What Is an Average?

Suppose that your class is doing an experiment to determine the boiling point of a particular liquid. Working in groups, your classmates come up with several answers that are all slightly different. Your teacher asks you to determine which temperature best represents all of the varying results from the class. A mathematical tool called an average, or mean, will help you solve the problem. An average allows you to simplify a list of numbers into a single number that approximates the value of all of them. Check it out!

PROCEDURE: To calculate the average of any set of numbers, first add all of the numbers to find the sum. Then divide the sum by the amount of numbers in your set. The result is the average of your numbers.

SAMPLE PROBLEM: Find the average of the following set of numbers:
5, 4, 7, 8

Step 1: Find the sum.

\[ 5 + 4 + 7 + 8 = 24 \]

Step 2: Divide the sum by the amount of numbers in your set. Because there are four numbers in your set, divide the sum by 4.

\[ 24 ÷ 4 = 6 \]

The average of the numbers is 6.

Practice Your Skills!

Be sure to show your work for the following problems:

1. Find the average of each of the following sets of numbers.
   a. 19 m, 11 m, 29 m, 62 m, 14 m

   \[ \frac{19 + 11 + 29 + 62 + 14}{5} = \frac{125}{5} = 25 \]

   The average of the numbers is 25.

   b. 12 cm, 16 cm, 25 cm, 15 cm

   \[ \frac{12 + 16 + 25 + 15}{4} = \frac{68}{4} = 17 \]

   The average of the numbers is 17.

   c. 31°C, 42°C, 35°C, 38°C, 59°C

   \[ \frac{31 + 42 + 35 + 38 + 59}{5} = \frac{205}{5} = 41 \]

   The average of the numbers is 41.
Use the data in the tables to complete the following problems. Be sure to show your work.

**Height of Students (cm)**

<table>
<thead>
<tr>
<th>Students</th>
<th>Grade 6</th>
<th>Grade 7</th>
<th>Grade 8</th>
<th>Grade 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gretchen</td>
<td>152</td>
<td>156</td>
<td>159</td>
<td>163</td>
</tr>
<tr>
<td>Dylan</td>
<td>151</td>
<td>152</td>
<td>157</td>
<td>162</td>
</tr>
<tr>
<td>Sergio</td>
<td>144</td>
<td>147</td>
<td>150</td>
<td>152</td>
</tr>
</tbody>
</table>

2. Calculate the average of Gretchen’s and Dylan’s heights in the 8th grade.

3. What is the average height of all three students in Grade 6?

**Number of Wildfires in 1993–1996**

<table>
<thead>
<tr>
<th>Year</th>
<th>Arizona</th>
<th>New Mexico</th>
<th>Oklahoma</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>10</td>
<td>7</td>
<td>17</td>
<td>85</td>
</tr>
<tr>
<td>1994</td>
<td>16</td>
<td>11</td>
<td>24</td>
<td>84</td>
</tr>
<tr>
<td>1995</td>
<td>12</td>
<td>5</td>
<td>7</td>
<td>72</td>
</tr>
<tr>
<td>1996</td>
<td>13</td>
<td>5</td>
<td>37</td>
<td>91</td>
</tr>
</tbody>
</table>

4. What was the average number of wildfires to occur annually in New Mexico for the years 1993–1996?

5. What was the average number of wildfires for all four states in 1995?

6. What was the average number of wildfires to occur annually in Texas for the years 1993–1996?