

# Boneless Bunch

Pre- and Post- Visit Activities

Grades 1-3





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# Boneless Bunch

A 45-minute program for Grades 1-3 at the National Aquarium in Baltimore

## Program Description

Boneless Bunch will excite and engage your students in learning about marine invertebrates, animals without backbones. This hands-on experience will expose students to several living marine invertebrates, such as a sea star, horseshoe crab, sea urchin, and hermit crab. Through the use of props and encountering these live animals, students will discover the adaptations of these animals; such as how they move, feed, see and protect themselves. They will also be able to observe and locate the mouth, eyes, and feet or legs on each animal.

## Planning for the Program

This Boneless Bunch program easily fits into a unit pertaining to the Chesapeake Bay as well as a unit about types of animals.

### Day 1

The day before your visit to The National Aquarium in Baltimore read the Teacher Background information and share this information with your students. Complete Activity 1 – Marine Invertebrates: Steps A, B, and C.

### Day 2

At the aquarium you will attend the Boneless Bunch program in a classroom lab. Then continue your search for marine invertebrates while touring the exhibits located throughout the Main Aquarium Building.

### Day 3

The day after your visit complete Activity 2 - Which animal was your favorite?

## Teacher Background

There are over one million species of animals within the animal kingdom. This large group can be subdivided into vertebrates and invertebrates. Vertebrates are animals that possess a backbone made of several smaller bones called vertebrae. The invertebrates have no backbone. More than 95% of the animal kingdom is invertebrates,

## AAAS Benchmarks

5A-K-2#1: Some animals are alike in the way they look and in the things they do, and others are very different from one another.

5A-3-5#1: A great variety of kinds of living things can be sorted into groups in many ways using various features to decide which things belong which group.

## MD Science Content Standards

Science-Skills and Processes. Critical Thinking, Pre-K#1: Identify similarities and differences of objects, materials, concepts and actions.

Science-Life Science, Pre-K-3#1: Describe examples that show that living organisms have special parts that allow them to perform certain functions.

the majority being insects. During the Boneless Bunch program, your students will observe four marine invertebrates, which are animals without backbones that live in the ocean.

In order to survive without backbones, these animals are uniquely adapted to their surroundings. Your students will be encouraged to learn about how each animal eats, sees, moves, and protects itself. By focusing on these adaptations, which are critical to survival, your students will learn the important role that each animal plays in the ecosystem.

Since handling the animals may be a new experience for the students, please review the following basic guidelines with them:

- Pick up the animal by the main body, not by appendages
- Hold the animal in the palm of your hand
- Always hold the animal over the water
- Don't keep the animal out of the water too long
- In case of sudden jitters, put the animal back in the water - please don't drop it!

## Resources

The National Aquarium in Baltimore web site.

Shape of Life: A revolutionary eight-part television series that reveals the dramatic rise of the animal kingdom through the breakthroughs of scientific discovery. The Shape of Life website features activities and resources, animal facts, and scientist biographies.

Extraordinary Horseshoe Crab is an excellent children's book about the life of a horseshoe crab.

Awesome Chesapeake is a kid's guide to the plants and animals of the Chesapeake Bay.

## Word Wall

**Adaptation** - the way in which one is equipped to survive in its environment

**Ecosystem** - a system formed by the interaction of a community of organisms with their environment

**Invertebrate** - an animal without a backbone

**Marine** - existing in, or produced by the sea

**Vertebrate** - belonging to a group of animals having a spinal column, including mammals, birds, reptiles, amphibians, and fishes

<http://www.aqua.org>

<http://www.shapeoflife.org>

**Extraordinary Horseshoe Crab**  
by Julie Dunlap

**Awesome Chesapeake**  
by David Owen Bell

# Activity 1- Marine Invertebrates

## Teacher Page

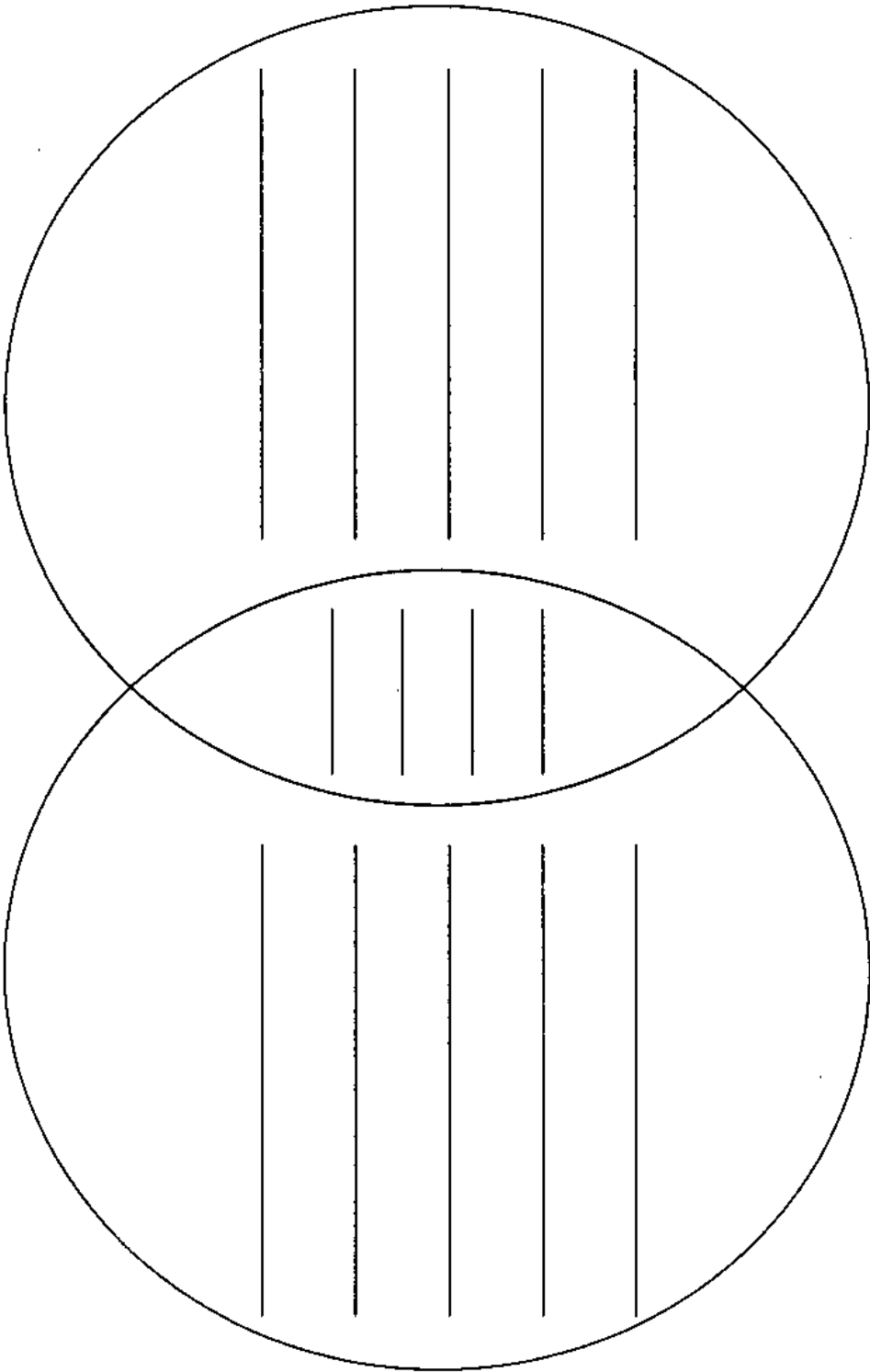
### Step A: Complete a Venn diagram

#### Description

In this activity, students will brainstorm about the similarities and differences between two animals. They will complete a Venn diagram comparing two marine animals.

#### Procedure

1. Have students pick two marine animals; i.e. a fish and a crab.
2. Make photocopies of Venn Diagram and distribute to students.
3. Have students complete the worksheet.
4. Discuss the similarities and differences of these two animals.



## Activity 1 – Marine Invertebrates

Step B: Which ones are "boneless?"

### Description

In this activity, students will determine which animals on a worksheet are invertebrates and which ones are not. By studying what these animals look like, students will be able to circle the invertebrates.

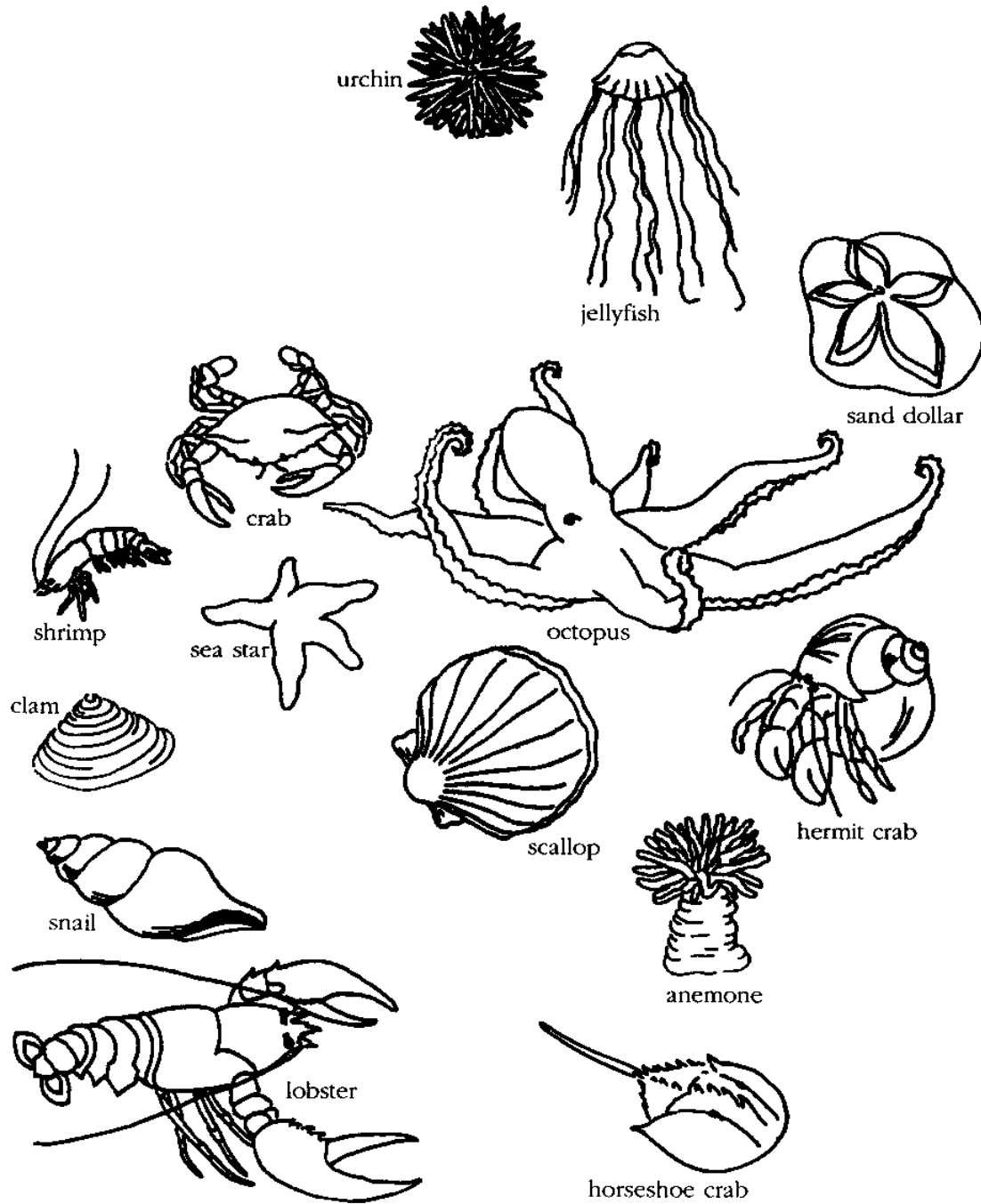
### Procedure

1. Make photocopies of the "Marine Life" worksheet and distribute to students.
2. Have students circle the marine invertebrates.
3. Discuss which animals are not invertebrates and why.

# Activity 1: Step B Marine Life

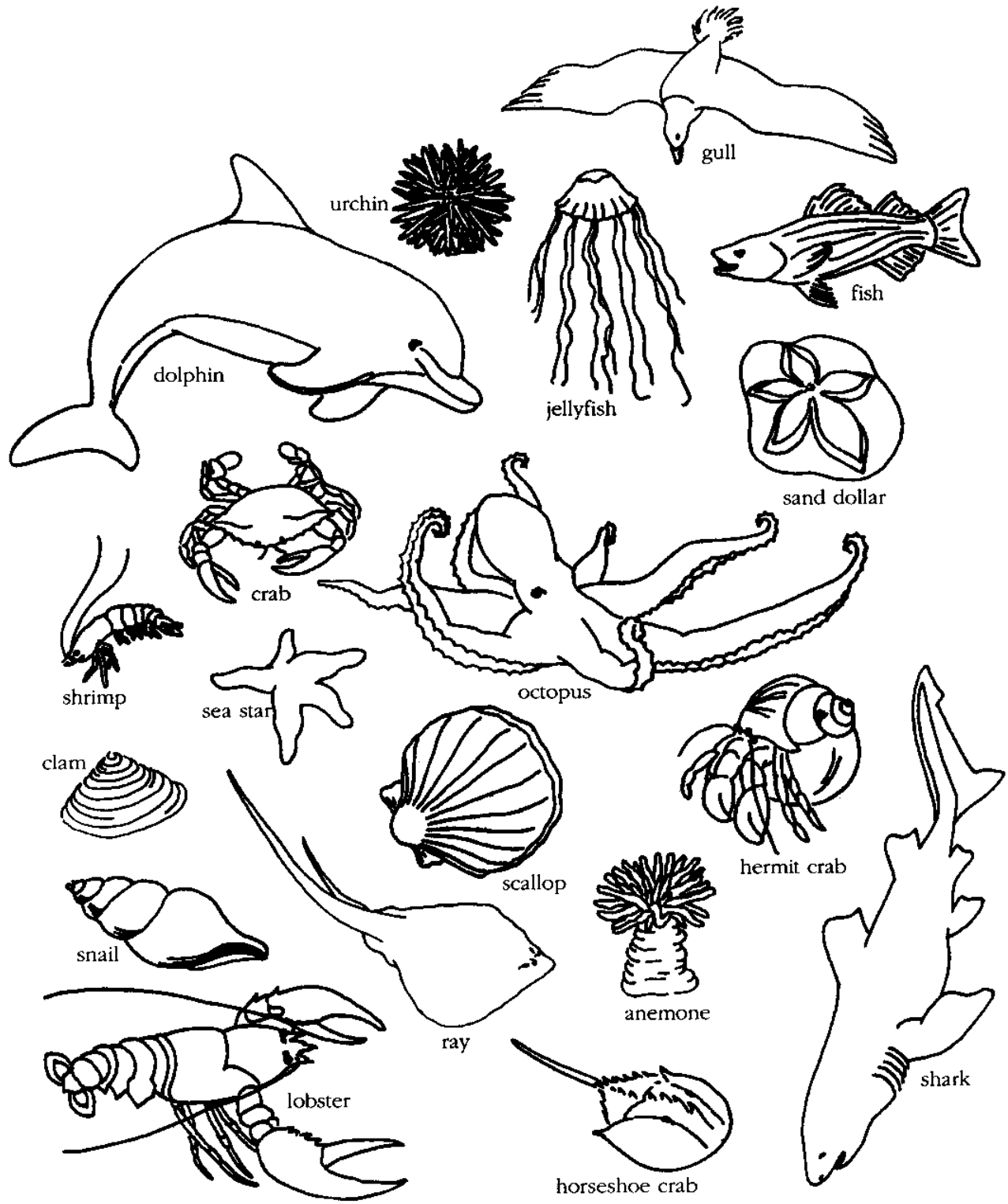
Instructor's answer sheet

Correct answers appear in black



# Activity 1: Step B Marine Life

Circle the marine invertebrates



# Activity 1 - Marine Invertebrates

## Step C: Adaptations

### Description

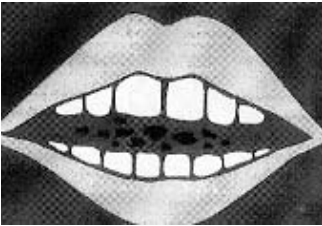
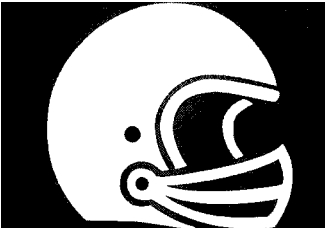
Students will complete the following worksheet by filling in the adaptation of humans that matches the symbol. This will help your students think about how we eat, move/walk, see and protect ourselves. It will also prepare them for discovering the unique adaptations of marine invertebrates.

### Procedure

1. Describe to students the activity that they will be doing.
2. Make photocopies of worksheet and distribute to students.
3. Have students complete worksheet and discuss the adaptations of humans.

# Activity 1 - Marine Invertebrates

## Step C: Adaptations



## Activity 2 – Which one was your favorite?

### Description

In this activity, students will write a letter to a friend telling them about their favorite animal they saw during their visit. They will also pick their favorite adaptation and describe it to their friend (1st & 2nd grade); they will describe all four adaptations to their friend (3rd grade).

### Procedure

1. Review with the students the types of animals they observed during the classroom program.
2. Explain adaptations again and ask the students to pick which animal was their favorite out of the four they touched.
3. Make photocopies and distribute the student page worksheet that is set up a like a letter.
4. Give students time to write a mock letter to their friend describing their experience and their favorite animal.
5. Post the letters or send them home with your students to share with friends and family.

# Activity 2- Which one was your favorite?

Step A.

Write a letter to a friend describing what your favorite marine invertebrate is and explain one of its adaptations. Tell them about your experience doing the classroom program at the aquarium.

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Date: \_\_\_\_\_

Dear \_\_\_\_\_,

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Sincerely,

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