[ELEMENTS OF STORY TIME STEM]

1. **Books are an opportunity to explore ideas, concepts, and themes found in everyday events.**
Children see math, science, and literacy in their everyday lives. When we teach children to see the math, science, and literacy in picture books, we support their understanding of how these processes and events occur. Reading books multiple times is important for exploring different aspects of a story and deepening understanding.

2. **Children are natural scientists, mathematicians, and observers:**
Children ask questions about the world and are naturally curious about the events, objects, and living organisms around them. Using books allows us to explore math and science ideas through discussion.

3. **Children bring valuable ideas to discussions.**
Children are capable of the majority of the discussion talk and ideas. Use children's everyday ideas and experiences during discussions to explore science, math, and literacy topics and questions. Here, educators take on the role of guide and facilitator.

4. **Open-ended questions support and engage children in productive discussions.**
Use open-ended questions and activities to engage children in discussion about their emerging ideas as they explore math, science, and literacy.

5. **Learning is a process - understanding is something that occurs over time.**
Just as it is important for young learners to explore the joy of reading before they are able to read, it is important they explore the joy and wonder of math and science even without complete understanding of a concept. This is also true for adults!

6. **All adults are capable of teaching.**
All adults are teachers whom children can learn from. Use these books and materials as an opportunity to become inspired by picture books to engage with children in math, science, and literacy concepts. Anyone can use stories to have meaningful, exciting discussion that support children's learning.

[STORY TIME STEM]

CONTENTS: WATER KIT

Materials in this Story Time STEM Kit:

Guide

- 3-Ring Binder

Read-Aloud Books with 4 Bookmark Guides

- *10 Little Rubber Ducks by Eric Carle*
- *Splash*! by Ann Jonas
- *Who Sank the Boat*? by Pamela Allen
- *What Floats In A Moat*? By Lynne Berry

Resource Books

- *Follow the Water From Brook to Ocean* by Arthur Dorros
- *Say Hello to H2O* by Ellen Lawrence

Extension Activity Materials

- Felt cut-outs for *Splash!* and *Who Sank the Boat*
- Large blue felt background
- Water bottle

[TABLE OF CONTENTS]

GUIDE CONTENTS

This guide is your resource for science information about water and for exploring science, math and literacy ideas. Each part of the guide serves a different purpose and can be used flexibly to suit your needs and goals with young learners:

- **Conceptual overview:** Provides general information about water, as well as how this concept is addressed as themes in each of the read-aloud books.
- **Read-aloud book information:** Provides themes and science concept overviews for each of the four read-aloud titles. (Planning guides for read-alouds are in the front pocket of the 3-ring binder.)
- **Resource book information:** Explores science concepts about water with factual information, diagrams and a glossary.
- **Extension activities and resources:** Provides ideas for activities you can do with children to extend their exploration of water.
- **Connections to Standards:** Makes links to the Next Generation Science Standards (NGSS) and Common Core State Standards in Mathematics (CCSS-M) and Common Core State Standards in English Language Arts (CCSS-ELA)

[STORY TIME STEM]

WATER

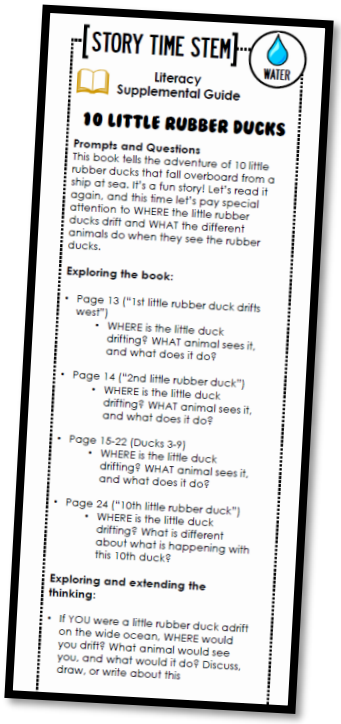
INTRODUCTION

Hello! This Story Time STEM kit explores water, something that is part of daily life in many ways! Children experience literacy, math, and science concepts in their daily lives too. There are many math, science, and literacy concepts within each book in this kit, providing opportunities for engaging in rich discussions with young learners. Discover some of the following STEM themes together:

- **Sinking and floating**
- **Oceans and currents**
- **Forces and motion**
- **Adding, counting and problem solving**

Bookmarks

The included bookmarks offer questions about science, math and literacy. Each has a different focus:


[STORY TIME STEM] WATER

Literacy Supplemental Guide

10 LITTLE RUBBER DUCKS

Prompts and Questions

This book tells the adventure of 10 little rubber ducks that fall overboard from a ship at sea. It's a fun story! Let's read it again, and this time let's pay special attention to WHERE the little rubber ducks drift and WHAT the different animals do when they see the rubber ducks.

Exploring the book:

- Page 13 ("1st little rubber duck drifts west")
  - WHERE is the little duck drifting? WHAT animal sees it, and what does it do?
- Page 14 ("2nd little rubber duck")
  - WHERE is the little duck drifting? WHAT animal sees it, and what does it do?
- Page 15-22 (Ducks 3-9)
  - WHERE is the little duck drifting? WHAT animal sees it, and what does it do?
- Page 24 ("10th little rubber duck")
  - WHERE is the little duck drifting? What is different about what is happening with this 10th duck?

Exploring and extending the thinking:

- If YOU were a little rubber duck adrift on the wide ocean, WHERE would you drift? What animal would see you, and what would it do? Discuss, draw, or write about this

- **Guiding Questions or Questions as Refrain:** Questions to ask children to help them think about ideas and be part of meaningful discussion. These can be asked with any book at any time! What do you wonder? (These bookmarks are in the front pocket of the 3-ring binder.)
- **Integrated:** Questions and prompts to use before, during and after reading that address key science, math, and literacy ideas in the story.
- **Math/Science:** Questions and prompts to use before, during and after reading that focus on math and science ideas in the story. What (numbers, patterns, shapes) do you see?
- **Literacy:** Questions and prompts to use before, during and after reading that focus on literacy ideas and language in the story. What do you think will happen next?

Read the story a first time using some of the questions and prompts from the 'Questions as Refrain' or 'Integrated' books. Enjoy the story!

Then, based on children's interests, read the story again - at that moment or a different time - using the math/science or literacy bookmark. Children love to explore good books many times!

CONCEPTUAL OVERVIEW

Water is the unifying theme and central focus of the books included in this kit. Each book focuses on different concepts and properties of water and the guides support adults in facilitating discussions by offering sequenced questions that build off of the text and illustrations. In some cases there are multiple stopping points within each book, so consider your audience's age and developmental skills when determining which questions to focus on and how to extend the learning through the included activities and investigations. Look for cues throughout the guide for ideas about how to target your use of this kit to different ages and developmental levels!

Children are natural investigators and can readily ask questions about the events and process occurring in the natural world. Young learners are primed to use their experiences, observation skills, and natural questioning abilities to engage with math, literacy and science concepts explored during shared read-alouds with picture books. Consider children's ideas and questions as resources when engaging them in the critical thinking process.

During mealtimes, taking baths, or playing outdoors children experience water as they use containers for pouring, slide down a wet slide or splash in puddles. Integrating literacy, math and science concepts within this kit helps create a flexible space in which young learners can take part in math and science storytelling. Discussing these subjects together can deepen children's understanding of how they see math, science and literacy in everyday interactions with water.

WATER

SCIENCE CONCEPTS

Exploring the stories in this kit gives children opportunities to learn, think about and focus on water as a central science concept in a variety of ways and learning styles. It also allows educators, parents and facilitator the chance to integrate Next Generation Science Standards, literacy and storytelling through the use of picture books. (Specifics on the NGSS standards in this kit can be found at the end of the guide in the Connections to Standards Section.)

Integrative read-alouds support learners in their ability to explain particular unobservable processes within science as they discover the wonder of science in picture books and everyday experiences.

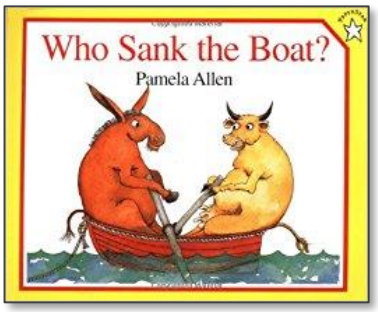
When reading these stories encourage children to be curious about what is happening. Developing scientific thinking and promoting scientific habits can be applied to these books and to everyday life.

- Making Observations
- Asking Questions
- Investigating
- Predicting
- Seeking evidence

WATER

MATH CONCEPTS

Storytime is an exciting time to have mathematical conversations with children! All books, whether math is central to the story or not, offer opportunities for thinking about mathematics. Through the story contexts and engaging illustrations, children can notice and reason about a wide range of mathematical ideas. As you read the stories in this kit with children, we offer open-ended questions and prompts that can encourage young mathematicians to think about the events in the story, connections to their own lives, and inspire deeper connections to mathematics.



For example, in the book *Who Sank the Boat*, five animals slowly climb from the dock into a boat. Having children count the number of animals on the dock and on the boat helps to reinforce the ideas that the quantity of 5 is always the same, no matter how you move around the individual parts (the animals in this case), and no matter which ones you count first. This mathematical idea is the foundation for more sophisticated understanding about properties of addition, such as the associative and commutative properties.

The math we seek to bring out in these stories centers on ideas about:

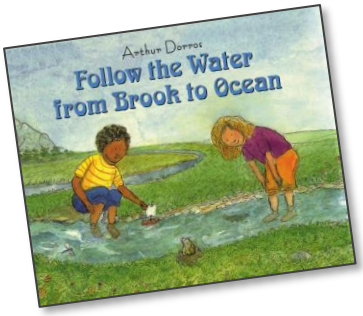
- Number names and the counting sequence
- Counting to tell the number of objects
- Comparing numbers and quantities
- Understanding addition as putting together and adding to, and understand subtraction as taking apart and taking from
- Describing and comparing measurable attributes
- Representing and solving addition, subtraction, and multiplication problems
- Making sense of problems and persevering in solving them

LITERACY CONCEPTS

Each of the four read-aloud books in this kit feature stories with a clear sequence of events and animals as characters. There is a range of sophistication in terms of plot and character, from fairly simple and straightforward (*10 Little Rubber Ducks*) to rather complex (*What Floats in a Moat?*).

The following big ideas may be emphasized when exploring these books with children:

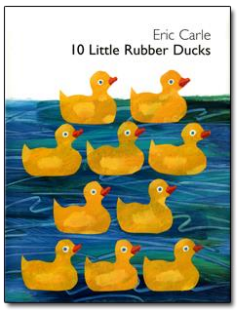
- Describe and explore story and plot: Beginning, middle, ending
- Make connections between text and illustrations
- Retell events and details in a story and identify central message
- Use predictions to more deeply understand story events
- Make connections between story, characters, other stories and personal experience



The resource books differ from the read aloud books. *Follow the Water from Brook to Ocean*, while informational (nonfiction), follows a narrative format, delivering factual information about the water cycle in a story-like format. The other resource book, *Say Hello to H2O*, has many informational text features including a table of contents, index, glossary, and diagrams. These books, while **not meant to be read aloud in one sitting** like the other four, work well for exploring science concepts.

[STORY TIME STEM]

WATER



10 LITTLE RUBBER DUCKS

By: Eric Carle

[FOCUS THEMES]

- **Counting**
- **Adding Numbers to 10**
- **Oceans, Currents, and Storms**
- **Forces and Motion**
- **Cause and Effect**
- **The World Around Us (Geography)**
- **The Environment**

Science Conceptual Overview

Eric Carle was inspired to write this story after he read a news story in 2003. A cargo ship, the Ever Laurel, left Hong Kong headed towards Tacoma, Washington, and encountered some rough weather. A container fell overboard during the storm in the Pacific Ocean and thousands of rubber toy animals fell into the water. The rubber toys all floated to different locations due to the different ocean currents and weather patterns. This event allowed a team of Seattle oceanographers to learn more about ocean surface currents as they worked with people who found the ducks to make a map of all the different places that the ducks were found.

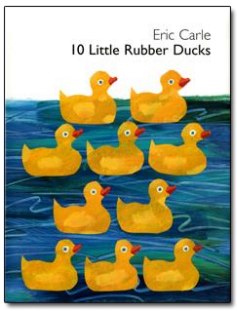
Carle's fictional story follows ten rubber ducks, tossed overboard during a storm, as they ride ocean currents around the world, meeting different regional animals.

Reading this book with children will allow them to explore and engage with the following concepts:

- Cause and effect
- Patterns
- Forces and motion

[STORY TIME STEM]

WATER



10 LITTLE RUBBER DUCKS

By: Eric Carle

Mathematics Conceptual Overview

As children think about the adventures of the rubber ducks, we can ask open-ended questions that support thinking about important early mathematical ideas.

- Learn number names, the counting sequence and counting to tell the number of objects ("Let's count of the little rubber ducks!" "How many ducks do you see?" "Can you point to them as you count?")
- Understand addition as joining together and adding on ("How can we write a number sentence to show there are 5 ducks facing to the left, and 5 ducks facing to the right?" e.g., 10 = 5 + 5)
- Understand subtraction as distance, or difference, between numbers ("Now we know where seven ducks are. How many more ducks are also floating?" – Children often use a "counting on" strategy to think about these problems. They might say, "8, 9, 10. Three more ducks!" This strategy helps children see relationships between addition and subtraction.

[CROSS-CUTTING CONCEPTS]

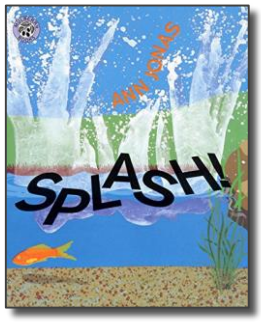
- Patterns in the natural world can be observed, used to describe phenomena and used as evidence. Ocean scientists were able to track the rubber toys to find patterns in the ocean currents which were mapped and analyzed to better understand these currents.

- Cause and effect: Cause and effect relationships may be used to predict phenomena in natural or designed systems.

- **Science Phenomena:**
  1. Where did these ducks come from? Where did the ducks go?
  2. Why did the ducks drift apart?

[STORY TIME STEM]

WATER



SPLASH!

By: Ann Jonas

Science Conceptual Overview

This book provides a chance for the young reader to think deeply about the differences between animals that live in the water, near the water and depend on water for survival. In addition, it features the idea that ponds as habitats are crucial for a variety of species. Temporary pools of water are found all over the world and are important habitats for microorganisms and other small life forms. Certain kinds of puddles are called vernal pools or vernal ponds. Vernal means "occurring in the spring." These temporary pools can be as small as a puddle or as big as a pond. They form every year when low places in the land fill up with rain, or in colder climates, with melted snow. In the Pacific Northwest you can find amphibians in them such as frogs, salamanders, toads and newts. Ponds that occur in all seasons are part of food chains or webs; for example larger animals such as deer, owls, birds, squirrels, snakes, etc. can be found around puddles and vernal pools to feast on insect larvae, worms and other tasty macroinvertebrates. Sometimes the water in puddles and ponds with help from the sun helps the decomposing process for dead plants, whose leaves provide nutrients for other living things in the puddle. Vernal pools are very sensitive to environmental changes caused by both natural and manmade events. Teaching students that even the temporary puddle or pond contains life forms is incredibly important because students will learn to respect and value living organisms regardless of size. There is value in teaching students about pond as it is a visible and accessible part of the water cycle and environmental food chain.

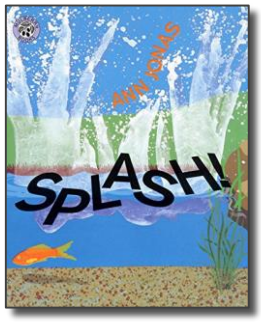
[FOCUS THEMES]

- **Counting**
- **Adding**
- **Subtracting**
- **Comparing Quantities**
- **Land and Water**
- **Animals on the Move**

Big ideas in Science:

- Make observations of the different needs of plants and animals
- Using the illustrations as a model of a pond to identify relationships between different animals and the water.
- Discussing the differences between human-made ponds and natural ponds, ponds as an important habitat for many living animals and plants.

WATER



SPLASH!

By: Ann Jonas

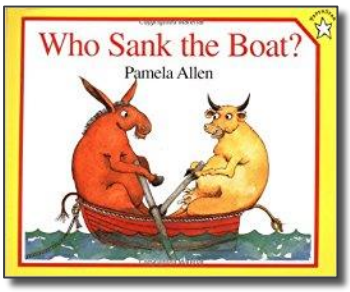
Mathematics Conceptual Overview

As children enjoy watching the animals jump into and out of the pond, we can have lively discussions about the story and illustrations, and can support young mathematicians to:

- Learn number names, the counting sequence and counting to tell the number of objects ("Let's count the animals in the pond/out of the pond"; "How many animals do you see?" "What does a five look like? Let's trace a 5 in the air!"
- Compare numbers ("What do you notice about how many animals are in the pond now?" "Use the picture to show your thinking")
- Understand addition as joining together and adding on ("How can we write a number sentence to show how many there are all together? We see 8 in the pond and 4 out of the pond" e.g., 8+4 =12 (read "eight plus four is the same as twelve")
- Understand subtraction as distance, or difference, between numbers ("How can we write a number sentence to show there were five in the pond and two got out?" e.g., 5 – 2 = 3)
- Describe and compare quantities ("Are there more animals in the pond or out of the pond? How do you know?")

[STORY TIME STEM]

WATER



WHO SANK THE BOAT?

By: Pamela Allen

Science Conceptual Overview

This book uses vivid and entertaining illustrations which can be used to introduce science concepts such as balance, weight, buoyancy, and motion. Young children can engage with these concepts through focused questioning with an adult.

The science concepts being explored are:
- Forces and motion (pushes, pulls, gravity, buoyancy)
- Cause and effect
- Types of interactions between objects
- Patterns

[FOCUS THEMES]

- **Counting**
- **Adding**
- **Subtracting**
- **Comparing Quantities**
- **Sinking and Floating**
- **Animals and Size**
- **Balance and Weight**
- **Predicting**

Mathematics Conceptual Overview

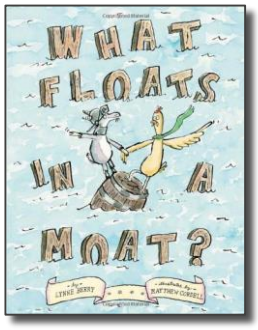
As children think about who sank the boat, we can ask open-ended questions that support thinking about important early mathematical ideas.

Through lively discussion of the story and illustrations, we can support young mathematicians to:

- Learn number names, the counting sequence and counting to tell the number of objects ("Let's count the animals on the dock/in the boat"; "How many animals do you see?" "What does a five look like? Let's trace a 5 in the air!")
- Compare numbers ("What do you notice about how many animals are on the dock and in the boat?" "Use the picture to show what you notice!")
- Understand addition as joining together or adding on ("How can we write a number sentence to show there are 2 in the boat and 3 on the dock?" e.g., 5 = 2 + 3;)
- Describe and compare quantities ("Which animal do you think weighs the most? Why do you think that?" "What do you think might happen when the sheep gets in the boat?")

[STORY TIME STEM]

WATER



WHAT FLOATS IN A MOAT?

By: Lynne Berry

Science Conceptual Overview

This funny animal story illustrates some important concepts in science and a significant event in history. The concepts of balance, weight, density, buoyancy and motion are introduced. Density can be thought of as how much an object weighs when the material fills a certain amount of space. Fill a bowl with two different kinds of materials with different weights. Think about a bowl filled with styrofoam versus the same bowl filled with pennies. The same amount of space is filled with each object but the styrofoam has a low density and the pennies have a high density.

[FOCUS THEMES]

- **Comparing Measurable Attributes**
- **Sinking and Floating**
- **Guessing and Testing**
- **Experimenting**
- **Building**
- **Action Words and Sounds**

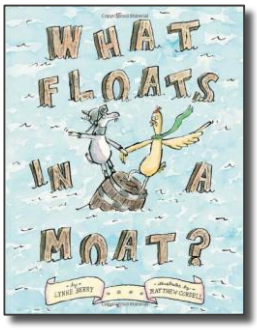
The ability of an object to float is described as its buoyancy. The object sinks into the water until it displaces an amount of water equal to its own mass. The buoyancy of an object is the result of an interaction of two forces: the force of gravity pulling the object down and the force of buoyancy holding the object up.

The science concepts being explored are:

- Forces and motion (pushes, pulls, gravity, buoyancy)
- Cause and effect
- Types of interactions between objects
- Patterns

Note: One may also consider incorporating a history lesson into this activity that brings up the story of King Hiero, a gold crown, Archimedes and the principle of displacement. More information can be found on http://ed.ted.com/lessons/the-real-story-behind-archimedes-eureka-armand-d-angour)

WATER



WHAT FLOATS IN A MOAT?

By: Lynne Berry

Mathematics Conceptual Overview

As children read this book about floating barrels across a moat, they have opportunities to consider measurable attributes of an object (specifically weight) and to observe perseverance in action – an important element of being a successful mathematician!

Ask open-ended questions to support students to:

- Compare measurable attributes ("What is different about the way Not-So Skinny the Hen pushes the barrel into the water this time?" Why do you think it was different? How does the amount of buttermilk in this barrel compare to the amount in the last barrel?")
- Consider the ways that mathematicians persevere in solving problems ("Why is Archie back at the table sketching and scribbling? What problem is he trying to solve? What has he tried so far? What would you try if you were Archie?")
- Highlight the fact that the characters keep working at the problem they want to solve and use what they have tried before to inform their decisions encourages children to do the same. ("What is different about the new idea that Archie is trying? Why do you think he decided to revise his thinking and make that change?")

RESOURCE BOOKS

This water kit includes two books that support young learners' understanding of water as a process on a large scale and water as individual molecules on a small scale. The books can be used for read aloud opportunities and as a science resource for adults to deepen their understanding of the concepts, thereby facilitating our increased ability to hear the science in children's ideas. Each book comes with its own set of sample questions and activities, consider pairing these read-alouds with a water activity or experiment as it deepens children's understanding of the concepts.

These books also support adult learners as they build their background knowledge prior to or during the water kit implementation. When adult learners are able to spend time thinking and learning about these processes, it supports our ability to think deeply and flexibly about students' questions and responses during read-aloud times. This will allow us to see the partial understanding behind student thinking instead of seeing their ideas as misconceptions.

Resource Book Activities:

1. Take a local water walk around your home, community center, or school to find water. Spend time talking about where the water came from and where it is going.
2. Draw a model or map of the water that you found on your walk. Include details about objects and living things that you saw living in or next to the water. Use color in your model and if you are making a map, consider including a map key.
3. Display a local map using Google Earth Ask: Do you see any water near our school? Follow smaller bodies of water to the next largest body of water and keep going until it reaches the ocean or terminal lake. Record each body of water on chart paper, in the order in which they are encountered.

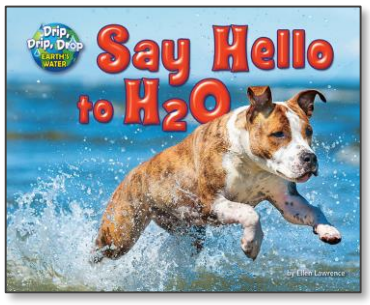
Resource Book Actions:

Write a classroom letter or an individual email or letter to a government official such as your senator or representative about clean water.

- https://www.nrdc.org/actions
- http://www.senate.gov/senators/contact/
- https://www.usa.gov/elected-officials

[STORY TIME STEM]

WATER



SAY HELLO TO H2O

By: Ellen Lawrence

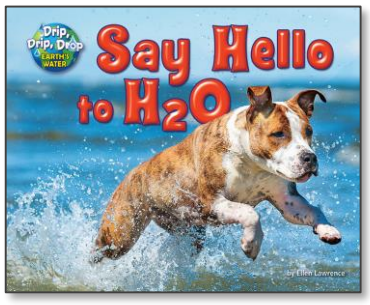
This informational book is organized into different sections with visible text features such as pictures with captions, table of contents, glossary and index. Water is a natural resource that we come into daily contact with both directly through drinking and eating and indirectly through consumption of products, transportation and use of electricity or appliances. This book explores essential facts about water using accessible photographs to illustrate concepts found in the text.

[CONCEPT OVERVIEW]

Water has many properties the following properties are highlighted in this book:

- Liquid water has no shape
- Water molecules are attracted to each other and other surfaces
- Water can be found in the form of a liquid a solid and a gas.
- Water can dissolve some substances.

WATER



SAY HELLO TO H2O

By: Ellen Lawrence

Questions & Activities:

Consider reading two to four pages in one sitting and pairing the reading with an activity or experiment in order to support young children and their learning process with these water concepts.

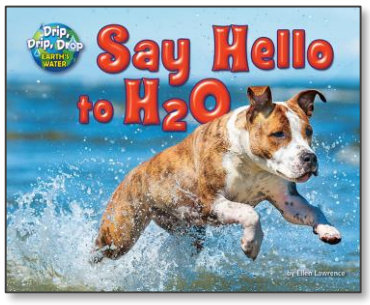
Pages 4-7: After reading these pages consider asking students to create a model by drawing a water molecule and labeling it using a piece of paper, white board, or felt cutouts. Tell children that "It takes billions of water molecules to fit inside of one drop of water" Ask if a billion is a lot or a little bit, then ask if they think that water molecules are very small or very large? (Hint: water molecules are very small and we have to use our imaginations to begin comprehending this unobservable concept. Children are usually great at using their imaginations and thinking about unobservable processes if prompted with the "right" questions.)

Pages 8-13: These pages focus on "sticky water" which is a property of water in which its molecules are attracted to one another and to surfaces such as rain sticking to a car window or a spider web. Read these pages with your learner(s) and take time to stop and explore the pictures and captions that illustrate this concept of sticky water on different surfaces.

There are three activities that can accompany these pages:

1. Take a walk outside to look for beads/drops of water on different surfaces such as leaves, windows, and grass. Spend time talking/listening/thinking with your learner(s) about the shape that water makes and thinking about the billions of water molecules that make up each drop.
2. Dip a paper towel into a cup of water and watch the walk "walk" up the towel to visualize capillary action found on pages 12 and 13. Ask learner(s) to think about how they would draw/model the molecules moving up the paper towel and consider pairing this activity with a time for drawing/modeling capillary action.
3. Consider doing the activity found on page 22 as learner(s) slowly drop water droplets onto a penny to see how many they can fit on top. Pharmacies will usually give out some droppers for free if requested otherwise they can be purchased online or at a local drug store. When students are doing this activity, ask "what are the drops doing?" "What shape do the drops make?" "Why do you think they make that shape?". Additional questions can emerge from talking and listening to ideas from children and allowing them to repeat the experiment.

WATER



SAY HELLO TO H2O

By: Ellen Lawrence

Pages 14-19: These pages focus on dissolving substances into water and the states of matter of water. These pages include questions to pose with readers as the text is read aloud.

Consider pairing the following activities with these pages:

1. After reading page 14, ask learner(s) to name some substances that they think can be dissolved into water. The definition of dissolved is on page 23 and it includes a visual definition as well. Allow learners to gather some safe substances from the kitchen to dissolve such as sugar/salt/oil. Some substances they chose will dissolve and others will not, if you are interested in incorporating data consider making a chart with a yes/no or dissolved/did not dissolve title at the top so that learner(s) can practice taking data. As learners conduct this investigation, they can also use tallies with a partner to keep track of how many drops they were able to fit onto a penny. This extension allows for increased engagement with measurement and data creation.
2. After reading pages 16-17 ask students why they think that water seems to "get bigger" when it freezes (use the image on page 16 of the broken frozen water bottle as reference point). Consider freezing a full bottle of water and spending time looking at the results and making observations of the effects of a cold temperature on the water molecules.
3. After reading pages 18-19 ask students to describe three different ways/places that they have seen water. Using student responses ask them how temperature (hot, cool, cold/freezing) affects water (examples: ice cubes, tap water, boiling water). Consider spending time on one or more of the states of matter that we can see water: popsicle observation, cold glass of water with drops on the outside means that water vapor in the air came into contact with the cold temperature of the container and turned back into water drops as a result of the change in temperature. Allow learner(s) to safely observe a hot cup of water and watching the water in the cup steam up out of the cup into water vapor. Engage in a discussion with your learner(s) about the effects of temperature on the water and how this can change the "state" of water (solid-liquid-gas).

EXTENSION ACTIVITIES

Extension activities in this kit serve to provide enrichment through the introduction of incorporating the different properties of water within everyday occurrences such as taking a walk or playing in the bathtub. Extension activities are an important part of learning for children because it provides them with new opportunities to apply the concepts explored previously in the books to new situations and events.

Activity 1: "Water Walks"
This activity encourages readers to explore their local outdoor neighborhood, park, and community to look for water. This activity can be done in any season as water takes different forms (ice, liquid, gas) according to the outside temperature. Water can flow above ground and underground so no matter where you live there is some form of water nearby.

Connections to books in kit:
Young readers have been reading about different types of water (salt-water, freshwater) that can be found in many places (rivers, oceans, seas, ponds, lakes). By taking children outside to look for water allows them to interact first-hand with some of the water concepts they have seen during read aloud time.

Materials:
A safe place for young walkers to explore, preferably with water visible in the area, and an adult(s) willing to engage in conversation about water concepts.

Optional materials:
Camera (digital, phone, disposable): Allowing young walkers the opportunity to capture their experiences through a photo-journey.

EXTENSION ACTIVITIES

Activity 2: "Water Play"
This activity can be done indoors or outdoors as children engage with water play with a tub of water, in a sink, a water table, or during bath time. Encourage students to gather some (safe) objects to drop into a container of water. Prior to dropping objects into the water ask child(ren) to make predictions about whether the object will sink or float.

Engage in conversation with children about why certain objects can float and others cannot. If you have access to a scale, include some conversations about size and weight to begin exploring mass, volume, and density.

Density can be thought of as how much an object weighs when the material fills a certain amount of space. Fill a bowl with two different kinds of materials with different weights. Think about a bowl filled with styrofoam versus the same bowl filled with pennies. The same amount of space is filled with each object but the styrofoam has a low density and the pennies have a high density.

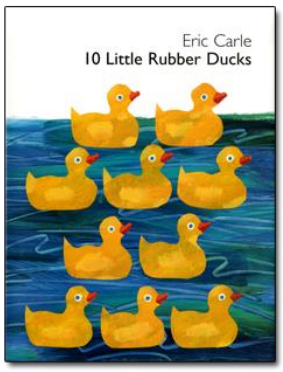
The ability of an object to float is described as its buoyancy. The object sinks into the water until it displaces an amount of water equal to its own mass. The buoyancy of an object is the result of an interaction of two forces: the force of gravity pulling the object down and the force of buoyancy holding the object up.

Connections to books in kit:
In many of the books in this kit there are objects and animals that can float, sink or swim in water. Allow children the time and access to an activity that brings to life the illustrations and science concepts found within a book.

Materials:
A safe place with an adult willing to engage in conversation with young children as they explore objects that float and sink near a container of warm water such as a bathtub, sink or large bowl. Objects that float (ball, can of soda, pumpkin, apple) and sink (penny, rock, key).

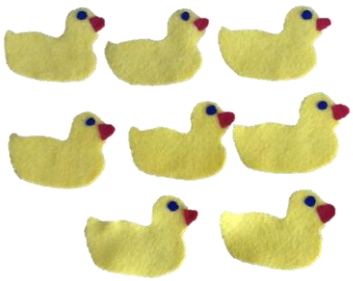
EXTENSION ACTIVITIES

Activity 3: 10 Little Rubber Ducks Felt Board



Using a felt board with the story provides children with a unique visual experience to understand the four main directions within the story.

Prior to reading the story use the compass rose to show students the different directions. Using the felt board as a kind of map, North is always on top, South at the bottom, West is on the left side, and East is on the right. Throughout the story children can be asked to move the different animals to the different locations based on the clues they hear in this story. Incorporating the world map of the currents and differentiating the way that you engage learners of different ages allows all children to learn more about causes, effects and patterns that led to the ducks drifting to different locations all around the world.



[RESOURCES]

Felt Board Ideas:

http://feltboardideas.blogspot.com/2013/09/10-little-rubber-ducks-by-eric-carle.html

EXTENSION ACTIVITIES

Additional Water Books

- *Mr. Archimedes' Bath* by Pamela Allen
- *A Cool Drink of Water* by Barbara Kerley
- *Water is Water* by Miranda Paul
- *All the Water in the World* by George Ella Lyon and Katherine Tillotson

Online sample search terms:

- Water
- The Properties of Water
- Bill Nye
- Buoyancy

Additional Resources

- The Water Project
  - https://thewaterproject.org/resources/elementary_activities
- Water Videos
  - http://www.watchknowlearn.org/Category.aspx?CategoryID=9479
- Follow the Water from Brook to Ocean photo journey
  - http://www.watchknowlearn.org/Video.aspx?VideoID=34363
- Bill Nye the Science Guy: Water Cycle
  - http://www.watchknowlearn.org/Video.aspx?VideoID=50072&CategoryID=9479
- Water Water Everywhere
  - http://www.watchknowlearn.org/Video.aspx?VideoID=35880&CategoryID=9480
- Water songs, book read-alouds, cartoons, animations, informational videos
  - http://www.watchknowlearn.org/Video.aspx?VideoID=35880&CategoryID=9480

CONNECTIONS TO ACADEMIC STANDARDS (NGSS & CCSS)

Science Standards Overview

- Cause & Effect (K.PS2.A, KESS3-3, 3.PS2-2, PS2.B, K-LS1-1, K.ESS3-2, 2.LS4-1, 2.LS4-D,3.PS2-2, ESS2.C)
- Patterns (3.ESS2-D, K.LS1.1, ESS2.C)
- Forces & Motion (K.PS2.A, 3.PS2-2, PS2.B, ESS2.C)
- Making Observations (K-LS1-1, K.ESS3-2, 2.LS4-1, 2.LS4-D,3.PS2-2, L.S4.D, ESS2.C)
- Asking Questions (K.PS2.A, KESS3-3, 3.PS2-2, PS2.B, K-LS1-1, K.ESS3-2, 2.LS4-1, 2.LS4-D,3.PS2-2, ESS2.C)

Mathematics Standards Overview

- Number names and Counting sequences (K.CC.A.1-2)
- Counting to tell the number of objects (K.CC.B.4-5)
- Comparing numbers and quantities (K.CC.C.6)
- Understanding addition as putting together and adding to, and understand subtraction as taking apart and taking from (K.OA.A.1-3)
- Describing and comparing measurable attributes (K.MD.A.1)
- Representing and solving addition, subtraction, and multiplication problems (1.OA.A1; 3.OA.A1)
- Making sense of problems and persevering in solving them (MP1)
- Construct viable arguments and critique the reasoning of others (MP3) For young mathematicians, this looks like pointing to the illustrations or pictures to show your thinking and thinking about what you hear other children saying.

Literacy Standards Overview

Read-aloud books support engagement with the following CCSS-ELA Standards:

Reading Literary Text

1. Ask and answer questions about key details in a text
2. Retell stories, including key details, and demonstrate understanding of their central message or lesson
3. Describe characters, settings, and major events in a story, using key details
4. Identify words and phrases in stories or poems that suggest feeling or appeal to the senses
5. Explore major differences between books that tell stories and books that give information
7. Use illustrations and details in a story to describe its characters, settings, or events

CONNECTIONS TO ACADEMIC STANDARDS (NGSS & CCSS)

Reading Informational Text
5. Know and use various text features (headings, table of contents, glossaries, electronic menus, icons) to locate key facts or information in a text
7. Use the illustrations and details in a text to describe its key ideas
9. Identify basic similarities in and differences between two texts on the same topic

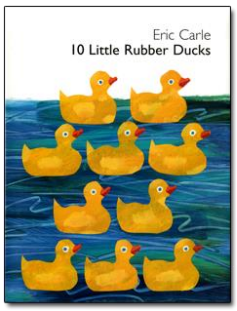
Speaking and Listening
1. Participate in collaborative conversations with diverse partners about (level appropriate) topics and texts with peers and adults in small and larger groups.
a) Follow agreed-upon rules for discussions (e.g., listening to others with care, speaking one SEP at a time about the topics and texts under discussion).
b) Build on others' talk in conversations by responding to the comments of others through multiple exchanges.
c) Ask questions to clear up any confusion about the topics and texts under discussion.
2. Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
4. Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
5. Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
6. Produce complete sentences when appropriate to task and situation.

Resource Books support engagement with the following CCSS-ELA Standards:

Reading Informational Text
2. Identify the main topic and retell key details of a text
4. Ask and answer questions to help determine or clarify the meaning of words and phrases in a text
5. Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text
6. Distinguish between information provided by pictures or other illustrations and information provided by words in a text
7. Use the illustrations and details in a text to describe its key ideas
9. Identify basic similarities and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures)

[STORY TIME STEM]

WATER



STANDARDS ADDRESSED IN: 10 LITTLE RUBBER DUCKS

By: Eric Carle

[NEXT GENERATION SCIENCE STANDARDS]

K-ESS3-2: Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.

K PS2.A: Forces and Motion: Pushes and pulls can have different strengths and directions. (Ocean currents are examples of pulls.)

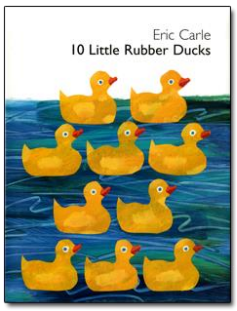
2-LS4-1: Make observations of (plants) and animals to compare the diversity of life in different habitats.

2 LS4.D: Biodiversity and Humans: There are many different kinds of living things in any area, and they exist in different places on land and in water. (Make observations of the different kinds of animals in this story. The animals in this book all live in or near salt water and rely on this water as a habitat and a place to find food.)

3-ESS2.D: Weather and Climate: Scientists record patterns of the weather across different times and areas so that they can make predictions about what kinds of weather might happen next.

[STORY TIME STEM]

WATER



STANDARDS ADDRESSED IN: 10 LITTLE RUBBER DUCKS

By: Eric Carle

[COMMON CORE STATE STANDARDS]

Know number names and the count sequence.
K.CC.A.1: Count to 100 by ones and by tens. ("Let's count the little rubber ducks!")
K.CC.A.2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.A.3: Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

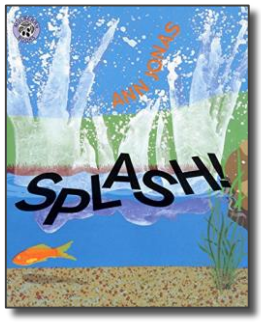
Count to tell the number of objects.
K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.B.4.A: When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
K.CC.B.4.B: Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
K.CC.B.4.C: Understand that each successive number name refers to a quantity that is one larger.
K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

Compare numbers.
K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.1
K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.A.2: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
K.OA.A.4: For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.

[STORY TIME STEM]

WATER



STANDARDS ADDRESSED IN: SPLASH!

By: Ann Jonas

[NEXT GENERATION SCIENCE STANDARDS]

K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

LS1.C: Organization for Matter and Energy Flow in Organisms: All animals need food in order to live and grow. They obtain their food from plants and from other animals. Plants need water and light to live and grow.

K-ESS3-1: Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

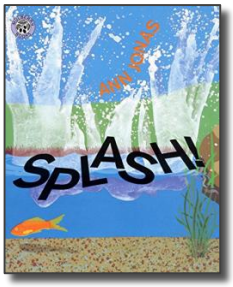
ESS3.A: Natural Resources: Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.

LS4.D: Biodiversity and Humans: There are many different kinds of living things in any area, and they exist in different places on land and in water.

ESS2.C: The roles of water in Earth's Surface: Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.

[STORY TIME STEM]

WATER



STANDARDS ADDRESSED IN: SPLASH!

By: Ann Jonas

[COMMON CORE STATE STANDARDS]

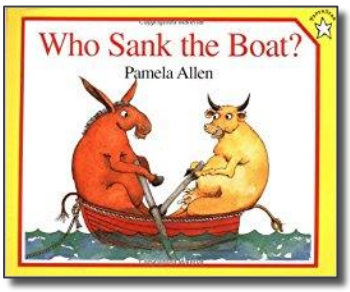
Know number names and the count sequence.
K.CC.A.1: Count to 100 by ones and by tens. ("Let's count the animals in the pond.")
K.CC.A.2: Count forward beginning from a given number within the known sequence ("There were 8 animals in the pond. Adding these two makes – nine, ten.").

Count to tell the number of objects.
K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.B.4.A: When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
K.CC.B.4.B: Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. (pointing to the animals as we count "One, two, three, four. We counted four animals. There are four animals in the pond.")
K.CC.B.4.C: Understand that each successive number name refers to a quantity that is one larger.
K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
1.OA.C.1: Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
("There were 8 animals in the pond. Adding these two makes – nine, ten.").

Compare numbers.
K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. ("Are there more animals in the pond, or more animals outside of the pond?")
K.CC.C.7: Compare two numbers between 1 and 10 presented as written numerals.

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
1.OA.A.1: Use addition and subtraction within 20 to solve word problems involving situation of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings and equations with a symbol for the unknown number to represent the problem.
K.OA.A.2: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
("Can you show me with blocks? What do these blocks show?)
1.OA.A.2: Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20.
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation.
(Is there another way to count the animals? - ie, counting the fish first, then the turtles vs. Counting the turtles first, then the fish)

WATER



STANDARDS ADDRESSED IN: WHO SANK THE BOAT?

By: Pamela Allen

[NEXT GENERATION SCIENCE STANDARDS]

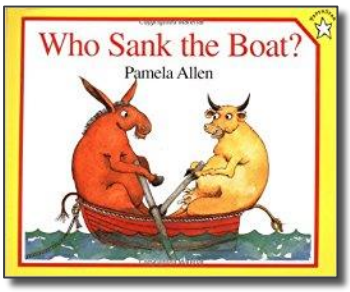
3-PS2-2: Make observations and/or measurements of an object's motions to provide evidence that a pattern can be used to predict future motion.

PS2.A: Forces and motion: pushes and pulls can have different strengths and directions. Pushing or pulling an object can change the speed or direction of its motion and can start or stop it.

PS2.B: Types of Interactions: When objects touch or collide they push on one another and can change/create motion.

[STORY TIME STEM]

WATER



STANDARDS ADDRESSED IN: WHO SANK THE BOAT?

By: Pamela Allen

[COMMON CORE STATE STANDARDS]

Know number names and the count sequence
K.CC.A.1: Count to 100 by ones and by tens. ("Let's count the animals on the dock/in the boat")
K.CC.A.2: Count forward beginning from a given number within the known sequence (instead of having to begin at 1).

Count to tell the number of objects
K.CC.B.4: Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.B.4.A: When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
K.CC.B.4.B: Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.
K.CC.B.4.C: Understand that each successive number name refers to a quantity that is one larger.
K.CC.B.5: Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.

Compare numbers
K.CC.C.6: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. ("Are there more animals in the boat or on the dock?")

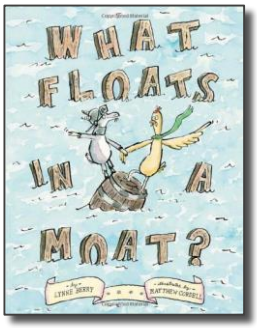
Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from
K.OA.A.1: Represent addition and subtraction with objects, fingers, mental images, drawings1, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
K.OA.A.2: Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.A.3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).

Describe and compare measurable attributes
K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.MD.A.2: Directly compare two objects with a measurable attribute in common to see what object has "more of"/"less of" the attribute, and describe the difference.

Make Sense of Problems and Persevere in solving them
MATH PRACTICE 1: Consider analogous problems to gain insight into the solution. Monitor and evaluate progress and change course if necessary.

[STORY TIME STEM]

WATER



STANDARDS ADDRESSED IN: WHAT FLOATS IN A MOAT?

By: Lynne Berry

[NEXT GENERATION SCIENCE STANDARDS]

3-PS2-2: Make observations and/or measurements of an object's motions to provide evidence that a pattern can be used to predict future motion.

PS2.A: Forces and motion: pushes and pulls can have different strengths and directions. Pushing or pulling an object can change the speed or direction of its motion and can start or stop it.

PS2.B: Types of Interactions: When objects touch or collide they push on one another and can change/create motion.

[COMMON CORE STATE STANDARDS]

Describe and compare measurable attributes.

K.MD.A.1: Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.

K.MD.A.2: Directly compare two objects with a measurable attribute in common to see what object has "more of"/"less of" the attribute, and describe the difference.

Problem Solving.

MATH PRACTICE 1: Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They consider analogous problems and try simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Students use concrete objects or pictures to help conceptualize and solve a problem.