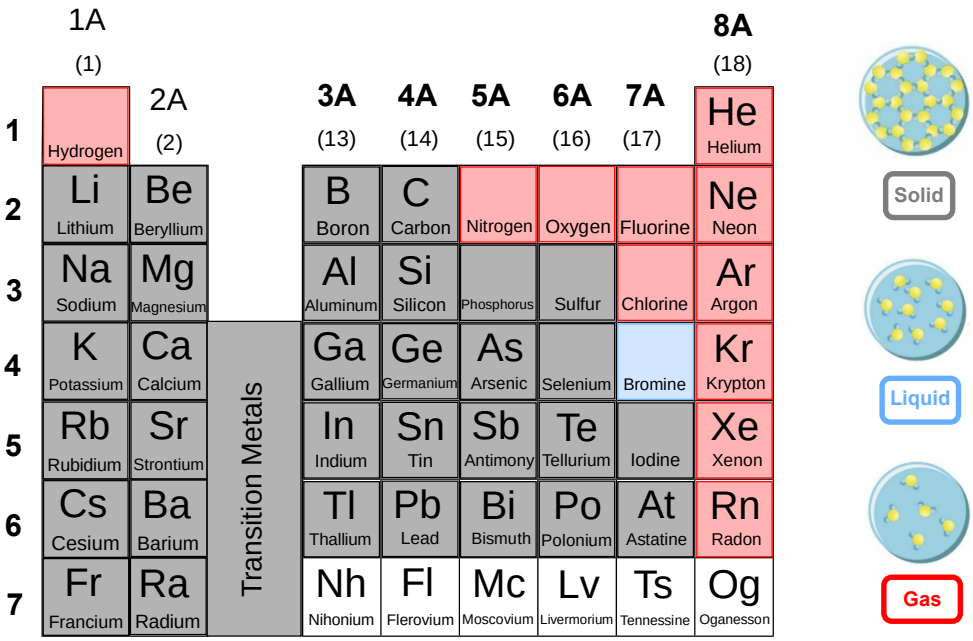
CONCEPT: MAIN GROUP ELEMENTS: DENSITY

Phases

- **Recall:** At standard room temperature (___ ºC) and pressure (___ atm), the elements can exist under 3 states of matter.
  - □ In terms of densities: _____ > _____ > _____.
  - □ **Diatomic Elements:** Elements that are stable in _____ when found in nature.

  MEMORY TOOL ____ave ____o ____ear ____f ____ce ____old ____eer

  - □ **Polyatomic Elements:** Elements that are stable in numbers greater than _____.



EXAMPLE: Which of the following exists as a diatomic liquid at room temperature?

a) Bromine b) Tellurium c) Sulfur d) Chlorine e) Iodine

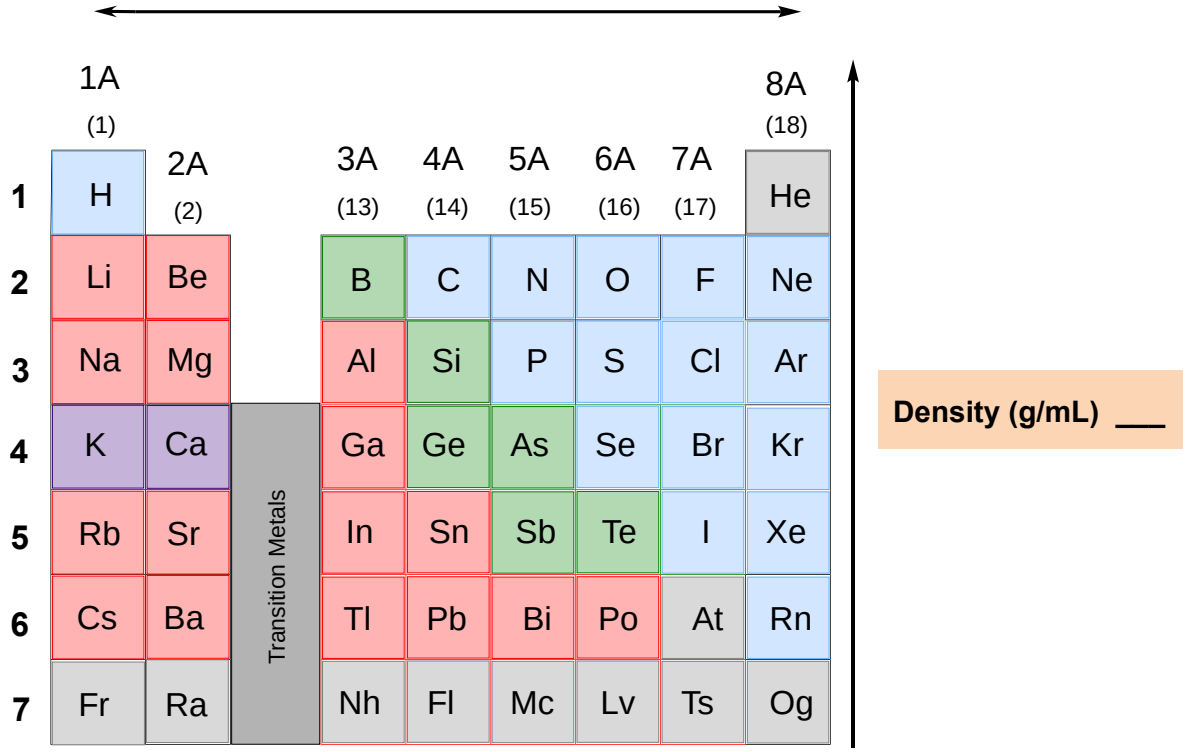
PRACTICE: Which of the following diatomic molecules would be expected to have the greatest density?

a) Chlorine b) Selenium c) Bromine d) Iodine e) Argon

CONCEPT: MAIN GROUP ELEMENTS: DENSITY

Periodic Trend

- Used when asked to compare elements of the _____ phase or Group.
  - □ **Periodic Trend:** Density _____ going up a group, but across a period there is no uniform trend.



  - □ **Exception:** K & Ca have lower densities than Na & Mg because they have _____ volumes than expected.

EXAMPLE: Without any given values, predict which of the following would possess the greatest density?

a) Lithium, Li b) Barium, Ba c) Magnesium, Mg d) Beryllium, Be e) Sodium, Na

PRACTICE: List the following elements in order of decreasing density under standard conditions:

a) Magnesium, Mg b) Bromine, Br c) Calcium, Ca d) Barium, Ba e) Hydrogen, H