

TEKS-Based Activity for Grade 8

One for the Money

Description:

Students use properties/critical attributes to determine how objects are grouped. Students identify critical attributes of metals by comparing a group of metals and a group of nonmetals.

Time Frame:

1 lesson (45 minutes)

Correlation to Texas Essential Knowledge and Skills:

During this activity, students will be exposed to the following Texas Essential Knowledge and Skills:

Note: Some TEKS statements below end with a ; or *and* and nothing thereafter—this indicates that further TEKS statements follow but are not included here.

(8.9) Science concepts. The student knows that substances have chemical and physical properties. The student is expected to:

- (B) interpret information on the periodic table to understand that physical properties are used to group elements;

Note: The TEKS listed here are the main content TEKS for this activity; however, this activity may also cover additional content and process skills included in other TEKS.

Materials:

A sample, picture, or written name of the following objects:

- Quarter
- Dime
- Nickel
- Penny
- Gold ring
- Silver earring
- Aluminum can
- Tin can
- Seashell
- Shark tooth
- Dollar bill
- Plastic cup
- Wooden stick
- Cotton sock
- Glass dish

Periodic table of elements (1 copy for classroom use)

Advance Preparation:

1. Collect the objects or pictures of the objects listed in the Materials section above. If you cannot locate an object or a picture of it, prepare a card with the object name written on it.
2. Arrange the objects, pictures, and cards for display in two groups—metals and nonmetals.

Procedures:

1. Tell students that their task in this learning experience is to identify the common critical attribute/property of one of the groups of objects on display. Students will work individually on this activity and should not name aloud the attribute once they have identified it. Be careful not to reveal that “metal” is the attribute/property they should identify.
2. Show students the quarter and tell them this object has the critical attributes of interest. Show students the seashell and tell them this object does not have the critical attribute. Continue showing the examples in the following order up to example 8, the gold ring, then go to step 3 below.

Examples

1. Quarter
3. Dime
5. Nickel
6. Penny
8. Gold ring
11. Silver earring
13. Aluminum can
14. Tin can

Nonexamples

2. Seashell
4. Shark tooth
7. Dollar bill
9. Plastic cup
10. Wooden stick
12. Cotton sock
15. Glass dish

3. After showing the gold ring, ask students to indicate whether they have identified the attribute by signaling with a thumbs-up or raised hand. Then continue with the list in the order provided. Remind students not to call out the attribute once they have identified it. Once students have seen all the items, ask them to name examples of other items that share and do not share this attribute. Students should name items that are metals and nonmetals.
4. After a few objects are named, ask students to describe characteristics that the examples share, such as shiny, metallic, able to melt at high temperatures, ductile. Finally ask students to name the attribute/property (metallic).
5. Ask students to name other examples and nonexamples of metals. Look collectively at metals on the periodic table and have students look for patterns that group them together. Have students look at attributes of a system and justify why the periodic table is a system and the elements are subsystems.