Extensive Property: a property that depends on the amount of matter involved (i.e. mass) **Intensive Property:** a property that does not depend on the amount of matter involved (i.e. density and temperature)

1.5: Uncertainty in Measurement

Exact Numbers: numbers with defined values, also include those that are obtained by counting **Inexact Numbers:** numbers measured by any method other than counting, including measured numbers

Significant Numbers: meaningful digits in a measured or calculated value

- 1. Any digit that is not zero is significant.
- 2. Zeroes located between nonzero digits are significant.
- 3. Zeroes to the left of the first nonzero digit are not significant.
- 4. Zeroes to the right of the last nonzero digit are significant if the number contains a decimal point.
- 5. Zeroes to the right of the last nonzero digit in a number that does not contain a decimal point may or may not be significant. To avoid ambiguity, it is best to express such numbers using scientific notation.

Calculations with Measured Numbers:

- 1. In addition and subtraction, the answer cannot have more digits to the right of the decimal than the original number with the smallest number of digits to the right of the decimal point.
- 2. In multiplication and division, the number of significant figures in the final product or quotient is determined by the original number that has the smallest number of significant figures.
- 3. Exact numbers can be considered to have an infinite number of significant figures and do not limit number of significant figures in a calculate liesult.

Accuracy: how close a measurement is to the true value Precision: how close multiple measurements of the same thing are to be another

<u>1.6: Using Units and Solving Proplem</u>

conversion factor: a fraction in which in that quantity is expressed one way in the numerator and another way in the denominator

dimensional analysie house of conversion extors in problem solving