



Lesson 9: Size Patterns in an Oyster Cluster

Focus Question:

Are all oysters found in one cluster the same size?

Objectives:

- To observe size & position of oysters found in a cluster
- To make observations using measuring tools.

SC Science Standards:

Standard 7-1: The student will demonstrate an understanding of technological design and scientific inquiry, including process skills, mathematical thinking, controlled investigative design and analysis, and problem solving.

Purpose: This is a measuring and analysis lab activity in which students determine size variations within an oyster cluster.

Time Duration: 2 hours

Materials:

Each student group:

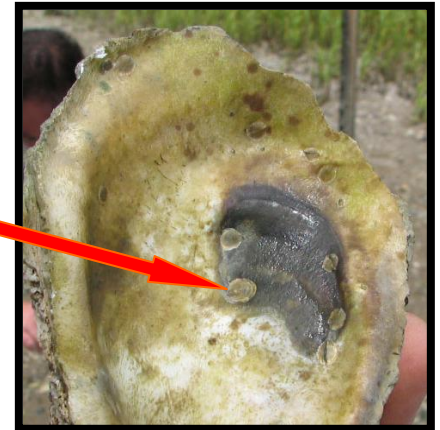
- A glass jar
- 1-3 clusters of live oysters
- Metric Ruler
- Oyster Life Cycle (Appendix 1)
- Gloves
- Tweezers
- Tray or newspaper
- 2 Sheets of Graph Paper
- Colored Pencils (optional)

Each student:

- Student Lab Sheet (Appendix 2)
- Graph Paper (Appendix 3)

Vocabulary:

Spat: A juvenile oyster that has just settled onto hard substrate, like oyster shell, dock pilings, or rocks.



Oyster spat settled on a discarded oyster shell.

SAFETY NOTE: Please note that students must wash their hands in warm water and soap after handling oysters (in or out of the shell) because raw oysters may carry harmful bacteria.

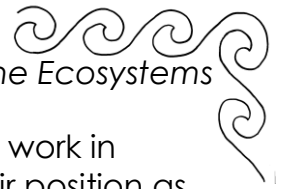
Do not allow students to eat raw oysters due to bacteria and shellfish allergies.

Student Engagement:

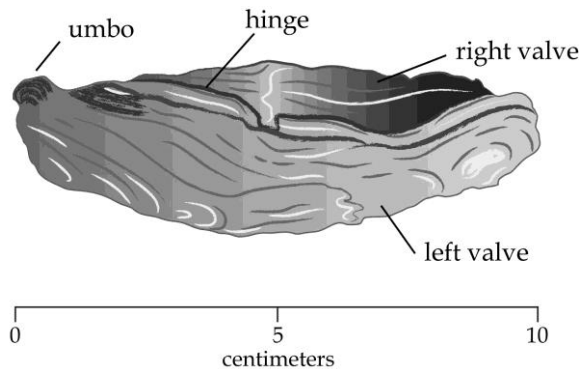
A. Present the focus question of the lesson and ask students to predict the answer. They will use their observation skills to identify key differences within the reef. Tell students that it is hard to measure an oyster's exact age, however there is a way to find its "relative age" by size and position. Write this term on the board.

B. Student Challenge:

1. Briefly review the life cycle diagram (Appendix 1) with the students. Note: The Spat and Adult stages are the only stages of oyster development that are clearly visible. Oyster larval stages are planktonic and mostly microscopic.



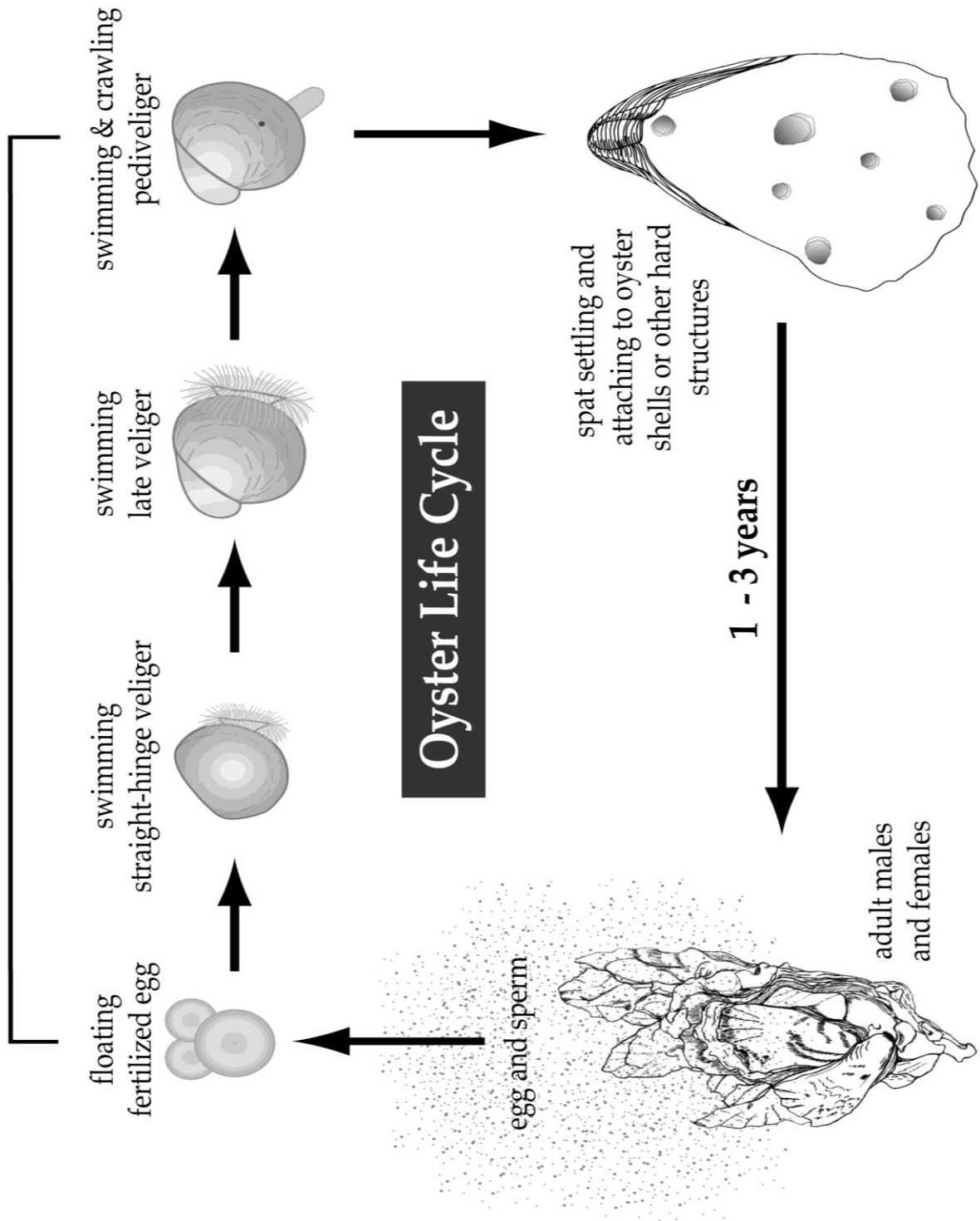
2. Distribute oyster clusters to each student group and have students work in groups to observe and measure relative shape and size, as well as their position as being on top on another oyster or not.
3. Collect their data on the Student Lab Sheet, as well as draw pictures of the clusters.
4. Count the number of oysters in their cluster and assign each oyster a number. An ink pen or "Sharpie" fine line can be used to write on each oyster. Each student will draw a diagram of the cluster and label each oyster on the drawing on the Student Lab Sheet.
5. Measure the size (length and width) of each oyster in centimeters if possible, and record their data on the Student Lab Sheet.
 - a. **Length**– from the hinge to the bottom of the shell;
 - b. **Width**- from one side of the left valve to the right valve.
(This oyster is 10 cm in length and about 3.5 cm in width)



6. Ask students to think of other ways that oysters in a cluster can be quantitatively observed. Make a list of their ideas on the board. (Photographed is one idea)



Appendix 1: Oyster Life Cycle





Appendix 2 Student Lab Sheet (Teacher's copy)

1. Labeled sketch of your oyster cluster:

2. Oyster Data Table:

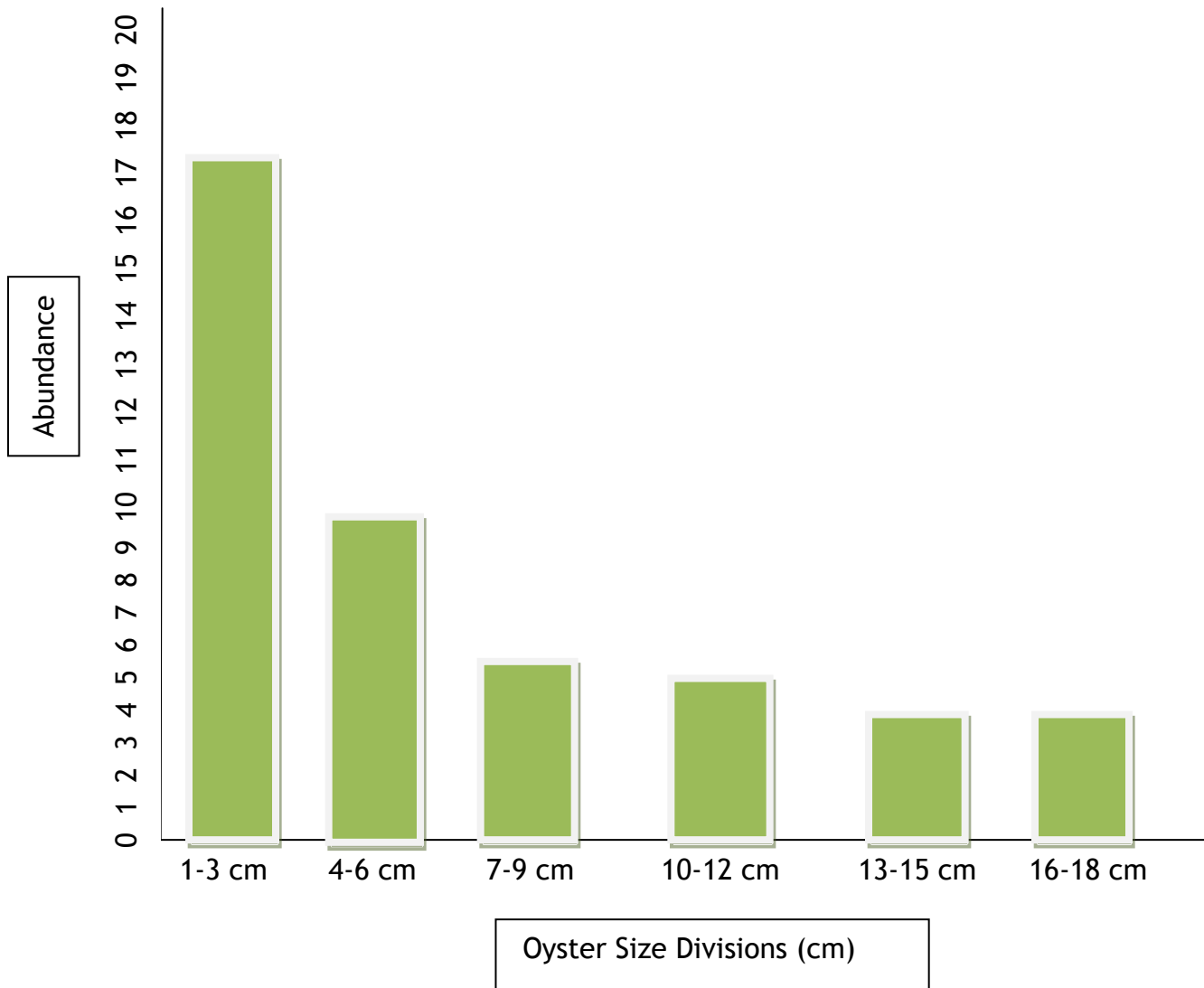
Oyster ID Number	Width	Length



3. Using the collected data, determine the mean length and width of oysters found in these clusters. (total length/number of individuals)
 - A. Mean Length - _____
 - B. Mean Width - _____

4. Determine the range of length and width (greatest and smallest)
 - A. Range of Lengths - _____
 - B. Range of Widths - _____

5. Using the graph below, create a histogram showing the distribution of oyster lengths found within your cluster along the X axis. What pattern do you see?
Sample Bar Graph Answers will vary on cluster origin & season.



Focus Question: Are all oysters found in one cluster the same size? What have you learned about size and position in an oyster cluster?



Appendix 2 Student Lab Sheet

1. Labeled sketch of your oyster cluster:

2. Oyster Data Table:

Oyster ID Number	Width	Length



5. Using the collected data, determine the mean length and width of oysters found in these clusters.

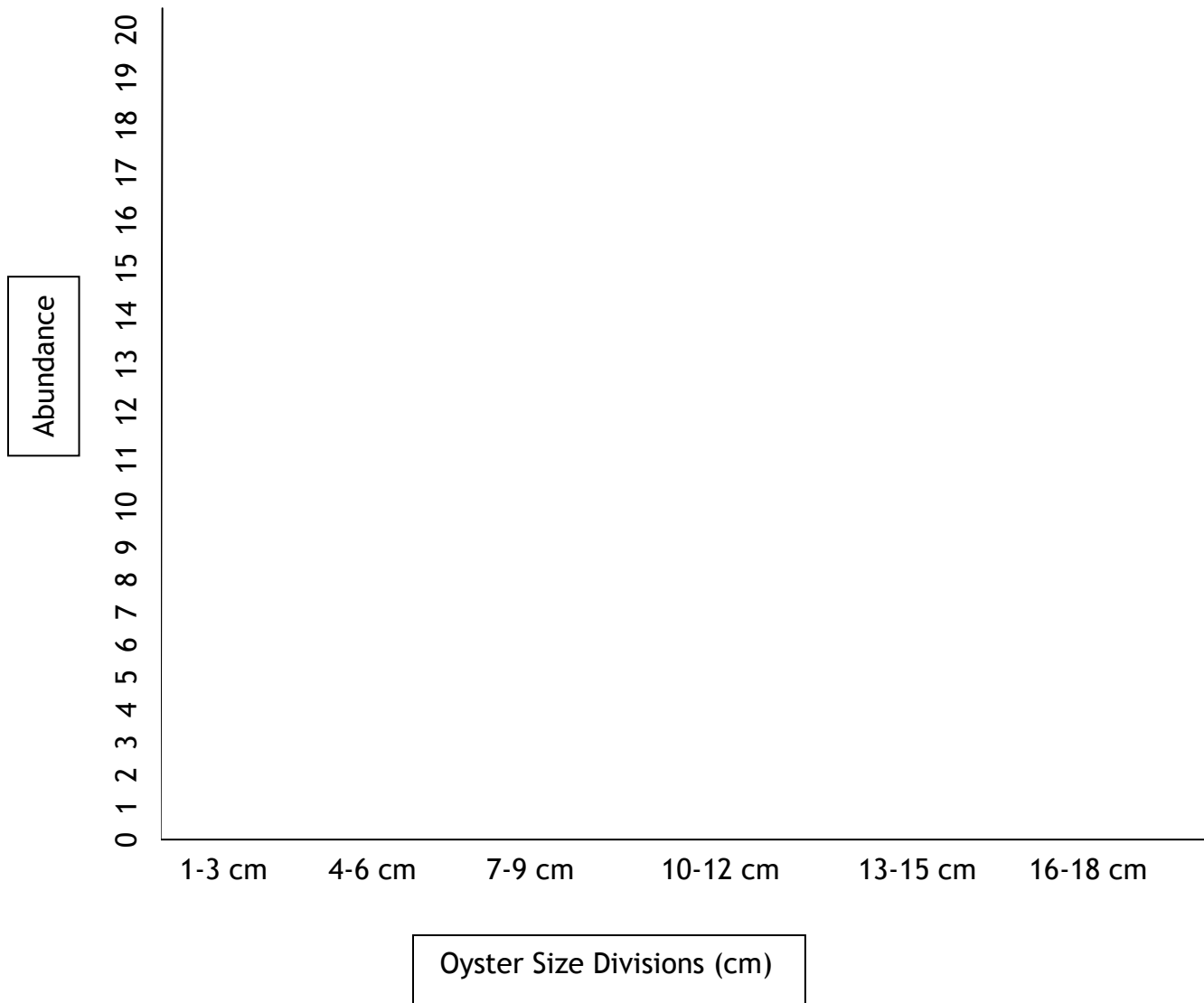
B. Mean Length - _____ B. Mean Width - _____

6. Determine the range of length and width

B. Range of Lengths - _____ B. Range of Widths - _____

6. Using the graph below, create a histogram showing the distribution of oyster lengths found within your cluster along the X axis. What pattern do you see?

Answers will vary on cluster origin & season.



Focus Question: Are all oysters found in one cluster the same size? What have you learned about size and position in an oyster cluster?