iMath Readers

Tending the Tide Pool:
The Parts Make a Whole

by Donna Loughran

Math Objective

In this book, children take a trip to an aquarium by the ocean. Children learn about sea animals. They also learn to identify equal parts of a whole. They analyze an array to find out how many parts there are in all. They also write number sentences and skip count to find out how many are in an array.

iMath Discover Activity

In this activity, children play a different kind of "Go Fish." They learn the parts of a whole by fishing for construction paper fish that have been cut into three and four equal parts.

Materials

- colored paper
- colored markers
- safety scissors
- paper clips
- tape
- pipe cleaners
- string
- bowl

➤ **Objectives**

Children will:

• cut their construction-paper fish into equal parts.

• recreate the whole fish by putting the equal parts back together.

• learn the language of fractions.

Lesson Plan

Before Reading

Investigation	**Math Concepts**
Ask children to look at the picture on pp. 4–5. Ask: *Have you been to an aquarium? What would we find there?* Record children's answers on the board. Draw the three rectangles of the aquarium on the board. Put big fish in the left rectangle. Draw small fish in the middle and right rectangles. Ask: *How many*	Connecting to what they know helps children engage in the topic.

windows make up the whole aquarium in my picture and in the photograph? (3) Tell them: *We can say this in another way: Three-thirds = the whole aquarium.* Ask: *How many thirds of the window have big dark fish?* (The left window has big dark fish, so one third.) *How many thirds have small fish?* (two thirds)	
Ask: *How would you tell what a whole is? What are the equal parts of something?* Provide 3 blue construction paper rectangles to each child. Have them glue the rectangles on a piece of drawing paper to make the windows of the aquarium. Let children cut fish and plants out of construction paper to fill in their aquariums.	Accessing prior knowledge gets children to think about and engage with the topic. Check children's understanding at this point.

At the aquarium, children will learn how to partition circles and rectangles into two, three, or four equal parts. They will describe the parts using the words halves, thirds, half of, a third of. And they will describe the whole as two halves, three thirds, four fourths.

During Reading

Investigation	**Math Concepts**
pp. 6–7: Read p. 6 aloud. Invite children to answer the questions. Provide three construction paper circles as well as rulers and safety scissors for each child. Let children experiment with creating halves, thirds, and fourths. Read p. 7 aloud. Invite a volunteer to draw the fish array on the board. Have another write the number sentences. Demonstrate how to skip count the array.	Manipulating models helps children to understand and engage with the topic.
pp. 9–11: Read these pages aloud. Ask: *What is a tide pool? Record children's answers on the board.* Provide paper with a rectangle divided into four equal parts on it along with three star stickers. Reread the bottom of p. 11. Have children fill in three fourths of the tide pool with their star stickers. Ask: *What part of the pool does not have starfish in it?* (one fourth, or a fourth of the pool)	Children partition a rectangle into rows and columns of same-size squares and count to find the total number of them. They also partition a rectangle into four equal parts, describe the parts using the words three fourths of, fourth of, etc., and describe the whole as four fourths.

During Reading (continued)

Investigation	Math Concepts
pp. 12–13: Reread p. 12 aloud. Draw an octopus on the board with 8 tentacles. Say: An octopus lives in the ocean. You might find one at an aquarium. How can we make an array to show how many tentacles it has? Invite a volunteer to draw an array with 8 symbols. Have other volunteers write number sentences to describe the array. Let another volunteer show how to skip count the array by four and by two. Reread p. 13 aloud. Ask: What part of the buckets are empty? (two thirds)	Children create an array of same-size symbols and count to find the total number of them. They partition a whole into three equal parts, describe the parts using the words one third, two thirds, three thirds, third of, etc., and describe the whole as three thirds. Children understand that equal shares of identical wholes need not have the same shape.
pp.14–15: Read p. 14 aloud. Let children attempt to say the tongue twister. Then, give them some time to write their own. After a few minutes, ask volunteers to share their tongue twisters. Read p. 15 aloud. Ask: *How can we find a total for the array of buckets that Paloma and the children carried?*	Children play with language to absorb content and make it their own. They create an array of same-size buckets and skip count or write number sentences to find the total number.
pp. 16–17: Read p. 16 aloud. Have children explain why math is so important to divers. Record their answers on the board. Read p. 17. Have children answer the caption question.	Children discuss how math is important in everyday life. Children make associations between art and nature.
pp. 18–20: Read p. 18 aloud. Have children write a number sentence to show the problem. (3 + 3 +3 = ?) Draw the anemone array on the board. Invite a volunteer to skip count by threes to find the total. Read pp. 19–20. Have children explain why they think certain strategies for finding the whole and its parts work better than others (find and name equal parts, make an array, make number sentences, skip count). Encourage them to support their conclusions.	Children understand how to partition rectangles into two equal parts. They will describe the parts using the words halves, half of, two of. Children understand how to partition a rectangle into rows and columns to make an array. Children use an array to find a total. They write number sentences and skip count.
p. 21: Read p. 21 together. Work with children to help them think about how to create their array. Provide craft and recycled materials, such as egg cartons, cardboard boxes, and plastic containers.	Children manipulate objects and materials to create a display array.

After Reading

Ask children to restate the key ideas in the book.

Investigation	Understanding Math
Group children. Have them make up a matching game that uses equal parts of different shapes as game pieces. Provide construction paper and other materials. Have them write the rules to their game down.	Children understand and become fluent with equal parts of a whole.
Hide parts of a whole around the room using paper shapes. From their desks, have children spy the parts that make up a whole. Give them clues if they need prompting. Encourage them to use the language of fractions as they discover each part of the whole.	Children use math language to describe the parts of a whole.