

Physical Properties of Matter

A Material Science Lesson

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Research Experience for Teachers
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WHERE DISCOVERIES BEGIN

Summary

Regents Chemistry Lesson

Grades: 10-12

Physical Properties of Matter

Skills

At the completion of the lesson students should be able to meet the following NYS Regents skill requirements <http://www.emsc.nysed.gov/ciai/mst/pub/chemist.pdf>

1. Use simple particle model to differentiate among properties of a solid, a liquid, and a gas.
2. Use particle models/diagrams to differentiate among elements, compounds, and mixtures.
3. Describe the process and use of filtration, distillation, and chromatography in the separation of a mixture.

Time required for lesson: 45 minutes.

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Lesson: Physical Properties of Matter

Do now: Make a list of at least 10 elements from the periodic table.

Materials:

Slide projector

Prepared slides

Samples of elements, compounds, and mixtures.

Periodic table of the elements with symbols but no names.

Demos:

1. Sulfur, magnet, iron filings, and sheet of white paper to show separation of a heterogeneous mixture of iron from sulfur using a magnet. Additional – if you have access to a fume hood you can burn the iron with the sulfur to form iron sulfide, a compound, and then try the magnet on it.
2. Sodium chloride, water and a beaker – dissolve sodium chloride in water to show a homogeneous mixture.
3. Set up distillation column with water with food coloring to show separation of water from food coloring.

Outline

1. Take attendance and review do now. (**10 mins**)
2. [Lesson slides](#) (**25 mins**)
3. Practice assignment (**5 mins**)
4. Review practice assignment (**5 mins**)

Lesson

Types of matter (**15 mins**)

- show students samples of elements and compounds.
- Show examples of mixtures
- Demonstrations

Phases of matter (**10 mins**)

- Discuss the different phases of matter on the periodic table using samples.

Homework:

Find at least 10 products in your home that have one or more the elements on the periodic table listed in its list of ingredients.