**Making Sense of Mathematics**

**Attributes (Quantities and Aspects) that can be Counted or Measured**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Attribute** | **Unit(s)** | **Description** |
|  | **Discrete objects or events**:   | Number | These are items that can be counted, for example: people in line, books, pencils, jumps, claps, paper clips, rulers, etc. |
|  | **Length or distance**:   | Inches, feet, centimeters, meters, miles, etc. | The length of an object or the distance between objects. Please note that this includes width, height, and depth, too. |
|  | **Area**:   | Acres, inches2, feet2, centimeters2, meters2, miles2, etc. | The number of unit squares it takes to completely cover an object or shape. Note that all of these have a squared (unit2) except for acre, which is a unit of area. This is because area is a two dimensional measurement (length and width, typically) |
|  | **Volume**:   | Teaspoons, tablespoons, fluid ounces, quarts, gallons, milliliters, liters. Also includes: inches3, feet3, centimeters3, meters3, miles3, etc. | The number of unit cubes it takes to completely cover an object or shape. Note that the linear measures are cubed (unit3). This is because volume is a three dimensional measurement (length, width, and height typically). Ini addition, there are other direct measures of volume.It is helpful to note that 1 ml is equivalent to 1 cm3 . |
|  | **Weight (or mass)**:   | Ounces, pounds, grams, kilograms | Weight is defined as the force of an object due to gravity. Mass and weight are related. |
|  | **Time**:   | Seconds, minutes, hours, days, weeks, months, years, etc. | We measure time in both long and short periods. These frequently show up hidden in rates such as mph (miles per hour). |
|  | **Money**:   | Dollars and cents in the US. Other countries use different currencies | Cost, price, value |
|  | **Temperature (Energy**): | Temperature is usually measured in Degrees: typically Fahrenheit or Celsius (centigrade).  | In Science, sometimes Kelvin is used. In later middle school and high school, students may be introduced to other measurements of energy, force, sound, etc. While these are typically combinations of other units, they sometimes have units of their own. |
|  | **Angle of Rotation**:   | Degrees or radians | This is used to describe a position of an object or course for navigation, angles, etc. |