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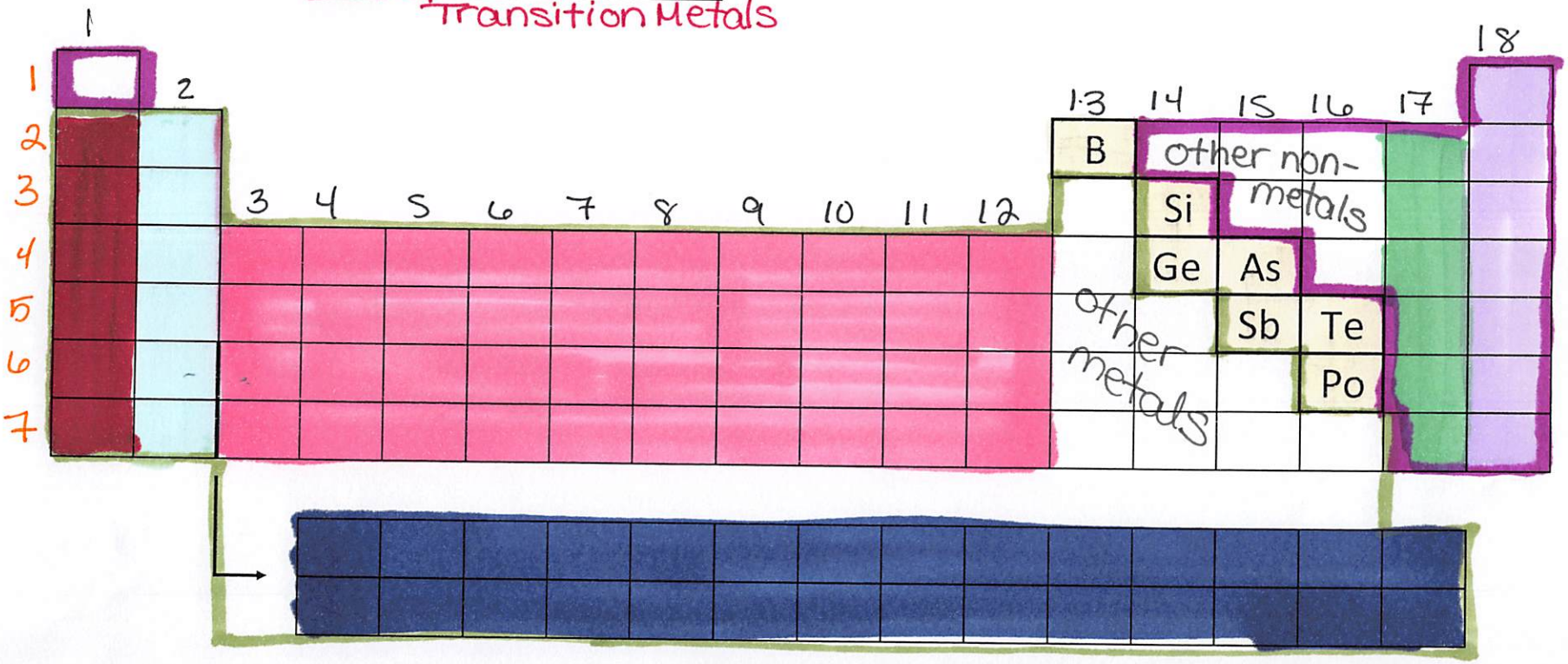
Periodic Table

Legend

- metals
- nonmetals
- metalloids (semi-metals)
- Gp 1 - Alkali Metals
- Gp 2 - Alkaline Earth Metals
- Gps 3→12 Transition Metals
- Inner Transition Metals
- Halogens (Gp 17)
- Gp 18 - Noble Gases

group: vertical column (18)

period: horizontal rows (7)



The Periodic Table (PT)

1. father of the PT - Dmitri Mendeleev
   - organized by element's properties & increasing atomic mass

2. modern PT - organized by element's properties & increasing atomic #

3. Metals
   - left & middle of the PT
   - lustrous - shiny
   - malleable - bendable
   - ductile - drawn into wires
   - conductors of heat & electricity
   - solid @ room temperature (except Hg - a liquid)

4. Nonmetals
   - right side of the PT
   - dull solids or gases at room temperature (except Br - a liquid)
   - nonconductors (insulators) of heat & electricity
   - brittle (easily broken/fractured)

5. Metalloids
   - have properties of both metals & nonmetals (show the shift b/w metals & nonmetals)

6. groups (18)
   - vertical columns
   - all elements in a group have similar properties because their e^- configurations end similarly

7. Alkali Metals (Gp 1)
   - named b/c they form alkaline (basic) solutions w/ water
   - most reactive metals on the PT
   - soft, cut w/ a butter knife
   - silvery - white color
   - e^- configurations end in $\_s^1$

8. Alkaline Earth Metals (Gp 2)
- also form alkaline solutions w/ water & found in the Earth as minerals
- not quite as reactive as Gp 1 metals
- little harder than Gp 1 metals
- silver in color
- e^- configurations end in $\_s^2$

9. Transition Metals (Gps 3-12)
- as you move left to right, the metallic character lessons
- e^- configurations end in $\_d^1 \rightarrow \_d^{10}$

10. Inner Transition Metals (f block)
- also called <u>rare</u> Earth metals
  ↳ not rare, they are hard to distinguish from each other & extract
- are radioactive
- some are man-made
- e^- configurations end in $\_f^1 \rightarrow \_f^{14}$
- top row → lanthanides
- bottom row → actinides

11. Halogens (Gp 17)
- halogen means "salt former" in Latin - these nonmetals react w/ metals to form salts
- most reactive nonmetals
- mixture of solids, liquid, & gases @ room temperature
- e^- configurations end in $\_p^5$

12. Noble Gases (Gp 18)
- are extremely unreactive, similar to the nobility who didn't interact w/ commoners
- e^- configurations end in $\_p^6$ (He $\_s^2$)