

Elements Concept Checkpoint



Concept Checkpoints

- The items on the following pages are written in the style of ‘ConceptTests’ — multiple choice questions that are specifically written to capture student misconceptions.
- They work best when students try to answer them on their own and anonymously ‘vote’. Then they discuss with peers and re-vote.
- When discussing, it helps to call on students to ask them to explain why a particular choice is incorrect because it allows the class to explicitly address misconceptions.

Where do I belong?

Physical Properties	Metal	Nonmetal	Metalloid	REE
I am a gas at room temperature.				
I am shiny and can be easily shaped.				
I am shiny, but I am super soft.				
I am shiny, but I am brittle and break easily.				

Where do I belong?

Physical Properties	Metal	Nonmetal	Metalloid	REE
I am a gas at room temperature.		✓		
I am shiny and can be easily shaped.	✓			
I am shiny, but I am super soft.				✓
I am shiny, but I am brittle and break easily.			✓	

Select the category of element you would use for each scenario.

Use	Metal	Nonmetal	Metalloid	REE
Make an electrical wire				
Fill up a balloon				
Mold a statue				
Make a really strong magnet				
Use as a semiconductor in a computer				
Use to make a glowing TV screen				

Select the category of element you would use for each scenario.

Use	Metal	Nonmetal	Metalloid	REE
Make an electrical wire	✓			
Fill up a balloon		✓		
Mold a statue	✓			
Make a really strong magnet				✓
Use as a semiconductor in a computer			✓	
Use to make a glowing TV screen				✓

Note that some metals, such as nickel and iron can be be magnetized, but the magnets created are not as powerful as magnets made from REE.

**True or False: Metals are all grouped together because they are heavier than nonmetals.
Explain your reasoning.**

True or False: Metals are all grouped together because they are heavier than nonmetals. Explain your reasoning.

Answer: False. Some nonmetals are heavier than some nonmetals. The lower the element is on the periodic table, the higher its mass. The periodic table groups elements by similar properties in one dimension (left to right) and mass in another dimension (up and down).