Edgenuity

# Warm-Up | Metals

**Lesson Question**

## Lesson Goals

**Explore** _____.

**Describe** the characteristic _____ of metals.

**Identify** the _____ of metals in the periodic table.

**Explain** how and why the _____ of metals changes in the periodic table.

## Words to Know

*Fill in this table as you work through the lesson. You may also use the glossary to help you.*

| | |
|---|---|
| | having a shiny appearance |
| | a measure of how well a substance allows heat to pass through it |
| | able to be stretched into long, thin shapes without breaking |
| | does not allow light to pass through; unable to be seen through |
| | able to be shaped (as with a mallet) without breaking |
| | a measure of how well a substance allows electric current to flow through it |

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## Organization of the Periodic Table

- Columns of the periodic table are called _____.
  - Elements in a group have similar chemical _____.
- Rows of the periodic table are called _____.
  - Elements in a period have the same _____ of electron shells.
  - The _____ number increases from left to right.

# Instruction | Metals

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## Physical Properties of Metals: Shape

- _____ :
  - Can be shaped
  - Does not break easily
- _____ :
  - Can be pulled into long, thin shapes

## Physical Properties of Metals: Conductivity

- Thermal _____ :
  - Allows heat to pass easily
- _____ conductivity:
  - Allows the easy flow of electric current

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## More Physical Properties of Metals

- _____ :
  - Shiny to the eye
- _____ :
  - Does not allow light to pass through
- High _____ points (with some exceptions)

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## Metals and the Periodic Table

Periodic table groups include:

- _____ metals.
- _____ earth metals.
- _____ metals (many groups).

## Alkali Metals

Group 1

- _____
- _____
- Extremely _____
- _____ valence electron
- Examples
  - Lithium
  - Sodium

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## Alkaline Earth Metals

Group 2

- Very shiny, _____
- Harder, more _____
- Less _____
- _____ valence electrons
- Examples
  - Magnesium
  - Calcium

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## Comparison

| Alkali Metals<br>Group 1 | Alkaline Earth Metals<br>Group 2 |
|---|---|
| Shiny _____ | Very shiny, _____<br>appearance |
| Soft | _____ , more dense |
| _____ reactive | Less _____ |
| _____ valence electron | _____ valence electrons |
| Lithium, _____ | Magnesium, _____ |

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## Metals and the Periodic Table: Transition Metals

Transition metals:

- are in [ ] 3 to 12.
- begin in the 4th [ ].
- can form more than one kind of [ ].
- are less reactive than metals in groups [ ] and [ ].

## Metals and the Periodic Table: Colorful Compounds

- Colorful compounds of transition metals
  - Potassium [ ]
  - [ ] chloride
  - [ ] sulfate
- Colors result of electron structure of these elements

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## Reactivity Trends in Periods of the Periodic Table

### COMPARING GROUP 1 AND GROUP 2 ELEMENTS

- Chemical reactions are determined by _____ or _____ valence electrons to form a complete shell.
- If it is easier for an atom to lose electrons than to gain them, then it will _____ electrons and become a _____ ion.
- The _____ elements have the _____ valence electrons, so they are _____ reactive.
- A major chemical property of metals is that they form _____ ions.

## Reactivity Trends in Periods of the Periodic Table

### COMPARING PERIOD 3 AND PERIOD 6 ELEMENTS

- Elements in the same _____ have the same number of _____ electrons.
- Ions from the same group have the same _____ and exhibit similar behavior.
- The _____ valence electrons are from the _____, the easier it is to _____ them.
- As you move down a group, an electron shell is _____ with each period.
- Elements at the _____ of the table are _____ reactive than those at the top.

# Summary | Metals

**Lesson Question**

How are metals identified?

**Answer**

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## Review: Key Concepts

Properties of metals:

- Malleable, [ ]
- [ ], opaque
- Good at thermal and electrical [ ]

Groups containing metals:

- [ ] metals
- [ ] earth metals
- [ ] metals

# Summary | Metals

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Trends in reactivity:

- _____ from right to left in a period
- Increase from top to bottom in a _____

*Use this space to write any questions or thoughts about this lesson.*