Unit 1

Chemical Reactions and Matter:

How can we make something new that was not there before?

Student Work Pages

GRADE 7 Core Knowledge Science®

Core Knowledge®

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How can we make something new that was not there before?

Student Work Pages

Core Knowledge Science

Core Knowledge®

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Chemical Reactions and Matter

How can we make something new that was not there before?

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Science Classroom Norms

Classroom Norms	
Respectful Our classroom is a safe space to share.	• We provide each other with support and encouragement. • We share our time to talk. We do this by giving others time to think and share. • We critique the *ideas* we are working with but not the *people* we are working with.
Equitable Everyone's participation and ideas are valuable.	• We monitor our own time spent talking. • We encourage others' voices who we have not heard from yet. • We recognize and value that people think, share, and represent their ideas in different ways.
Committed to our community We learn together.	• We come prepared to work toward a common goal. • We share our own thinking to help us all learn. • We listen carefully and ask questions to help us understand everyone's ideas. • We speak clearly and loud enough so everyone can hear.
Moving our science thinking forward We work together to figure things out.	• We use and build on others' ideas. • We use evidence to support our ideas, ask for evidence from others, and suggest ways to get additional evidence. • We are open to changing our minds. • We challenge ourselves to think in new ways.

Name: _____ Date: _____

Initial Model-based Explanation

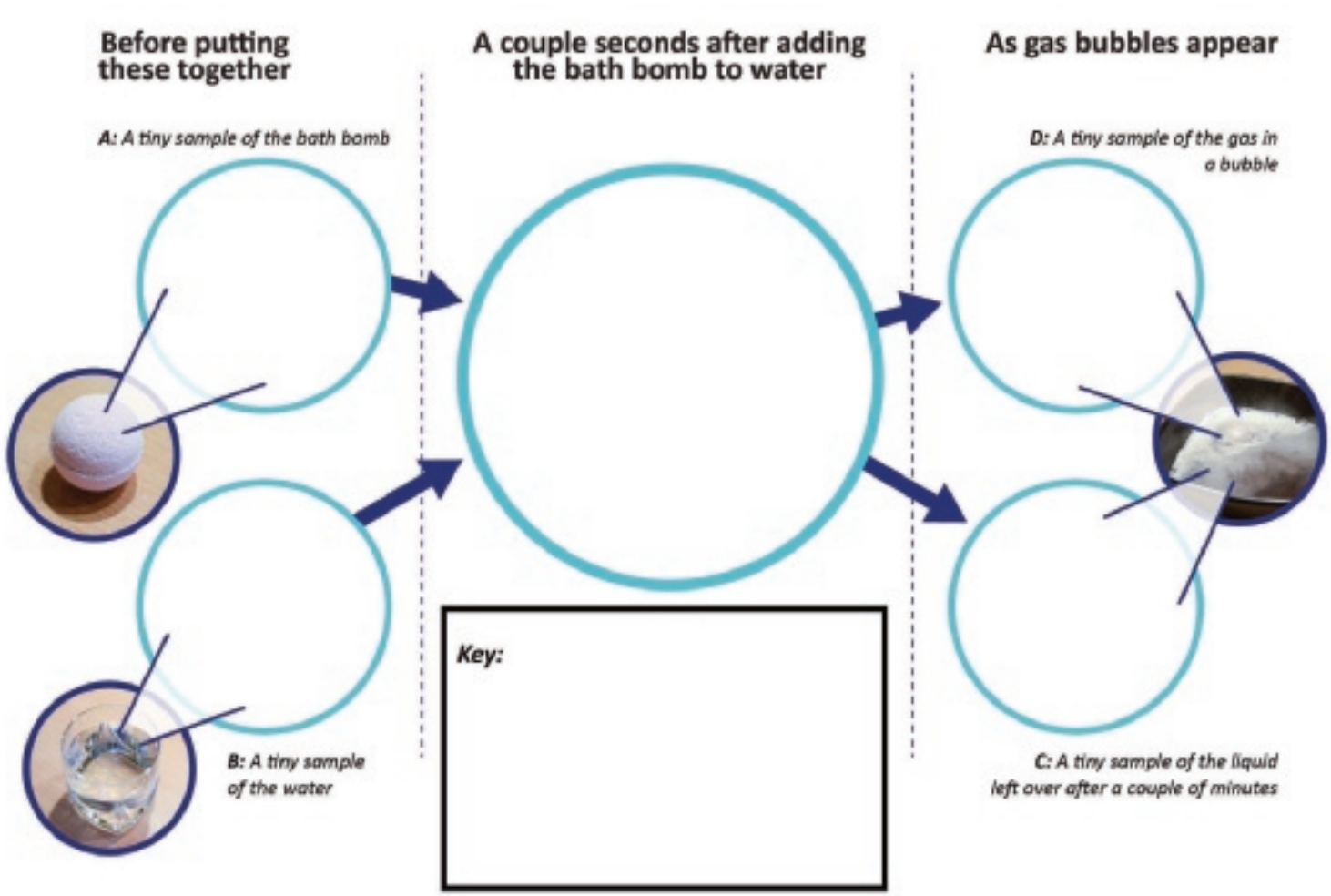
Part 1:

Develop a model showing how the matter in the system (at locations A-D) compare, at a scale smaller than you can see. Use the large circle in the middle to show what you think was happening to this matter that can help explain:

What happened to the solid bath bomb?

And

What caused the gas bubbles to appear?



Part 2:

Now use your model to explain:

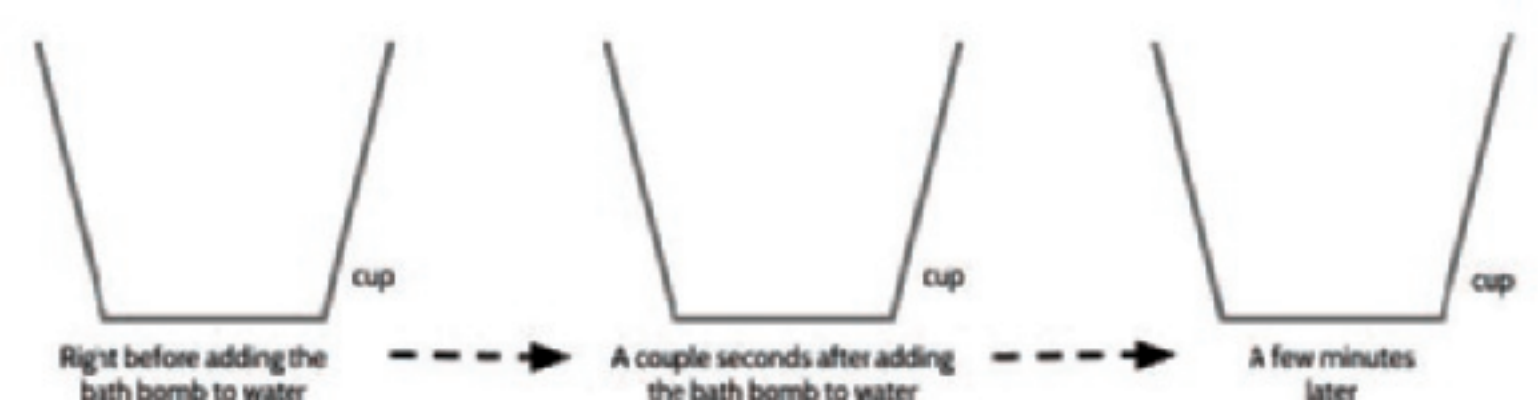
a. What happened to the solid bath bomb?

b. What caused the gas bubbles to appear?

Name: _____ Date: _____

What happens to a bath bomb when put in water

Show what you saw happened to the solid bath bomb ***and*** where the gas bubbles appeared in the system. Use *pictures, symbols,* and *words to* represent this.



Bath Bomb Ingredient Data

Ingredient	Scientific name	Melting point (in °C)	State of matter at room temperature, which is: _____			
Water	Water	**0**				
Sugar	Sucrose (one type of sugar)	**160**				
Citric acid	Citric acid	**153**				
Table salt	Sodium chloride (sodium on nutrition labels)	**801**				
Epsom salt	Magnesium sulfate	**1124**				
Baking soda	Sodium hydrogen carbonate (sodium bicarbonate)	**50**				
Corn starch	Amylum	**256-258**				
Olive oil	Monounsaturated fat (or oleic acid)	**–6**				
Coconut oil	Fully saturated fat (or lauric acid)	**25**				
Sugary powder lemonade mix	- - -	- - -				
Sugar-free lemonade mix	- - -	- - -				

Bath Bomb Recipes

Store-bought bath bomb ingredients

INGREDIENTS: SODIUM BICARBONATE, CITRIC ACID, SODIUM CHLORIDE (SEA SALT), SUCROSE, MAGNESIUM SULFATE (EPSOM SALT), GLYCINE SOJA (SOYBEAN) OIL, FRAGRANCE (PARFUM), SIMMONDSIA CHINENSIS (JOJOBA) SEED OIL, PRUNUS AMYGDALUS DULCIS (SWEET ALMOND) OIL, SESAMUM INDICUM (SESAME) SEED OIL, MACADAMIA TERNIFOLIA (MACADAMIA NUT) SEED OIL, HELIANTHUS ANNUUS (SUNFLOWER) SEED OIL, HAMAMELIS VIRGINIANA (WITCH HAZEL), ALCOHOL, RED 28 (CI 45410), BLUE 1 (42090), YELLOW 5 (CI 19140), WATER (AQUA, EAU).

Homemade bath bomb recipes

Recipe A	Recipe B	Recipe C	Recipe D
⅓ c baking soda	⅙ c Epsom salts	½ c baking soda	⅙ c non-sugar-free lemonade mix
⅙ c sugar-free lemonade mix	⅓ c baking soda	¼ c citric acid	⅙ c Epsom salts
⅙ c Epsom salts	⅙ c citric acid	⅛ c coconut oil	⅓ c baking soda
1 T cornstarch	1 t olive oil	1 t table salt	⅓ t water
1 t olive oil	⅓ t water	1 t sugar	1 t olive oil
⅓ t water			

✂----------

Store-bought bath bomb ingredients

INGREDIENTS: SODIUM BICARBONATE, CITRIC ACID, SODIUM CHLORIDE (SEA SALT), SUCROSE, MAGNESIUM SULFATE (EPSOM SALT), GLYCINE SOJA (SOYBEAN) OIL, FRAGRANCE (PARFUM), SIMMONDSIA CHINENSIS (JOJOBA) SEED OIL, PRUNUS AMYGDALUS DULCIS (SWEET ALMOND) OIL, SESAMUM INDICUM (SESAME) SEED OIL, MACADAMIA TERNIFOLIA (MACADAMIA NUT) SEED OIL, HELIANTHUS ANNUUS (SUNFLOWER) SEED OIL, HAMAMELIS VIRGINIANA (WITCH HAZEL), ALCOHOL, RED 28 (CI 45410), BLUE 1 (42090), YELLOW 5 (CI 19140), WATER (AQUA, EAU).

Homemade bath bomb recipes

Recipe A	Recipe B	Recipe C	Recipe D
⅓ c baking soda	⅙ c Epsom salts	½ c baking soda	⅙ c non-sugar-free lemonade mix
⅙ c sugar-free lemonade mix	⅓ c baking soda	¼ c citric acid	⅙ c Epsom salts
⅙ c Epsom salts	⅙ c citric acid	⅛ c coconut oil	⅓ c baking soda
1 T cornstarch	1 t olive oil	1 t table salt	⅓ t water
1 t olive oil	⅓ t water	1 t sugar	1 t olive oil
⅓ t water			

Combinations of Ingredients to Test

Ingredients		A	B	C	D	E	F	G	H	I	J	Team
		Coconut oil	Olive oil	Baking soda	Epsom salt	Table salt	Sugar-free lemonade mix	Citric acid	Sugar-based lemonade mix	Sugar	Corn starch	
A	Coconut oil											1
B	Olive oil											2
C	Baking soda											3
D	Epsom salt											4
E	Table salt											5
F	Sugar-free lemonade mix											6
G	Citric acid											7
H	Sugar-based lemonade mix											8
I	Sugar											9
J	Corn starch											10

1	2	3	4	5	6
7	8	9	10	11	12

Name: _____ Date: _____

Alternate: My Predictive Explanations for the Gas from a Bath Bomb

Instructions: Use the slide your teacher displays and *Some Common Gases* to help you complete the two statements below. These statements are your predictive explanations for the results of testing the gas from a bath bomb. Once you complete the statements, attach them to a clean page in your notebook.

1. If the gas from the bath bomb puts out a flame **above it**, that means it is **more / less** *(circle one)* dense than the room air (**1.160 g/L**).

I know this because. . . _____

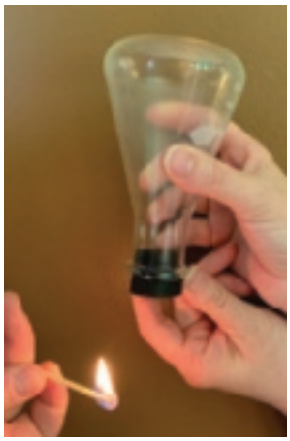
_____

_____

_____

_____

The gas could be *(circle all possible ones)* **nitrogen, argon, carbon dioxide, neon, helium, hydrogen, air.**



2. If the gas from the bath bomb puts out a flame **below it,** that means it is **more / less** *(circle one)* dense than the room air **(1.160 g/L)**.

I know this because. . . _____

_____

_____

_____

_____

The gas could be *(circle all possible ones)* **nitrogen, argon, carbon dioxide, neon, helium, hydrogen, air.**

Name: _____ Date: _____

Discussion Protocol: Density and Flammability

Use your predictive explanations on the handout *My Predictive Explanations for the Gas from a Bath Bomb,* the data table on *Some Common Gases,* and the results from your test on the gas from a bath bomb as you follow this protocol.

1. Sit with your small group in a circle.
2. Decide who will be the first to share.
3. Follow this protocol until everyone has had a chance to share.

If you are the one sharing. . .	If you are not sharing. . .
A. Share a claim about • one gas that could be coming from the bath bomb - or - • one gas that could not be coming from the bath bomb. Choose a gas that has not been named.	A. Listen to your classmate share. Find the gas they mention on *Some Common Gases* and think about if you agree or disagree with their claim.
B. Use evidence from *Some Common Gases* and your investigations on density and flammability to support your claim. Include reasoning that uses key model idea(s).	B. Give your classmate feedback by • snapping your fingers when you hear evidence. • lightly tapping your feet when you hear use of a key model idea.
C. Ask your classmates if they agree or disagree with your claim. If some disagree, ask them to explain why.	C. Respond to your classmate as he/she asks if you agree or disagree. If you disagree with the claim, share why you disagree.
D. Come to a consensus about your claim with your classmates.	D. Offer your ideas, evidence, and reasoning as you build consensus with your group.
E. The next student to the left should follow the protocol in this column, making a claim about a different gas. Repeat steps A–E until all have shared a claim.	E. Follow the protocol in this column if you are not sharing.

Name: _____ Date: _____

My Predictive Explanations for the Gas from a Bath Bomb

Instructions: Use the slide your teacher displays and *Some Common Gases* to help you complete the two statements below. These statements are your predictive explanations for what you will learn from testing the gas from a bath bomb. Once you complete the statements, attach them to a clean page in your notebook.

1. If the gas from the bath bomb puts out a flame **above it**, that means it is _____ dense than the room air, which has a known value of _____.

I know this because. . .

_____

_____

_____

If evidence supports this prediction, it tells me that the gas from a bath bomb could be

_____

2. If the gas from the bath bomb puts out a flame **below it,** that means it is _____ dense than the room air, which has a known value of _____.

I know this because. . .

_____

_____

_____

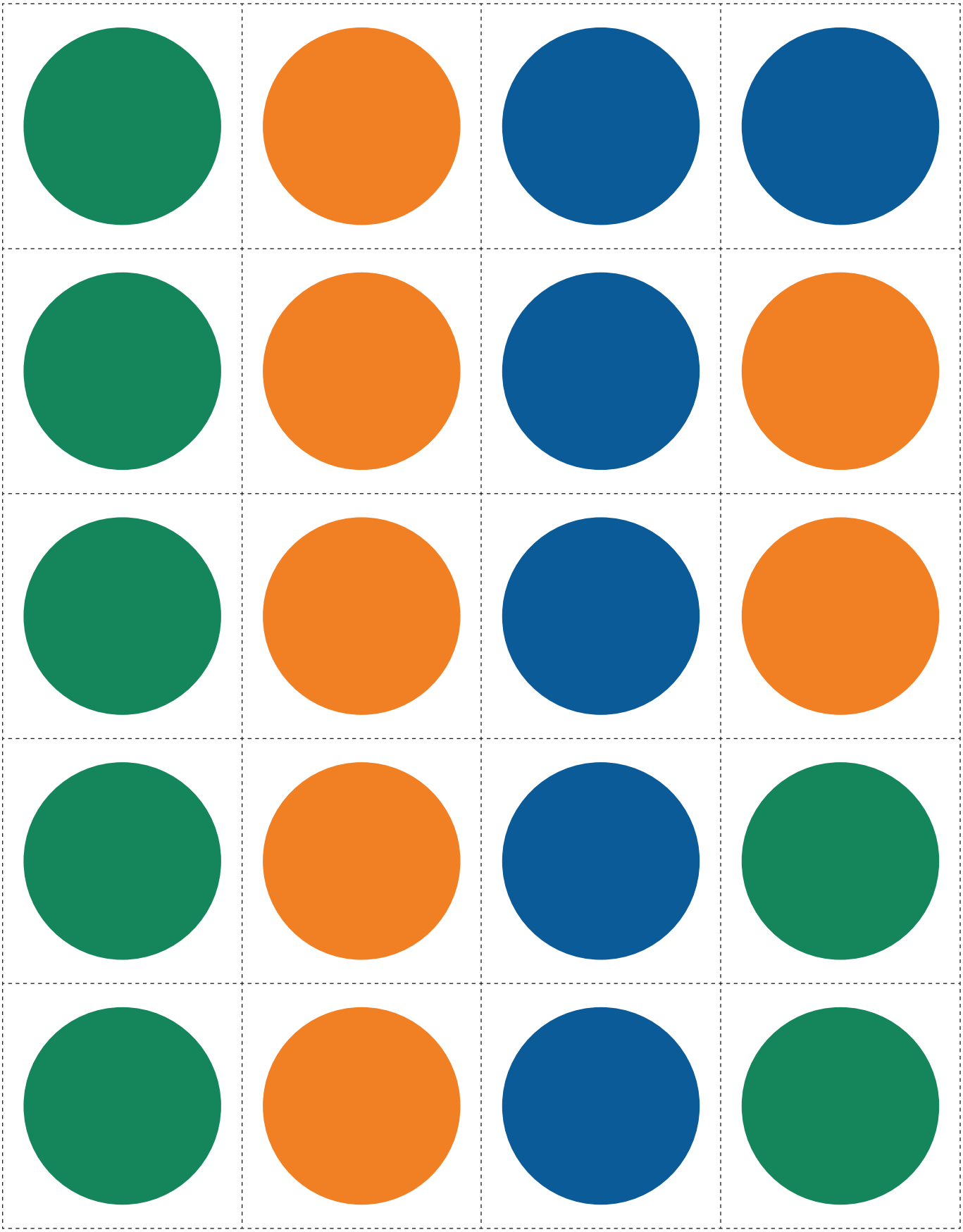
If evidence supports this prediction, it tells me that the gas from a bath bomb could be

_____

Some Common Gases

All data reported is for measurements at sea level elevation and at 15°C					
Substances in rows A-I *(row J is a mixture)*		***Approximate % of this gas in the air outside***	***Boiling point (in °C)***	***Density (g/L) measured at 0°C***	***Flammability*** *Notes on how the gas interacts with flame*
A	**nitrogen**	78%	–196	1.250	Will extinguish a flame.
B	**oxygen**	21%	–183	1.430	Will increase a flame or cause a glowing ember to burst into flame.
C	**argon**	~1%	–186	1.780	Will extinguish a flame.
D	**carbon dioxide**	~0.04%	N/A Changes straight from solid to gas with no liquid phase. This occurs at –78.4	1.960	Will extinguish a flame.
E	**neon**	~0.0018%	–246	0.900	Will extinguish a flame.
F	**helium**	~0.0005%*	–268	0.179	Will extinguish a flame.
G	**methane** (natural gas)	~0.0002%*	–161.5	0.714	Will increase a flame. Can create an explosion.
H	**hydrogen**	0.0001%	–252	0.090	Will increase a flame. Can create an explosion.
I	**propane**	<0.0001%	–42	2.000	Will increase a flame. Can create an explosion.
J	**Air**	*N/A*	*N/A (mixture)*	~1.160	Can maintain an open flame.

Circles as Particles



Density Calculations of Clear Liquids

Imagine a group of students measured 10.0 mL of a clear liquid and found that it had a mass of 8.0 g.

1. **Predictions:** What do you predict the mass would be if they doubled the volume of the liquid they measured (to 20.0 mL)?

What do you predict the mass would be if they halved the volume of the liquid they measured (to 5.0 mL)?

---

2. Data table:

	A. Initial mass of the empty graduated cylinder (in g)	**B. Mass of the graduated cylinder and liquid** (in g)	**C. Mass of the liquid (A-B)** (in g)	**D. Volume of the liquid** (in mL)	**E. Density in grams per mL** (g/mL)
1st known substance Water					
2nd known substance					

3. Calculations of average densities:

Substance	**Average density in grams per mL** (g/mL)
Water	
Glycerin	
Rubbing Alcohol	
Unknown clear liquid from gas collected from the heated water	

Name: _____ Date: _____

Evaluating and Improving Alternate Arguments

Part 1 Another class came to conclusions similar to the conclusions reached by our class. Below are two arguments written by students.

- ***Student #1:*** *The gas in the bubbles is made of water particles. This is because of its properties. Properties help prove whether two substances are the same or different.*
- ***Student #2:*** *If a sample of something is made of the same particles as another substance then it has the same properties. This is how we know the gas in the bubbles is made of water particles.*

Part 2 CLAIM: The gas in the bubbles is made of water particles.

Let us now figure out how to create a stronger argument for this claim.

What evidence from our data and observations helps support this claim?	What key model ideas could be used to support our claim?

Part 3 Simply listing evidence and key model ideas is not sufficient to make a scientific explanation. We need to help others understand why we chose to include each piece of evidence and each key model idea. Try to do this now by describing why you decided to include the evidence and key model ideas you selected. How do the things you want to include in our argument help make the case that the bubbles are filled with water particles? Write your response on a separate sheet of paper.

Representing Dalton's Atoms in Different Molecular Models of Water

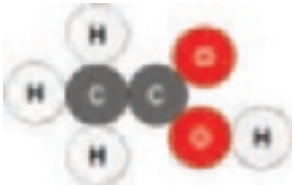
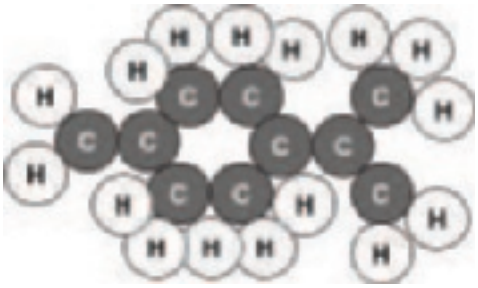
Key to Some of Dalton's Initial Atoms

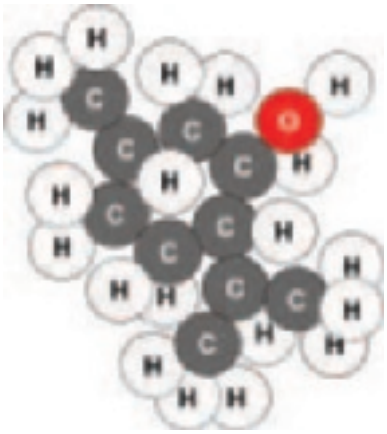
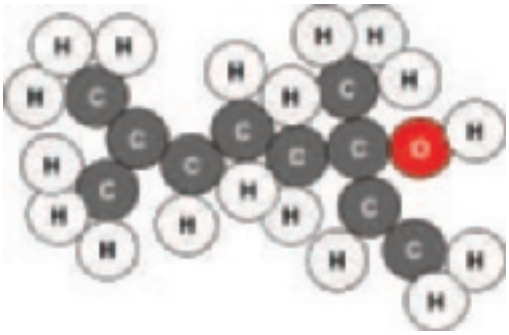
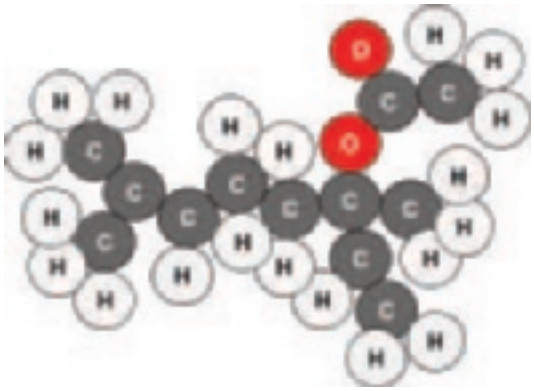
- Hydrogen
- Nitrogen
- Carbon
- Oxygen
- Sulphur

Particle model	Particle(s) in the starting substance (water)	What happens to the particle(s) when energy is added from a battery	Particle(s) in the new substances that are produced
#1	 one molecule of water		
#2			
#3			

Molecular Models of Different Substances

Atom symbol	Atom Name
	Hydrogen
	Carbon
	Oxygen

Substance	Molecular formula	2-D model
Vinegar (Acetic Acid)	CH_3COOH	
Limonene (right-handed)	$C_{10}H_{16}$	
Vanillin	$C_8H_8O_3$	

Substance	Molecular formula	2-D model
Menthol	$C_{10}H_{20}O$	
Linalool [*One of two substances that make up lavender, which is a mixture*]	$C_{10}H_{18}O$	
Linalyl acetate [*One of two substances that make up lavender, which is a mixture*]	$C_{12}H_{20}O_2$	

Odor Lab

Substance	What you notice when you waft: What does it smell like? What does it remind you of?	What do you notice about the related molecular model(s)?

Name: _____ Date: _____

Science Literacy Exercise Page 1 Use with Reading Collection 1

Roadmap for Reading

This week's reading collection focuses on how we observe a variety of substances around us and in nature. The examples include substances that play a role in both natural and human-designed systems.

"Collection 1: Noticing the Chemical World" consists of four selections.

1 Variety of Bubbles
2 Sensing States of Matter
3 Chemicals in Nature
4 Chemicals: Matter and Energy in Systems

As you read:

- Consider the general purpose of each selection: is it a description, an explanation, a procedure, or an attempt to persuade?
- Think about whether the selection is about a broad or narrow topic and how that affects your enjoyment when reading it.
- Consider how each reading relates to knowledge you gained in previous years of school.

Written Response

Your writing exercise is to draw a concept map that shows relationships and examples around one of the big ideas of this collection.

- Draw your concept map on a separate sheet of paper; attach this page to the front of it when you turn it in.
- Include the following terms in your map.
    - *matter*
    - *states of matter*
    - *solid*
    - *liquid*
    - *gas*
    - *plasma*
- Add examples to the map from all four reading selections.
- Before you begin, review the criteria in the Evaluation Guidelines that follow to help you clearly understand the expectations of the exercise.

Evaluation Guidelines

Element	1	2	3	Feedback
Content	There is inadequate organization and logic, with two or more science terms missing or used inaccurately.	There is adequate organization and logic, but at least one science term is missing or used inaccurately.	Organization of map is logical and shows understanding that matter exists in four states, using all the science vocabulary accurately.	
Supporting details	One or more states of matter do not have examples; examples come from only one or two of the readings.	There are one or two accurate examples for each state of matter; examples come from at least three readings.	There are two or more accurate examples for each state of matter; examples come from all four readings.	
Design	Connections are not clear; color is absent or detracts from the overall design.	Connections are mostly clear; text is somewhat easy to read; color is used but contributes little to the overall design.	Connections are clearly visible; text is easy to read; color is used effectively.	
Grammar and mechanics	Four or more errors in grammar or spelling	Two or three errors in grammar or spelling	One or no errors in grammar or spelling	

Additional Feedback Notes:

Name: _____ Date: _____

Roadmap for Reading

This week's reading collection focuses on how substances are classified by their properties and some interesting properties of water and foods. One of the selections is likely to convince you that all budding chefs need to understand the chemical properties of their ingredients and a lot about chemical reactions.

"Collection 2: Chemistry Concepts" consists of three selections.

1 The Periodic Table
2 A Closer Look at Water
3 Kitchen Chemistry

As you read:

- Consider the general purpose of each part: is it a description, an explanation, a procedure, or an attempt to persuade?
- Think about how the graph and tables support the narrative text and how narrative text clarifies the graph and tables.
- Reflect on how each reading relates properties of substances to how people use or interact with them.

Written Response

Your writing exercise is to complete an outline that summarizes the readings in Collection 2 and emphasizes stability and change related to matter.

- Write directly onto the reverse side of this sheet, or copy the contents there onto a separate sheet of paper and attach this page to the front of it when you turn it in.
- Fill in the missing information in the outline by writing short, complete sentences.
- Write main ideas at the upper levels of the outline and supporting details at the lower levels.
- Use wording that suggests how systems either stay the same or change.
- Make sure you have addressed all three selections in the collection.
- Check your grammar, punctuation, and spelling.

Science Literacy Exercise Page 2, Continued

I. The periodic table organizes elements.
   A. Elements are organized by their properties.
      1.
      2.
   B. Elements with certain properties can be useful.
      1.
      2.

II. Take a close look at water.
   A. Kinetic energy and state change are connected.
   B.
      1. Coastal lands have more moderate climate than other places.
      2. The ocean keeps planet Earth cooler than it would be without an ocean.
   C.

III.
   A. Water is a solvent.
      1.
      2.
   B. Eggs are mostly proteins, which affects how they are used.
      1.
      2.
   C. Emulsions are mixtures of liquids that are stable.
   D.
   E.
      1. Bacteria separate the liquids from the solids.
      2.
      3.
      4.
   F. Acids "cook" food proteins.
   G.
   H.

Name: _____ Date: _____

Roadmap for Reading

This week's reading collection focuses on the movement of matter at large and small scales. The first two readings are about large-scale systems wherein moving matter sometimes involves chemical change and sometimes not. The last two readings involve chemical reactions that rearrange and move matter at the scale of atoms and molecules.

"Collection 3: Matter from One Place to Another" consists of four selections.

1 Science Fair Project: Modeling a Convection Current
2 Matter on the Move
3 The Smokeless O_2 Stove
4 Everyday Reactions

As you read:

- Consider the general purpose of each part: is it a description, an explanation, a procedure, or an attempt to persuade?
- Consider how images, diagrams, and graphs support the narrative text and how narrative text clarifies the images, diagrams, and graphs.
- Consider how each part of the collection relates to knowledge you gained from the previous part.

Written Response

- Your writing exercise is to develop a script for a one-minute educational video that describes matter on the move. Your target audience is fifth graders visiting websites approved for kids under age 13.
- Compose your script on a separate sheet of paper; attach this page to the front of it when you turn it in.
- Copy the template shown for your script.
- Limit the dialogue to 150 words for a one-minute video.
- Write the words the characters or narrator will speak in the left column. Write the name of each character and a colon. Then write the words they will speak.
- Use the right column to describe what the audience will see. Start a new row each time the scene changes or you want the speaking to pause.
- Before you begin, review the criteria in the Evaluation Guidelines that follow to help you clearly understand the expectations of the exercise.

Audio—dialogue and sound effects	Visuals—live video action or animation, photos, graphics

Evaluation Guidelines

Element	1	2	3	Feedback
Content	Inadequate introduction to the topic with examples that are incorrect or missing	Adequately introduces the idea of matter moving at different scales; describes one example of matter moves in a large-scale Earth system or one example in a small-scale chemical reaction	Introduces the idea of matter moving at different scales; describes one example of matter moves in a large-scale Earth system; describes one example in a small-scale chemical reaction	
Creativity	Dialogue, sound effects, and visuals are not suitable for fifth graders.	Dialogue and sound effects are somewhat appropriate for fifth graders; visuals may be confusing or unappealing to fifth graders.	Dialogue and sound effects will grab fifth graders' attention using elements of surprise or humor; visuals are attractive and appealing to fifth graders.	
Dialogue and stage directions	It is difficult to distinguish dialogue by character, and stage directions are not included.	Dialogue is too short or too long but is identified by character; there are no stage directions, or stage directions are not in parentheses.	The dialogue is close to 150 words and identified clearly by character, including any narrator; stage directions are in parentheses.	
Grammar and mechanics	Six or more errors in punctuation, capitalization, and spelling	Three to five errors in punctuation, capitalization, and spelling	Fewer than three errors in punctuation, capitalization, and spelling	

Additional Feedback Notes:

Name: _____ Date: _____

Roadmap for Reading

This week's reading collection focuses on atoms and ways they combine. The selections include a blog, an online ad, magazine articles, a timeline, and an infographic. Despite atoms being too small to observe directly, scientists have been able to discover much about them.

"Collection 4: Combinations of Atoms" consists of four selections.

1 Electrolytes and Sports
2 Potable Water in a Pinch
3 Atomic Theory
4 Modeling Molecules

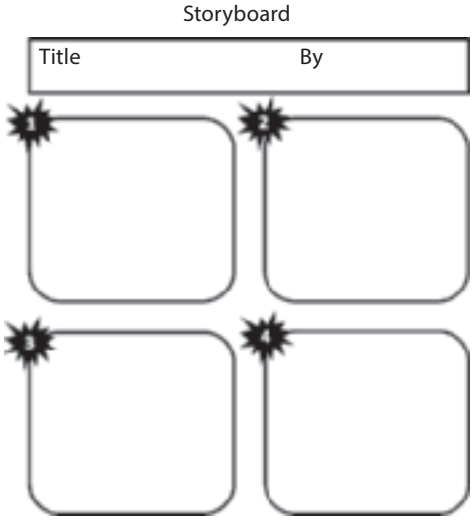
As you read:

- Consider the general purpose of each part: is it a description, an explanation, a procedure, or an attempt to persuade?
- Consider how the graphics support the narrative text and how narrative text clarifies the graphics.
- Consider how what you have discussed about particles of matter in your investigations prepares you to interpret what you are reading.

Written Response

Your writing exercise is to develop a four-panel storyboard that could be used to plan a short skit about atoms and their combinations.

- Copy the storyboard template shown on a separate sheet of paper; attach this page to the front of it when you turn it in.
- The topic of your skit will be "Atoms May Be Invisible, but They Rock!"
- Decide who your characters are.
- Sketch a scene in each panel. Add text to explain the action and word balloons for dialogue.
- Make sure the dialogue is in your own words.
- Use each panel to share something interesting that you learned from this collection.
- Before you begin, review the criteria in the Evaluation Guidelines that follow to help you clearly understand the expectations of the exercise.



Evaluation Guidelines

Element	1	2	3	Feedback
Content	Most of the science comes from only one reading or is not about atoms.	The focus of the science is concepts about atoms from at least two readings.	The focus of the science is concepts about atoms from three or more readings.	
Characters, dialogue, and scenes	Characters and scene locations are unclear without asking lots of questions. Dialogue is not in the student's own words.	Characters are identified; dialogue is understandable and in the student's own words; but scene locations and action are unclear.	Characters are clearly identified; dialogue is easy to understand and in the student's own words; scene locations and action are clear.	
Use of template and neatness	The template was not used as a guide, so several elements are missing. Overall, the drawings and lettering are messy.	Either the title, byline, or one of the panels is incomplete. The drawings and lettering are hard to read in places.	Title, byline, and four panels are complete; drawings and lettering are attractive and easy to read.	
Grammar and mechanics	Four or more errors in punctuation, capitalization, and spelling	Two or three errors in punctuation, capitalization, and spelling	One or no errors in punctuation, capitalization, and spelling	

Additional Feedback Notes:

Name: _____ Date: _____

Science Literacy Exercise Page 5 Use with Reading Collection 5

Roadmap for Reading

This week's reading collection focuses on using your understanding of molecules to describe chemical reactions, to explain the sense of smell, and to identify where energy is stored in Earth systems. Several selections require you to think about systems and conservation of matter and energy.

"Collection 5: Signs of Chemical Reactions" consists of four selections.

1 Ways That Atoms Recombine
2 Spotting Chemical Reactions
3 Detecting Odor
4 Carbon in a Cycle

As you read:

- Consider the general purpose of each part: is it a description, an explanation, a procedure, or an attempt to persuade?
- Think about how the vocabulary introduced in Selection 1 is important for understanding the rest of the collection.
- Preview headings, images, and diagrams to anticipate the central ideas of each selection.

Written Response

Your writing exercise is to complete a thoughtful paragraph that reflects on the following idea, attributed to Antoine-Laurent Lavoisier.

"Nothing is lost, nothing is created, everything is transformed."

Lavoisier (1743–1794) was a French scientist who, with the collaboration of his wife Marie-Anne Paulze Lavoisier, insisted that scientific ideas about matter had to be supported with evidence from experiments.

- Compose your well-constructed paragraph on a separate sheet of paper; attach this page to the front of it when you turn it in.
- Include a topic sentence that explains what you think Lavoisier meant, scientifically speaking.
- Then add well-chosen facts as supporting details from
  - one or more readings in this collection,
  - one of your investigations in science class,
  - and an observation you have made outside of school.
- Finally, write a concluding statement that supports your interpretation of the paraphrased idea.
- Before you begin, review the criteria in the Evaluation Guidelines that follow to help you clearly understand the expectations of the exercise.

Evaluation Guidelines

Element	1	2	3	Feedback
Content	There is inadequate scientific response to the quotation; concluding sentence is missing or unclear.	There is adequate scientific interpretation of the quotation in the topic sentence; conclusion reiterates the topic sentence, rather than "adding value."	Topic sentence is a strong scientific interpretation of the quotation related to the content of this unit; the conclusion supports the argument made in the topic sentence.	
Supporting sentences (details)	Incomplete sentences, or details irrelevant to the paragraph topic	Complete sentences, but too few, lacking in support from all three areas	At least three complete sentences with relevant details from the readings, investigations, and everyday life	
Organization and transitions	Statements with little clear relationship to the topic sentence or each other	Key supporting details present, but absent or choppy transitions	Ideas in an order that helps the topic make increasingly more sense	
Grammar and mechanics	Six or more errors in punctuation, capitalization, and spelling	Three to five errors in punctuation, capitalization, and spelling	Fewer than three errors in punctuation, capitalization, and spelling	

Additional Feedback Notes:

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