

# Louisiana Believes

## Distance Learning Support for OpenSciEd Grade 7 Unit 7.1 Chemical Reactions and Matter

This resource is designed to support teachers in implementing distance learning for OpenSciEd Unit 7.1, Unit 3 on the [Louisiana Guide for Piloting OpenSciEd Grade 7](#). It is intended as a supporting document and should be used in conjunction with the [OpenSciEd Unit 7.1 Instructional Resources](#). The resources contained in this document have been adapted from [OpenSciEd](#) with permission under [Creative Commons 4.0 licensing](#).

The OpenSciEd Remote Learning Resources linked below contain detailed information about adapting specific routines to a remote learning environment and a wide variety of options including those for students who do not have internet access:

- [Fostering Productive Norms](#)
- [Anchor Phenomenon Routine](#)
- [Navigation Routine](#)
- [Supporting Discourse](#)
- [Problematizing Routine](#)

This guidance document is considered a “living” document as we believe that teachers and other educators will find ways to improve the document as they use it. Please send feedback to [STEM@la.gov](mailto:STEM@la.gov) so that we may use your input when updating this guide.

Updated September 9, 2020



Norming Language	
Term	Description
Virtual Class Pre-Work	Assignments that students should do prior to virtual class meetings in order to be prepared to engage in discussions, there may be multiple assignments throughout a given lesson
Virtual Class Post-Work	Assignments designed for students to apply learning from virtual class meetings, there may be multiple assignments throughout a given lesson
Virtual Class	Live sessions with students through any digital conferencing platform, teachers may choose to allow students without internet to call in during these sessions and record virtual class sessions to share with those who cannot join
Thinking Deeper Documents	Progress trackers for students to use throughout each lesson to record and revise their thinking about science concepts related to the phenomenon; contain assignments for students to complete before, during, and after virtual classes, discussion boards, and home investigations
Lesson Slideshows	Lesson progression specific to each lesson used to guide student work; used during pre-work, post-work, virtual classes, home investigations, and discussion boards; can be shared with students in their entirety at the beginning of the lesson or broken into small portions and shared as needed
Discussion Boards	Assignments designed for students to share ideas and engage in discussion with one another over time rather than a live environment; students will use their Thinking Deeper Documents to brainstorm prior to submitting; teachers may choose to allow students without internet to text in responses and may screenshot/download and share portions of or full discussions via text (ex. through apps like Remind)
Home Investigations	Investigations with readily available materials designed for students to perform at home; teachers may choose to substitute videos or photos of data collection for students who cannot complete investigations at home

## Lesson Set Overview: Lessons 1-4

### Lesson Set 1: Lessons 1-4

Provided Resources Students Will Need	Additional Resources Students Will Need	Additional Materials for Students Without Internet Access
<p><b>Lesson Slideshows for each lesson:</b></p> <p><a href="#">L1</a>, <a href="#">L2</a>, <a href="#">L3</a>, <a href="#">L4</a></p> <p><b>Thinking Deeper Documents for each lesson:</b></p> <p><a href="#">Lesson 1 TDD</a>, <a href="#">Lesson 2 TDD</a>, <a href="#">Lesson 3 TDD</a>, <a href="#">Lesson 4 TDD</a></p> <p><b>Additional Documents:</b></p> <p>Optional: <a href="#">Sample Parent Letter</a> (include relevant safety information from teacher Edition for Home Investigations)</p>	<p><b>Investigation Materials:</b></p> <ul style="list-style-type: none"> <li>Take Home Lab Kits (10-15 homemade bath bombs, pipette, plastic zipper bags, safety goggles, non-latex gloves) - Lessons 1 &amp; 2</li> <li>Bath Bomb ingredients found at home (<i>optional</i>) - Lesson 3</li> </ul> <p><b>Teacher-Created Resources:</b></p> <ul style="list-style-type: none"> <li>Initial Thoughts Discussion Board - Lesson 1</li> <li>Investigation Ideas Discussion Board - Lesson 1</li> <li>Digital Word Wall - Lesson 3</li> <li>Progress Tracker Assignment (<i>optional</i>) - Lesson 3</li> <li>Investigation Ideas Discussion Board - Lesson 4</li> </ul>	<p><b>Prior to Lesson:</b></p> <ul style="list-style-type: none"> <li><a href="#">Bath Bomb video</a> - Lesson 1</li> <li><a href="#">Gas Investigation video</a> - Lesson 2</li> </ul> <p><b>After Lesson Completion:</b></p> <ul style="list-style-type: none"> <li>Discussion Boards- Lesson 1, 2, 4</li> <li>Virtual Class recordings - Lessons 1, 2, 3, 4</li> <li>Digital Word Wall - Lesson 3</li> </ul>
<p><b>Students should ideally join VIRTUAL CLASS on the following days:</b></p> <p style="text-align: center;">Day 2 - Lesson 1                      Day 4 - Lesson 2                      Day 6 - Lesson 3                      Day 7 - Lesson 4</p> <p style="text-align: center;">*Note: Option to convert Lesson 4 to a two-day lesson and have the virtual class meeting on Day 8.</p>		
<p><b>Formative and Summative Assessment Opportunities:</b></p> <p>Lesson 1: Initial Models - Day 1</p> <p>Lesson 2: Evidence-based answer to Lesson Question - Day 2</p> <p>Lesson 3: Progress Tracker - Day 2</p> <p>Lesson 4: Arguing From Evidence</p>		

## Lesson 1 (3 days) - Anchoring Phenomenon

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Initial Thoughts Discussion Board - *teacher made*
- Investigation Ideas Discussion Board - *teacher made*
- Take Home Lab Kits (10-15 homemade bath bombs, pipette, plastic zipper bags, safety goggles, non-latex gloves)

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Bath Bomb video](#)
- Initial Thoughts Discussion Board - *teacher made*
- Investigation Ideas Discussion Board - *teacher made*
- Take Home Lab Kits (10-15 homemade bath bombs, pipette, plastic zipper bags, safety goggles, non-latex gloves)
- Discussion Boards - *after completion*
- Virtual Class recording - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2

## Lesson 1 (3 days) - Anchoring Phenomenon

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (7 min)  INTRODUCING BATH BOMBS & PREPARING FOR STORE BOUGHT BATH BOMB INVESTIGATION  Slides: A	1. Share <a href="#">Lesson Slideshow</a> with students_ 2. Share <a href="#">Thinking Deeper Document</a> with students_ 3. Create DISCUSSION BOARD topic to gather initial thoughts of students about bath bombs.	DISCUSSION BOARD: 1. Respond to DISCUSSION BOARD topic to share what you know about bath bombs.
Part 2 (10 min)  CARRYING OUT OUR STORE BOUGHT BATH BOMB INVESTIGATION  Slides: B, C	1. Share <a href="#">Bath Bomb video</a> for students not able to perform the lab. 2. Remind students about safety regarding investigations - information from the teacher edition for this lesson has been added to the slide, but reference safety information at the beginning of the unit as well prior to assigning any home investigations.	HOME INVESTIGATION: 1. Watch a bath bomb video or place a store bought bath bomb in water and observe. 2. Record observations on Thinking Deeper Document.
Part 3 (10 min)  CARRYING OUT HOMEMADE BATH BOMB INVESTIGATIONS  Slides: D, E	1. Prepare homemade bath bombs and pipette kits to distribute to students for the take home labs.	VIRTUAL CLASS PRE-WORK/HOME INVESTIGATION: 1. Create a list of procedures for conducting homemade bath bomb investigations. 2. Conduct investigations and record results on the Thinking Deeper Document.

<p>Part 4 (18 min)</p> <p>REPORTING PATTERNS IN THE DIFFERENT PHENOMENA AND DEVELOPING INITIAL MODELS AND EXPLANATIONS</p> <p>Slides: F</p>	<ol style="list-style-type: none"> <li>1. Models can be used as a formative assessment.</li> <li>2. Decide how students will submit their models and ensure they have directions for doing so - one suggestion is to have students take screenshots of their models and add them to a shared Google Slideshow for a virtual Gallery Walk</li> </ol>	<p>VIRTUAL CLASS PRE-WORK:</p> <ol style="list-style-type: none"> <li>1. Compare store bought and homemade bath bombs.</li> <li>2. Create a model to represent what is happening at the macro level.</li> <li>3. Develop an initial model using the guide on Thinking Deeper Document.</li> <li>4. Submit models to the teacher.</li> </ol>
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**Day 2**

Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 5-9 (45 min)</p> <p>COMPARING INDIVIDUAL MODELS &amp; DEVELOP SHARED NORMS</p> <p>DEVELOP INITIAL CONSENSUS MODEL FOR THE BATH BOMB PHENOMENA</p> <p>CHOOSE A FOCAL NORM AND RECORD EXPERIENCES WITH RELATED PHENOMENA</p> <p>SHARE RELATED PHENOMENA</p> <p>Slides G-L</p>	<p>Prior to virtual class:</p> <ol style="list-style-type: none"> <li>1. Collect student models and ensure they can be displayed during virtual class.</li> </ol> <p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> <li>1. Compare models and follow discussion protocols. Collect ideas from other models and record on Thinking Deeper Document.</li> <li>2. Develop classroom norms based on your virtual classroom needs.</li> <li>3. Develop Initial Consensus Model together for bath bomb phenomena. (The teacher can use a digital platform or draw on a poster. Ensure that students have access to the model after completion.)</li> <li>4. Reflect on class focal norms on Thinking Deeper Document.</li> <li>5. Students independently record related phenomena on Thinking Deeper Document then share out and discuss with the class.</li> </ol>	

Day 3		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Part 10 (5 min)</p> <p>DEVELOP INITIAL QUESTIONS</p> <p>Slides: M</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Review models of bath bombs.</li> <li>2. Review related phenomenon.</li> <li>3. Brainstorm how and why questions related to the bath bomb phenomena.</li> </ol>
<p>Part 11 (25 min)</p> <p>DEVELOP A DRIVING QUESTION BOARD AND REFLECT ON NORMS</p> <p>Slides: M</p>	<ol style="list-style-type: none"> <li>1. Create and assign the DQB assignment for students to submit questions. (Using a platform like Google Jamboard will allow students shared access to the DQB)</li> <li>2. Review submitted questions and organize the DQB.</li> <li>3. Ensure students have access to the DQB to reference throughout the unit.</li> </ol>	<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Choose one question and post on class DQB.</li> </ol>
<p>Part 12 (10 min)</p> <p>CHOOSE A FOCAL NORM AND DEVELOP INITIAL IDEAS FOR FUTURE INVESTIGATIONS</p> <p>Slides: N</p>	<ol style="list-style-type: none"> <li>1. Create a DISCUSSION BOARD for students to share ideas for investigation.</li> </ol>	<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Review DQB and make a list of future investigations that can be done to answer some of these questions.</li> <li>2. Share your ideas on the DISCUSSION BOARD.</li> <li>3. Read and respond to peer ideas.</li> </ol>
<p>Part 13 (15 min)</p> <p>START PROGRESS TRACKER AND REFLECT ON NORMS</p>	<p><i>Not addressed in distance learning due to progress tracking on Thinking Deeper Documents and no Virtual Class meeting on this day.</i></p>	

## Lesson 2 (2 days) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Take Home Lab Kits (10-15 homemade bath bombs, pipette, plastic zipper bags, safety goggles, non-latex gloves)

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- [Gas Investigation video](#)
- Take Home Lab Kits (10-15 homemade bath bombs, pipette, plastic zipper bags, safety goggles, non-latex gloves)
- Discussion Board - *after completion*
- Virtual Class recording - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2



## Lesson 2 (2 days) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (2 min) NAVIGATION: WHERE IS THE GAS COMING FROM? Slides: A	1. Share <a href="#">Lesson Slideshow</a> with students. 2. Share <a href="#">Thinking Deeper Document</a> with students. 3. Ensure students have access to the DQB	VIRTUAL CLASS PRE-WORK: 1. Review DQB. 2. Record questions about where the gas is coming from.
Part 2 (20 min) PLAN AND CARRY OUT AN INVESTIGATION OF THE GAS FROM BATH BOMBS Slides: B, C, D	<i>(Slides for actual lab procedures are available in the lesson slides (E-H) if the teacher chooses to schedule an additional virtual lesson to demonstrate investigations or if materials are available to students.)</i> 1. If you are having students perform the investigations, please refer to relevant safety information in the teacher's guide and ensure students have this information..	VIRTUAL CLASS PRE-WORK: 1. Answer reflection questions on Thinking Deeper Document to plan investigation. 2. Recall prior learning about gases. 3. Record predictions for possible outcomes. 4. Watch the <a href="#">Gas Investigation video</a> , record observations, and fill in the data table.
Part 3 (20 min) BUILDING UNDERSTANDING ABOUT THE GAS FROM BATH BOMBS Slides: I	<i>This will be revisited in the virtual class on Day 2.</i>	VIRTUAL CLASS PRE-WORK: 1. Analyze results of investigation by answering questions on Thinking Deeper Document.
Part 4-5 (3 min) NAVIGATION Slides: J		VIRTUAL CLASS PRE-WORK: 1. Answer navigation questions on Thinking Deeper Document.

Day 2		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 6 (5 min) PLAN THE INVESTIGATION Slides: K, L		VIRTUAL CLASS PRE-WORK: 1. Plan the investigation with the crushed bath bomb. (Take home kit)
Part 7 (10 min) CARRY OUT THE INVESTIGATION Slides: M, N	<i>Students may not have a food scale at home to measure mass. They can record their observations on inflation only and the teacher can also do a quick demo at the beginning of the virtual class to demonstrate change in mass.</i>	HOME INVESTIGATION: 1. Follow investigation procedures on the slide. 2. Conduct investigation and record data. 3. Be ready to share results with class during virtual class.
Parts 8-9 (30 min) SCAFFOLDING ARGUMENT: WHERE DOES THE GAS COME FROM? NAVIGATE TO THE NEXT LESSON Slides: O-T	VIRTUAL CLASS: 1. The teacher can do a quick demo of the investigations for students unable to participate with emphasis on the mass measurements since many students will not have a scale at home. 2. Discuss observations from investigations done in pre-work. 3. Discuss claims, evidence, and reasoning and how to argue from evidence or write a scientific explanation. 4. Revisit the lesson question. 5. Students will write an answer to the lesson question in the form of an evidence-based argument. <i>(formative assessment opportunity - the teacher can choose to have students submit these for individual feedback or have students share out and discuss)</i> 6. Revise the lesson question based on new knowledge.	

### Lesson 3 (2 days) - Investigation

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Bath Bomb ingredients found at home - *optional*
- Digital Word Wall - *teacher created*
- *Progress Tracker Assignment - teacher created, optional*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Bath Bomb ingredients found at home - *optional*
- Digital Word Wall - *teacher created, after completion*
- *Progress Tracker Assignment - teacher created, optional*
- Virtual Class recording - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 2

### Lesson 3 (2 days) - Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 1 (5 min) NAVIGATION: WHAT'S IN A BATH BOMB? Slides: A	1. Share <a href="#">Lesson Slideshow</a> with students. 2. Share <a href="#">Thinking Deeper Document</a> with students.	VIRTUAL CLASS PRE-WORK: 1. Answer Navigation questions on the Thinking Deeper Document.
Part 2 (10 min) OBSERVING BATH BOMB INGREDIENTS Slides: B, C		VIRTUAL CLASS PRE-WORK: 1. Compare store bought bath bombs ingredients to homemade bath bomb ingredients. 2. Identify patterns in homemade bath bombs. 3. Answer reflection questions.
Part 3 (20 min) OBSERVING THE INGREDIENTS IN BATH BOMBS Slides: D, E	<i>The word wall component should be conducted during the virtual lesson on Day 2.</i> <i>Teachers can choose to have students explore samples found at home and/or conduct online research. Prepare to show students samples during the virtual lesson on Day 2 as well.</i> <i>(NOTE: If you are having students explore at home, review and relay any relevant safety information from the teacher edition.)</i>	VIRTUAL CLASS PRE-WORK: 1. Make observations of any of the ingredients that you can find at home or conduct research on individual ingredients.
Part 4 (5 min) NAVIGATION Slides: F		VIRTUAL CLASS PRE-WORK: 1. Respond to the reflection question on Thinking Deeper Document.

Day 2		
Lesson Components	Distance Learning Plan	
	Teacher	Student
<p>Parts 5-7 (35 min)</p> <p>NAVIGATION</p> <p>TESTING ONE INGREDIENT IN BATH BOMBS</p> <p>INTERPRETING OUR DATA</p> <p>Slides: G-L</p>	<p>Prior to Virtual Class, the teacher should:</p> <ol style="list-style-type: none"> <li>1. Decide how to create the class “word wall” (<i>Example: Create a digital word wall that is available for students to view. This can be done as a Google slide, Jamboard, etc</i>)</li> <li>2. Decide how students will submit their Progress Trackers following the Virtual Class meeting. (<i>They can submit their TDD, but for ease of reviewing and compiling, it may be a good idea to create a separate assignment or have them screenshot that section to submit.</i>)</li> </ol>	<p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> <li>1. Share exit ticket responses and discuss where we should go next.</li> <li>2. Complete word wall strategy to add “property” to the word wall. (Students should refer to section J-L on Thinking Deeper Document to record the information for property.)</li> <li>3. View all of the individual bath bomb ingredients and discuss any observations. (Students can update their chart for the Ingredients Investigation)</li> <li>4. The teacher demonstrates testing each substance with water while students record observations on the Thinking Deeper Document.</li> <li>5. Respond to reflection questions and discuss.</li> <li>6. Enter the state of matter and solubility data on the chart.</li> <li>7. Complete “word wall” chart on Thinking Deeper Document. Give students independent think/recording time on each word and follow up with a discussion. Add new words to the class word wall.</li> </ol>

<p>Part 8 (10 min)</p> <p>ADDING TO OUR PROGRESS TRACKER          Slides: M</p>	<p>1. Create a consensus document from student submissions to make available for students in the next lesson.</p>	<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Record new knowledge on Progress Tracker on Thinking Deeper Document.</li> <li>2. Submit Progress Tracker to teacher.</li> </ol>
<p>Part 9 (5 min)</p> <p>NAVIGATING TO THE NEXT LESSON          Slides: N</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Record new questions and ideas by responding to Exit Ticket questions.</li> </ol>

## Lesson 4 (1 day) - Investigation

*NOTE: This lesson has been condensed from 2 days into 1 day. If needed, the teacher may choose to convert back to a two-day delivery by having students complete post-work from the previous lesson and pre-work for this lesson asynchronously on the first day and conducting the virtual class meeting on the second day.*

In this **Lesson**, students will need the following materials to appropriately engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Investigation Ideas Discussion Board - *teacher made*

In this **Lesson**, students who don't have home internet need the following print-outs or files to best engage in learning:

- [Lesson Slideshow](#)
- [Thinking Deeper Document](#)
- Investigation Ideas Discussion Board - *teacher made*
- Virtual Class recording - *after completion*

In this **Lesson**, students should join virtual classes on the following days to engage in learning:

- Day 1

### Lesson 4 (1 day) - Putting Pieces Together/Investigation

Day 1		
Lesson Components	Distance Learning Plan	
	Teacher	Student
Part 2 (10 min)  ADDING TO OUR PROGRESS TRACKER  Slides: A	1. Share <a href="#">Lesson Slideshow</a> with students. 2. Share <a href="#">Thinking Deeper Document</a> with students. 1. Share teacher-created consensus document from Progress Tracker submissions. (Follow up in the Virtual Class meeting.)	VIRTUAL CLASS PRE-WORK: 1. Add new ideas from peers to progress tracker. Be sure to add evidence to support these ideas.
Part 3 (5 min)  NAVIGATION  Slides: B	1. Create a DISCUSSION BOARD topic for students to discuss ideas.	DISCUSSION BOARD: 1. Share ideas about what our next investigation should be on the DISCUSSION BOARD.
Parts 1, 5 (5-10 min)  NORMS	<i>Build out as needed in the Virtual Class meeting.</i>	



<p>Parts 4, 6-7 (40 min)</p> <p>PLANNING AND CARRYING OUT OUR INVESTIGATION</p> <p>ANALYZING OUR LAB DATA AND NAVIGATION</p> <p>Slides: C-E</p>	<p>VIRTUAL CLASS:</p> <ol style="list-style-type: none"> <li>1. Decide what combinations of ingredients would be most interesting to test.</li> <li>2. Predict the amount of combinations it would take to test them all.</li> <li>3. Discuss additions to progress tracker.</li> <li>4. Refer students to “Combinations of Ingredients to Test” data chart on Thinking Deeper Document.</li> <li>3. Discuss the amount of combinations and why some are shaded. <i>(The shaded cells are either like ingredients or repeated combinations.)</i></li> <li>4. The teacher will conduct combination testing, students will record results. <i>(If it is not possible for a virtual class, the teacher may record these investigations for students to watch on their own. Due to the amount of ingredients needed, it is not advised to send in take home kits.)</i></li> <li>5. Students identify patterns in the data and discuss possible patterns.</li> </ol> <p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Answer navigation questions to explain observations and make predictions.</li> </ol>	
<p>Part 8 (10 min)</p> <p>ARGUING FROM EVIDENCE</p> <p>Slides: F, G</p>		<p>VIRTUAL CLASS POST-WORK:</p> <ol style="list-style-type: none"> <li>1. Analyze lemonade mix ingredients.</li> <li>2. Make claims based on evidence from investigation to support an argument.</li> </ol>