SEGMENT 1

Understanding the Big Idea

Learning Objectives

- Recognize examples of pure substances and mixtures.

Materials

- Print the following worksheets and data sheets:
  - *States of Matter: From Solid to Smoke* Substances and Mixtures Picture and Definition Cards Worksheet
  - *States of Matter: From Solid to Smoke* Substances and Mixtures Sorting Worksheet (per Level 2 and 3 student and teacher)
  - Constant Time Delay Individual Data Sheet (per student) or Group Data Sheet
  - System of Least Prompts Individual Data Sheet (per student) or Group Data Sheet
- Gather the following materials from the enCORE Manipulatives Kit and/or your classroom:
  - Magnetic Whiteboard
  - Magnetic Picture Pockets
  - Dry erase marker
  - Scissors (per Level 2 and 3 student and teacher)
  - Glue sticks (per Level 2 and 3 student)

Prior to Instruction

To prepare for teaching this lesson segment, follow these steps:

- Gather, print, and prepare all materials listed above.
- If you plan to program students' AAC devices, program the following words:

LEVEL 1	LEVEL 2	LEVEL 3
• atom • molecule • pure • substance • particle • parts • mixture	• atom • molecule • pure • substance • particle • parts • mixture	• atom • molecule • pure • substance • particle • parts • mixture

Anchor Instruction for All Students

Prior to beginning instruction, anchor instruction by referencing the Companion Text *States of Matter: From Solid to Smoke*. **In *States of Matter: From Solid to Smoke*, we learned that matter can be classified as a solid, liquid, or gas. I wonder if there is another way to describe different kinds of matter.**

Core Vocabulary and Concepts

LEVEL 1	LEVEL 2	LEVEL 3
• atom • molecule • pure • substance • particle • mixture	• atom • molecule • pure • substance • particle • mixture	• atom • molecule • pure • substance • particle • mixture

Zero- and Four-Second Delay Rounds

Remember, in the Zero-Second Delay Round, provide the correct answer immediately. In the Four-Second Delay Round, wait for four seconds for the student to respond. Refer to the procedures outlined at the beginning of the Unit if needed.

Materials: *States of Matter: From Solid to Smoke* Substances and Mixtures Picture and Definition Cards Worksheet, Constant Time Delay (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, scissors

Prior to Instruction: Write the vocabulary targets on the Constant Time Delay (Individual or Group) Data Sheet. Cut apart the Substances and Mixtures Picture and Definition Cards from the worksheet. Place each card in a Magnetic Picture Pocket. Place the Substances and Mixtures Definition Cards on the left side of the Magnetic Whiteboard.

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
Use the following instructions to target the concepts listed above: Place two Substances and Mixtures Picture Cards (correct response and a distractor) in front of student. **[Touch/Name] [atom].** Repeat with the remaining Substances and Mixtures Picture Cards.	*Zero-Second Delay Round:* Student provides the correct response. *Four-Second Delay Round:* Student provides the correct response within four seconds.	**Great job finding [atom].** Then pair the Substances and Mixtures Picture Card with the Substances and Mixtures Definition Card and read the definition. **[An atom is the basic building block of all matter.]** Use Constant Time Delay (Individual or Group) Data Sheet to collect data on student responses.
	Student does not respond.	Model the correct response. **Your turn.** Wait for student to respond. Provide additional prompts or physical guidance as necessary.
	Student responds incorrectly.	

Concept Building

Materials: *States of Matter: From Solid to Smoke* Substances and Mixtures Picture and Definition Cards Worksheet, *States of Matter: From Solid to Smoke* Substances and Mixtures Sorting Worksheet (per Level 2 and 3 student and teacher), System of Least Prompts (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, glue sticks (per Level 2 and 3 student and teacher), scissors (per Level 2 and 3 student and teacher), dry erase marker

Prior to Instruction: Reuse the Picture and Definition Cards from the Substances and Mixtures Picture and Definition Cards Worksheet (from previous activity). Cut apart the Picture Cards from the *States of Matter: From Solid to Smoke* Substances and Mixtures Sorting Worksheet (teacher's copy). Place all the cards in the Magnetic Picture Pockets. On the Magnetic Whiteboard, draw a two-column sorting chart with the headings "Pure Substance" and "Mixture".

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**All matter is made of tiny particles. Some matter is made of one type of particle. Other matter is made of two or more types of particles. Let's learn more about these different kinds of matter.**		
MODEL	**I'll go first.** Show the "pure" Picture and Definition Card form the Substances and Mixtures Picture and Definition Cards Worksheet. **A pure substance is matter that is made of one type of particle. The particles can be atoms. The particles can also be molecules.** Point to the "water" Picture Card from the Substances and Mixtures Sorting Worksheet. **Water is a pure substance. It is made of only water molecules. Watch me place the "water" card in the Pure Substance column.** Place the "water" Picture Card in the Pure Substance column of the two-column sorting chart on the Magnetic Whiteboard.	**I'll go first.** Show the "pure" Picture and Definition Card from the Substances and Mixtures Picture and Definition Cards Worksheet. **A pure substance is matter that is made of only one type of particle. Particles can be atoms or molecules.** Point to the "water" Picture Card from the Substances and Mixtures Sorting Worksheet. **Do you think water is a pure substance?** Call on students. **Yes, water is a pure substance. It is made of only water molecules.** Place the "water" Picture Card in the Pure Substance column of the two-column sorting chart on the Magnetic Whiteboard.	**I'll go first.** Show the "pure" Picture and Definition Card from the Substances and Mixtures Picture and Definition Cards Worksheet. **A pure substance is matter that is made of only one type of particle. The particles can be atoms. The particles can also be molecules.** Point to the "water" Picture Card from the Substances and Mixtures Sorting Worksheet. **Do you think water is a pure substance?** Call on students. **Yes, water is a pure substance. Why do you think it is a pure substance?** Call on students. **That's right. Water is a pure substance because it is made of only water molecules.** Place the "water" Picture Card in the Pure Substance column of the two-column sorting chart on the Magnetic Whiteboard.

	LEVEL 1	LEVEL 2	LEVEL 3
GUIDED PRACTICE	**Let's do the next ones together.** Show the "atom" and the "molecule" Picture and Definition Cards from the Substances and Mixtures Picture and Definition Cards Worksheet. **A mixture is matter that is made of two or more types of particles. The particles can be different atoms, different molecules, or both. The different kinds of particles make up parts of the mixture.** Show the "salad" Picture Card from the Substances and Mixtures Sorting Worksheet. **A salad is made of different parts. We can see the different parts. Point to some parts, or ingredients, in the salad.** Give students time to respond, assisting as needed. **A salad is a mixture.** Show the "lemonade" Picture Card from the Substances and Mixtures Sorting Worksheet. **We cannot always see the different parts of a mixture. Lemonade is made of sugar, lemon juice, and water. Lemonade is a mixture. Watch me point to the mixture.** Point to the "lemonade" Picture Card. **Your turn. Point to the mixture.** Give students time to respond. Place the "lemonade" Picture Card in the Mixture column of the two-column sorting chart on the Magnetic Whiteboard. **Let's practice.** Place two Picture Cards from the	**Let's do the next ones together.** Show the "atom" and the "molecule" Picture and Definition Cards from the Substances and Mixtures Picture and Definition Cards Worksheet. **A mixture is matter that is made of two or more types of particles. The particles can be different atoms, different molecules, or both.** Show the "salad" Picture Card from the Substances and Mixtures Sorting Worksheet. **A salad is made of different parts. Can we see the different parts of salad?** Call on students. **Yes, we can see the different parts.** Point to some of the ingredients in the salad. **A salad is a mixture.** Show the "lemonade" Picture Card from the Substances and Mixtures Sorting Worksheet. **We cannot always see the different parts of a mixture. We need to know what goes into the mixture. Lemonade is made of sugar, lemon juice, and water. Is this a pure substance or a mixture?** Call on students. **Yes, lemonade is a mixture. It is made of different types of particles—sugar molecules, lemon juice molecules, and water molecules.** Discuss with students that for some mixtures, the parts are not easy to see, as in the lemonade. In other mixtures, the parts are easy to see, such as a salad.	**Let's do the next ones together.** Show the "atom" and the "molecule" Picture and Definition Cards from the Substances and Mixtures Picture and Definition Cards Worksheet. **A mixture is matter that is made of two or more types of particles.** Show the "mixture" Picture and Definition Cards from the Substances and Mixtures Picture and Definition Cards Worksheet. **The particles can be different kinds of atoms, different kinds of molecules, or both.** Show the "salad" Picture Card from the Substances and Mixtures Sorting Worksheet. **Is a salad made of the same or different parts?** Call on students. **Can we see the different parts of salad?** Call on students. **Yes, we can see the different parts.** Ask students to name some of the ingredients in the salad. **A salad is a mixture.** Show the "lemonade" Picture Card from the Substances and Mixtures Sorting Worksheet. **We cannot always see the different parts of a mixture. Lemonade is made of sugar, lemon juice, and water. Is this a pure substance or a mixture?** Call on students. **Yes, lemonade is a mixture. Why is it a mixture?** Call on students. **Lemonade is made of different types of particles—sugar molecules, lemon juice molecules, and**

	LEVEL 1	LEVEL 2	LEVEL 3
	Substances and Mixtures Sorting Worksheet on the table in front of students that you have not used yet. Make sure one Picture Card is a pure substance and one is a mixture. **Watch me point to the [pure substance].** Point to the [pure substance]. **[Gold] is a [pure substance]. Your turn.** Give students time to respond. **Yes, [gold] is a [pure substance].** Place the Picture Card in the correct column of the two-column sorting chart on the Magnetic Whiteboard. Repeat the procedure until students have identified all the Picture Cards from the Substances and Mixtures Sorting Worksheet as pure substances or mixtures. When you identify the mixtures, point out the different parts to students. After all Picture Cards have been sorted correctly, remove from the Magnetic Whiteboard.	Call on a student to place the "lemonade" Picture Card from the Substances and Mixtures Sorting Worksheet in the Mixture column of the two-column sorting chart on the Magnetic Whiteboard. Point to each of the remaining Picture Cards from the Substances and Mixtures Sorting Worksheet and call on students to identify it as a pure substance or a mixture. When you point to the mixtures, point out the different parts to students. Then call on a student to place the Picture Cards in the correct column of the two-column sorting chart on the Magnetic Whiteboard. After all Picture Cards have been sorted correctly, remove from the Magnetic Whiteboard.	**water molecules.** Discuss with students that for some mixtures, the parts are not easy to see, as in the lemonade. In other mixtures, the parts are easy to see, such as a salad. Call on a student to place the "lemonade" Picture Card from the Substances and Mixtures Sorting Worksheet in the Mixture column of the two-column sorting chart on the Magnetic Whiteboard. Point to each of the remaining Picture Cards from the Substances and Mixtures Sorting Worksheet and call on students to identify each as a pure substance or a mixture. When you point to the Picture Cards that show mixtures, point out the different parts to students. Then call on a student to place the Picture Cards in the correct column of the two-column sorting chart on the Magnetic Whiteboard. After all Picture Cards have been sorted correctly, remove from the Magnetic Whiteboard.
INDEPENDENT PRACTICE	**Your turn.** Place two Picture Cards on the table in front of students, one correct and a distractor. **Point to the [pure substance].** Give students time to respond. Then place the Picture Card in the correct column of the two-column sorting chart on the Magnetic Whiteboard. Repeat this procedure with the remaining Picture Cards, until all students have identified *(continued)*	Hand out a Substances and Mixtures Sorting Worksheet and glue stick to each student. **Your turn. Cut apart the cards on the worksheet.** Assist students as needed or cut apart the Picture Cards for students. **Look at the cards. [Name a/Point to a] card.** Give student time to respond. **Now, place the [card name] in the pure substance or mixture column.** *(continued)*	Hand out a Substances and Mixtures Sorting Worksheet and glue stick to each student. **Your turn. Cut apart the cards on the worksheet.** Assist students as needed or cut apart the Picture Cards for students. **Look at the cards. Then place each card in the correct column to identify it as a pure substance or mixture.** *(continued)*

	LEVEL 1	LEVEL 2	LEVEL 3
	each Picture Card as a pure substance or mixture. You may either have one student complete all trials and then move to the next student or have each student take one to two turns at a time. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	Repeat the procedure until all Picture Cards have been sorted correctly. Have students glue the Picture Cards in place on the Substances and Mixtures Sorting Worksheet. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	Check students' work. Then have students glue the Picture Cards in place. Collect data using System of Least Prompts (Individual or Group) Data Sheet.
PROMPTING AND ERROR CORRECTION	Verbal prompt: **Point to the [pure substance].** Model prompt: Point to the correct response. **[Salt] is a [pure substance]. Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response, and say, **[Salt] shows matter that is made of [one type of particle. It is a pure substance.]** as you prompt them.	Verbal prompt: **Is [salt] a pure substance or a mixture?** Model prompt: Point to the correct response. **[Salt] is a [pure substance].** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response, and say, **[Salt is matter that is made of one type of particle. It is a pure substance.]** as you prompt them.	Verbal prompt: **Is [salt] a pure substance or a mixture?** Model prompt: Point to the correct response. **[Salt] is a [pure substance].** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response, and say, **[Salt is matter that is made of one type of particle. It is a pure substance.]** as you prompt them.
REINFORCE	**Excellent work! You recognized matter as a pure substance or a mixture.**	**Excellent work! You recognized and classified matter as a pure substance or a mixture.**	**Excellent work! You recognized and classified matter as a pure substance or a mixture.**

SEGMENT 2

Connecting the Big Idea

Learning Objectives

- Recognize examples of pure substances and mixtures.
- Separate a mixture into its parts.

Materials

- Print the following worksheets and data sheets:
  - *States of Matter: From Solid to Smoke* Substances and Mixtures Picture and Definition Cards Worksheet (from Segment 1)
  - *States of Matter: From Solid to Smoke* Substances and Mixtures Sorting Worksheet (from Segment 1)
  - *States of Matter: From Solid to Smoke* Separating a Mixture Summary Worksheet (per Level 2 and 3 student and teacher)
  - Constant Time Delay Individual Data Sheet (per student) or Group Data Sheet
  - System of Least Prompts Individual Data Sheet (per student) or Group Data Sheet
- Gather the following materials from the enCORE Manipulatives Kit and/or your classroom:
  - Magnetic Whiteboard
  - Magnetic Picture Pockets
  - Magnetic Display Trays (4)
  - Plastic Jar (1)
  - Dry erase marker
  - Scissors (per Level 2 and 3 student and teacher)
  - Glue sticks (per Level 2 and 3 student)
  - Mixture of tiny pebbles, soil, and water
  - Flask or other clear container with a narrow opening
  - Coffee filter

Prior to Instruction

To prepare for teaching this lesson segment, follow these steps:

1. Gather, print, and prepare all materials listed above.
2. If you plan to program students' AAC devices, program the following words:

LEVEL 1	LEVEL 2	LEVEL 3
• atom • molecule • pure • substance • particle	• atom • molecule • pure • substance • particle	• atom • molecule • pure • substance • particle

Anchor Instruction for All Students

Prior to beginning instruction, anchor instruction by referencing the Companion Text *States of Matter: From Solid to Smoke*. **In *States of Matter: From Solid to Smoke*, we read about the properties of solids, liquids, and gases. Let's explore some properties of pure substances and mixtures.**

LEVEL 1	LEVEL 2	LEVEL 3
• atom • molecule • pure • substance • particle • mixture	• atom • molecule • pure • substance • particle • mixture	• atom • molecule • pure • substance • particle • mixture

Zero- and Four-Second Delay Rounds

Remember, in the Zero-Second Delay Round, provide the correct answer immediately. In the Four-Second Delay Round, wait for four seconds for the student to respond. Refer to the procedures outlined at the beginning of the Unit if needed.

Materials: *The States of Matter: From Solid to Smoke* Substances and Mixtures Picture and Definition Cards Worksheet, Constant Time Delay (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, scissors

Prior to Instruction: Write the vocabulary targets on the Constant Time Delay (Individual or Group) Data Sheet. Cut apart the Substances and Mixtures Picture and Definition Cards from the worksheet. Place each card in a Magnetic Picture Pocket. Place the Substances and Mixtures Definition Cards on the left side of the Magnetic Whiteboard.

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
Use the following instructions to target the concepts listed above: Place two Substances and Mixtures Picture Cards (correct response and a distractor) in front of student. **[Touch/Name] [molecule].** Repeat with the remaining Substances and Mixtures Picture Cards for each student.	*Zero-Second Delay Round:* Student provides the correct response. *Four-Second Delay Round:* Student provides the correct response within four seconds.	**Great job finding the [molecule].** Then pair the Substances and Mixtures Picture Card with the Substances and Mixtures Definition Card and read the definition. **[A molecule is a group of two or more atoms held together.]** Use Constant Time Delay (Individual or Group) Data Sheet to collect data on student responses.

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
	Student does not respond.	Model the correct response. **Your turn.** Wait for student to respond. Provide additional prompts or physical guidance as necessary.
	Student responds incorrectly.	

Read and Connect the Big Idea

Materials: *States of Matter: From Solid to Smoke* Substances and Mixtures Picture and Definition Cards Worksheet (from Segment 1), *States of Matter: From Solid to Smoke Substances and Mixtures Sorting Worksheet* (from Segment 1), *States of Matter: From Solid to Smoke* Separating a Mixture Summary Worksheet (per Level 2 and 3 student and teacher), System of Least Prompts (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, Magnetic Display Trays (4), Plastic Jar (1), dry erase marker, scissors (per Level 2 and 3 student and teacher), glue sticks (per Level 2 and 3 student), mixture of tiny pebbles, soil, and water, flask or other clear container with a narrow opening, coffee filter

Prior to Instruction: Reuse the Picture Cards from the Substances and Mixtures Picture and Definition Cards Worksheet and the Substances and Mixtures Sorting Worksheet (both from Segment 1). Place all the cards in the Magnetic Picture Pockets. Write the words "Purpose:" and "Summary:" next to each other on the Magnetic Whiteboard. Cut apart the Summary Cards from the Separating a Mixture Summary Worksheet (teacher's copy). Place each Summary Card on a Magnetic Display Tray and place on Magnetic Whiteboard. Prepare a mixture by adding tiny pebbles, soil, and water to the Plastic Jar. Do not stir the mixture. You want students to be able to see the parts of the mixture. Set up the following supplies on a table or other workspace where students can closely observe a demonstration: Plastic Jar containing the mixture of tiny pebbles, soil, and water, flask or other clear container with narrow opening, coffee filter.

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**A pure substance is made of one type of particle. All the particles in a pure substance have the same properties. A property is a characteristic of matter. Size, shape, and weight are properties of matter.** Show the "salt" Picture Card from the Substances and Mixtures Sorting Worksheet. **Salt is a pure substance. It is made of one type of molecule. All the particles that make up salt are the same size,** *(continued)*	**Remember that a pure substance is made of one type of particle. A mixture is made of two or more types of particles.** **Now let's explore some new information about pure substances and mixtures. First, we need to learn about properties. Properties describe matter. A property is a characteristic of matter. Examples are size, shape, and weight.**	

	LEVEL 1	LEVEL 2	LEVEL 3
	shape, and weight. Point to the other Picture Cards from the Substances and Mixtures Sorting Worksheet that are pure substances, reminding students that they are pure substances and all of the particles that make up each one have the same properties. **Now let's learn more about mixtures.**		
MODEL	**I'll go first. I know that a mixture is made of two or more types of particles. So, mixtures have different parts. The parts have different properties.** Show students the mixture of tiny pebbles, soil, and water. **This is a mixture. You can see the mixture has different parts. It is made with pebbles, soil, and water. Some parts are different sizes. This is a property of the mixture. We can use this property to separate the mixture.** Show students the filter. **We can pour the mixture through a filter. The larger parts of the mixture will get caught in the filter. The rest will pass through the filter.**	**I'll go first.** Show the "salt" Picture Card from the Substances and Mixtures Sorting Worksheet. **Salt is a pure substance. It is made of one type of molecule.** **All the particles in a pure substance have the same properties. So, do all the molecules in salt have the same properties?** Call on students. **Yes, all the molecules that make up salt have the same properties.** **You cannot separate a pure substance into parts. A pure substance is not made of parts that have different properties.** Show students the mixture of tiny pebbles, soil, and water. **This is a mixture. Can you see the different parts of the mixture?** Call on students. Reaffirm the correct answer. **This mixture is made with**	**I'll go first.** Show the "salt" Picture Card from the Substances and Mixtures Sorting Worksheet. **Salt is a pure substance. It is made of one type of molecule.** **All the particles in a pure substance have the same properties. What does this tell you about molecules in salt?** Call on students. **Yes, all the molecules that make up salt have the same properties, too.** **Do you think you can separate salt into parts with different properties?** Call on students. **No, you cannot separate a pure substance into parts. A pure substance is not made of parts that have different properties.** Show students the mixture of tiny pebbles, soil, and water. **This is a mixture. What parts do you see in the**

	LEVEL 1	LEVEL 2	LEVEL 3
		pebbles, soil, and water. It is made with solid particles and liquid particles. The solid parts, the pebbles and soil, are made with particles that are different sizes. This is a property of the mixture. We can use this property to separate the mixture. Show students the filter. **We can pour the mixture through a filter. The larger parts of the mixture will get caught in the filter. The rest will pass through.**	**mixture?** Call on students. Reaffirm the correct answer. **This mixture is made with pebbles, soil, and water. It is made with solid particles and liquid particles. The solid parts, the pebbles and soil, are made with particles that are different sizes. This is a property of the mixture. We can use this property to separate the mixture.** **Invite students to share ideas about how to separate the mixture.** Reaffirm any reasonable responses and correct misconceptions as needed. Show students the filter. **We can pour the mixture through a filter. The larger parts of the mixture will get caught in the filter. The rest will pass through.**
GUIDED PRACTICE	**Let's separate the mixture together. First, we place the filter over the opening of a container.** Complete this step as students observe. Point to the "place filter over container" Summary Card from the Separating a Mixture Summary Worksheet. Read the Summary Card aloud. *(continued)*	**Let's separate the mixture together. As we do this, we will write a summary of what we do. Our summary should tell the most important information. We show the information in one place.** **First, we need to write the purpose of our summary. The purpose tells why we are doing a summary.** *(continued)*	**Let's separate the mixture together. As we do this, we will write a summary of what we do. Remember, when we summarize, we tell the most important information. We show the information in one place.** **First, we need to write the purpose of our summary. The purpose** *(continued)*

LEVEL 1	LEVEL 2	LEVEL 3
Your turn. Point to the filter that will separate the mixture. Give students time to respond. **Now point to the mixture.** Give students time to respond. **Next, we pour the mixture through the filter. We pour slowly and carefully.** Complete this step as students observe. Point to the "pour mixture through filter" Summary Card from the Separating a Mixture Summary Worksheet. Read the Summary Card aloud. **Last, we observe what happened. We look to see if the parts of the mixture are separated.** Allow students to closely observe the filter and the mixture. **We can see pebbles and soil in the filter.** Point to the "observe parts left in filter" Summary Card from the Separating a Mixture Summary Worksheet. Read the Summary Card aloud. **We can see water in the container. It passed through the filter.** Point to the "observe parts that passed through filter" Summary Card from the Separating a Mixture	Write the following on the Magnetic Whiteboard below the Purpose section: Our purpose is to separate a mixture. Read the purpose aloud. **Now we will separate the mixture. First, we place the filter over the opening of a container.** Complete this step as students observe. Point to the "place filter over container" Summary Card from the Separating a Mixture Summary Worksheet. Read the Summary Card aloud. Read the remaining Summary Cards aloud. **What do you think we should do next?** Call on students to either read the correct Summary Card aloud or point to it. **That's right. Next, we pour the mixture through the filter. We pour slowly and carefully.** Complete this step as students observe. **Now we observe what happened. We look to see if the parts of the mixture are separated.** Allow students to closely observe the filter and the mixture. **What can you see in the filter?** Call on students. Point to the "observe parts	**tells why we are doing a summary.** Write the following on the Magnetic Whiteboard below the Purpose section: Our purpose is to separate a mixture. Call on students to read the purpose aloud with you, assisting students as needed. **Now we will separate the mixture.** Point to the Summary Cards from the Separating a Mixture Summary Worksheet on the Magnetic Whiteboard and ask a student to read each one aloud, one at a time. Then ask students which step they think is first. **First, we place the filter over the opening of a container.** Invite students to share what they think will happen. Then complete this step as students observe. **What do you think we should do next?** Call on students to read the correct Summary Card aloud. **That's right. Next, we pour the mixture through the filter. We pour slowly and carefully.** Complete this step as students observe. **Now we observe what happened. We look to see if the parts of the mixture are separated.** Allow students to closely

LEVEL 1	LEVEL 2	LEVEL 3
Summary Worksheet. Read the Summary Card aloud. **Your turn. Point to the parts of the mixture that passed through the filter.** Give students time to respond. **We separated our mixture!**	left in filter" Summary Card. Read the Summary Card aloud. **What can you see in the container?** Call on students. **We can see water in the container. It passed through the filter.** Point to the "observe parts that passed through filter" Summary Card. Read the Summary Card aloud. **We separated our mixture! If we wanted to separate it more, we could pick out the pebbles from the filter. We can easily see them.**	observe the filter and the mixture. **What can you see in the filter?** Call on students. **Why are these parts of the mixture in the filter?** Call on students. Reaffirm that the particles that make up the pebbles and soil are too large to pass through the filter. Point to the Summary Card about parts of a mixture left in a filter. Ask a student to read the Summary Card aloud. **What can you see in the container?** Call on students. **Why is the water in the container?** Call on students. Reaffirm that the particles that make up water are small enough and spread out enough to pass through the filter. Point to the Summary Card about parts of a mixture that pass through a filter. Ask a student to read the Summary Card aloud. **We separated our mixture! If we wanted to separate it even more, what do you think we could do?** Call on students to share their ideas. **We could pick out the pebbles from the filter. We can easily see them.**

	LEVEL 1	LEVEL 2	LEVEL 3
INDEPENDENT PRACTICE	**Your turn. Point to the filter that we used to separate a mixture.** Give students time to respond. Then read aloud the "place filter over container" Summary Card from the Separating a Mixture Summary Worksheet. Repeat the procedure, having students point to the parts of the mixture left in the filter and then the parts of the mixture that passed through the filter. Read the corresponding Summary Cards aloud after students point to the respective part. You may either have one student complete all trials and then move to the next student or have each student take one to two turns at a time. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	**Now it is your turn.** Hand out a Separating a Mixture Summary Worksheet, pencil, and glue stick to each student. **Write the purpose of the summary first. You can use the sentence I wrote.** Point to the purpose on the Magnetic Whiteboard. **Or you can draw a picture to show the purpose. Then, cut apart the Summary Cards on the Separating a Mixture Summary Worksheet.** Assist students as needed or cut apart the Summary Cards for students. **First, look at each picture and read Summary Card. Then, place the Summary Cards in order. Remember, look for the picture that shows what we do first to separate a mixture.** Assist students as needed. You may also place two Summary Cards on the table in front of students, one the correct step and a distractor. **What is the [first step] in separating the mixture?** Give students time to respond. Repeat the procedure until the remaining Summary Cards have been put in the correct order. Have students glue the Summary Cards in place on the Separating	**Your turn.** Hand out a Separating a Mixture Summary Worksheet, pencil, and glue stick to each student. **Write the purpose of the summary first. You can use the sentence I wrote.** Point to the purpose on the Magnetic Whiteboard. **Then, cut apart the Summary Cards on the Separating a Mixture Summary Worksheet.** Assist students as needed or cut apart the Summary Cards for students. **Read and look at the picture on each Summary Card. Then place them in order on the worksheet.** Check students' work. Then have students glue the Summary Cards in place. Encourage students to draw a model of the experiment on the back of their worksheets. Collect data using System of Least Prompts (Individual or Group) Data Sheet.

	LEVEL 1	LEVEL 2	LEVEL 3
		a Mixture Summary Worksheet. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	
PROMPTING AND ERROR CORRECTION	Verbal prompt: **Point to the [part we used to separate a mixture].** Model prompt: Point to the correct response. **[We used a filter to separate a mixture.] Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response, and say, **[We used a filter to separate a mixture.]** as you prompt them.	Verbal prompt: **Point to the [first] step for separating a mixture.** Model prompt: **[Place filter over container] describes the [first step] for separating a mixture. Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct Summary Card. Say, **[Place filter over container] describes the [first step] for separating a mixture.** as you prompt them.	Verbal prompt: **Point to the [first] step for separating a mixture.** Model prompt: **[Place filter over container] describes the [first step] for separating a mixture. Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct Summary Card. Say, **[Place a filter over container] describes the [first step] for separating a mixture.** as you prompt them.
REINFORCE	**Great Work! You are thinking like a scientist. You showed how to separate a mixture!**	**Great work! You are thinking like a scientist. You showed how to separate a mixture!**	**Great work! You are thinking like a scientist. You showed how to separate a mixture!**

SEGMENT 3

Investigate and Extend

Learning Objectives

- Identify common acids and bases and their hazardous properties.
- Recognize common acids as safe or harmful.

Materials

- Print the following worksheets and data sheets:
  - *States of Matter: From Solid to Smoke* Acids and Bases Picture and Definition Cards Worksheet
  - *States of Matter: From Solid to Smoke* Acids and Bases Experiment Worksheet (per Level 2 and 3 student and teacher)
  - *Classroom Resources* Yes/No Cards Worksheet (per Level 1 student)
  - Constant Time Delay Individual (per student) or Group Data Sheet
  - System of Least Prompts Individual (per student) or Group Data Sheet
- Gather the following materials from the enCORE Manipulatives Kit and/or your classroom:
  - Magnetic Whiteboard
  - Magnetic Picture Pockets
  - Dry erase marker
  - Pencils (per Level 2 and 3 student and teacher)
  - Household solutions: vinegar, lemon juice, antacid liquid, ammonia
  - 4 strips of blue litmus paper (teacher)
  - 4 strips of red litmus paper (teacher)
  - 4 droppers
  - Paper towels
  - Safety goggles (teacher)

Prior to Instruction

To prepare for teaching this lesson segment, follow these steps:

1. Gather, print, and prepare all materials listed above.
2. If you plan to program students' AAC devices, program the following words:

LEVEL 1	LEVEL 2	LEVEL 3
• observations • science • results • property • hazardous	• observations • science • predict • property • hazardous	• observations • science • predict • property • hazardous

LEVEL 1	LEVEL 2	LEVEL 3
• acid • base • sour • slippery • bitter • weak • strong • react • burn	• acid • base • sour • slippery • bitter • weak • strong • react • burn • results • conclusion • supported • litmus paper	• acid • base • sour • slippery • bitter • weak • strong • react • burn • results • conclusion • supported • litmus paper

Anchor Instruction for All Students

Prior to beginning instruction, anchor instruction by referencing the Companion Text *States of Matter: From Solid to Smoke*. **In *States of Matter: From Solid to Smoke*, we learned about matter. We've further explored matter in this lesson how to describe pure substances or mixtures. Now we're going to look at another way to describe matter!**

Core Vocabulary and Concepts

LEVEL 1	LEVEL 2	LEVEL 3
• hazardous • weak • strong	• hazardous • weak • strong • react • predict • classify	• hazardous • weak • strong • react • predict • classify

Zero- and Four-Second Delay Rounds

Remember, in the Zero-Second Delay Round, provide the correct answer immediately. In the Four-Second Delay Round, wait for four seconds for the student to respond. Refer to the procedures outlined at the beginning of the Unit if needed.

Materials: *States of Matter: From Solid to Smoke* Acids and Bases Picture and Definition Cards Worksheet, Constant Time Delay (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, scissors

Prior to Instruction: Write the vocabulary targets on the Constant Time Delay (Individual or Group) Data Sheet. Cut apart the Acids and Bases Picture and Definition Cards from the worksheet. Place each card in a Magnetic Picture Pocket. Place the Acids and Bases Vocabulary Definition Cards on the left side of the Magnetic Whiteboard.

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
Use the following instructions to target the concepts listed above: Place two Acids and Bases Picture Cards (correct response and a distractor) in front of student. **[Touch/Name] [hazardous].** Repeat this with the remaining Acids and Bases Picture Cards.	*Zero-Second Delay Round:* Student provides the correct response. *Four-Second Delay Round:* Student provides the correct response within four seconds.	**Great job finding [hazardous].** Then pair the Acids and Bases Picture Card with the Acids and Bases Definition Card and read the definition. **[Hazardous means possibly dangerous.]** Use Constant Time Delay (Individual or Group) Data Sheet to collect data on student responses.
	Student does not respond.	Model the correct response. **Your turn.** Wait for student to respond. Provide additional prompts or physical guidance as necessary.
	Student responds incorrectly.	

Asking Questions and Finding Answers

Materials: *States of Matter: From Solid to Smoke* Acids and Bases Picture and Definition Cards Worksheet, *States of Matter: From Solid to Smoke* Acids and Bases Experiment Worksheet, (per Level 2 and 3 student and teacher), *Classroom Resources* Yes/No Cards Worksheet (per Level 1 student), System of Least Prompts (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, dry erase marker, pencil (per Level 2 and 3 student and teacher), household solutions of vinegar, lemon juice, antacid liquid, and ammonia, 4 strips of blue litmus paper, 4 strips of red litmus paper, 4 droppers, paper towels, safety goggles (teacher)

Prior to Instruction: Reuse the Picture and Definition Cards from the Acids and Bases Picture and Definition Cards Worksheet (from previous activity). Place the cards in Magnetic Picture Pockets. Draw a three-column chart on the Magnetic Whiteboard like the one on the Acids and Bases Experiment Worksheet. In the first column, list the household solutions that you will test: vinegar, lemon juice, antacid liquid, ammonia.

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**We have learned ways to describe matter. Now we will learn a new way. Let's do an experiment. We will identify substances as acids and bases. First, let's learn about the properties of acids and bases. A property is a characteristic of matter. We will learn about the taste, how weak or strong some acids and bases are, and if they are dangerous.**	**We have learned many ways to describe matter. Now we will learn a new way. We are going to do an experiment to identify some common substances as acids and bases. First, let's learn about the properties of acids and bases. Remember that a property is a characteristic of matter. We will learn about the taste and strength, such as weak or strong, of acids and bases, and whether they are dangerous.** Invite students to share anything they know about acids and bases. Reaffirm correct information. If students share any information that is incorrect or a misconception, provide a guiding statement such as, "We will learn more about this as we do our experiment."	

	LEVEL 1	LEVEL 2	LEVEL 3
MODEL	**I'll go first.** Display the "weak" Picture and Definition Card from the Acids and Bases Picture and Definition Cards Worksheet. **An acid usually tastes sour. Some acids are weak. They react a little, or not at all, with other substances. Weak acids are not dangerous. But they can burn if they get into your eyes.** Display the "strong" Picture and Definition Card from the Acids and Bases Picture and Definition Cards Worksheet. **Some acids are strong. They have a strong reaction when mixed with other substances. Some acids are very dangerous. They can be harmful when touched. It is never safe to taste a substance to find out if it is an acid!** **A base usually tastes bitter and feels slippery. Some bases are weak. They are not dangerous to touch. Bases can burn if they get into your eyes. Some bases are very dangerous. They can be harmful when touched. Like acids, it is never safe to taste or feel a substance to find out if it is a base!** Display the "hazardous" Picture and Definition Card from the Acids and Bases Picture and Definition Cards Worksheet. **Some acids and bases are hazardous. Scientists have learned ways to tell if an acid or** *(continued)*	**I'll go first.** Display the "weak" Picture and Definition Card from the Acids and Bases Picture and Definition Cards Worksheet. **An acid usually tastes sour. What things have you tasted that are sour?** Give students time to respond. **Some acids are weak. They do not react strongly if they are mixed with other substances. Weak acids are not dangerous. In fact, some foods we eat contain acids. But they can burn if they get into your eyes.** Display the "strong" Picture and Definition Card from the Acids and Bases Picture and Definition Cards Worksheet. **Some acids are strong. They have a strong reaction when mixed with other substances. Strong acids are very dangerous. They can be harmful when touched. It is never safe to taste a substance to find out if it is an acid!** **A base usually tastes bitter and feels slippery. Some bases are weak and are not dangerous to touch. Some medicines for upset stomachs are classified as bases. Many bases can burn if they get into your eyes. Like acids, some bases are very dangerous. They can be harmful even when touched. It is never safe to taste or feel a substance to find out if it is a base!** Display the "hazardous" Picture and Definition Card from the Acids and Bases Picture and Definition Cards Worksheet. **Some acids and bases are classified as hazardous. Scientists have discovered over time how to identify whether an acid or base is hazardous. This helps keep people and the community safe. A hazardous substance, like a strong acid or base, will have a warning label on its container. The warning label will let people know to be careful when handling the substance.** **Hazardous acids and bases can burn the skin and cause serious damage. Hazardous acids and bases can also cause breathing problems. People should never breath in the air when around a strong acid or base.**	

	LEVEL 1	LEVEL 2	LEVEL 3
	base is hazardous. This helps keep people safe. A hazardous substance will have a warning label on its container. This will tell people to be careful when around or handling the substance.		
GUIDED PRACTICE	**Let's do the experiment together.** Show students the common household solutions and identify each one. **We are going to test these substances. The tests will tell if each substance is an acid or a base.** Show students the litmus paper. **We will use these papers for our test. We will place some drops of a substance on the blue paper and the red paper. The blue paper will turn red if the substance is an acid. The red paper will turn blue if it is a base.** On the Magnetic Whiteboard, write the following: Blue to red = acid; Red to blue = base. Hand out the Yes/No Cards to each student. **I will test each substance one at a time. Then I will ask questions. Use the Yes or No Card to answer each question.** **I will put on safety goggles to protect my eyes.** Put on the safety goggles. Then place a strip of blue and a strip of red litmus paper on a paper towel. Using a clean dropper, put several drops of vinegar on each strip. Show the strips to students. **I tested [vinegar]. Did the**	**Let's do the experiment together.** Show students the common household solutions and identify each one. Briefly discuss how people use them. For example, ammonia is a cleaning product, antacid liquid is a medicine for upset stomachs, etc. **We are going to test these substances. Our tests will tell us if each substance is an acid or a base. First, we will predict which are acids and which are bases. When we predict, we tell what we think will happen. Then we do an experiment to find out if our predictions are supported.** Show students the three-column chart on the Magnetic Whiteboard. Point to the first column. **The substances are listed here.** Point to the second column. **This is where you will write your predictions.** **Let's get started!** Point to or hold up the vinegar bottle**. Give a thumbs up if you think that vinegar is an acid.** Give students time to respond. **You will write the word "acid" if you think that vinegar is an acid.** Write the word acid in the second column in the row for vinegar. **Give thumbs up if you think that vinegar is a base.** Give students time to respond. **You will write the word "base" if you think that vinegar is a base.** Erase the word "acid" and write the word "base" in the second column in the row for vinegar. Erase the word "base" from the chart and write the words "acid" and "base" to the side on the Magnetic Whiteboard for students to copy as needed. Hand out the Acids and Bases Experiment Worksheets and pencils. Have students write a prediction for each substance in the chart. Level 2 students can write the letters "A" or "B' instead of writing the entire word. After students are finished with their predictions, show them the litmus paper. **We will use strips of paper for our test. This is called litmus paper. We will place some drops of a substance on the blue litmus paper and some drops on the red litmus paper. The blue litmus paper will turn red if the substance is an acid. The red litmus paper will turn blue if it is a base.** On the Magnetic Whiteboard, write the following: Blue to red = acid; Red to blue = base	

LEVEL 1	LEVEL 2	LEVEL 3
blue paper turn red? Use your Yes Card if you think the blue paper turned red. Use your No Card if you do not think the blue paper turned red. Give students time to think and respond. **Did the red paper turn blue? Use your Yes Card if you think the red paper turned blue. Use your No Card if you do not think the red paper turned blue.** Give students time to think and respond. Review the information on the Magnetic Whiteboard about the litmus paper. **The [blue paper turned red]. Is [vinegar an acid]? Use your Yes Card if you think that [vinegar is an acid]. Use your No Card if you do not think that [vinegar is an acid].** Give students time to think and respond. **The [red paper did not turn blue. Is vinegar a base]? Use your Yes Card if you think that [vinegar is a base]. Use your No Card if you do not think that [vinegar is a base].** Give students time to think and respond. **[Vinegar is an acid. It is not a base.]** Repeat the testing and questioning for the remaining substances. Students should find that the lemon juice is an acid and the antacid liquid and ammonia are bases.	**I will test each substance one at a time. I will put on safety goggles to protect my eyes.** Put on the safety goggles. Then place a strip of blue and a strip of red litmus paper on a paper towel. Using a clean dropper, put several drops of vinegar on each strip. **Now you will make observations. You will write the results of each test on your Experiment Worksheet.** Point to the third column of the chart on the Magnetic Whiteboard. **This is where you will write the results.** Show the litmus strips to students. **I just tested vinegar. Observe the litmus paper. Did the blue litmus paper turn red?** Call on students. **Did the red litmus paper turn blue?** Call on students. **The blue litmus paper turned red. The red litmus paper did not turn blue.** On the Magnetic Whiteboard, write "blue turned red, red did not turn blue" in the third column of the chart in the row for vinegar. Have students copy the results onto their Acids and Bases Experiment Worksheets. Level 2 students can draw a picture of the results. Repeat the testing and questioning procedure for the rest of the substances, one at a time. Make sure students copy or draw the results for all the substances onto their Acids and Bases Experiment Worksheets.	

	LEVEL 1	LEVEL 2	LEVEL 3
INDEPENDENT PRACTICE	**It's your turn. I will show you the results of our tests. I will ask questions about the results. Use the Yes or No Card to answer each question.** Show students the strips of litmus paper that were used to test vinegar. **Is [vinegar an acid]?** Count the number of Yes Cards and No Cards. Write the number of each on the Magnetic Whiteboard. **Is [vinegar a base]?** Count the number of Yes Cards and No Cards. Write the number of each on the Magnetic Whiteboard. Repeat the process for all the substances that were tested. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	**It's your turn. Now we will review our results and make conclusions.** Point to the results for vinegar in the Results Column of the chart on the Magnetic Whiteboard. **When we tested vinegar the blue litmus paper turned red. The red litmus paper did not turn blue. Is vinegar an acid or a base?** Call on students. **Yes, vinegar is an acid.** Write the following sentence on the Magnetic Whiteboard: Vinegar is an acid. Have students copy this sentence below the chart on their Acids and Bases Experiment Worksheets. Level 2 students can use letters and drawings instead of writing the full sentence. **Look at your prediction for vinegar. Did you predict vinegar is an acid?** Call on students. Discuss that predictions are not correct or incorrect when we make them. **Predictions are just what we *think* will happen. An experiment tells us if our predictions are supported or not supported.** Level 3 students can add this to their conclusion about vinegar. For example, they can write, "My prediction [was/was not] supported." Have students finish writing their conclusions by looking at the results for each substance and deciding if it is an acid or a base. Assist students as needed. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	
PROMPTING AND ERROR CORRECTION	Verbal prompt: **Is [vinegar an acid]?** Model prompt: Point to the Yes and No Response Cards. **Pick Yes or pick No. Is [vinegar an acid]?** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response, and say, **Is [vinegar an acid]?** as you prompt them.	Verbal prompt: **What did the results show? Is [vinegar] an acid or a base?** Model prompt: **When we tested [vinegar], the blue litmus paper [turned red]. The red litmus paper [did not turn blue.] [Vinegar is an acid.] Your turn. When we tested the [vinegar] with the blue and red litmus paper, what happened? Is [vinegar] an acid or a base?** Physical prompt: Use hand-over-hand assistance to point to the results. **When we tested [vinegar], the blue litmus paper [turned red].**	Verbal prompt: **What did the results show? Is [vinegar] an acid or a base?** Model prompt: **When we tested [vinegar], the blue litmus paper [turned red]. The red litmus paper [did not turn blue]. [Vinegar is an acid.] Your turn. When we tested the [vinegar] with the blue and red litmus paper, what happened? Is [vinegar] an acid or a base?** Physical prompt: Use hand-over-hand assistance to point to the results. **When we tested [vinegar], the blue litmus paper [turned red].**

	LEVEL 1	LEVEL 2	LEVEL 3
		The red litmus paper [did not turn blue]. [Vinegar is an acid.] Help students write or draw the conclusion.	**The red litmus paper [did not turn blue]. [Vinegar is an acid.]** Help students write or draw the conclusion.
REINFORCE	**Nice work! You are thinking like a scientist. You made observations. You answered questions about the experiment.**	**Nice work! You are thinking like a scientist. You made predictions before the experiment. Then you made observations, wrote results, and made conclusions about common acids and bases.**	**Nice work! You are thinking like a scientist. You made predictions before the experiment. Then you made observations, wrote results, and made conclusions about common acids and bases.**

SEGMENT 4

Applying What We Know

Learning Objectives

- Recognize that science processes can be used to help people in the community and state make wise choices.
- Separate a mixture into its parts.

Materials

- Print the following worksheets and data sheets:
  - *States of Matter: From Solid to Smoke* Research Picture and Definition Cards Worksheet
  - *States of Matter: From Solid to Smoke* Water Treatment Label Image Worksheet (per Level 2 and 3 student and teacher)
  - Constant Time Delay Individual (per student) or Group Data Sheet
  - System of Least Prompts Individual (per student) or Group Data Sheet
- Gather the following materials from the enCORE Manipulatives Kit and/or your classroom:
  - Magnetic Whiteboard
  - Magnetic Picture Pockets
  - Magnetic Display Tray
  - Dry erase marker
  - Scissors (per Level 2 and 3 student and teacher)
  - Glue sticks (per Level 2 and 3 student)
  - Computer

Prior to Instruction

To prepare for teaching this lesson segment, follow these steps:

1. Gather, print, and prepare all materials listed above.
2. If you plan to program students' AAC devices, program the following words:

LEVEL 1	LEVEL 2	LEVEL 3
• community • process • source • separate • harmful • safe • research	• community • process • source • separate • harmful • safe • research	• community • process • source • separate • harmful • safe • research

LEVEL 1	LEVEL 2	LEVEL 3
• treat • filter • particle • clump	• treat • filter • particle • clump • chemical • label	• treat • filter • particle • clump • chemical • label

Anchor Instruction for All Students

Prior to beginning instruction, anchor instruction by referencing the Companion Text *States of Matter: From Solid to Smoke*. **In *States of Matter: From Solid to Smoke*, we read about matter. We learned about the properties of solids, liquids, and gases. In this lesson, we have learned a lot more about matter. We have learned about pure substances and different kinds of mixtures. We learned how to separate a mixture. We also learned about acids and bases. Let's apply what we have learned as we explore more about separating mixtures!**

Core Vocabulary and Concepts

LEVEL 1	LEVEL 2	LEVEL 3
• community • process • chemical	• community • process • chemical • source	• community • process • chemical • source

Zero- and Four-Second Delay Rounds

Remember, in the Zero-Second Delay Round, provide the correct answer immediately. In the Four-Second Delay Round, wait for four seconds for the student to respond. Refer to the procedures outlined at the beginning of the Unit if needed.

Materials: *States of Matter: From Solid to Smoke* Research Picture and Definition Cards Worksheet, Constant Time Delay (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets

Prior to Instruction: Write the vocabulary targets on the Constant Time Delay (Individual or Group) Data Sheet. Cut apart the Research Picture and Definition Cards from the worksheet. Place each card in a Magnetic Picture Pocket. Place the Research Definition Cards on the left side of the Magnetic Whiteboard.

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
Use the following instructions to target the concepts listed above: Place two Research Picture Cards (correct response and a distractor) in front of student. **[Touch/Name] [community].** Repeat this with the remaining Research Picture Cards.	*Zero-Second Delay Round:* Student provides the correct response. *Four-Second Delay Round:* Student provides the correct response within four seconds.	**Great job finding [community.]** Then pair the Research Picture Card with the Research Definition Card and read the definition. **[A community is a group of individuals who live in the same area.]** Use Constant Time Delay (Individual or Group) Data Sheet to collect data on student responses.

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
	Student does not respond.	Model the correct response. **Your turn.** Wait for student to respond. Provide additional prompts or physical guidance as necessary.
	Student responds incorrectly.	

Organizing and Sharing What We Know Now

Materials: *States of Matter: From Solid to Smoke* Research Picture and Definition Cards Worksheet, *States of Matter: From Solid to Smoke* Water Treatment Label Image Worksheet, (per Level 2 and 3 student and teacher), System of Least Prompts (Individual or Group) Data Sheet, Magnetic Whiteboard, Magnetic Picture Pockets, Magnetic Display Tray, dry erase marker, pencil (per Level 2 and 3 student and teacher), computer

Prior to Instruction: Reuse the Picture and Definition Cards from the Research Picture and Definition Cards Worksheet (from previous activity). Cut apart the Picture Cards from the Water Treatment Label Image Worksheet (teacher's copy). Place all the cards in Magnetic Picture Pockets. Use a Magnetic Display Tray to display the community water treatment image (top portion of the Water Treatment Label Image Worksheet) on the Magnetic Whiteboard. Get the computer ready to research community water treatment.

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**You know a lot about mixtures! You know that mixtures are made of different kinds of particles. You also know that mixtures can be separated. Now you will use what you know to learn something new. You will learn about a way that scientists help people in the community by separating a mixture.**		
MODEL	**I'll go first. Water we drink comes from places like lakes, streams, and rivers. This water is a mixture. Some parts in the water are dust and dirt particles. This water needs to be separated so we can drink it.** Show students the "process" Picture and Definition Card from the Research Picture and Definition Cards Worksheet. **Scientists use a process to help people get clean drinking water. This process separates harmful parts from the water. This makes the water safe to drink.**	**I'll go first.** Show students the "source" Picture and Definition Card from the Research Picture and Definition Cards Worksheet. **Water we drink comes from sources like lakes, streams, and rivers. Do you think this water is safe to drink?** Call on students and reaffirm that it is not safe to drink. **This water is a mixture. Some parts in in the water are dust, and dirt particles. This water needs to be separated so we can drink it.** Show students the "process" Picture and Definition Card from the Research Picture and	**I'll go first.** Show students the "source" Picture and Definition Card from the Research Picture and Definition Cards Worksheet. **The water we drink comes from different sources. What are some of these sources?** Call on students, correcting any misconceptions. **The water we drink comes from sources like lakes, streams, and rivers. Do you think this water is safe to drink?** Call on students and reaffirm that it is not safe to drink. **This kind of water is a mixture. Some of the parts include water, dust, and dirt**

	LEVEL 1	LEVEL 2	LEVEL 3
	We will research this process. The process is called community water treatment. It cleans, or treats, water so people in the community can drink it.	Definition Cards Worksheet. **Scientists use a process to help people get clean drinking water. This process separates harmful parts from the water. This makes the water safe to drink.** Point to the Water Treatment Label Image Worksheet displayed on the Magnetic Display Tray on the Magnetic Whiteboard. **We will research the process that scientists use. The process is called Community Water Treatment. It cleans, or treats, water so people in the community can drink it.**	**particles. This water needs to be separated so we can drink it.** Show students the "process" Picture and Definition Card from the Research Picture and Definition Cards Worksheet. **Scientists use a process to help people get clean drinking water. In this process, they separate the harmful parts from the water. This makes the water safe to drink.** Point to the Water Treatment Label Image Worksheet displayed on the Magnetic Display Tray on the Magnetic Whiteboard. **We will research the process that scientists use. The process is called Community Water Treatment. It cleans, or treats, water so people in the community can drink it.**
GUIDED PRACTICE	**Let's do the research together.** Point to the Water Treatment Label Image Worksheet displayed on the Magnetic Display Tray on the Magnetic Whiteboard. **We will use this picture to help us with our research. It shows the steps of Community Water Treatment.** Gather students around the computer. Model finding information about community water treatment. Look for information that includes a diagram. After you do a search for websites, point to the website you want to use on the computer. Have a student click on the link for the website. *(continued)*	**Let's do the research together.** Point to the Water Treatment Label Image Worksheet displayed on the Magnetic Display Tray on the Magnetic Whiteboard. **We will label the water treatment image as we research.** Gather students around the computer. Model finding information about community water treatment. Look for information that includes a diagram. After you enter key words for a search, have a student click on the search button. Choose a website and have another student click on the link for the website. *(continued)*	**Let's do the research together.** Point to the Water Treatment Label Image Worksheet displayed on the Magnetic Display Tray on the Magnetic Whiteboard. **As we do the research, we will label the water treatment image.** Gather students around the computer. Model finding information about community water treatment. Look for information that includes a diagram. Have a student enter key words for a search, then have another student click on the search button. Choose a website and have another student click on the link for the website. *(continued)*

	LEVEL 1	LEVEL 2	LEVEL 3
	Read a sentence or two aloud that describes the first step of community water treatment. You will likely need to simplify the description by paraphrasing and using basic terms. For example, "Chemicals are added to the water. Chemicals make particles of dust and dirt clump together." Then point to this part of the Water Treatment Label Image Worksheet. **Your turn. Point to the [first] step of community water treatment.** Give students time to respond. **Yes, the [first] step is to [add chemicals. This makes the dust and dirt particles clump together].** Repeat the above procedure to research and describe the remaining steps of community water treatment process. Use the Picture Cards from the Water Treatment Label Image Worksheet to help with paraphrasing.	Read a sentence or two aloud that describes the first step of community water treatment. You will likely need to simplify the description by paraphrasing and using basic terms. For example, "Chemicals are added to the water. The chemicals make particles of dust and dirt clump together." Call on students to repeat the information. Point to the first step on the Water Treatment Label Image Worksheet. **Let's label this part of the diagram.** Read the Picture Card aloud that describes the first step of community water treatment aloud. Then ask a student to place the Picture Card in the correct place on the Water Treatment Label Image Worksheet. Repeat the above procedure to research and describe the remaining steps of the community water treatment process. Use the Picture Cards from the Water Treatment Label Image Worksheet to help with paraphrasing.	Read a sentence or two aloud that describes the first step of community water treatment. You will likely need to simplify the description by paraphrasing and using basic terms. For example, "Chemicals are added to the water. The chemicals make particles of dust and dirt clump together." Level 3 students may be able to do some of the reading and paraphrasing. Call on students to repeat the information. Point to the first step on the Water Treatment Label Image Worksheet. **Let's label this part of the diagram.** Ask a student to read the Picture Card that describes the first step of community water treatment aloud. Then ask this student to place the Picture Card in the correct place on the Water Treatment Label Image Worksheet. Repeat the above procedure to research and describe the remaining steps of the community water treatment process. Use the Picture Cards from the Water Treatment Label Image Worksheet to help with paraphrasing.
INDEPENDENT PRACTICE	**It's your turn.** Place the Water Treatment Label Image Worksheet on the table in front of students. Point to the image of the [first] step on the worksheet. **This is the [first] step in the community water treatment.** Then, place two Picture Cards on the table in front of students, one the [first] step Picture Card, and a distractor. **Show me**	Hand out a Water Treatment Label Image Worksheet and glue stick to each student. **Your turn. Cut apart the cards on the Water Treatment Label Image Worksheet.** Assist students as needed or cut apart the Picture Cards for students. Then, place three Picture Cards on the table in front of students, one the [first] Picture Card, and	Hand out a Water Treatment Label Image Worksheet and glue stick to each student. **Your turn. Cut apart the cards on the Water Treatment Label Image Worksheet.** Assist students as needed or cut apart the Picture Cards for students. **Read the cards and place them in the correct place**

	LEVEL 1	LEVEL 2	LEVEL 3
	the [first] step in the community water treatment? Give students time to respond. Repeat the procedure until each student has identified each step in the community water treatment process. You may either have one student complete all trials and then move to the next student or have each student take one to two turns at a time. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	two distractors. **What is the [first] step in the community water treatment?** Give students time to respond. Assist students as needed with reading the description on each Picture Card. Repeat the procedure until all the Picture Cards are identified and in the correct place on the worksheet. Then have students glue the Picture Cards in place. Collect data using System of Least Prompts (Individual or Group) Data Sheet.	**on the diagram to show the steps of community water treatment.** Assist students as needed. Check students' work, and then have them glue the Picture Cards in place. Collect data using System of Least Prompts (Individual or Group) Data Sheet.
PROMPTING AND ERROR CORRECTION	Verbal prompt: **Point to the [first] step of community water treatment.** Model prompt: Point to the correct response. **Watch me. The [first] step is to [add chemicals to the water. This makes dust and dirt particles clump together.] Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response. **The [first] step is to [add chemicals to the water. This makes dust and dirt particles clump together.]**	Verbal prompt: **Find the [first] step of community water treatment.** Model prompt: Point to the information on the computer. **The [first] step is to [add chemicals to the water. This makes dust and dirt particles clump together.] Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response. **The [first] step is to [add chemicals to the water. This makes dust and dirt particles clump together.]**	Verbal prompt: **Find the [first] step of community water treatment.** Model prompt: Point to the information on the computer. **The [first] step is to [add chemicals to the water. This makes dust and dirt particles clump together.] Your turn.** Physical prompt: Use hand-over-hand assistance to help the student point to the correct response. **The [first] step is to [add chemicals to the water. This makes dust and dirt particles clump together.]**
REINFORCE	**Great! You did research to learn about a process that scientists use to help people in the community. You showed the steps of community water treatment.**	**Great! You did research to learn about a process that scientists use to help people in the community. You showed the steps of community water treatment.**	**Great! You did research to learn about a process that scientists use to help people in the community. You showed the steps of community water treatment.**

Generalization and Extension Activities

To provide your students with extended practice and to help them generalize learned skills, complete the following activities at times that work with your schedule.

ACTIVITY	DESCRIPTION
Acids and Bases Poster	Have students find images in magazines or online of common acids and bases. Have them cut out the pictures and glue them to poster board in two groups: Acids and Bases.
Sand and Iron	Demonstrate another way to separate a mixture. Prepare a mixture of sand and iron filings. Ask students to brainstorm ways to separate the sand from the iron filings. Discuss that iron filings are attracted to a magnet. Then use a magnet to pull out the iron filings.
Warning!	Have students use a book or the computer to research one hazardous acid or base. Then have them create a warning label for the substance that includes a visual warning and a written warning. The written warning should describe the hazards associated with the substance.
Heterogeneous and Homogeneous Mixtures	Have students use a book or the computer to research the terms heterogeneous and homogeneous mixtures. Have them summarize what they learn using a graphic organizer. Students should use the graphic organizer to describes and gives examples of each type of mixture.
How Do We Separate?	Give groups of students a mixture of dried rice and beans. The rice should be visibly smaller in size than the beans. Have groups brainstorm ways to separate the mixture. Come together as a class and ask students to share their ideas. Point out that separating the mixture by hand would take too long. If possible, provide groups with a sieve that will allow the rice to pass through but not the beans. If sieves are not available, show a picture of one and explain how it works. For students who are able, ask them how they might separate a mixture of salt dissolved in water. See if they can come up with the idea to heat the mixture. The water will evaporate, and the salt will be left behind.