

The Periodic Table Practice Test Key

- In your own words, sum up the periodic law.
When elements are arranged in order of their atomic number, periodic trends appear in the properties of those elements.
- In the Periodic Table, rows are known as periods.
- In the Periodic Table, columns are known as families.
- Group 1 is referred to as alkali metals.
- Group 2 is referred to as alkaline-earth metals.
- Groups 3 through 12 are known as Transition Metals.
- Group 17 is known as Halogens.
- Group 18 is known as Noble Gases.
- There are two major families in the periodic table. What are they?
Metals and nonmetals
- How did Mosley arrange his periodic table?
By atomic number
- How did Mendeleev arrange his periodic table?
He first placed them in order of atomic mass, then arranged them by properties in columns.
- Explain the difference in ionization energy for sodium and magnesium.
Magnesium would have a higher ionization energy because it has more electrons and is therefore more difficult to remove the electrons.
- True or false. Non-metals are an excellent conductor of electricity.
False
- Argon is in group 18. Does group 18 have a high reactivity rate or a low reactivity rate? Why?
Low reactivity rate. They have filled s & p orbitals and are therefore satisfied with the number of electrons they already have. They will obtain electrons no more.
- As you move down Group 1, does reactivity increase or decrease? Why?
Increase. As you go down the group, it becomes easier and easier to remove the outermost electron. Therefore, the reactivity is increased.
- As you move down group 17, does reactivity increase or decrease? Why?
Decreased. As you go down the group, it becomes harder and harder to attract an electron because the atomic radius is getting so large.
- Lithium is a shiny metal. When cut, it dulls quickly. It also reacts violently with water. Name another element that would possibly show the same characteristics.
Sodium, Potassium, Rubidium, Cesium, Francium
- This group of elements are harder, stronger than group 1. They also have a higher melting point. Which group are they?
Alkaline-earth metals
- This group of elements means “salt-former.” They are very reactive. They have an s^2p^5 electron configuration. Which group are they?
Halogens

Name: _____
Period: _____

20. Which has the higher ionization energy (answer all four)?

- a. Sodium vs. **Magnesium**
- b. Oxygen vs. **Fluorine**
- c. Iodine vs. **Bromine**
- d. **Lithium** vs. Sodium

21. Which is larger? Nitrogen vs. Oxygen

- a. Ionization Energy **Oxygen**
- b. Atomic Radius **Nitrogen**
- c. Electronegativity **Oxygen**

22. Which is larger? Magnesium vs. Calcium

- a. Ionization Energy **Magnesium**
- b. Atomic Radius **Calcium**
- c. Electronegativity **Magnesium**

23. State the Trend.

Trend	Down	Across
Ionization Energy	<i>Smaller</i>	<i>Larger</i>
Atomic Radius	<i>Larger</i>	<i>Smaller</i>
Electronegativity	<i>Smaller</i>	<i>Larger</i>

24. In 2-3 sentences, state why the downwards trend of atomic radius occurs that way.

Going down, the nuclear charge increases, but so does the energy level. Because the energy level increases, so does the electron shielding which makes the electrons further from the nucleus.

25. In 2-3 sentences, state why the across trend of ionization energy occurs that way.

Going across, the nuclear charge increases, but the energy level & electron shielding stay the same. Therefore, the electrons are pulled closer which makes it more difficult to pull away.

26. In 2-3 sentences, state why the across trend of melting point occurs that way.

Did not cover this trend this year.

Identify the following elements.

27. Period 4, Group 12 ***Zinc***

28. Filled with the $2p^5$ electron. ***Fluorine***

29. Ninth electron in the 4d sub-level. ***Silver***

30. Calcium is in this row. ***Fourth***

31. Nitrogen is in this column. ***15th***

32. Chlorine is in this group. ***17th***