

Wright City Science Curriculum

6th Grade

Grade	6th
Unit of Study	Matter and Its Interactions
Length of Unit	5 weeks
Sample Essential Questions	Sample Corresponding Big Ideas
What are atoms, and how do different kinds of atoms make up the elements around us?	All matter is made of atoms, and different elements are made of different kinds of atoms.
How do atoms bond together to form molecules and compounds?	Atoms bond together to form molecules and compounds.
How can chemical formulas give us information about the atoms in a substance?	Chemical formulas represent the types and numbers of atoms in a substance.
How are synthetic materials made from natural resources?	Synthetic materials are made from natural resources through human processes.
What are the positive and negative effects of synthetic materials on society and the environment?	Synthetic materials can have both positive and negative effects on society and the environment.
How are the particles in solids, liquids, and gasses arranged, and how does this affect their motion and behavior?	Particles in solids, liquids, and gasses are arranged differently and move in certain ways.
How does adding or removing thermal energy change particle motion and the state of matter?	Adding or removing thermal energy changes particle motion, which can change the state of matter.

Missouri Learning Standards

Priority Standards

6-8.PS1.A.1 Develop models to describe the atomic composition of simple molecules and extended structures.

6-8.PS1.A.3 Gather, analyze, and present information to describe that synthetic materials come from natural resources and how they impact society.

6-8.PS1.A.4 Develop a model that describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

Unit 1 Sequence

MLS	Topic(s)	Learning Targets	Academic Vocabulary
6-8.PS1.A.1	Atoms & Molecules	I can describe what an atom is and recognize that different elements are made of different kinds of atoms.	atom element chemical symbol molecule compound chemical formula chemical bond periodic table
		I can describe how atoms bond together to make molecules and compounds.	
		I can identify examples of simple molecules, like water (H ₂ O), ammonia (NH ₃), and methanol (CH ₃ OH).	
		I can create or interpret models (like drawings, ball-and-stick models, or computer simulations) that show how atoms connect to form molecules.	
		I can explain what the parts of the model represent (atoms, bonds, elements).	
		I can model extended structures, such as sodium chloride (NaCl) or diamonds, to show that some materials have repeating patterns of atoms.	

		I can compare these extended structures to simple molecules to explain how their arrangements are different.	
		I can read chemical formulas to find out which elements are in a substance and how many atoms of each element it contains.	
6-8.PS1.A.3	Natural Resources & Synthetic Materials	I can explain that synthetic materials (like plastics, nylon, and medicines) are made from natural resources.	synthetic material natural resource raw material society
		I can identify examples of natural resources (like oil, plants, or minerals) used to make synthetic materials.	
		I can collect data or research information about how specific synthetic materials are made.	
		I can analyze information to explain the relationship between natural resources and the synthetic materials made from them.	
		I can describe positive and negative effects of synthetic materials on society.	
		I can organize and communicate information using visuals, models, or presentations to explain how synthetic materials come from natural resources and how they affect society.	
6-8.PS1.A.4	Thermal Energy	I can describe how the particles in solids, liquids, and gases are arranged and how they move.	solid liquid gas particle motion thermal energy/ heat energy transfer state of matter
		I can explain that adding thermal energy makes particles move faster and spread out and removing thermal energy makes particles move slower and come closer together.	
		I can create or interpret models (such as drawings, diagrams, or digital simulations) that show how particle motion, temperature, and state change when energy is added or removed.	

MLS	Learning Activities	
6-8.PS1.A.1	Atoms and Molecules Notes	Must Do ▾
6-8.PS1.A.1	Atoms and Molecules Reading	Can Do ▾
6-8.PS1.A.1	Making Molecules	Can Do ▾
6-8.PS1.A.1	Molecule Project	Can Do ▾
6-8.PS1.A.3	Natural Resource Jigsaw Research	Must Do ▾

6-8.PS1.A.3	Natural Resources & Synthetic Materials Project	Must Do ▾
6-8.PS1.A.4	States of Matter Notes	Must Do ▾
6-8.PS1.A.4	States of Matter Simulation	Must Do ▾
		Option L... ▾

Assessments		
MLS	Description or Location	Rubric/Location
6-8.PS1.A.1	Atoms and Molecules	Pear Assessment
6-8.PS1.A.3	Natural Resources & Synthetic Materials	Pear Assessment
6-8.PS1.A.4	Thermal Energy	Pear Assessment

Additional Resources
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