Integrating Language Development in the Content Areas

Kris Nicholls, Ph.D.

Director, CABE Professional Development Services







Today's Essential Questions:

- How do you integrate and support academic language development in the content areas you teach?
- How do you differentiate your instruction to make it more comprehensible for all your students?

What is Integrated ELD?

"Integrated ELD refers to ELD throughout the day and across the disciplines. All teachers with English Learners in their classrooms should use the ELD standards in addition to their focal CCSS for ELA/Literacy and other content standards to support their English Learners' linguistic and academic progress."

ELA/ELD Framework, p. 108

Science Lesson: Second Grade





Introducing the Lesson



- Share standard, content and language objectives with the students
- Draw attention to **key vocabulary** with **visuals** on the board (*solid*, *liquid*, *gas*, *matter*, *atom*, *molecules*)
- **Tell** the **students** they are going to **model** the arrangement and movement of molecules to show their understanding of the **three states of matter**
- They will then be asked to **describe** what they have learned **orally** and **in writing**



The Science Lesson



PS1.A: Structure and Properties of Matter Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.	Content Objective: We will determine how molecules are arranged and move in the different states of matter.
Related English Language Development (ELD) standard: ELD.PI.2.6.Em Describe ideas, phenomena (e.g., how earthworms eat), and text elements (e.g., setting, events) in greater detail based on understanding of a variety of grade-level texts and viewing of multimedia, with moderate support.	Language Objective: I will compare and contrast the relationship between the molecular arrangement and movement in the three states of matter in an oral and written summary.



- Arrange the words on the table and the visuals in front of you to show how you think they might be related to one another.
- Now share with your partner what you know and understand about these words and how they may be linked to each other and/or to the three states of matter.
- Be sure to **use each word when** you are **sharing**!



A solid is matter that has a definite shape and takes up a definite amount of space.





A liquid is matter that takes the shape of its container and takes up a definite amount of space.



A gas is matter that has no definite shape and takes up no definite amount of space.



Cognate Connection

atoms	átomo	molecules	moléculas
solid	sólido	gas	gas
liquid	líquido	matter	materia

Build on what they already know ... focus on what they don't!



Reading Comprehension Strategy: Rolling Partners

• Students work with a partner.





Partner A

Partner B

• They take turns reading portions of the text, each getting an **opportunity** to **read the text** and an **opportunity** to have the **text read to them.**

Rolling Partners



Partner A





Partner B



LEARN ABOUT

FIND OUT

- how atoms and molecules are arranged in matter
- how three states of matter are different

VOCABULARY

matter mass solid liquid



This old key is a solid. It keeps its shape when you put it into a lock.

States of Matter

Solids

One way you know about the world around you is from your sense of touch. A tree trunk stops your finger. Water changes its shape as you poke your finger into it. You feel the moving air of a breeze. By touch you know that wood, water, and air have different properties. Yet they are all matter. Everything in the universe that has mass and takes up space is classified as **matter**.

In the investigation you saw that air takes up space. Matter also has mass. Mass is the amount of matter something contains. A large, heavy object such as an elephant has a lot of mass. A small, light maple leaf has much less mass. Even though an elephant and a leaf are very different, each is matter.

All matter is made of extremely small particles called *atoms*, or groups of atoms called *molecules*. These tiny particles are always moving very quickly, faster when the temperature is high and more slowly when the temperature is low.

The arrangements of atoms and molecules give matter properties. Each arrangement is called a *state of matter*. A door key is an example of matter in the solid state. When you touch a door key, it stops your finger. A **solid** is matter that has a definite shape and takes up a definite amount of space. The atoms and molecules in a solid are close together, like neat and even stacks of tiny balls. Each moves back and forth in all directions but around one point. This arrangement gives a solid its definite shape.

How are atoms and molecules arranged in a solid?

The atoms and molecules in this metal key are arranged in a tight, regular pattern. Α

В



B

А

When previewing the standard, content and language objectives, highlight the academic vocabulary.

Distribute whiteboards, markers, and cloths. Let students know that they will be creating a graphic organizer to describe the characteristics of the 3 different states of matter.

LEARN ABOUT

FIND OUT -

- how atoms and molecules are arranged in matter
- how three states of matter are different

VOCABULARY

matter mass solid liquid



This old key is a solid. It keeps its shape when you put it into a lock. ►

States of Matter

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✓ How are atoms and molecules arranged in a solid?

The atoms and molecules in this metal key are arranged in a tight, regular pattern.

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States of Matter







• Take notes after each section is read or after reading all sections.



- Remember our objectives: focus on molecular arrangement and movement.
- Include the **academic vocabulary**!



Rolling Partners



Partner A





Partner B



Language Objective: I will compare and contrast the relationship between the molecular arrangement and movement in the three states of matter in an oral and written summary.







• Now select 3 – 5 transition words to use as you retell your partner what you just shared. When done, place the transition words in their own envelope.







Scaffolds Provided in the Lesson

• In your group, **discuss** the **scaffolds** you recognized **in** the **modeled lesson**.

• **List** them **on** the **chart** paper provided.

• How many can your group identify?





Some of the Lesson Scaffolds...

- Tapping **prior knowledge**
- Explicit modeling
- ELD integrated in Science
- Concept mapping with academic vocabulary
- Use of **visuals** with **definitions**
- Focus on academic vocabulary words
- Use of transition words
- Use of sentence frames linked to graphic organizer
- **Opportunity** for students to **read text** while **interacting** with each other (*reading*, *speaking*, *listening*, *and writing opportunities*)
- M&M representation of the three states of matter
- Use of graphic organizers





Slow speech Limit

dioms



Enunciate



Matter Matters!

Everything in the universe that takes up space and has mass is made of matter. Matter is made up of atoms, very small particles that you cannot see without a special microscope. Some atoms join together to make molecules. Atoms and molecules together make up matter.

There are three main types of matter: solids, liquids, and gases. In each type of matter, the molecules take up space. However, the molecules in each type of matter are arranged differently. Consequently, the movement of the molecules in each type of matter and the shape it takes varies significantly.

In solids, the molecules are densely packed, which means they have a greater amount of mass while also limiting the amount of molecular movement. Therefore, solids take up a definite amount of space and have a definite shape.

In contrast to the molecules in solids, the molecules in a liquid are less densely packed, giving them less mass. This also permits more molecular movement. As a result, although liquids take up a definite amount of space, they cannot maintain their own shape. Instead, they take the shape of the container they are in.

Finally, there are even fewer molecules in gases, which results in them containing the least amount of mass than all the other types of matter. This allows the molecules in gases to move faster and more freely than those in liquids. Thus, gases have no definite shape and take up no definite space. Therefore, gases fill whatever container they are in. In conclusion, although there are three different types of matter, each type takes up space and has mass.



How this lesson addresses the four language domains ...

Listening



Students listened to the teacher explain the vocabulary terms prior to the reading of the text. Students listen to another student explain their understanding of the concept/vocabulary cards.

Students use the concept/vocabulary cards to make connections among terms and explain their connections to others in their group. Students use sentence frames to compare and contrast the molecular arrangement and movement of the three states of matter. Speaking



How this lesson addresses the four language domains ...

Reading



Students read concept/vocabulary words. Students read the text in the book. Students read the sentence frames to complete them correctly.

Students use a graphic organizer to analyze, compare, and contrast the molecular arrangement and movement of the three states of matter. Students write a summary of what they learned from the lesson.



Differentiating the Lesson

- Used knowledge of students' proficiency levels.
- Linked standards, content objective and language objective.
- Explicitly taught academic language from standard and content.
- Visuals of academic language with definition.
- Graphic organizers linked to sentence frames and content objective and language objective.
 - Included academic language.



Differentiating Questions

Emerging Level: Answer simple questions with substantial support

- What is matter made of?
- What is a solid?
- What is a gas?
- What are molecules?
- What are the three states of matter?
- Can you arrange your M&M "molecules" to show me what they look like in a liquid? (gas, solid)



Differentiating Sentence Frames

- **Emerging Level**: Ask and answer questions with substantial support
- All matter is made up of _____. All matter has ______ and takes up _____.
- A liquid is matter that ______ and ______.
- The molecules and atoms in a liquid ______.
- A solid is matter that ______ and _____. The molecules and atoms in a solid ______.
- A gas is matter that ______ and _____. The molecules and atoms in a gas ______.
- The three states of matter are _____, ____, and _____.
- A _____ is an example of matter in the _____ state and a _____ is an example of matter in the _____ state.

Differentiating Questions

Expanding Level: Ask and answer questions with moderate support

- Tell me about matter. Give two details.
- What is a liquid? (*Use the words molecules and atoms and give two details.*)
- What is a solid? (*Use the words molecules and atoms and give two details*.)
- What is a gas? (Use the words molecules and atoms and give two details.)
- What are three states of matter?



Differentiating Sentence Frames

Expanding Level: Ask and answer instructional questions with moderate support

- A liquid has ______because ______ and _____.
- The state of matter that keeps its shape is _____. This happens because _____. In fact, _____.
- In a gas, molecules and atoms _____. Consequently,



Differentiating Questions

- **Bridging Level**: Ask and answer instructional questions with light support
- Why does a liquid have the same shape as its container? *Give two reasons, using academic language.*
- Why do solids keep their shape? *Give two reasons, using academic language.*
- How do molecules and atoms behave in a gas? *Give two supporting reasons, using academic language.*



Differentiating Sentence Frames

Bridging Level: Ask and answer instructional questions with light support

• A liquid has the same shape as its container because _____. As a result, _____.

Furthermore, ______.

 Molecules are arranged differently in each state of matter. For example, ______.
 Another example is _____. Finally,



Passport Pair-Share



- Partner A shares his/her thoughts on a topic for a specified amount of time with Partner B.
- Partner B then summarizes/retells what Partner A just shared for a specified amount of time.
- Partner B then shares his/her thoughts on a topic for a specified amount of time with Partner A.
- Partner A then summarizes/retells what Partner B just shared for a specified amount of time.
- Students must be active listeners to be able to retell/summarize what their partner is sharing.

• English Learners benefit from practicing summarizing/retelling with a partner using content area-specific academic language.



Answering Today's Essential Questions:

- How do you **integrate** and **support academic language acquisition** in the **content areas** you teach?
- How do you differentiate your instruction to make it more comprehensible for all your students?



Passport Pair-Share



- Partner A shares his/her thoughts on a topic for a specified amount of time with Partner B.
- "I have several ideas how to integrate and support academic language acquisition in the content areas I teach. To begin with,



- Partner B then summarizes/retells what Partner A just shared for a specified amount of time.
- "What I heard you say about how to integrate and support academic language acquisition in different content areas included _____, ____, and ____."



- Partner B then shares his/her thoughts on a topic for a specified amount of time with Partner A.
- "I also have several ideas how to integrate and support academic language acquisition in the content areas I teach. To begin with,

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Passport Pair-Share



- Partner A then summarizes/retells what Partner B just shared for a specified amount of time.
- "What I heard you say about how to integrate and support academic language acquisition in different content areas included _____, ____, and ____."