

SWIMMY SCIENCE AND MATH LESSON

Objectives

- Students will learn about schooling as camouflage.

Correlations

K–2 Life Science

- Plants and animals have features that help them live in different environments.

K–2 Math

- Students use estimation strategies in computation and problem solving.

Materials

- *Swimmy* by Leo Lionni
- The Little Octopus CD lesson: Camouflage, Reef Critters
- Activities: M6 Estimating, M7 Estimating

INTRODUCTION

Introduce the story, *Swimmy*. A little fish comes up with a way to camouflage himself and his new friends.

STORY

Read the story aloud. Go back through the story. In the first part of the book, point out that the fish are loosely grouped together. At the end of the story, Swimmy has taught the other fish to swim together as if they were one big fish. How does this help them?

CD Lesson: Camouflage

Objectives: What is schooling? How does schooling help fish to camouflage?

Open the unit on camouflage and click on the lesson called Schooling. Listen to the text and view the photos and video. How many fish do you think are in the school in photo 1? Notice in the video that the fish group and regroup. Which fish are most likely to get eaten?

Open the Reef Critters lesson. Click on schooling fish in the first reef scene. Listen to the text and view the photos and video. Can you estimate how many fish are in the school in photo 1? Photo 3 is a good example of fish moving as one group. Schooling helps fish to get food, as well as to hide.

FOLLOW-UP ACTIVITIES

Set up a math center with a cup of fish crackers and a large open round cookie cutter*. (*OR you can make a ring or fish shape by taping together a strip of

at-a-glance

Read *Swimmy*.

CD-ROM Lessons:
Camouflage
Schooling
Reef Critters
Schooling

Learning Center:
Students estimate the
number of fish

at-a-glance

Print Activities
M6 Estimating and
Counting
M7 Estimating How
Many

Group Activity:
What's it like to be a
fish in a school?

Live Video:
Monterey Bay
Aquarium.

Art Activity:
Print a fish shape.

tagboard.) Have students pour the crackers onto a sheet of paper and estimate how many fish are in their school. Record the estimate. Then have them pour the cup of fish into the fish shape and again estimate how many fish are in their school.

Students then count the fish. Which estimate was closer? Was it easier to estimate the number of fish when they were spread out on the paper or grouped tightly together in the fish shape?

Print Activity M6 on the CD in the math folder. Students estimate the number of animals in each group, then count to find the correct answer.

Print Activity M7 on the CD in the math folder. (see attached). Students estimate how many of each kind of fish are in a tank.

Have a group of students stand close together. Ask them to try to move as one group without talking. Are they able to sense one another's movements? How do you turn and move?

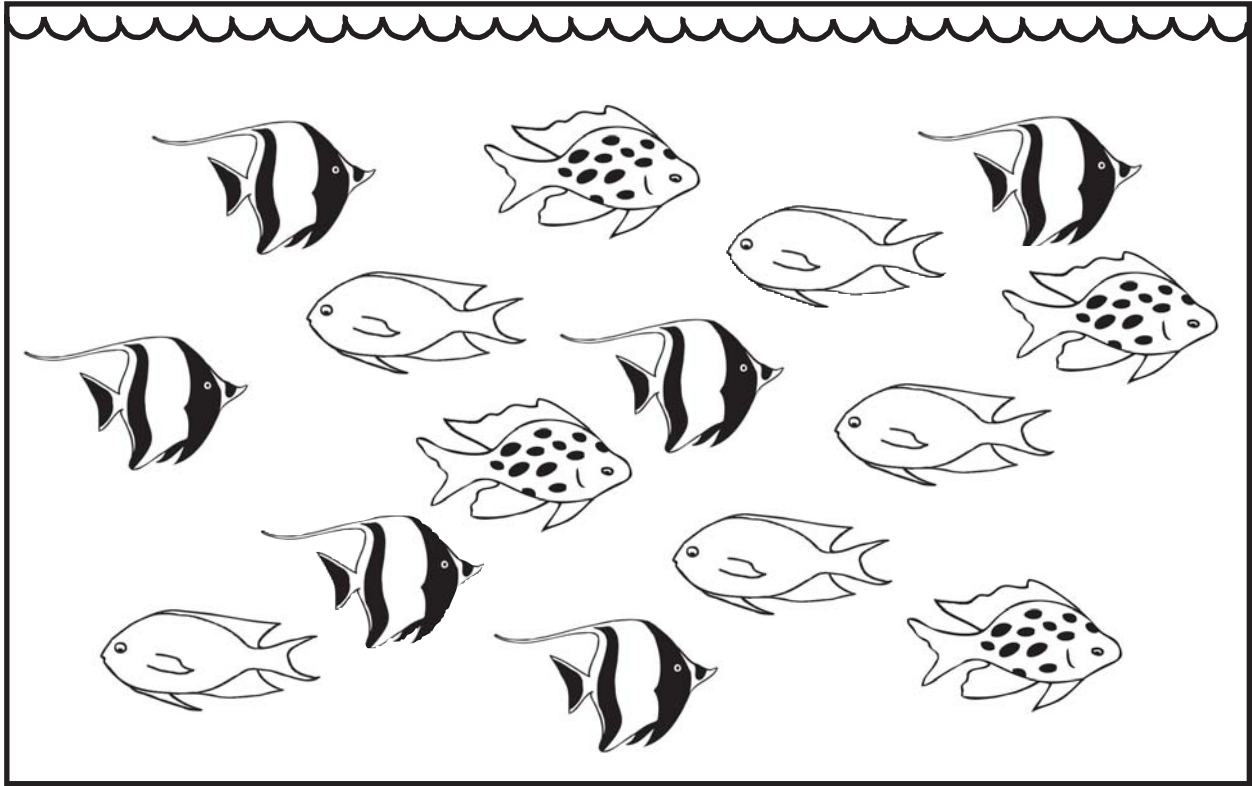
In a school of fish, there isn't a leader. If one fish decides to turn, they all turn. Fish have a sensory line, called a lateral line, on the side of their body that lets them sense the movement of the fish around them.

Go to the Monterey Bay Aquarium website to watch live video of animals. Click on the webcam for the Outer Bay to see schooling tuna and mackerel. Click on the webcam for the Kelp Forest to see if there are any schools of sardines or anchovies on display.

http://www.mbayaq.org/efc/cam_menu.asp

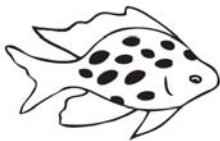
Have students make their own large fish-shaped school using rubbers stamps or small pieces of sponge cut into a fish shape and dipped in paint.

ESTIMATING HOW MANY

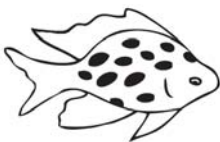


There are 3 kinds of fish in the tank.

1. Without counting them, circle which kind of fish you think has the most fish in the tank.

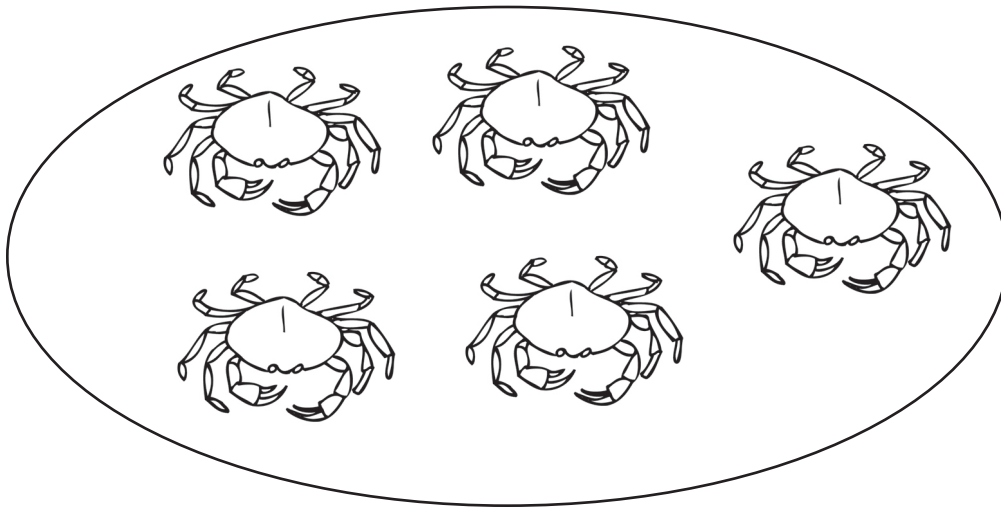


2. Now count each kind of fish in the tank. Write the number under each fish.



ESTIMATING AND COUNTING

Here is a group of 5 crabs on the sand.

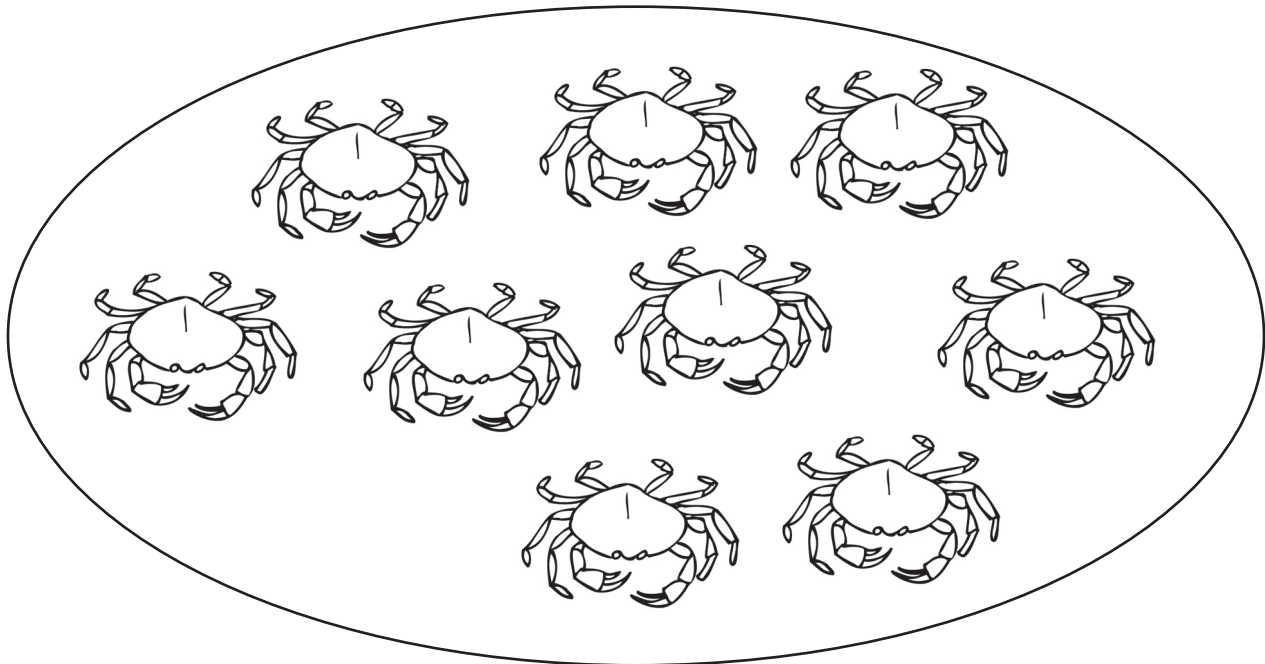


Look at the crabs below. Without counting, circle about how many crabs you think are on the sand. Then count them and write the number on the line.

7

9

11



1. Number of crabs _____

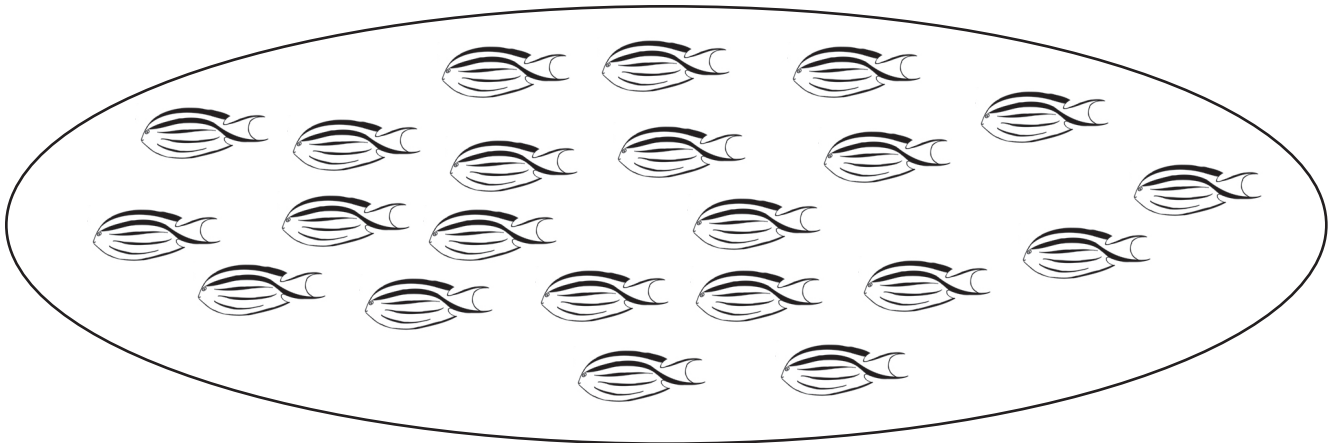
ESTIMATING HOW MANY

Look at the schools of fish below. Without counting them, circle about how many fish you think are in each school. Then count the fish and write the number on the line.

10

20

30

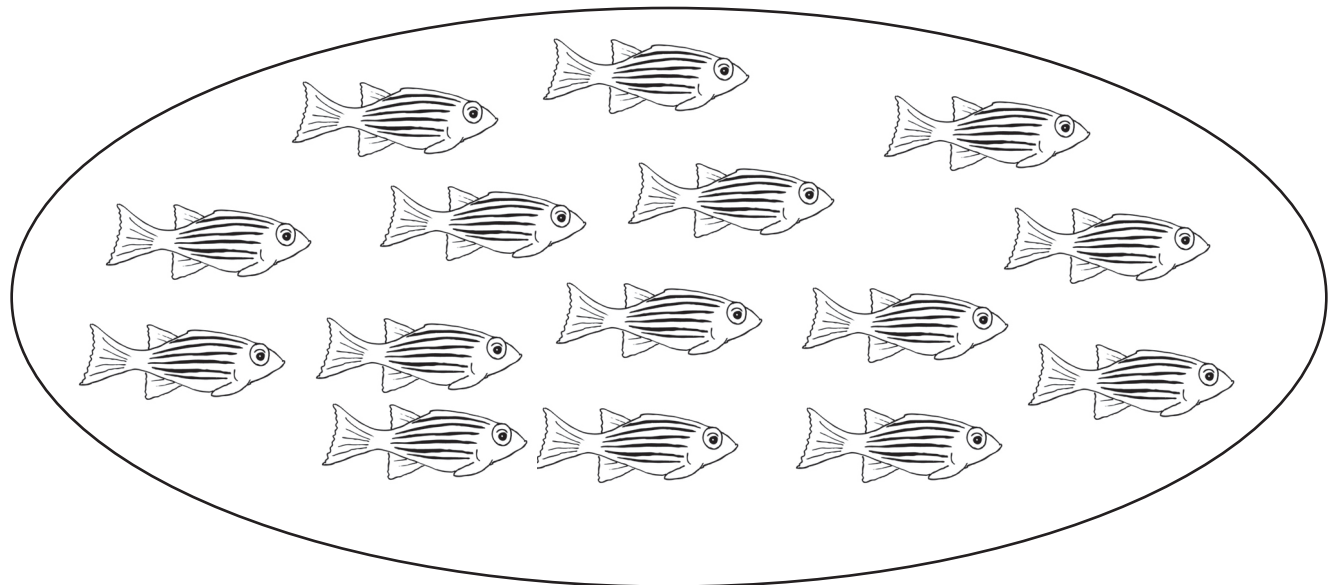


2. Number of fish _____

15

20

25



3. Number of fish _____