Chapter 2: Properties of Matter

Section 2.1 – Classifying Matter

- _____ can be divided into _____ and _____ based on their compositions.
- _____ that has exactly the same _____ is classified as a _____.
- Every sample of a _____ has the same properties because a substance has a _____.
- _____ can be classified as _____ or _____.
  - An _____ is a substance that cannot be _____ into simpler substances.
  - An _____ is the smallest particle of an _____.
  - An _____ has a fixed _____ because it contains only one type of _____.
  - Most _____ are _____ at room temperature.
  - Some _____ are gases at room temperature. Most of them are located on the _____ or the periodic table.
  - _____ are liquids at room temperature.
- Each element symbol is either _____.
- The first letter is always _____. If there is a second letter, it is _____.
- Some element symbols are based on the _____ for elements.

  Ex: aurum =

  ferrum =
  - A _____ is a substance that is made of two or more simpler _____.
  - The properties of _____ differ from those of the _____ from which it is made.

- A _____ always contains two or more elements joined in a _____.
- The properties of a _____ can vary because the _____ of a mixture is not fixed.
- _____ tend to retain some of the properties of their individual _____.
- In a _____, the parts of the mixture are _____ different from one another.
- In a _____, the substances are so _____ distributed that it is difficult to distinguish one substance from another, so it _____ to be uniform.
- Based on the _____ of its largest particles, a mixture can be classified as _____.
- When substances dissolve and form a _____, the mixture that forms is called a _____.
- Properties of solutions: _____

  _____.

  Ex:
- A _____ is a _____that separates into layers over time.
- Properties of suspensions: _____

  _____.

  Ex:
- A _____ contains some particles that are _____ in size.
- Properties of colloids: _____

  _____.
- Ex:

Section 2.1 Assessment

- Why does every sample of a given substance have the same properties?

- Explain why the composition of an element is fixed.

- Describe the composition of a compound.

- Why can the properties of a mixture vary?

- On what basis can mixtures be classifies are solutions, suspensions, or colloids?

- Explain why silicon dioxide cannot be the only compound in a sample of sand.

- Fresh milk is a suspension. After fresh milk is homogenized, it is a colloid. What happens to the size of the drops of fat in milk when it is homogenized?

Section 2.2 – Physical Properties

- A _____ is any characteristic of a material that can be observed or measured without changing the _____ of the substances in the material.
- Viscosity, conductivity, malleability, hardness, melting point, boiling point, and density are examples of _____.
- The tendency of a liquid to keep from _____ – its resistance to flowing – is called its _____.
- The greater the _____, the _____ the liquid moves.
- The _____ of a liquid usually _____ when it is heated.
- A material's ability to allow _____ to flow is called _____.

- Materials that have a high _____, such as metals, are called _____.
- _____ is the ability of a solid to be _____ without shattering.
- Most metals are _____.
- Solids that shatter when struck are _____.
- One way to compare the _____ of two materials is to see which of the materials can _____ the other.
- _____ is the hardest known material.
- The temperature at which a substance changes from a _____ is its _____.
- The temperature at which a substance's _____ equals external pressure is its _____.
- _____ is the ratio of the _____ of a substance to its _____.
- _____ are used to identify a material, to choose a material for a specific purpose, or to _____ the substances in a mixture.
- _____are two common separation methods.
- _____ is a process that separates materials based on the _____ of their particles.
- _____ is most commonly used to separate a _____.
- _____ is a process that separates the substances in a solution based on their _____.
- _____ is commonly used to separate _____ and to separate solids that are dissolved in liquids.
- A _____ occurs when some of the _____ of a material change, but the substances in the material remain the same.
- _____ can be reversible or _____.

Section 2.2 Assessment

- List seven examples of physical properties.

- Describe three uses of physical properties.

- Name two processes that are used to separate mixtures.

- When you describe a liquid as thick, are you saying that is has a high or low viscosity?

- Explain why sharpening a pencil is an example of a physical change.

- How could you find out whether copper is harder or softer than plastic?

- Why would you expect the materials used to make pot holders to be poor conductors of heat?

- Silicon dioxide is a solid at room temperature and methanol is a liquid. Which substance has the higher melting point?

Section 2.3 – Chemical Properties

- A _____ is any ability to produce a change in the _____ of matter.
- _____ can be observed only when the substances in a sample of matter are changing into _____.
- Flammability and reactivity are two examples of _____.
- _____ is the ability to _____ in the presence of oxygen.

- The property that describes how readily a substance _____ chemically with other substances is _____.
- A _____ occurs when a substance reacts and forms one or more _____.
- Three common types of evidence for a chemical change are _____ _____.
- Any _____ that forms and separates from a liquid mixture is called a _____.
- When matter undergoes a _____, the composition of the matter changes. When matter undergoes a _____, the composition of the matter remains the same.

Section 2.3 Assessment

- Under what conditions can chemical properties be observed?
- List three common types of evidence for a chemical change.
- How doe chemical changes differ from physical changes?
- A pat of butter melts and then burns in a hot pan. Which of these changes is physical and which is chemical?
- If you spill household bleach on denim jeans, you will observe that the area of the spill no longer has a blue color. Is this change chemical or physical?
- Gold and platinum are often used to make jewelry. What can you infer about the reactivity of these elements?