

Developing Science Curriculum Units with the SIOP Model

TESOL, Denver

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Deborah J. Short & Jen Himmel

Center for Applied Linguistics

Subject: Physical Science

Unit Focus: Chemical Interactions

Topic: Atoms and Bonding

Related Topics: Cell theory

Key Concepts/Vocabulary	Content Objectives	Language Objectives
Matter Element Compound Mixture Atom Scientific theory Model Electrons Nucleus (review) Protons Energy level Neutrons Particles Substance Ratio (review) Negative Positive Repel Deflect Mass Initially Next Following	<p><i>L1.1.1 Explain why elements are sometimes called the building blocks of matter</i> <i>L1.1.2 Describe how atomic theory developed and changed</i></p> <p>Students will create an illustrated timeline in order to describe how atomic theory changed and developed.</p> <p>Students will categorize different types of matter in order to explain that different arrangements of atoms compose different substances</p> <p>Students will identify elements, mixtures, and compounds in order to show that different substances have different observable properties</p> <p>Students will use analogies in order to understand different atomic theories</p> <p>Students will use graphic organizers in order to compare and contrast matter</p> <p>Students will make predictions in order to understand models of atomic theory</p> <p>Students will physically represent an atom in order to demonstrate an understanding of modern atomic theory</p>	<p><i>State LA : Use context and word structure to determine the meaning of new words, Use new vocabulary in speaking and writing, Use strategies to prepare for reading</i> <i>State ESOL: Generate ideas related to specific topics using techniques like graphic organizers...</i></p> <p>Students will orally tell a partner why elements are called building blocks of matter</p> <p>Students will read and take notes to identify the main idea and supporting details</p> <p>Students will summarize in writing how elements and mixtures are different.</p> <p>Students will discuss the properties of different types of matter with peers Students will define key vocabulary and use in context</p> <p>Students will sort words based on their prefixes</p> <p>Students will orally retell a scientific theory to a partner using sequence words</p> <p>Students will write summary sentences to describe important events on a timeline</p>

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Vocabulary Tasks	Reading Tasks	Writing Tasks	Speaking/Listening Tasks	Grammar Focus	Student Learning Strategies
Define new, key words using context Categorize matter as elements, mixtures, or compounds Compare and contrast compounds and mixtures Word sort	Read passages in textbook and take notes using a scaffolded outline Complete a cloze paragraph after reading Use a T-chart to compare and contrast the different atomic theories and models	Write summary sentences Compose sentences to describe the important dates on a timeline	Numbered heads to share out group observations Retell the main ideas of a passage to a partner	Use sequential language	Use strategy checklist to remember new vocabulary words Make predictions Make analogies Use prefixes to learn new words Complete an anticipation guides to activate thinking Illustrate a timeline Venn diagram to compare and contrast

For more information:

On the SIOP Model see www.cal.org/siop and www.siopinstitute.net

On the SIOP Science Research project see www.cal.org/projects/create.html

On all of CREATE's activities and projects see www.cal.org/create

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