one in green light, one in red light and one in the closet. All of the ferns are planted in Miracle-Grow and given 20 mL of water once a day for 2 weeks. After the two weeks, Suzie observes the plants and makes measurements.
 - a. Independent Variable: _____
 - b. Dependent Variable: *This is not specifically stated in the scenario → List two different measurements that Suzie could take to determine how light color affects plant growth:

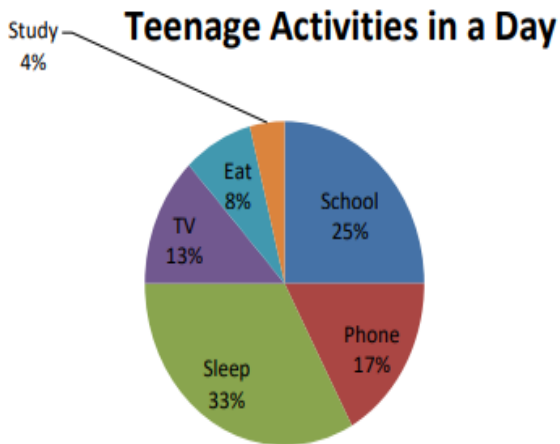
 - c. Control (Group): _____
 - d. Experimental Group: _____
4. A drug company is testing whether a new anti-anxiety medication, Moodcor, will cause people to gain weight. To test this, a researcher gives 100 people Moodcor for one month and 100 people a placebo drug (a sugar pill that looks just like Moodcor). At the end of the month, she asks all participants about any weight gain.
 - a. Independent variable: _____
 - b. Dependent variable: _____
 - c. Write a hypothesis to test: Does the drug, Moodcor, cause weight gain?
 - i. If _____,
then _____
because _____

Graphing Notes & Practice

Remember That ALL Graphs Need:

- A title
- Labels & units on X (independent variable) & Y (dependent variable) axes
- Appropriate scales

Circle Graphs: A circle graph, sometimes called a pie graph, shows different parts of the data in relation to all of the data. Each part of the circle represents a different part of the data. The entire circle represents all of the data (100%).

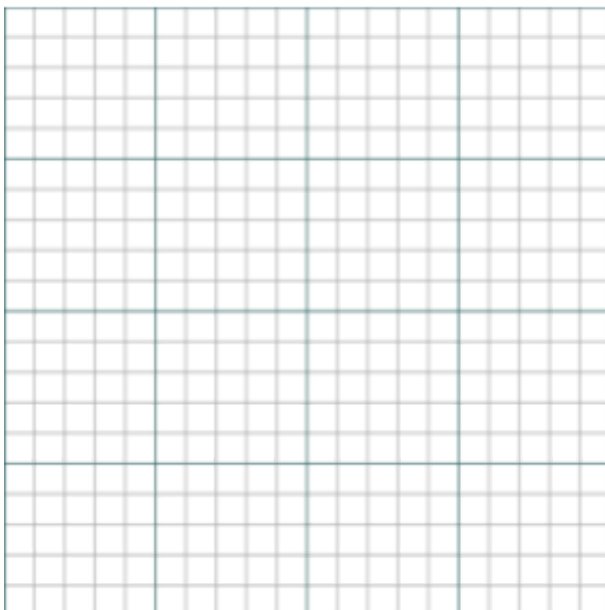


This pie chart shows the approximate percentages teenagers spend doing various activities in a day. Use the information in the pie chart to answer the questions below.

1. How many hours are spent sleeping?
2. What activity takes up the least amount of time?
3. What two activities take up 50% of the day?
4. What two activities take up 25% of the day?

Line graphs – The type of graph that best shows the relationship between two variables is the line graph. A line graph has one or more lines connecting a series of points. Usually a line graph is used when the independent variable is a unit of time.

1. Use the information in Data Table 2 to create a line graph. You should label each axis, mark an appropriate scale on each axis, plot the data, connect the points, and give your graph a title.



Data Table 2: Breathing Rate of Freshwater Sunfish

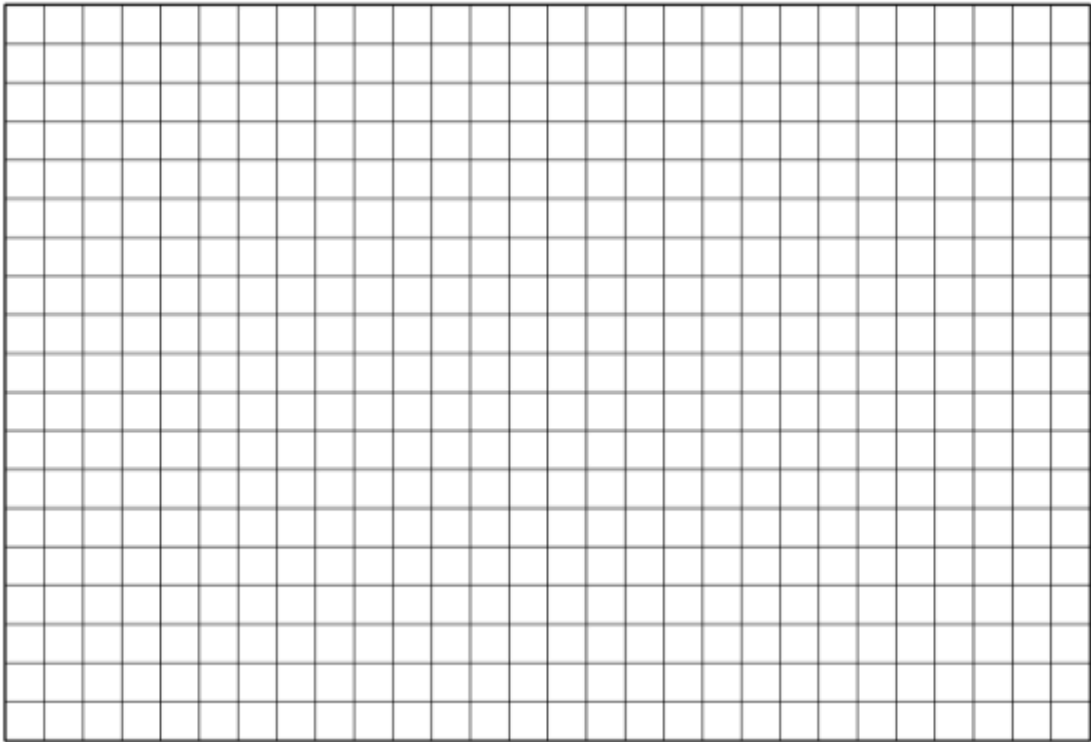
Temp (°C)	Breathing Rate (per minute)
10	15
15	25
18	30
20	38
23	60
25	57
27	25

Bar Graphs: A bar graph is appropriate for data that are not continuous. A bar graph is a good indicator of trends if the data are taken over a sufficiently long period of time. On some bar graphs, the x-axis has labels rather than a numeric scale. This type of bar graph is only used to show comparisons.

3. Use the information provided in Data Table 3 to create a bar graph. You should label each axis, mark an appropriate scale on each axis, plot the data, color the columns of the graph, and give your graph a title.

Data Table 3: Average Rainfall in Willamette Valley

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Rainfall(mL)	15	21	28	24	16	8	2	1	2	3	5	10



Study Questions:

Summary: