Alison's Montessori
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NEXT GENERATION SCIENCE STANDARDS

NGSS.CH09.SM: Periodic Table of Elements – Supplemental Materials (ages 9+) - Includes: Research Cards, Task Cards, Cut Outs and Cloth Charts Standards

Research Cards Standards

Grade 5

NGSS 5-PS1-1 – Structure and Properties of Matter

Summary: Matter is made of particles too small to be seen.

Focus Area: Introduce elements as the simplest substances.

Students will:

- Classify matter into elements, compounds, and mixtures.
- Recognize that elements make up all matter.

NGSS 5-PS1-3 – Structure and Properties of Matter

Summary: Substances can be identified by properties.

Focus Area: Use family properties to classify elements.

Students will:

- Compare reactivity of alkali vs transition metals.
- Explain why noble gases do not form compounds.

Grade 6

NGSS MS-PS1-1 – Structure and Properties of Matter

Summary: Develop models of atomic composition of molecules and structures.

Focus Area: Relate position in the periodic table to atomic structure.

Students will:

- Explain why elements in a group share similar properties.
- Show how valence electrons affect reactivity.

NGSS MS-PS1-2 – Structure and Properties of Matter

Summary: Analyze properties of substances before/after interactions to classify changes.

Focus Area: Use periodic families to predict behavior.

Students will:

- Distinguish metals, nonmetals, and metalloids by properties.
- Predict chemical reactivity based on group.

Task Cards Standards

Grade 5

NGSS 5-PS1-3 – Structure and Properties of Matter

Summary: Materials can be identified by measurable and observable properties.

Focus Area: Classify elements into families by traits.

Students will:

- Identify metals, nonmetals, and metalloids from task prompts.
- Compare carbon vs nitrogen family elements.

NGSS 5-PS1-4 – Chemical Reactions

Summary: Interactions between elements may result in new substances.

Focus Area: Explore why alkali metals react strongly with water.

Students will:

- Record examples of reactivity from periodic trends.
- Predict which groups form salts when combined.

Grade 6

NGSS MS-PS1-1 – Structure and Properties of Matter

Summary: Atomic structure explains periodic patterns.

Focus Area: Use periodic table to model organization.

Students will:

- Place elements by family in the periodic chart.
- Describe how valence electrons influence bonding.

NGSS MS-PS1-2 – Structure and Properties of Matter

Summary: Properties reveal substance classification.

Focus Area: Apply task activities to analyze trends.

Students will:

- Compare reactivity of halogens vs noble gases.
- Explain why transition metals resist corrosion.

Cut Outs Standards

Grade 5

NGSS 5-PS1-1 – Structure and Properties of Matter

Summary: Elements are the building blocks of matter.

Focus Area: Introduce symbols and names of elements.

Students will:

- Match symbols to element names.
- Build groups of elements from cutouts.

Grade 6

NGSS MS-PS1-1 – Structure and Properties of Matter

Summary: Models represent atomic composition.

Focus Area: Use cutouts to build the periodic layout.

Students will:

- Arrange elements into families and periods.
- Compare lanthanides and actinides using tiles.

Cloth Chart (Control Chart) Standards

Grade 5

NGSS 5-PS1-3 – Structure and Properties of Matter

Summary: Classify matter by properties.

Focus Area: Use chart to reinforce family identification.

Students will:

- Locate halogens, noble gases, and alkali metals.
- Identify trends in reactivity across groups.

Grade 6

NGSS MS-PS1-1 – Structure and Properties of Matter

Summary: Atomic structure explains periodic layout.

Focus Area: Relate chart organization to electron configuration.

Students will:

- Use chart to predict reactivity trends.
- Explain why periods show repeating patterns.