## Enduring Understandings:
- Through observation, properties of substances can be determined.
- Observable properties can be used to classify and identify liquids.

### Essential Questions & Crosscutting Concepts

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<thead>
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<th>Essential Question(s)</th>
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<tr>
<td>- Are seedlings living?</td>
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<td>- What do plants need to grow?</td>
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<td>- What is a liquid?</td>
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<td>- What are properties of different liquids?</td>
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<td>- What happens when you mix liquids?</td>
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<table>
<thead>
<tr>
<th>Crosscutting Concepts</th>
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<tr>
<td>- Patterns</td>
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<tr>
<td>- Cause and effect: Mechanism and explanation</td>
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<td>- Scale, proportion, and quantity</td>
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<td>- Systems and system models</td>
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<td>- Energy and matter: flows, cycles, and conservation</td>
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<td>- Structure and function</td>
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<tr>
<td>- Stability and change</td>
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### Reading & Writing Opportunities

**When reading scientific texts**, students need to be able to gain content knowledge from challenging texts that often make extensive use of elaborate diagrams and data to convey information and illustrate concepts. Students read purposefully and listen attentively to gain scientific expertise. The interdisciplinary approach to literacy is backed by extensive research establishing the need students to be proficient in reading complex informational text independently in a variety of content areas.

**Examples:**
- During science talks with students using their notebooks, discuss and explain what happened in the Swirling Colors experiment. Use science vocabulary.
- Read aloud *About Water* by Laurent deBrunhoff and ask students to retell the uses of water in the story, using details and scientific/academic vocabulary.
- After a class read-aloud or shared reading of *Water Is Wet* by Sally Cartwright, students describe water and compare it to other liquids they’re studying in the unit.

**Writing is a key means** students expressing what know about a subject. Science notebooks are critical and essential components of science learning whereby students record observations, data, visual representations, and thinking about their learning. They are excellent tools for formative assessment purposes.

**Examples:**
- Students make a VENN diagram to compare and contrast different balls.
- Using words and/or pictures, explain how liquids were sorted and grouped. Write about the “rule” you used to sort the different liquids.
- Students draw and label types of liquids.
- Students create a class book and/or graph describing liquids and how they are used.
- Students draw, write or dictate an explanation of what happens when liquids mix.

### Assessment Opportunities

**Pre/Post Unit Assessment:**
- Interview students about what balls are and how they are used

**Class Concept Map - pre and post with linking phrases to indicate relationships of concepts and processes**

**Formative/Performance Assessment Examples**
- Quick writes and drawings in notebooks (e.g. draw and label different liquids)
- Use scientific vocabulary to describe properties of liquids.
- Compare and contrast different liquids and tell/write about their purposes and uses.
- Design and conduct an experiment and report the results, e.g. how they made drops of different liquids and what happened when they mixed them.
### Texts and Resources

| Primary: GEMS “Liquid Explorations” materials kit |
| Teacher’s manual for “Liquid Explorations” |

### Supplemental resources:
- Review Literature Connections section in Teacher Manual

### English Language Arts Standards

#### Reading Standards
- Constant Standards RI 2, 5, and 10
- Target Standards
  - (K.RI.1) With prompting and support, ask and answer questions about key details in a text.
  - (K.RI.3) With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
  - (K.RI.4) With prompting and support, ask and answer questions about unknown words in a text.
  - (K.RI.7) With prompting and support, describe the relationship between illustrations and the text in which they appear (e.g., what person, place, thing, or idea in the text an illustration depicts).
  - (K.RI.9) With prompting and support, identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures).

#### Writing Standards
- Constant Standards W 5, 9, and 10
- Target Standards
  - (K.W.1) Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book (e.g., My favorite book is . . .).
  - (K.W.2) Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic.
  - (K.W.3) Use a combination of drawing, dictating, and writing to narrate a single event or several loosely linked events, tell about the events in the order in which they occurred, and provide a reaction to what happened.
  - (AZ.K.W.4) With guidance and support from adults, produce functional writing (e.g., classroom rules, experiments, notes/messages, friendly letters, labels, graphs/tables) in which the development and organization are appropriate to task and purpose.
  - (K.W.7) Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them).
  - (K.W.8) With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

### Science and Engineering Practices
- Asking questions and defining problems
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations and designing solutions
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information