

Westside Middle School 7th Grade Science Curriculum Map 2017-2018

Teacher: Mooney Revised: 10.19.17



Map is still under construction and will be revised throughout the year.

WESTSIDE MIDDLE SCHOOL 7TH GRADE SCIENCE CURRICULUM MAP

Teacher: Mooney

Quarter 1

Topic: Matter Properties and Reaction (Physical Change)

Essential Questions:

Students will consider.....

- How can particles combine to produce substances with different properties?
- What are the properties of an atom, molecule, element, and compound?
- What stays the same and what changes in a chemical reaction?
- What happens when new materials are formed?

Students will.....

- Be able to look at various models and distinguish between simple, complex, and crystalline molecules.
- Be able to describe that atoms are not molecules and molecules arise from the attraction between atoms.
- Be able to develop a model to describe unobservable mechanisms.
- Be able to describe the structure of atoms, elements, compounds, and molecules.

AR STANDARDS / SKILLS

CONTENT VOCABULARY WITHIN THE STANDARD WILL BE TAUGHT THROUGHOUT DAILY OBJECTIVES / GOALS.

7-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.

7-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

7-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

7-PS1-5. Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

Science/Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts:	
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <p>Develop a model to describe phenomena. (PS1-1)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <p>Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (PS1-4)</p> <p>Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (PS1-3)</p>	<p>PS1.A: Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (PS1-1)</p> <p>The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (PS1-2)</p> <p>Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (PS1-3)</p>	<p>Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change. (PS1-4)</p> <p>Scale, Proportion, and Quantity Natural objects exist from the very small to the immensely large. (PS1-1)</p> <p>Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (PS1-2, PS1-3)</p> <p>-----</p> <p>Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (PS1-2)</p>	
Activities/Skills	Assessments	Resources	Vocabulary/Terms
<ul style="list-style-type: none"> • Atomic Structure Concept Sort • Build An Atom Activity • Build A Molecule • Molecule Presentation • Develop a model to predict and/or describe phenomena • Analyze and interpret data to determine similarities and differences in findings. 	<ul style="list-style-type: none"> • Formative Assessments • Lab Criteria • Graphs • Writing/CER/Reflections • Develop a model to predict and/or describe phenomena • Analyze and interpret data to determine similarities and differences in findings. 	<ul style="list-style-type: none"> • Kesler • PHeT Simulations 	<ul style="list-style-type: none"> • Atomic composition • Molecules • Atom • Particle • Pure substance • Proton • Neutron • Electron • Nucleus

			<ul style="list-style-type: none">• Particle• Pure substance• Thermal energy• Chemical reaction• Conservation of mass• Chemical process• Particle motion• State• Temperature
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Quarter 2

Topic: Matter Properties and Reactions (Physical Change)

Essential Questions:

Students will consider.....

- How can particles combine to produce substances with different properties?
- What are the properties of an atom, molecule, element, and compound?
- What stays the same and what changes in a chemical reaction?
- What happens when new materials are formed?

I will.....

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AR STANDARDS / SKILLS

CONTENT VOCABULARY WITHIN THE STANDARD WILL BE TAUGHT THROUGHOUT DAILY OBJECTIVES / GOALS.

Science/Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts:	
<p>Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.</p> <p>Develop a model to describe phenomena. (PS1-1)</p> <p>Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.</p> <p>Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (PS1-4)</p> <p>Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon. (PS1-3)</p>	<p>PS1.A: Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon and the effects of air on larger particles or objects. (PS1-1)</p> <p>The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (PS1-2)</p> <p>Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (PS1-3)</p>	<p>Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change. (PS1-4)</p> <p>Scale, Proportion, and Quantity Natural objects exist from the very small to the immensely large. (PS1-1)</p> <p>Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. (PS1-2, PS1-3)</p> <p>-----</p> <p>Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems. (PS1-2)</p>	
Activities/Skills	Assessments	Resources	Vocabulary/Terms

Quarter 3

Topic:

Essential Questions:

Students will consider.....

I will.....

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AR STANDARDS / SKILLS

CONTENT VOCABULARY WITHIN THE STANDARD WILL BE TAUGHT THROUGHOUT DAILY OBJECTIVES / GOALS.

Science/Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts:	
Activities/Skills	Assessments	Resources	Vocabulary/Terms

Quarter 4

Topic:

Essential Questions:

Students will consider.....

I will.....

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AR STANDARDS / SKILLS

CONTENT VOCABULARY WITHIN THE STANDARD WILL BE TAUGHT THROUGHOUT DAILY OBJECTIVES / GOALS.

Science/Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts:	
Activities/Skills	Assessments	Resources	Vocabulary/Terms