Chem 1 Hour\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Dr. Wexler  
Making Observations Practice  
Date:

Exercise 1: Making Observations

Look up from this text and scan the room. Write down what you see around you in as much detail as necessary so that based on your description someone else would be able to figure out where in the room you were sitting. Use the chart below to record your observations.

|  |  |
| --- | --- |
|  | |
| **Item** | **Observation** |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

Exercise 2: Making Qualitative Observations

Science is full of observations but of two different types. What we see, smell, feel, and hear are observations that scientists depend on to determine whether chemical reactions have been occurring or have come to completion. This is one type of observation known as a ***qualitative* observation**. Qualitative observations give the descriptive properties of a substance or being and therefore are without numbers.

|  |
| --- |
| **Sample Problem**  List the qualitative observations for each of the figures below.  [Fog caused by dry ice](https://en.wikibooks.org/wiki/File:DryIceSublimation.JPG) Fog caused by dry ice  Fog caused by dry ice  [Purple tulips](https://en.wikibooks.org/wiki/File:Violett_tulips.jpg) Tulips  Tulips  [Soda bubbles](https://en.wikibooks.org/wiki/File:Soda_bubbles_macro.jpg) Soda |

Exercise 3: Quantitative Observations

Sometimes qualitative measurements are enough to give an accurate representation of the events occurring. In other cases, scientists need more information than what the senses offer in order to make correct interpretations and then conclusions.

When you have observations that involve the use of numbers, we refer to these as ***quantitative* observations** because they have amounts. If we said that it was 85 °F and sunny outside, the temperature of 85 °F would be a quantitative observation and the word “sunny” would be qualitative. Do you see the difference?

|  |
| --- |
| **Sample Question**  Pick out the quantitative and qualitative observations from each phrase:   1. 3 g of NaCl dissolves in 10 mL of H2O to make a clear solution. 2. The spider on the wall only has seven legs remaining but is still big and hairy. 3. When 0.5 mL of a solution is put into a flame, the flame turns a brilliant green. |

Exercise 4: Do you know the difference between qualitative and quantitative observations?

Indicate in the following table whether the observation is qualitative or quantitative.

|  |  |  |
| --- | --- | --- |
|  | | |
| **Number** | **Observation** | **Qualitative (Qual) or Quantitative (Quant)** |
| 1 | The temperature of this room is 25 °C. |  |
| 2 | It is comfortably warm in this room. |  |
| 3 | Most people have removed their coats. |  |
| 4 | The building is 25 stories high. |  |
| 5 | It is a very tall building. |  |
| 6 | The building is taller than any nearby trees. |  |
| 7 | The bottle is green. |  |
| 8 | The bottle contains 250 mL of liquid. |  |
| 9 | Robert bought his son a small car. |  |
| 10 | The car is smaller than his hand. |  |
| 11 | The car is about three inches long. |  |
| 12 | The race is about 27 miles long. |  |

**Vocabulary Review:**

**qualitative observation**

Describes the qualities of something and are described without numbers.

**quantitative observation**

Observations that involve the use of numbers (quantities).