



SCIENTIST IN RESIDENCE PROGRAM™

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Science Unit: *Pacific Salmon and their Environment*

Lesson 12: *Recording the Catch*

Summary: Students use candy, crackers, rice and other food as models for “species” caught in a **fishing trawl**. They count the species caught in the net, learn how to use **tally marks** to record their count, and **practice graphing** and **interpreting their data** by describing most and least.

School Year: 2014/2015

Developed for: Dr. Annie B. Jamieson Elementary School, Vancouver School District

Developed by: Dominic Tollit (scientist); Beverly Grant and Melanie Dorchester (teachers)

Grade level: Presented to grade K-2; appropriate for grades K-4 with age appropriate modifications

Duration of lesson: 1 hour and 20 minutes

Notes: Students will be given food items to work with. Highlight no eating during the experiment, but mention you have a few treats for end.

Objectives (Objectives refer to the science topic and/or the process of science.)

1. Students will learn how to collect data using tools and how to use tally marks.
2. Students will learn how to graph and interpret their data by describing most and least.

Background Information

To catch flatfish in the marsh creeks or the oceans, marine scientists use trawl nets to drag the bottom. After the net is emptied, the scientists must then sort through the items to find the fish for which they are looking. Students will become marine scientists counting a catch. They will identify, group and count different marine species represented by different food items. The students will use tally marks to record the catch. Each student will learn how to graph these counts and identify the most and least frequent item identified.

Vocabulary

Flatfish: Describes a kind of fish with a flattened body shape, typically living on the sea bottom

Polychaetes: A common kind of marine worm that lives in the sediment often eaten by flatfish

Maximum: the highest or greatest count or value

Minimum: the lowest or least count or value

Materials

- Large plastic container (as the ocean)
- Plates or bowls
- Food items including coloured fish crackers, gummy worms, lemon drops, round crackers
- Tweezers for each person
- Paper towels
- Wet wipes
- Sampling cups
- Data tally sheets
- 10kg bag of rice



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In the Classroom

Introductory Discussion

1. Explain that students will learn about marine scientists, how to collect data using tools, and how to use tally marks. Students will also learn how to graph and interpret their data by describing most and least.
2. Briefly describe the processes of science that the students will focus on: counting, using tally marks, recording data, graphing.
3. Safety guidelines: No eating food items.

Science Activity

Activity: Recording the catch

Purpose of Activity: To learn how to collect data using tools and how to use tally marks. Students will learn how to graph and interpret their data by describing most and least.

Methods and Instructions:

Set-up prior to experiment:

Mix rice in large bowl with:

- 45 Arrowtooth flounder (gold fish cracker)
- 18 fringed flounder (green fish cracker)
- 8 salmon smolts (red fish cracker)
- 31 sole (purple fish cracker)
- 17 crabs (lemon drops)
- 15 worms (gummy worms)
- 8 crackers (oyster shells)
- and 1-2 unique other food items (new species)

(Numbers used can reflect the ability of the students to count).

1. Before the Activity:

Explain that to catch flatfish in the marsh creeks or the oceans, marine scientists use trawl nets to drag the bottom. After the net is emptied, the scientists must then sort through the items to find the fish for which they are looking. Show the students the items they can expect to find in their trawl net.

Students will use the tweezers to sort through the rice to identify, group and count all the different marine species they find in the sample - represented by different food items. The rice represents the sand dragged up in the sample.

The students will use tally marks to record the catch. Each student will provide a tally to the class for a class total which is graphed on a white-board. Explain how to record the data with tally marks on the classification sheet.

Divide the class into small groups no more than 5 students per group. Students should each have their own plate and data sheet to mark what they collect.



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2. Science Activity:

“Each of you is now part of a team of marine scientists. You will use your trawl net (bowl) to catch fish in the marsh”. Get them to scoop up a sample from the large container and empty their net onto a paper towel or on a plate to sort out the different animals they may find. “Remember, I showed you how to mark what you find on your paper. Put the “specimens” you find in your bowl. Don’t eat them!” Circulate around the room as you monitor each group working independently. Get them to count up their tally marks individually. Once you see that most groups are finished, have the class come together to discuss the results.

3. After the Activity:

Assessment: Using a data collection sheet as a guideline for the headings, construct a class graph of the data. Have the students state their results and add data to the graph. Discuss the procedure and the results. Discuss largest/greatest (maximum) and smallest/least (minimum) counts.

Graphing exercise: Each student uses information on the final class counts and class graph to plot their own graph. Depending on the grade level – pre-made graph templates can be used. Children can fill in a ‘we learned how to’ worksheet?

Closure Discussion

Did we catch only flatfish?

Discuss by-catch in real trawl fishery.

References

Extension of Lesson Plan

Calculate average number of fish found by class.



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Fish Data Collection Sheet

What did you find?	How many did you find? Use tally marks and record total.	Class Total
Gold fish (Arrowtooth Flounder)		
Red fish (Salmon smolt)		
Purple Fish (Sole)		
Green fish (Fringed Flounder)		
Lemon Drops (Crabs)		
Gummy worms (Polychaetes)		
Crackers (Oyster Shells)		