A Rainy Day

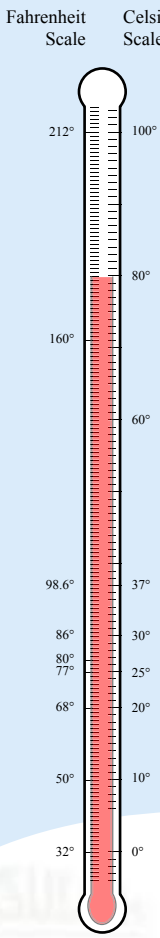
By Pier Angela S. Tiongson

"Mom! Mom! It is raining outside," said Keena.

Mom hurriedly went to her daughter. "What do you want, my little girl?" she asked.

Keena looked out the window and said, "Mom, I'm just wondering what is the temperature when it is raining."

"It depends on how strong the rain is. Do you think it is a storm?" said Mom.



100°C = 212°F, water boils
37°C = 98.6°F, normal body temperature
30°C = 86°F, hot day
25°C = 77°F, warm day
20°C = 68°F, room temperature
10°C = 50°F, cool day
0°C = 32°F, water freezes

"No, it is not stormy. It is just a mild rain," answered Keena.

"Why don't you get the thermometer in the dining room?" requested Mom.

Keena went to the dining room and took the thermometer. "Mom, the red marker is not moving. The left side is the Fahrenheit scale while the scale on the right is the Celsius scale. The end of the red marker reads 27 at the right side and 80 on the left side," she said.

"To know if it is working, put it inside the freezer for 10 minutes and come back," Mom instructed.

Keena immediately ran toward the freezer, put the thermometer inside, and went back to her mother. "What is the relationship between Fahrenheit scale and the Celsius scale?" she asked.

Mom invited her daughter to seat on the sofa and said, "The Celsius scale has 100 divisions between the freezing point and the boiling point of water, whereas the Fahrenheit scale has 180 divisions. The ratio between the two scales is 100 to 180, or 5 to 9. Hence, we may convert temperature from one unit to the other."

After 10 minutes, Keena took out the thermometer from the freezer. "Mom, the thermometer reads 44 degrees Fahrenheit," she said.

"How much is it in Celsius? On the Fahrenheit scale, the freezing point of water is at 32°, while in Celsius scale, the freezing point is 0°. We therefore subtract 32 from the given Fahrenheit reading. So 44 – 32 = 12. Then we multiply it to the constant ratio $\frac{5}{9}$. Thus, $44°F \rightarrow \frac{5}{9}(44 - 32) = \frac{5}{9}(12) = 20°C$," explained Mom.

"Wow! That's cool!" exclaimed Keena.

"We now have a formula for converting Fahrenheit to Celsius. $C = \frac{5}{9}(F - 32)$. On the other hand, if we solve the equation for F, we obtain $F = \frac{9}{5}C + 32$," said Mom.

WORKSHEET:

I. Convert each of the following from degrees Fahrenheit to the nearest integer degrees Celsius:

1. 10˚F

2. 30˚F

3. 212˚F

4. -57˚F

5. -6˚F

II. Convert each of the following from degrees Celsius to the nearest integer degrees Fahrenheit.

1. 10˚C =

2. 30˚C =

3. 212˚C =

4. -57˚C =

5. -6˚C =

III. Answer each of the following questions.

1. Your temperature is 37˚C. What is your temperature in Fahrenheit?

2. If your body temperature is 39˚F, what is your temperature in Celsius?

3. How many degrees Fahrenheit outside if the thermometer reads 40˚C?

4. Which is the hottest water temperature: 24˚C, 64˚F, or 10˚C?

5. A glass of lemonade is 10˚C, while a glass of orange juice is 14˚F. Which is cooler?

6. A cup of coffee is 122°F while a cup of tea is 62°C. Which is hotter?

7. The temperature in the basement of a building is 9.8°F. How much higher is the temperature outside the building if the temperature there is 33°F?

8. Take time to watch the weather report one morning. What temperature scale is used? Convert the temperature readings in the report to the other unit.

ANSWERS:

I.

1. -12.22 ˚C
2. -1.11˚C
3. 100˚C
4. -49.44˚C
5. -21.11˚C

II.

1. 50˚F
2. 86˚F
3. 413.6˚F
4. -70.6˚F
5. 21.2˚F

III.

1. 98.6
2. 3.89
3. 104
4. 17.78
5. Orange juice
6. Cup of tea
7. 16.64˚C
8. Answers vary.