

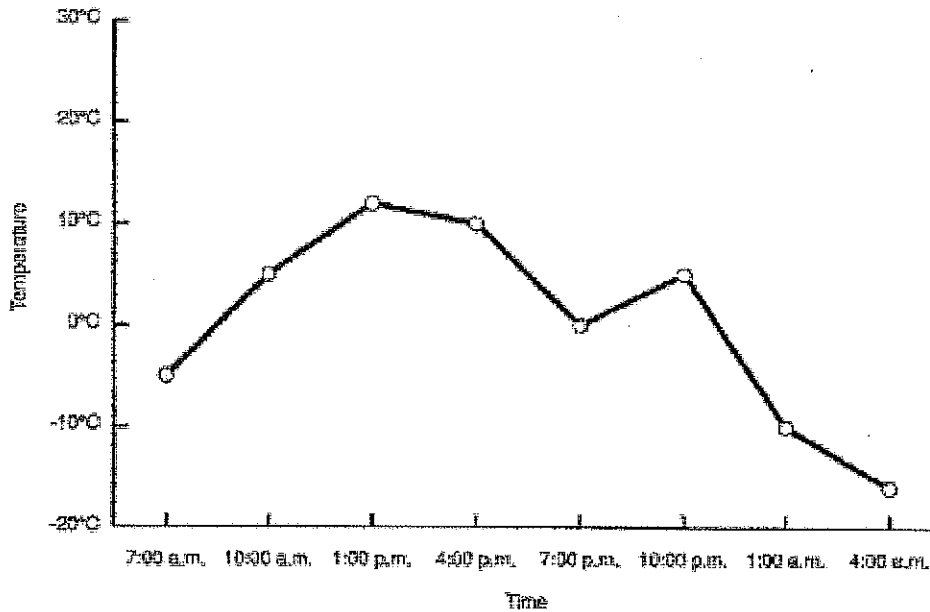
Chapter 1 Review

Name Key

Short Answer

1. The main branches of natural science are Biology, Physical and Earth Science
2. Name the branches of biology. Zoology, Botany, Ecology, Anatomy
3. Scientific theories can be changes or replaced when new evidence (theory proven wrong)
4. A scientific model is a representation of an object.
5. A series of logical steps that is followed in order to solve a problem is called the scientific method
6. Name the steps of the scientific method.  
1.) observation 2.) Formulate a Question, 3.) Collect data-research 4.) Hypothesis 5.) Test Hypothesis (experiment) 6.) Collect data 7.) Conclusion
7. For a scientific theory to be valid, it must allow you to test.
8. The two main branches of science are natural and social
9. Scientists test a hypothesis by experiments
10. Technology can be best defined as applied science

For questions 11-14 use the graph below.



Temperature Measured Over Time

11. At what time is the temperature about 3°C. 10 AM

Key

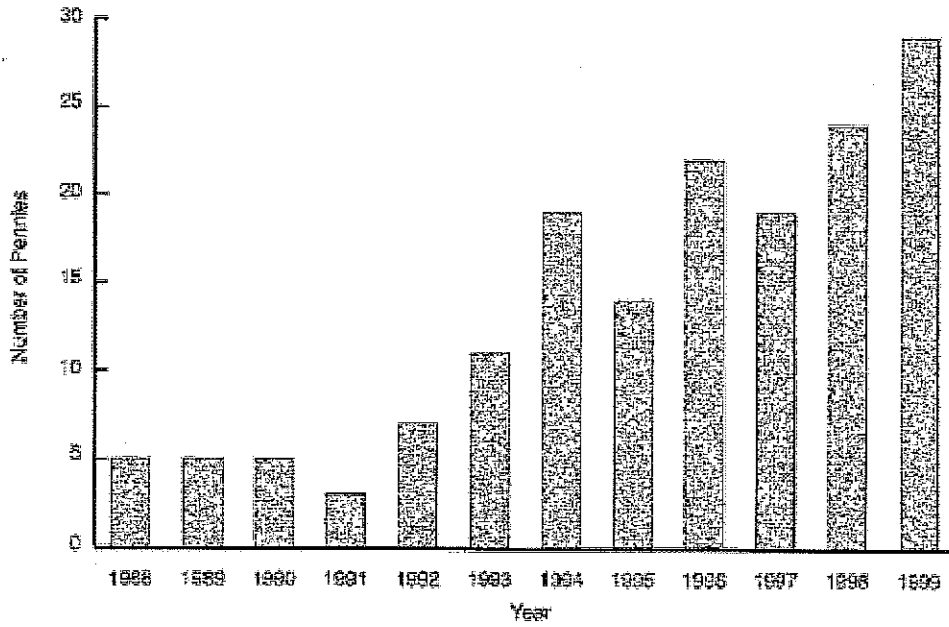
12. What is the graph showing. Temperature Measured over time

13. What is the range of the temperature of the time represented on the graph. about -17°-11°C

14. What is the independent and dependent variables of the graph?

Independent: Time Dependent: Temp

Use the graph below to answer questions 15 and 16.



15. What two consecutive years have the largest difference? 93-94 or 95-96

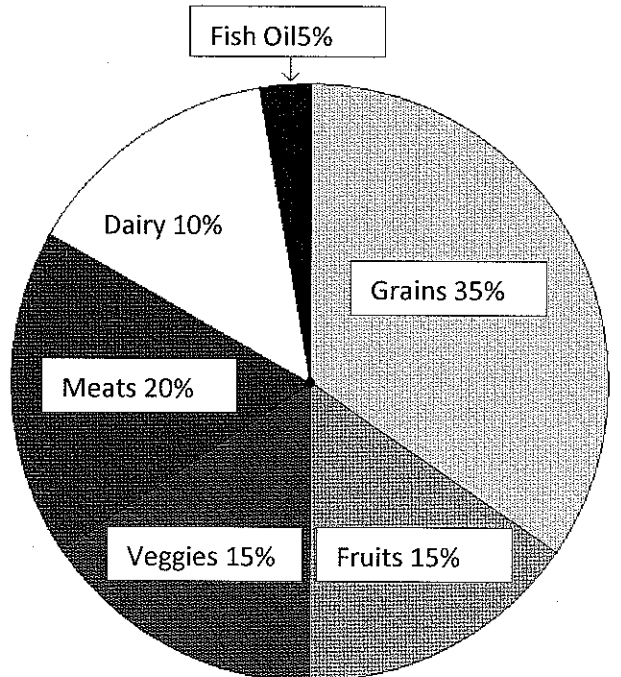
16. What is the independent variable? YEAR

Use the pie chart below to answer questions 17-19.

17. In order to be considered a healthy eater, what percentage of your daily food intake should be meat? 20%

18. What should the average person consume more of fruit or dairy? Fruit

19. GRAINS should make up the largest percentage of your diet.



Key

Krusty was told that a certain hair dye was the newest best thing on the market, it even claims your hair will keep the color 50% longer than your current dye. Interested in this product, he buys the green hair dye and compares it to his usual greendye. One test subject (A) dyes their hair with the original hair dye, and another test subject (B) uses the new hair dye. Subject A reported that their hair kept its color for 29 days. Subject B reported that their hair kept its color for 36 days.

$$\frac{29}{2} = 14.5$$

20. What is the independent variable? Type of hair DYE
21. What is the dependent variable? # of Days hair kept color
22. Who is the control group? Group w/ original hair DYE
23. Does the data support the claim of the advertisement? NO, The new hair dye would have to keep the color for 43.5 days To be 50% MORE.

Short Answer/Completion

24. The application of science to meet human needs is referred to as Technology.
25. What is the difference between a scientific law and scientific theory? Theory is tested repeatedly and a law is an observation about nature.
26. Theories are sometimes replaced as a result of new evidence or facts or discoveries
27. Hypothesis is defined as an educated guess.

Name

Key

Hour

### Experiments:

#### Identifying Variables and Groups

In each of the examples, identify the **independent variable** and **dependent variable** as well as which participants make up the **experimental group** and which make up the **control group**.

Remember:

**Independent Variable** = What the investigator manipulates; the particular treatment or condition the investigator is most interested in the effects of

**Dependent Variable** = What is measured or observed; the "data" collected in the experiment

**Experimental Group** = Those participants exposed to the independent variable

**Control Group** = Those participants treated just like the experimental group EXCEPT they are not exposed to the independent variable; the group with which the experimental group can be compared

1) Of 100 individuals with moderate depression, 50 receive 8 weeks of a new cognitive-behavioral therapy, while the other 50 are placed on a waiting list for 8 weeks. At the end of the 8 weeks all 100 are given psychological tests to assess their level of depression.

Independent Variable: New cog. therapy Dependent Variable: Level of Depression  
Experimental Group: group w/ new therapy Control Group: Group on waiting list.

2) A biopsychologist is studying the effects of anabolic steroids on the aggressive behavior of female rats. 24 female rats receive daily injections of a placebo (fake drug), while 24 others receive daily injections of the steroid. Round-the-clock videotapes of the communal cages of all rats allow all aggressive encounters to be counted and timed.

Independent Variable: Steroids Dependent Variable: aggressive encounters  
Experimental Group: group w/ steroids Control Group: group w/ placebo

3) An industrial psychologist is interested in whether lowering the temperature in a packing room will increase productivity (number of products packed). Workers in two equivalent packing rooms participate in the study. One room is maintained at 65 degrees, the other room is left at the usual company temperature of 76 degrees.

Independent Variable: Temperature Dependent Variable: productivity  
Experimental Group: group @ 65° Control Group: 76° group @ 76°

4) Big Pharma Drug Company is conducting research of their new drug Attendomax to improve the note-taking behavior of college students diagnosed with Attention Deficit Hyperactivity Disorder. Fifty of the students receive capsules contain Attendomax, another fifty receive capsules which look the same but actually contain the drug Ritalin which has been used for many years. All students attend the same series of lectures and have their notes collected afterwards. Notes are scored for completeness and accuracy.

Independent Variable: new drug - Attendomax Dependent Variable: Notes completeness & Accuracy  
Experimental Group: group w/ Attendomax Control Group: group w/ Ritalin