

A Next Generation Science and  
Common Core State Standards  
Aligned Discussion & Activity  
Guide for

# Tap Tap BOOM BOOM

Grades: Preschool to Grade 2      ISBN: 978-0-7636-5696-6

**Written by Elizabeth Bluemle**

**Illustrated by G. Brian Karas**

**Published by Candlewick Press**

*When a thunderstorm hits a city street, children and grown-ups dash to the subway for shelter — and an impromptu friendly gathering.*

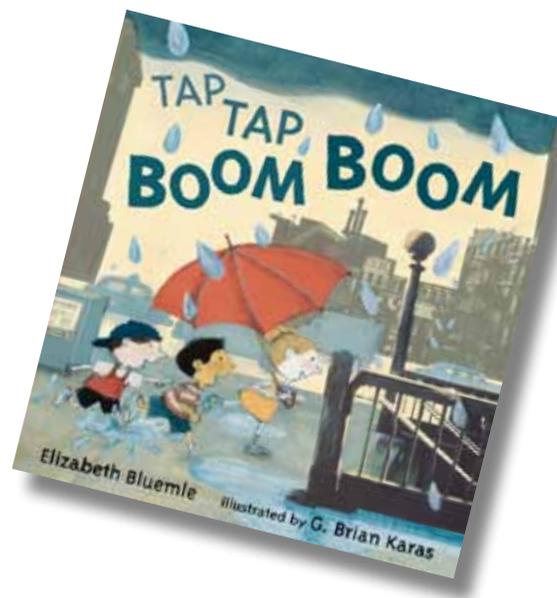
*The clouds are gathering above a city street and soon — tap, tap, boom, boom! As a thunderstorm rolls in, people of all stripes race down to the subway to get away from the crackling rain and wind. With quirky wordplay and infectious rhymes, Elizabeth Bluemle crystallizes an unexpected moment of community, while G. Brian Karas's warm illustrations show the smiles to be had when a storm brings strangers together as friends.*

**Guide created by Debbie Gonzales**



## Table of Contents

|   |       |
|---|-------|
| Take a Book Walk.....                                       | 3     |
| Discussion Questions.....                                   | 4-5   |
| Rhyming Dominoes .....                                      | 6-9   |
| Rainbow Stew.....   | 10-11 |
| Rain-Making: A Science Experiment.....                      | 12-13 |
| <b>Common Core State Standards Alignment:</b>               |       |
| English Language Arts >> Reading: Literature .....          | 14    |
| English Language Arts >> Reading: Foundational Skills ..... | 14    |
| English Language Arts >> Writing .....                      | 15    |
| English Language Arts >> Language.....                      | 15    |
| English Language Arts >> Speaking & Listening.....          | 16    |
| <b>Next Generation Science Standards Alignment:</b>         |       |
| Weather & Climate .....                                     | 17    |



## Take a Book Walk

### Observe the front cover:

- Describe the action depicted in the illustration.
- Explain where the children are going. Why?
- Tell how the children are feeling. How do you know?
- Identify the setting. Where do you think this story will take place?
- Read the title. Consider how the title connects with the action in the scene.
- Discuss thunderstorms. Tell all that you know about them.

### Observe the back cover:

- Describe the action in the illustration.
- Explain what the children are doing.
- Tell where the two children on the stairway are going. How do you know?
- Discuss how the children on the steps are feeling. Contrast their feelings with that of the person peeking around the edge of the doorway.

### Meet the author – Elizabeth Bluemle!

- Discuss ways that an author tells stories.
- Explain how authors get ideas for their stories.
- As a child, author Elizabeth Bluemle enjoyed reading. Consider how her early love of reading may have inspired her to become an award-winning author.
- Elizabeth’s mother was a television star and her father was a magician! Predict how having such interesting parents might have given Elizabeth ideas for stories.
- To learn more about Elizabeth Bluemle and her fascinating life access her website at [www.elizabethbluemle.com](http://www.elizabethbluemle.com).



Author Elizabeth Bluemle

### Meet the illustrator – G. Brian Karas!

- When he was a kindergartener, G. Brian Karas liked to finger paint. Consider how this enjoyable activity may have inspired him to become an illustrator.
- When Mr. Karas was in elementary school he discovered that his drawing could make people laugh. Discuss why making people laugh might be an important skill for an illustrator to have.
- On his website, Mr. Karas says, “I like it when my work makes people laugh. And cry. And think and feel.” Explain the meaning behind his words. Tell why he would want to draw illustrations that would cause people to “think and feel.”
- Access G. Brian Karas’ website at [www.gbriankaras.com](http://www.gbriankaras.com) to enjoy more of his drawings and learn more about why he loves to draw.



Illustrator G. Brian Karas



## Discussion Questions

***Tap TAP Tap TAP  
BOOM BOOM Crackle-BOOM  
Got a storm, big storm  
In bloom, here soon.***

- Turn to the illustration featuring children playing on airplanes in the park. Study the expressions of the people and animals depicted in the scene. Explain how each subject featured feels at that moment. State the reasons for their reactions.
- Describe the mood in the scene.
- Identify what is making the tap, tap sounds.
- Tell where the Crackle-BOOM sound came from.
- How about you? Tell of a time you experienced the onset of a thunderstorm.

***Now harder! Now faster!  
Big rain side blaster.  
The subway is shelter.  
Boom BOOM***

- Turn to the spread featuring people running toward the subway entrance. Observe each illustrated character. Describe them.
- Discuss how each character is different.
- Are these characters friends? How do you know?
- Identify the one problem each character shares.
- Tell what you know about a subway.
- Define the word “shelter.”
- Explain why someone might need shelter during a thunderstorm.

***The storm above makes friends of strangers.  
We laugh under cover at thunder and danger.***

- Turn to the spread depicting a boy playing drums near a man playing the bagpipes. Describe the action in this illustration.
- Based on the previous illustrations, identify how each character has changed as a result of seeking shelter from the thunderstorm.
- Tell what the word “strangers” means.
- Define the word “friends.”
- Are the characters featured in this illustration strangers or friends? How do you know? Explain your answer.



***The lady with poodle sees kid – no umbrella.  
Hands hers. No words, just a smile as her hello.***

- Turn to the illustration featuring a lady handing an umbrella to a boy on the stairway. Describe the action in this picture.
- Consider their relationship. Are the lady and the boy strangers, friends, or a little bit of both? Explain your answer.
- Explain why the lady gave the boy her umbrella.
- Discuss how just a smile can say, “Hello.”

***Now people scatter through puddle splatter.  
We wave good-bye.  
“So long!”  
“Keep dry!”***

- Turn to the spread featuring two boys waving at a girl holding an umbrella. Recite the story that this illustration is telling.
- Define the word “scatter.” Where are the characters scattering off to?
- As a result of taking shelter in the subway, explain how these characters have changed. Discuss how they have stayed the same.

***‘Til the next  
Tap TAP  
BOOM BOOM!***

- Turn to the final illustration in the book, the one depicting the boys and their parents walking on the sidewalk. Tell where they are going. Explain how you know.
- Identify how the boys are feeling. Explain how their expressions reveal their emotions.
- Explain how the parents are feeling. Tell how their expressions are showing their emotions.
- Consider why they are reacting the way that they are in this moment. What did they hear?
- Is another storm on its way? If so, how you know?
- Discuss how, in the story, a thunderstorm caused strangers to become friends.
- Tell a story about an experience you had with a thunderstorm. Where were you when it happened? Who was with you? How did the storm make you feel?



## Rhyming Dominoes

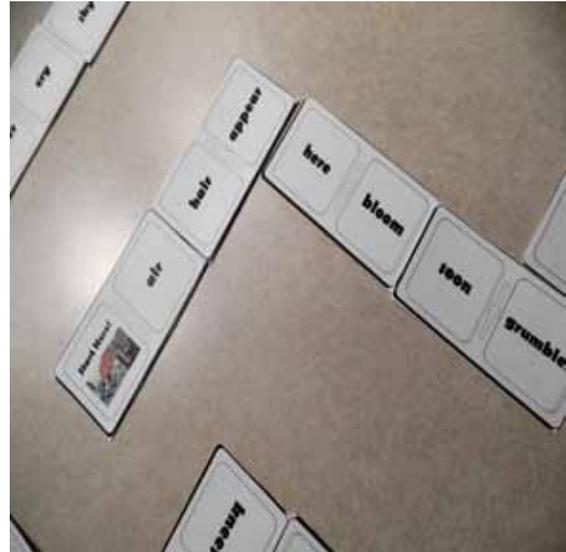
**Objective:** To know and apply grade-level phonics and word analysis skills in decoding words.

### Materials:

- Scissors
- Cardstock
- Rhyming Dominoes (pp. 6-9)
- *Tap Tap Boom Boom*, the book

### Procedure:

- Print **Rhyming Dominoes** on cardstock.
- Use scissors to trim around the borders of the **Rhyming Dominoes**.
- To play game, line up cards in an orderly fashion as shown below.
- Find the card labeled “Start Here!” Place it on the tabletop.
- Search dominoes for a word that rhymes with the word “air,” printed on the left side of the first domino.
- Place the rhyming word to the left of the domino.
- Continue in this manner until all rhyming matches have been made.
- Use *Tap Tap Boom Boom*, the book as a reference when needed.

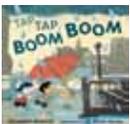
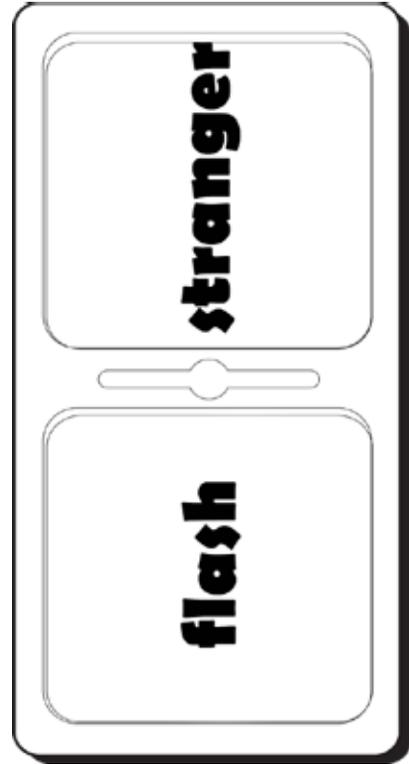
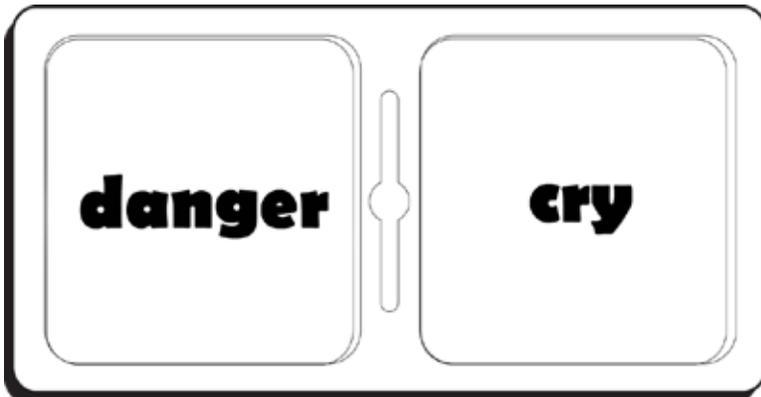
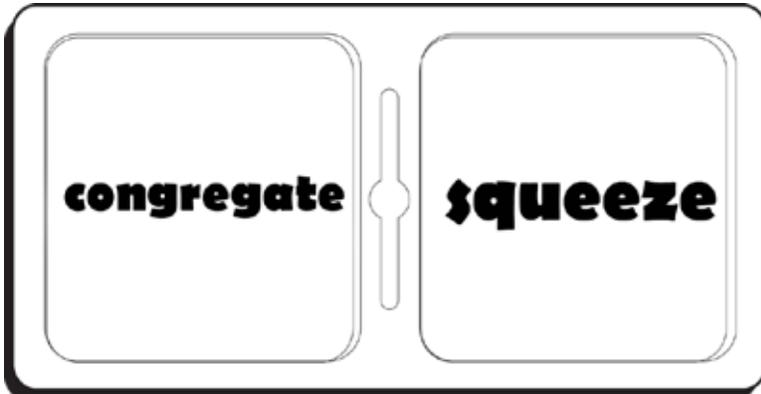
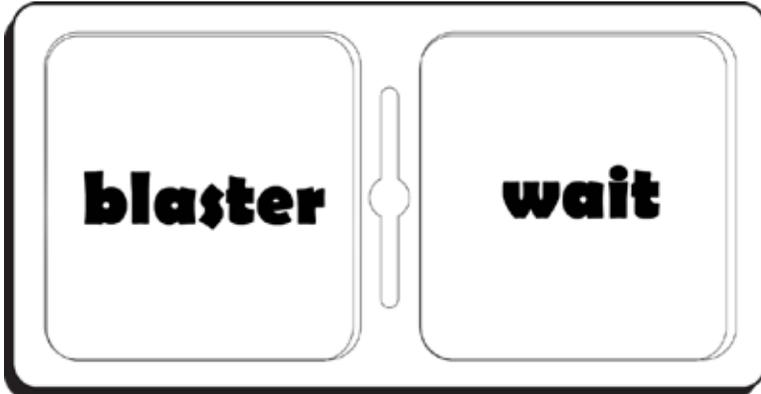
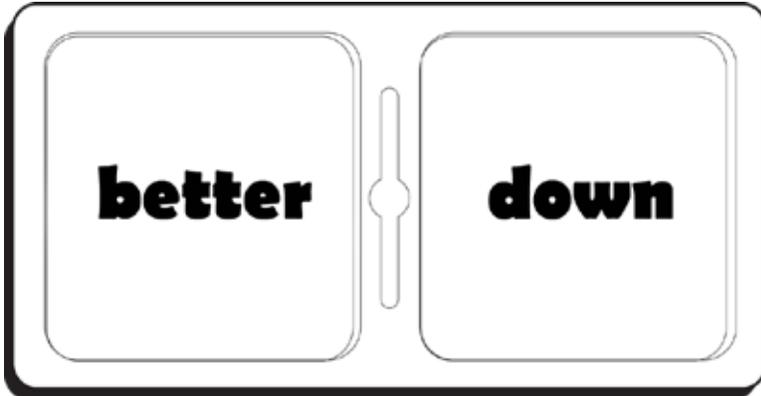


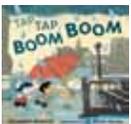
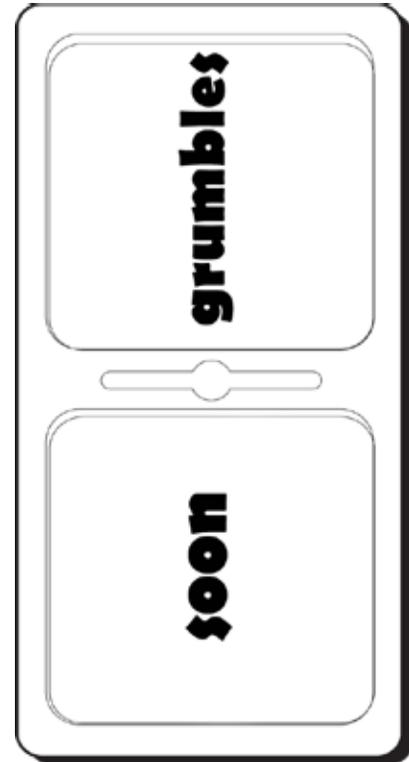
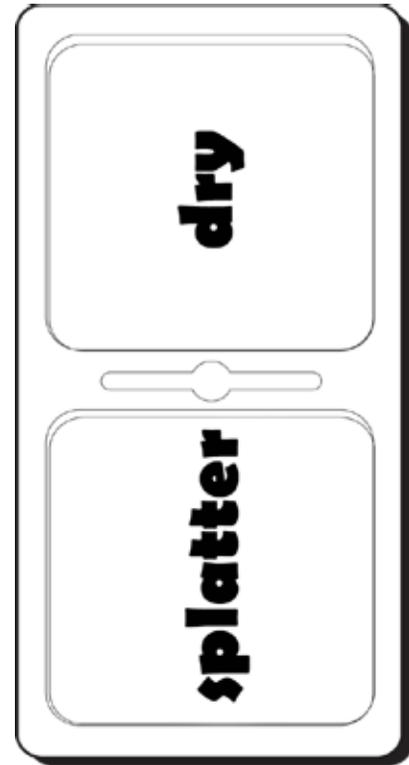
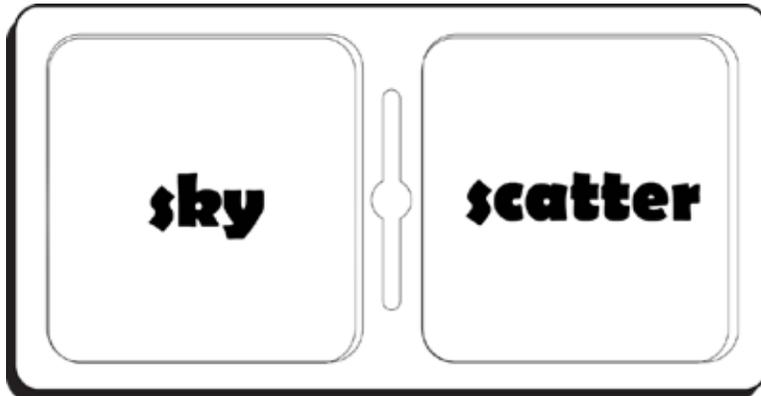
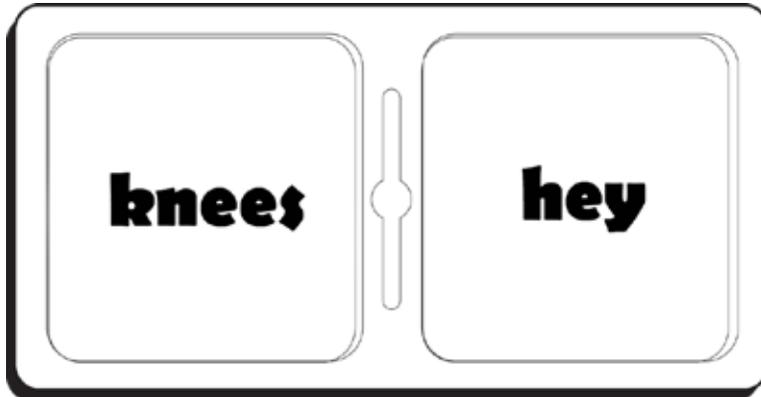
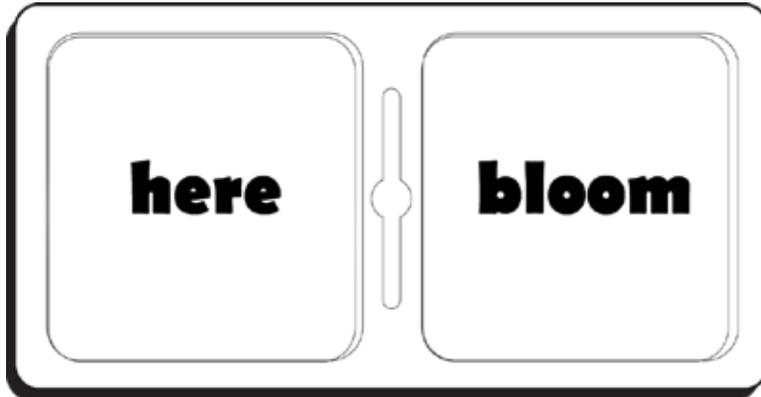
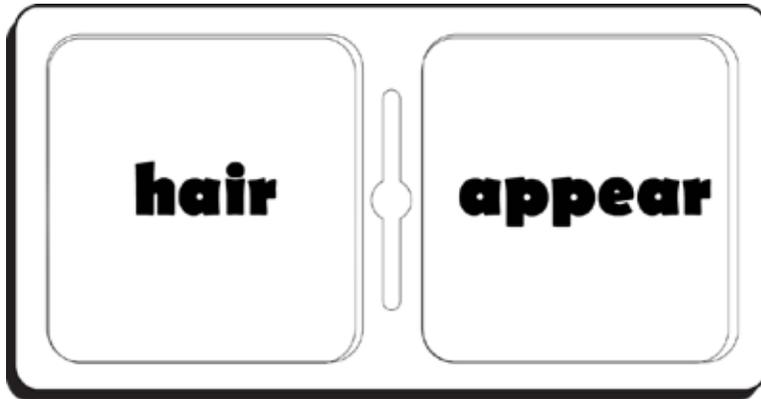
Begin by sorting the dominoes like this.

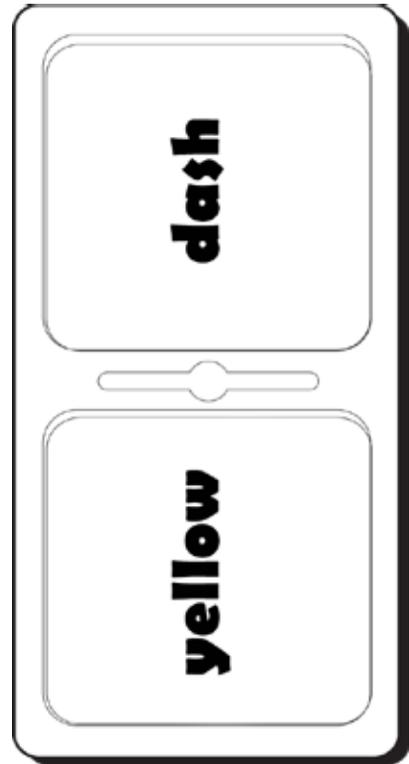
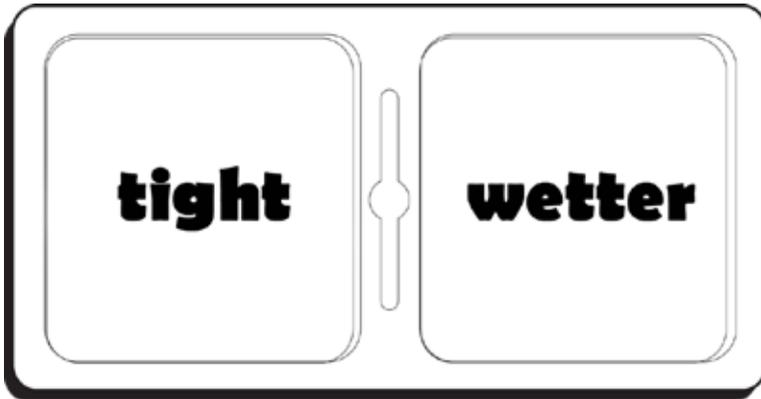
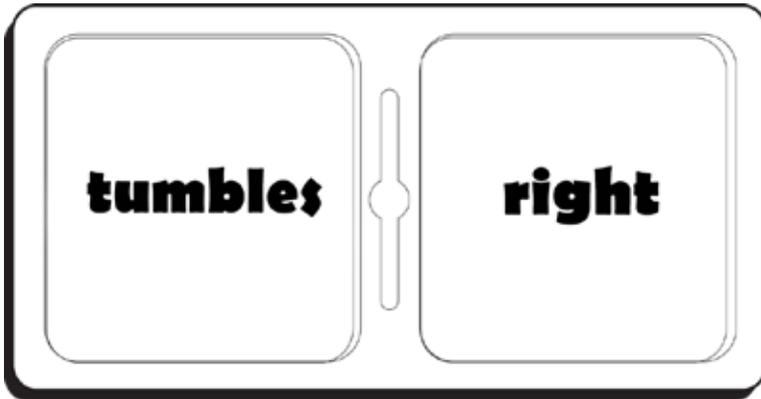
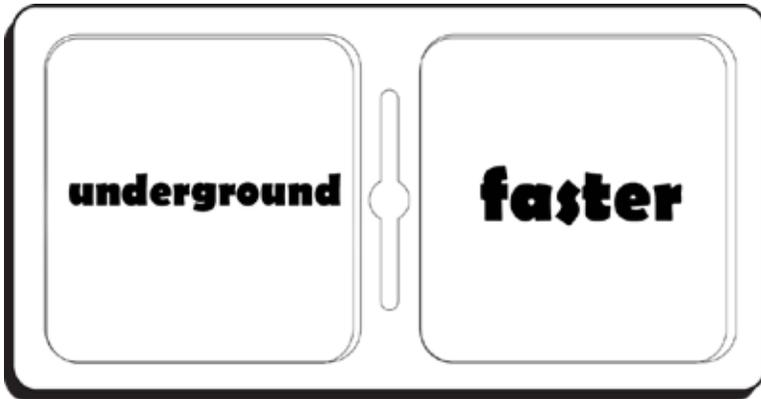


Remember to print and trim around this domino! ↑









## Rainbow Stew

*“Look up,” we cry.  
Surprise in the sky.*

**Objective:** To write and illustrate a narrative piece inspired by a exploratory experience.

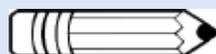
### Materials:

- 1/3 cup sugar
- 1 cup corn starch
- 4 cups cold water
- Saucepan
- Mixing spoon
- Generous amounts of red, yellow, and blue food coloring
- 3 bowls
- A tablespoon
- Heavy-duty sealable Ziplock bag
- Duct tape



### Procedure:

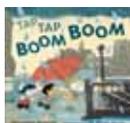
- Add sugar, corn starch, and water to saucepan. Cook and continually stir until mixture becomes thick.
- Divide thickened mixture into three bowls.
- Add generous amounts of food coloring to mixture in bowls.
- Once cooled, add three tablespoons of each colored mixture to heavy-duty sealable bag.
- Roll the bag to push out air. Seal bag and secure opening with duct tape.
- Encourage child to knead and squish colored balls around inside the bag, making their own Rainbow Stew!



### Write About It!

Using the paper found on the following page, write and illustrate a story about a rainbow. Tell about a time that you saw a rainbow. Describe the experience. Write about the colors you saw and the way the rainbow made you feel.

**Reference:** Bos, Bev. *Together We're Better*. Roseville: Turn the Page Press, 1990.



# Rainbow Stew

Handwriting practice lines consisting of solid top and bottom lines with a dashed midline, repeated across the page.

## Rain Making: A Science Experiment

*Tap TAP, dark clouds.*  
*Tap TAP, damp air.*  
*Tap TAP, cold drops of rain dot hair.*

**Objective:** To explore the fundamental basics of the creation of rain through an activity that causes observable results.

### Materials:

- Water
- Teapot
- Metal spoon
- Ice
- Hot pad



### Procedure:

- Heat water in teapot to rapid boiling point. Steam should be bursting from the spout.
- Place ice in spoon. Hold spoon over steam.
- After a short period of time, observe the raindrops being formed on the bottom the spoon.



### HOW RAIN IS FORMED:

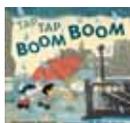
The ice in the experiment represents the cool, condensed water molecules found in clouds.

When the warm air evaporating from the earth rises, it heats the water molecules found in clouds creating RAIN!



### Write About It!

Using the writing paper provided on the following page, explain how rain is formed. Illustrate your work.



# Rain Making: A Science Experiment

Blank writing area with horizontal lines and a dotted midline for each line.

## Common Core State Standards Alignment

### English Language Arts Standards » Reading: Literature

|                           |   | Book Walk | Discussion Questions | Rhyming Dominoes | Rainbow Stew | Rain-Making |
|---------------------------|---|-----------|----------------------|------------------|--------------|-------------|
| CCSS.ELA-Literacy.RL.K.1  | With prompting and support, ask and answer questions about key details in a text.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.K.2  | With prompting and support, retell familiar stories, including key details.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.K.3  | With prompting and support, identify characters, settings, and major events in a story.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.K.4  | Ask and answer questions about unknown words in a text.   |           |                      | ●                |              |             |
| CCSS.ELA-Literacy.RL.K.6  | With prompting and support, name the author and illustrator of a story and define the role of each in telling the story.  | ●         |                      |                  |              |             |
| CCSS.ELA-Literacy.RL.K.7  | With prompting and support, describe the relationship between illustrations and the story in which they appear (e.g., what moment in a story an illustration depicts).      | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.K.10 | Actively engage in group reading activities with purpose and understanding.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.RL.1.1  | Ask and answer questions about key details in a text.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.1.3  | Describe characters, settings, and major events in a story, using key details.  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.1.7  | Use illustrations and details in a story to describe its characters, setting, or events.  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.1.9  | Compare and contrast the adventures and experiences of characters in stories.   |           | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.1.10 | With prompting and support, read prose and poetry of appropriate complexity for grade 1.  | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.RL.2.1  | Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details in a text. |           | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.2.3  | Describe how characters in a story respond to major events and challenges.  |           | ●                    |                  |              |             |
| CCSS.ELA-Literacy.RL.2.7  | Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.                        | ●         | ●                    |                  |              |             |

### English Language Arts Standards » Reading: Foundational Skills

|                          |  |   |   |   |   |   |
|--------------------------|--|---|---|---|---|---|
| CCSS.ELA-Literacy.RF.K.1 | Demonstrate understanding of the organization and basic features of print.     |   |   | ● | ● | ● |
| CCSS.ELA-Literacy.RF.K.2 | Demonstrate understanding of spoken words, syllables, and sounds (phonemes).   |   |   | ● | ● | ● |
| CCSS.ELA-Literacy.RF.K.3 | Know and apply grade-level phonics and word analysis skills in decoding words. |   |   | ● | ● | ● |
| CCSS.ELA-Literacy.RF.K.4 | Read emergent-reader texts with purpose and understanding.                     | ● | ● | ● | ● | ● |
| CCSS.ELA-Literacy.RF.1.1 | Demonstrate understanding of the organization and basic features of print.     |   |   | ● | ● | ● |
| CCSS.ELA-Literacy.RF.1.3 | Know and apply grade-level phonics and word analysis skills in decoding words. |   |   | ● | ● | ● |
| CCSS.ELA-Literacy.RF.1.4 | Read with sufficient accuracy and fluency to support comprehension.            | ● | ● | ● | ● | ● |
| CCSS.ELA-Literacy.RF.2.3 | Know and apply grade-level phonics and word analysis skills in decoding words. |   |   | ● | ● | ● |
| CCSS.ELA-Literacy.RF.2.4 | Read with sufficient accuracy and fluency to support comprehension.            | ● | ● | ● | ● | ● |

## English Language Arts Standards » Writing

|                         |  | Book Walk | Discussion Questions | Rhyming Dominoes | Rainbow Stew | Rain-Making |
|-------------------------|--|-----------|----------------------|------------------|--------------|-------------|
| CCSS.ELA-Literacy.W.K.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.  |           |                      |                  |              | •           |
| CCSS.ELA-Literacy.W.K.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.               |           |                      |                  | •            |             |
| CCSS.ELA-Literacy.W.K.5 | With guidance and support from adults, respond to questions and suggestions from peers and add details to strengthen writing as needed.  |           |                      |                  | •            | •           |
| CCSS.ELA-Literacy.W.1.2 | Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.  |           |                      |                  |              | •           |
| CCSS.ELA-Literacy.W.1.3 | Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.                      |           |                      |                  | •            |             |
| CCSS.ELA-Literacy.W.1.5 | With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers, and add details to strengthen writing as needed.   |           |                      |                  | •            | •           |
| CCSS.ELA-Literacy.W.2.2 | Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section.   |           |                      |                  |              | •           |
| CCSS.ELA-Literacy.W.2.3 | Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure. |           |                      |                  | •            |             |
| CCSS.ELA-Literacy.W.2.8 | Recall information from experiences or gather information from provided sources to answer a question.  |           | •                    |                  | •            | •           |

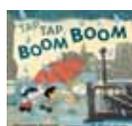
## English Language Arts Standards » Language

|                         |   |   |   |   |   |   |
|-------------------------|---|---|---|---|---|---|
| CCSS.ELA-Literacy.L.K.1 | Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.  | • | • | • | • | • |
| CCSS.ELA-Literacy.L.K.2 | Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  |   |   |   | • | • |
| CCSS.ELA-Literacy.L.K.4 | Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.   |   |   | • |   |   |
| CCSS.ELA-Literacy.L.K.6 | Use words and phrases acquired through conversations, reading and being read to, and responding to texts.   | • | • |   |   |   |
| CCSS.ELA-Literacy.L.1.1 | Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.  | • | • | • | • | • |
| CCSS.ELA-Literacy.L.1.2 | Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  |   |   |   | • | • |
| CCSS.ELA-Literacy.L.1.6 | Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., <i>because</i> ).         | • | • |   |   |   |
| CCSS.ELA-Literacy.L.2.1 | Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.  | • | • | • | • | • |
| CCSS.ELA-Literacy.L.2.2 | Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  |   |   |   | • | • |
| CCSS.ELA-Literacy.L.2.3 | Use knowledge of language and its conventions when writing, speaking, reading, or listening.  | • | • | • | • | • |
| CCSS.ELA-Literacy.L.2.6 | Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., <i>When other kids are happy that makes me happy</i> ). | • | • |   |   |   |



## English Language Arts Standards » Speaking &amp; Listening

|                            |  | Book Walk | Discussion Questions | Rhyming Dominoes | Rainbow Stew | Rain-Making |
|----------------------------|--|-----------|----------------------|------------------|--------------|-------------|
| CCSS.ELA-Literacy.SL.K.1   | Participate in collaborative conversations with diverse partners about <i>kindergarten topics and texts</i> with peers and adults in small and larger groups.  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.K.1.a | Follow agreed-upon rules for discussions (e.g., listening to others and taking turns speaking about the topics and texts under discussion).  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.K.1.b | Continue a conversation through multiple exchanges.  | ●         | ●                    | ●                |              |             |
| CCSS.ELA-Literacy.SL.K.2   | Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood. | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.K.3   | Ask and answer questions in order to seek help, get information, or clarify something that is not understood.  | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.K.4   | Describe familiar people, places, things, and events and, with prompting and support, provide additional detail.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.K.5   | Add drawings or other visual displays to descriptions as desired to provide additional detail.   |           |                      |                  | ●            | ●           |
| CCSS.ELA-Literacy.SL.K.6   | Speak audibly and express thoughts, feelings, and ideas clearly.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.1.1   | Participate in collaborative conversations with diverse partners about <i>grade 1 topics and texts</i> with peers and adults in small and larger groups.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.1.1.a | Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one at a time about the topics and texts under discussion).  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.1.1.b | Build on others' talk in conversations by responding to the comments of others through multiple exchanges.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.1.1.c | Ask questions to clear up any confusion about the topics and texts under discussion.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.1.2   | Ask and answer questions about key details in a text read aloud or information presented orally or through other media.  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.1.4   | Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.  | ●         | ●                    |                  |              | ●           |
| CCSS.ELA-Literacy.SL.1.5   | Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.   |           |                      |                  | ●            | ●           |
| CCSS.ELA-Literacy.SL.1.6   | Produce complete sentences when appropriate to task and situation.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.2.1   | Participate in collaborative conversations with diverse partners about <i>grade 2 topics and texts</i> with peers and adults in small and larger groups.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.2.1.a | Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion).                          | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.2.1.b | Build on others' talk in conversations by linking their comments to the remarks of others.   | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.2.1.c | Ask for clarification and further explanation as needed about the topics and texts under discussion.   | ●         | ●                    | ●                | ●            | ●           |
| CCSS.ELA-Literacy.SL.2.2   | Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.  | ●         | ●                    |                  |              |             |
| CCSS.ELA-Literacy.SL.2.4   | Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences.  |           | ●                    |                  |              | ●           |



## Next Generation Science Standards Alignment

|  |  | Book Walk | Discussion Questions | Rhyming Dominoes | Rainbow Stew | Rain-Making |
|--|--|-----------|----------------------|------------------|--------------|-------------|
| <b>Weather and Climate</b>                               |  |           |                      |                  |              |             |
| <i>Students who demonstrate understanding can:</i>       |  |           |                      |                  |              |             |
| <b>K-ESS2-1.</b>   | Use and share observations of local weather conditions to describe patterns over time.   |           |                      |                  |              | ●           |
| <b>K-PS3-1.</b>  | Make observations to determine the effect of sunlight on Earth’s surface.  |           |                      |                  |              | ●           |
| <b>Analyzing and Interpreting Data</b>                   |  |           |                      |                  |              |             |
|  | Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.   |           |                      |                  |              | ●           |
|  | Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.  |           |                      |                  |              | ●           |
| <b>Constructing Explanations and Designing Solutions</b> |  |           |                      |                  |              |             |
|  | Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. |           |                      |                  |              | ●           |
|  | Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem.  |           |                      |                  |              | ●           |
| <b>Crosscutting Concepts</b>                             |  |           |                      |                  |              |             |
| <i>Patterns</i>  |  |           |                      |                  |              |             |
|  | Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.   |           |                      |                  |              | ●           |
| <i>Cause and Effect</i>                                  |  |           |                      |                  |              |             |
|  | Events have causes that generate observable patterns.  |           |                      |                  |              | ●           |

