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Introduction

Focus on Scientists is a blend of important contributors whose discoveries, experiments, and inventions have enriched and improved our present way of life. Some scientists named in this book lived in ancient times; others are from a more modern era. Many of the scientists here are world-famous, but others are not as well-known. Yet they all share one thing in common. Each of them has made a significant impact in the field of science and on our world.

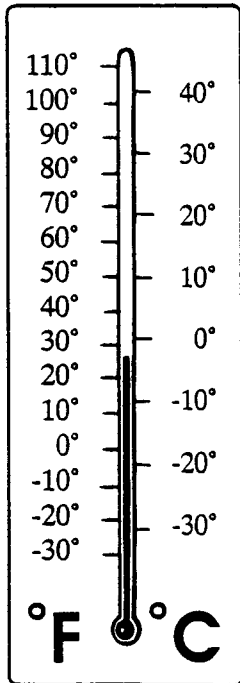
One purpose of this book is to acquaint students with some of the people who have touched their lives in subtle but significant ways. A secondary intention is to highlight the role of women in science and to present a cross-section of men and women from various cultures and backgrounds. Finally, scientists from all three fields of science, Earth, Life, and Physical, are represented in *Focus on Scientists*.

Within the three science areas of this unit are biographies of selected scientists. Following the biography pages are related activities and experiments, along with a listing of related reading material (tradebooks, fiction, periodicals, etc.). Activity pages follow each biography and serve to enrich the students' knowledge and appreciation of the scientists' contributions.

This fine resource will enable you to present some fascinating and motivational information to students. It is hoped that the inspiring stories of the men and women on these 112 pages and their amazing accomplishments will inspire students to explore science topics on their own.

Comparing Temperatures

Scientists use a number of temperature scales in their specialized fields. Two of the most common ones are the Fahrenheit (abbreviated F) and the Celsius (abbreviated C) scales. The Fahrenheit thermometer measures the freezing point of water at 32°F; the boiling point of water is 212°F. On the Celsius thermometer, the freezing point is 0°C and the boiling point of water is 100°C. Use the diagram below to answer the following questions.



1. If it is 30°C outside, is it hot or cold? _____
2. When the temperature is -30°C, about what temperature is it on the Fahrenheit scale? _____

3. If an outdoor thermometer has a reading of 40° and it is very hot outside, which temperature scale is being used?

4. When it is -10° (10° below 0) below 0 on the Celsius scale, about what temperature is it on the Fahrenheit scale?

5. The Fahrenheit thermometer reads 40°. Is that hot or cold?

Calculator Challenge

You can calculate the temperature from one scale to the other by using the following equations:

- To find the Celsius temperature when the Fahrenheit temperature is known, subtract 32 degrees from the Fahrenheit temperature, then multiply that number by .55.

$$(^{\circ}\text{F} - 32) \times .55 = ^{\circ}\text{C}$$

- To find the Fahrenheit temperature when the Celsius temperature is known, multiply the Celsius temperature by 1.8 and add 32 to the product.

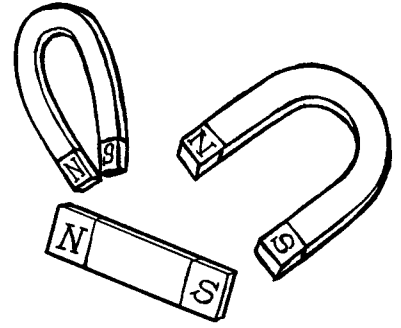
$$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$$

Use the equations above to calculate the following temperatures. (Round to the nearest degree.)

- | | |
|--------------------|---------------------|
| (A) 65°F = _____°C | (D) 85°F = _____°C |
| (B) 40°C = _____°F | (E) 100°F = _____°C |
| (C) 5°C = _____°F | (F) 200°C = _____°F |

Opposites Attract

The three most common magnets are the horseshoe, the bar, and the “U” magnet. (See illustration.) Each magnet has two ends or poles. One pole is north and the other pole is south. If the north pole of one magnet is brought close to the south pole of another, the magnets will attract one another. Yet if the north pole of a magnet is brought close to the north pole of another, the magnets repel or push away from one another. This is stated in the law of magnets which says that like poles repel and unlike poles attract.



Directions: For this activity you will need two bar magnets. First, look at each pair of bar magnets below. Predict what will happen when a pair of bar magnets is arranged as shown. Color green the magnet pairs that will attract. Color red the pairs that will repel. Then test the predictions by experimenting with your bar magnets. How did you do?

