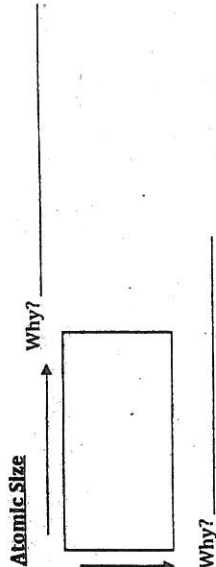


# The Periodic Table

## Periodic Trends Practice

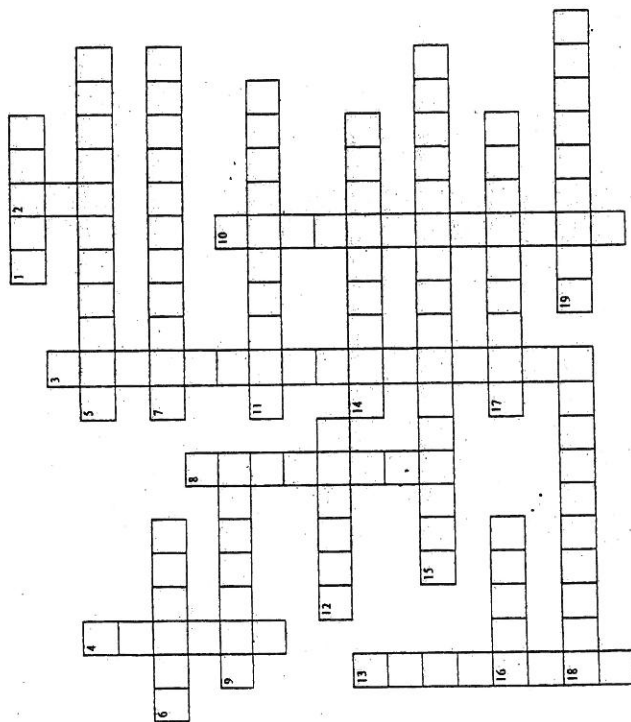
Label the arrows with "increases" or "decreases" to show the trends on the periodic table and explain why.



1. Which has a larger atomic radius: Francium or Rubidium?
2. Which has a larger atomic radius: Cesium or Lead?
3. Which has the largest atomic radius: Phosphorus, Sulfur, Potassium, or Sodium?
4. Which has a smaller atomic size: Sulfur or Polonium?
5. Which has a smaller atomic size: Gallium or Germanium?
6. Which has a smaller atomic size: Strontium, Calcium, Gallium, or Indium?

### Ionic Size

- Circle the larger one:
- 1) Cation or Atom
  - 2) Anion or Atom



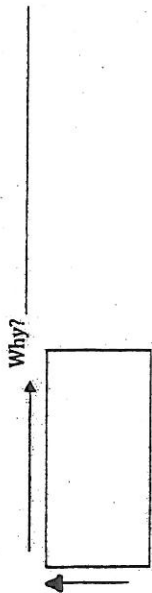
- ACROSS**
- 1 An atom that has gained an electron.
  - 5 The elements with atomic numbers 58-71.
  - 6 These elements have high melting points.
  - 7 This says that physical and chemical properties of elements repeat in a regular pattern when they are arranged in order of increasing atomic number.
  - 9 Organized the periodic table according to atomic number.
  - 11 Found along the staircase on the periodic table.
  - 12 A horizontal row
  - 14 Organized the periodic table according to mass.
  - 15 The "d" block.
  - 16 A vertical column
  - 17 These elements are poor conductors of heat and electricity.
  - 18 The most unreactive family of elements.
  - 19 This word means "can be hammered" (not crushed).
- DOWN**
- 2 Any charged atom.
  - 3 The electrons in the outer shell of the atom.
  - 4 A positively charged atom.
  - 8 The most unique element.
  - 10 The most reactive metal family.
  - 13 Group 17

7. Which is smaller: A fluorine atom or a fluorine ion?
8. Which is smaller: A barium atom or a barium ion?
9. Which is larger: A chromium atom or a chromium ion?

2

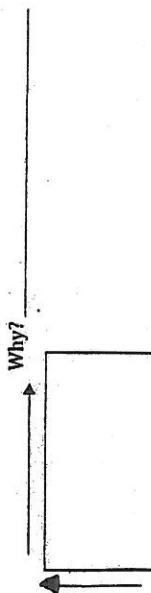
1

**Ionization Energy:** Definition: \_\_\_\_\_



- Why? \_\_\_\_\_
- Which has the lower ionization energy: cesium or sodium?
  - Which has the lower ionization energy: selenium or calcium?
  - Which has the highest ionization energy: magnesium, potassium, nitrogen, or oxygen?
  - Which has the lowest ionization energy: phosphorus, sulfur, arsenic, or selenium?

**Electronegativity:** Definition: \_\_\_\_\_



- Why? \_\_\_\_\_
- Which has a higher electronegativity: oxygen or lithium?
  - Which has a higher electronegativity: bismuth or nitrogen?
  - Which has the lowest electronegativity: strontium, silicon, phosphorus, or fluorine?
  - Which has the highest electronegativity: argon, chlorine, selenium, or bromine?

- Mixed**
- Which has the largest atomic radius: boron, carbon, aluminum, or silicon?
  - Which has the greatest ionization energy: sulfur, gallium, germanium, or tin?

(3)

**Allen Periodic Table**

**Instructions:** Use the clues below to correctly place the imaginary elements on the blank periodic table.

- There are no transition metals, lanthanides, or actinides.
- The noble gases are bombal (Bo), wobble (Wo), jeptum (J), and logon (L). Bombal (Bo) is a noble gas, but does NOT have 8 valence electrons. The outside energy level of logon (L) is its second energy level. Of the noble gases, wobble (Wo) has the greatest atomic mass.
- The alkali metals are xtalt (X), byyou (By), chow (Ch), and quackzil (Q). Of these alkali metals, chow (Ch) has the lowest atomic mass. Quackzil (Q) is in the same period as wobble (Wo).
- The halogens are apstrom (A), vulcania (V), and krait (Kt). Vulcania (V) is in the same period as quackzil (Q) and wobble (Wo).
- The metalloids are Ernst (E), highho (Hi), terriblum (T), and sississ (Ss). Sississ (Ss) is the metalloid with the highest atomic mass. Ernst (E) is the metalloid with the lowest atomic mass. Highho (Hi) and terriblum (T) are in Group IV. T has more protons than Hi. The element called yizzer (Yz) is a metalloid by location but has properties that suggest it is a very light metal.
- The most active metal is called xtalt (X). The most chemically active nonmetal on the planet is called apstrom (A). The lightest element on the planet is called pfsst (Pf). The heaviest element on the planet is elrado (El). It is highly radioactive.
- The chemical makeup of the alien planet's oceans seems to be about the same as Earth's oceans. When sea water is distilled, the liquid that is boiled off and then condensed has been shown to have molecules consisting of two atoms of pfsst (Pf) and one atom of nuutye (Nu). The solid left behind after distillation consists mainly of a crystal made up of the elements byyou (By) and krait (Kt). (Note - the salt in earth's ocean water is sodium chloride.)
- The element called doggone (D) has only 4 protons in its atom.
- Foxxit (Fx) is a black crystal and has 4 valence electrons. Both rhaatrap (R) and doadeer (Do) have atoms with four energy levels. But rhaatrap is less reactive than doadeer.
- Magnificon (M), goldy (G), and sississ (Ss) are all members of Group V. Goldy has fewer total electrons than magnificon.
- Urrp (Up), oz (Oz), and nuutye (Nu) all gain 2 electrons. Nuutye is diatomic. Oz has a lower atomic number than urrp.
- The element anatom (An) tends to lose 3 electrons. The elements zapper (Z) and pie (Pi) both lose 2 electrons. Pie loses them from its fifth energy level, while zapper loses them from its third.

	I	II	III	IV	V	VI	VII	VIII
1								
2								
3								
4								
5								

(4)