Science & Literacy Activity

ACTIVITY OVERVIEW

This activity, which is aligned to the Common Core State Standards (CCSS) for English Language Arts, introduces students to scientific knowledge and language related to tools that scientists use to study the ocean.

This activity has three components:

1. **BEFORE YOUR VISIT**, students will read a content-rich article that will provide context for the visit, and also help them complete the post-visit writing task.
2. **AT THE MUSEUM**, students will read and engage with additional texts (including printed text, digital and physical/hands-on interactives, video, diagrams, models). This information will help them complete the post-visit writing task.
3. **BACK IN THE CLASSROOM**, students will draw on the first two components of the activity to complete a CCSS-aligned explanatory writing task.

Materials in this packet include:

For Teachers

- Activity overview (pp. 1-2)
- Article with teacher notes: "Listening to Life in the Deep" (pp. 3-7)
- Graphic organizer (p. 8)
- Answers to student worksheet (p. 9)
- Assessment rubric for student writing task (p. 10)

For Students

- Article: "Listening to Life in the Deep" (pp. 11-14)
- Student worksheets for the *Unseen Oceans* exhibition visit (p. 15-16)
- Student writing task and rubric (pp. 17-18)

Common Core State Standards

RI.3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

RI.3.2 Determine the main idea of a text; recount the key details and explain how they support the main idea.

W.3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

Next Generation Science Standards

Connections to the Nature of Science

Scientific Investigations Use a Variety of Methods
- Science investigations use a variety of methods, tools, and techniques.

Science is a Human Endeavor
- Men and women from all cultures and backgrounds choose careers as scientists and engineers.
- Creativity and imagination are important to science.

SEP 8: Obtaining, Evaluating, and Communicating Information
- Obtain and combine information from books and/or other reliable media to explain phenomena.
- Communicate information in written formats.

1. BEFORE YOUR VISIT

Students will read a content-rich article about a scientist who uses sonar technology so study the behavior of dolphins. This article will provide context for the visit, and will help them complete the post-visit writing task.

Preparation

- Familiarize yourself with the student writing task and rubric (pp. 17-18).
- Familiarize yourself with the teacher version of the article (pp. 3-7), and plan how to facilitate the students' reading of the article.

Instructions

- Explain the goal: to complete a writing task explaining what scientists have discovered about ocean creatures using specialized tools. You may want to read through the writing task with students at this point.
- Tell students that they will read an article before visiting the Museum and will read additional texts during the visit.
- Distribute, read, and discuss the article, using the teacher notes to facilitate.

2. DURING YOUR VISIT

At the Museum, students will read and engage with additional texts (including printed text, digital and physical/hands-on interactives, video, diagrams, models). The information they gather from these multiple sources will help them complete the post-visit writing task.

Preparation

- Review the Educator's Guide to see how themes in the exhibition connect to your curriculum and to get an advance look at what your students will encounter. (Guide is downloadable at **amnh.org/unseen-oceans-educators**)
- Familiarize yourself with the student worksheets (pp. 15-16) and the map of the exhibition in the Educator's Guide.

Supports for Diverse Learners

This resource has been designed to engage all learners with the principles of Universal Design for Learning in mind. It represents information in multiple ways and offers multiple ways for your students to engage with content as they read about, discuss, view, and write about scientific concepts. Different parts of the experience (e.g. reading texts, or locating information in the Museum) may challenge individual students. However, the arc of learning is designed to offer varied opportunities to learn. We suggest that all learners experience each activity, even if challenging. If any students have an Individualized Education Program (IEP), consult it for additional accommodations or modifications.

Instructions

- Explain the goal of the Museum visit: to read and engage with texts (including printed text, digital and physical/hands-on interactives, video, diagrams, models), and to gather information to help students complete the post-visit writing task.
- Distribute and review the worksheet and map. Clarify what information students should collect, and where.

Additional Suggestions for Facilitating the Museum Visit

- Have students explore the exhibition in pairs, with each student completing his or her own student worksheet.
- Encourage student pairs to ask you or their peers for help locating information. Tell students they may not share answers with other pairs, but may point each other to places where answers can be found.

3. BACK IN THE CLASSROOM

Students will use what they have learned from the pre-visit article and at the Museum to complete a CCSS-aligned explanatory writing task explaining what scientists have discovered about ocean creatures using specialized tools.

Preparation

- Plan how you will explain the student writing task and rubric (pp. 17-18) to students.

Instructions

- Distribute the student writing task and rubric. Explain that they will use it while composing, and will also use it to evaluate and revise what they have written.

Suggestions for Facilitating Writing Task

- Before they begin to write, have students use the writing task to frame a discussion around the information that they gathered at the Museum. They can work in pairs, small groups, or as a class, and can compare their findings.
- Referring to the writing task, have students underline or highlight all relevant passages and information from the article and from the notes taken at the Museum.
- Students should write their essays individually.

ARTICLE WITH TEACHER NOTES

Lexile: 850

Word count: 932

Text Complexity: The Lexile level for this text falls in the middle of the 4-5 CCSS grade complexity band. This text is suitable as a read aloud for students in grades 3 through 5. You should use your professional judgment and knowledge of students' independent reading levels regarding assigning this text for independent reading.

Key for Teacher Notes

- Green text
  specific strategies
- Regular text
  instructions for teachers
- *Italicized text*
  teacher's instructions to students
- Underlined text
  important domain-specific words

Note:

- Assign each student a "talk partner" and have each pair designate "partner A" and "partner B."
- Set aside space on whiteboard or chart paper for a word wall.
- There is an optional graphic organizer; you may want to use it as guided practice during the interactive read-aloud at the appropriate stopping points marked in these teacher notes or have students use it independently.

Listening to Life in the Deep

Preview the text: *When we read a nonfiction article, we can start by just reading the title and subtitles to get an idea of what the article will teach us . . . these bolded headings help us get the "lay of the land" before jumping right into the text. Let's read these together.* Read aloud, showing each heading as students follow along.

Think-Pair-Share: *Turn and tell your partner what you think this article will teach us.* Allow brief sharing out based on what you hear during students' peer conversation.

Kelly in elementary school.

When Dr. Kelly Benoit-Bird was in third grade, her family took a vacation at SeaWorld. There, she learned about how animals like dolphins use sound instead of light to sense their world. They make clicking noises that bounce off objects and animals, and then they listen for the echoes. The echoes tell them where the objects and animals are located. This is called "**echolocation**." Kelly says, "I found that idea completely fascinating. Dolphins can't see very well underwater, even during the day. Instead, they use sound. I got really excited about how different the ocean world was from ours. It's like another planet!"

It's easy to observe dolphin behavior in a place like SeaWorld. But Kelly wanted to know how dolphins use echolocation in their natural environment. For example, how do they find food when there aren't any humans around feeding them from a bucket? How do they tell the difference between two species—or kinds—of fish?

Setting a Purpose for Reading: *Many of you predicted that we will learn about the work of a scientist who studies animals who live in the ocean. This is correct—we will learn about Dr. Kelly Benoit-Bird's work. Kelly is an ocean ecologist* (place on word wall; you will define when the word appears in the article). *There are many different kinds of scientists, but they all engage in some of the same practices, or ways of working. Some of these practices are asking questions, defining problems, constructing explanations, and designing solutions.* (These are the practices most evident in this article. Write the practices on chart paper or whiteboard and leave room for jotting notes about each. Title the chart "Practices Scientists Use"; you can make this a section on the word wall). *As we read, we will be listening for how Kelly engages in these practices in her work.*

Kelly Benoit-Bird is an ocean ecologist. She works at Oregon State University and the Monterey Bay Aquarium Research Institute.

Listening to Life in the Deep

Kelly in elementary school.

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Kelly Benoit-Bird is an ocean ecologist. She works at Oregon State University and the Monterey Bay Aquarium Research Institute.

Think Aloud: *We are learning that Kelly first became interested in life in the ocean when she visited SeaWorld as a child and learned that dolphins use echolocation to make their way around the ocean. She became curious about something in the natural world . . . this is how lots of scientists first develop an interest in studying science!*

Think-Pair-Share: *Tell your partner about something you have learned about the natural world that made you feel fascinated and curious to learn more.*

Think-Pair-Share: *Remember how I put up a list of practices that scientists use when they work? Let's look closely at the last paragraph and think about which of these practices Kelly is using. Partner A and partner B, jot down the practice that you think Kelly is using. Once you have each jotted, compare your jots to see if both of you wrote the same practice.* Invite students to reread the paragraph independently, or reread it aloud again yourself while projecting only this paragraph. After looking at students' jots and listening in, select students to share out comments that you would like the whole class to hear. (Students should identify the practice asking questions).

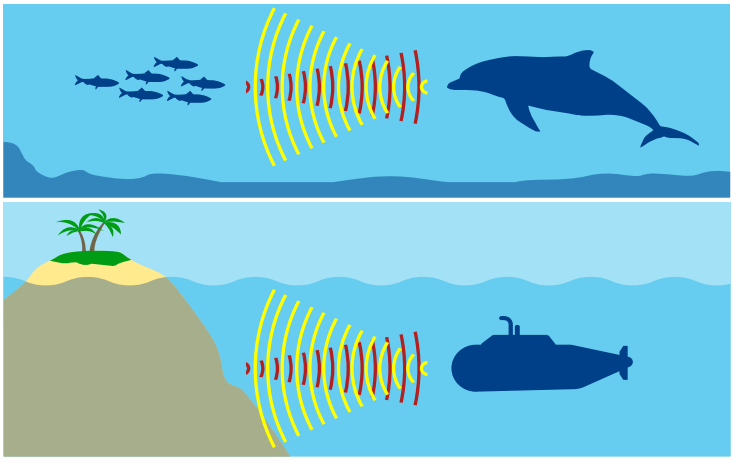
After students share their stop and jots with partners, you might choose to have a brief whole-group discussion in which you:

- Ask students to elaborate on Kelly's question (e.g., students may infer that to learn about animal behavior, scientists need to observe animals in their natural habitat).
- Add echolocation to the word wall after asking students to pull the definition from the text (be sure to prompt students to look at the diagram about echolocation). Ask students to take turns explaining echolocation to their partner.

Now Kelly is an **ocean ecologist**, a scientist who studies how living things interact with one another and their environment. She spends many days at sea gathering information about ocean life. She then takes that information back to her lab to study. She is trying to answer an important question: How do animals that live in the ocean interact with one another?

Using Sound to Study Life Underwater

It's difficult for humans to study the ocean. The ocean is huge, and deep below the surface it is also very dark. It's also hard for people to get there, because the farther down you go, the more water presses down on you from above. This can harm divers and crush equipment. Scientists need special tools to study life in the ocean. Fortunately, Kelly loves to build and fix things. She grew up helping her father—a mechanic—in his garage. "My dad can fix and build pretty much anything," she says. "Some of the best memories I have of my childhood are of being his 'second pair of hands.'" When she can't find the tools she needs to answer her questions, she makes new ones. Most of Kelly's tools involve using sound the same way a dolphin does—to "see" underwater.



A tool called sonar uses sound to "see" underwater, just like dolphin do. The yellow lines show sound moving towards an object. The red lines are the echoes.

The tools that Kelly has developed help her tell ocean animals apart where it's too dark to see. Different animals reflect sound in different ways. Mammals such as dolphins have lungs full of air. They create a very strong echo. Many bony fish have swim bladders inside them. These look like funny-shaped balloons, and they help the fish float. They also give the fish distinctive echoes. Large squid have soft bodies with no air inside, so their echoes are very different.

Word Wall: Add ocean ecologist (include definition from text after asking students to locate it.

Think Aloud: *We have learned about a big question that guides Kelly's work. I am going to write it on the whiteboard because I expect to learn about the work Kelly is doing to answer this question.* Scribe: "How do animals that live in the ocean interact with one another?"

Think Aloud: *I notice that in this paragraph we learn about how Kelly defines problems and designs solutions–these are on our list of practices scientists use* (refer to the list).

Think-Pair-Share: *Partner A, tell partner B about the problems that Kelly faces when she wants to study the ocean. Partner B can respond and ask questions. Then, partner B, tell partner A about the solutions that Kelly designs to solve these problems. Partner A can respond and ask questions.*

Think Aloud: *It sounds like Kelly's tools for studying the ocean have really helped her tell animals apart because they use sound, just like many ocean animals do. The different echoes of each animal help her to tell the animals apart.* Think aloud using examples from this paragraph.

How Dolphins Herd Their Prey

Kelly also wondered how dolphins find enough to eat in the ocean, where food is so spread out. She compares the dolphins' prey to a single bag of popcorn in a big movie theater. Instead of being collected neatly in a bag, however, the popcorn is scattered all through the theater, from floor to ceiling! Also, unlike the popcorn, the dolphins' prey doesn't sit still and wait to be eaten. It is fleeing for its life! So how do dolphins find enough so they don't starve?

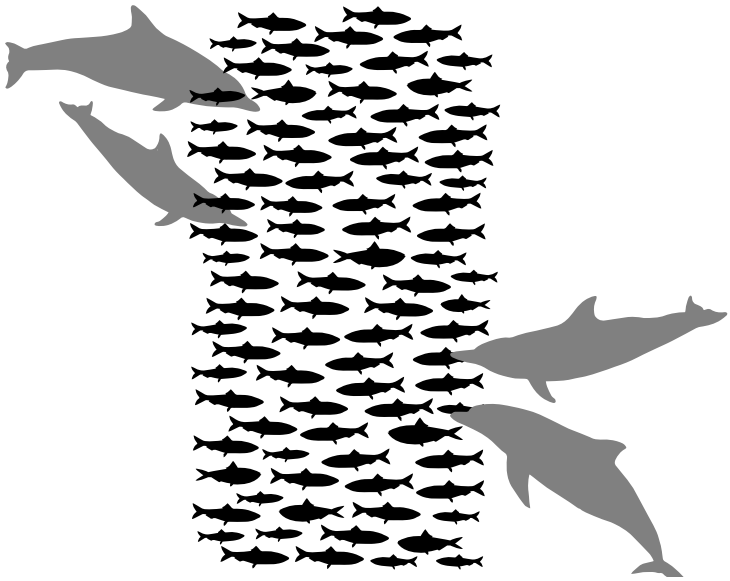
Spinner dolphins, for example, feed on small prey, such as lanternfish, shrimp, and squid, which live in the deep ocean. At night these small prey animals rise up to near the surface of the ocean. There they eat little organisms that grow in the shallow, sunlit water. When day comes, the animals sink down to the depths again. There they hide in the dark from predators. The dolphins hunt at night, when their prey are near the surface. The prey are so small that each dolphin must eat a lot of them.

Kelly knew that groups of dolphins hunt together. She wondered if they were actually helping each other catch their food. Nobody had ever figured out exactly how they hunt.

Kelly and her team used their specialized tools to study groups of spinner dolphins off the coast of Hawaii. They discovered something very exciting: The dolphins were cooperating with one another to herd fish and other prey, such as shrimp and squid. Groups of 16 or more dolphins would line up in pairs and look for a spot where there were lots of prey. Then the dolphins would swim even closer together. They would swim forward fast, pushing the fleeing prey ahead of them into a thick clump. Then they would surround the prey, swimming in circles around them. The prey would get confused, and would squeeze even closer together. Once the dolphins had the prey trapped in a small area, they would take turns diving in and feeding in the middle. This would last for four to five minutes at a time. When the dolphins couldn't hold their breath any longer, they would swim back to the surface for a lungful of air.

Think Aloud: *Hmm…scientists don't just ask one question! They keep asking questions!*

Think-Pair-Share: *Partner A, tell partner B what question Kelly asked (that we learned of in this paragraph), and explain why you think she was asking this question.*



Dolphins swim in pairs to herd fish.

Very little is known about life in the deep ocean, where the dolphins' prey live. "It seems crazy," says Kelly. "We know less about the ocean than we know about parts of space." With their specialized tools, however, Kelly and her team are learning more and more. Their research is very important. Ten billion metric tons of animals live in the deep ocean. These animals are a vital food source for many predators, including tuna, salmon, whales, penguins—and, of course, dolphins. But in 2018, for the first time, countries decided to allow people to fish in these deep ocean areas. How will this fishing affect the predators? The more we understand about the animals that live in the deep ocean, the more we can do to protect them.

Think Aloud: *Wow, it sounds like Kelly was able to answer her question!*

Think-Pair-Share: *Partner B, tell partner A what Kelly and her team learned about how dolphins find enough food so they don't starve.*

You might opt to have students elaborate on this discovery made by Kelly and her team about how dolphins hunt.

Option 1) Sketching: Have students sketch a diagram (independently in notebooks, or invite individual students up to the whiteboard to add to a diagram that you start) and narrate what is happening in the diagram.

Option 2) Act it Out: Have the class break into two groups, dolphins and shrimp. With your direction, have the "dolphins" act out the motion of circling around the "shrimp," who gather closer together inside the circle of "dolphins." Narrate as the students act out the movements of dolphins and shrimp.

Stop and Jot:

- *What is one fact that you learned in this article that surprised you?*
- *What is one question you have after reading this article?*

Think-Pair-Share: Invite students to share what they jotted with a partner. You might want to facilitate a whole-group discussion based on ideas you select from students' stop and jots and/or peer conversations.

GRAPHIC ORGANIZER

Name: _____

Write a summary of the article using the vocabulary terms on the word wall.

What questions did Kelly Benoit-Bird ask?	What problems did Kelly face when trying to answer her questions?	What solutions did Kelly design to work around the problems she faced?	What discoveries did Kelly make about dolphins?

STUDENT WORKSHEET Name: _____ **ANSWER KEY**

1. Find an example of a scientist or a team of scientists studying ocean animals.

What is/are their name/names?

_____

What are they learning about?

_____

Draw a picture that includes both the animal and the tool that scientists used to study it.

Note to teacher: There are a number of examples that students can choose from in the exhibition. Here is a list of the options with the most supporting information:

Location	Name(s) Scientist(s)	Specialized Tool	Animal(s) Studied	What They Learned or Hope to Learn
3a & 3c	John Sparks and David Gruber	camera with a blue light	a variety of bio-fluorescent animals	animals use biofluorescence to identify each other
4c	Jeremy Goldbogen and Ari Friedlander	tracking tags with special suction cups	whales	how whales migrate and feed
4c	Kakani Katija and Aran Mooney	tracking tags with special glue	sea jellies	how sea jellies move
5d	Kaitlin Becker	soft robot claws	delicate ocean animals	how to collect delicate ocean animals without damaging them
7d	Jules Jaffee	"swarm" of floating probes	sounds of animals like whales	how ocean sounds affect animals that live there

What is the tool?

_____

What did the scientist(s) learn about the animal by using the tool?

_____

_____

_____

ESSAY SCORING RUBRIC: TEACHER VERSION

	Exceeds	Meets	Approaches	Needs Additional Support
	4	3	2	1
Research: "Listening to Life in the Deep" Article	Accurately presents information relevant to all parts of the prompt with effective paraphrased details from the article	Presents paraphrased information from the article relevant to the prompt with sufficient accuracy and detail	Presents information from the article mostly relevant to the purpose of the prompt with some lapses in accuracy or completeness AND/OR information is copied from the text	Attempts to present information in response to the prompt, but lacks connections to the article or relevance to the purpose of the prompt
Research: *Unseen Oceans* Museum Exhibition	Accurately presents information relevant to all parts of the prompt with effective paraphrased details from the exhibition	Presents paraphrased information from the exhibition relevant to the prompt with sufficient accuracy and detail	Presents information from the exhibition mostly relevant to the purpose of the prompt with some lapses in accuracy or completeness AND/OR information is copied from the text	Attempts to present information in response to the prompt, but lacks connections to the exhibition content or relevance to the purpose of the prompt
Science Explanations	Integrates relevant and accurate science content with thorough explanations that demonstrate in-depth understanding of how scientists use specialized tools to study ocean animals	Presents science content relevant to the prompt with sufficient accuracy and explanations that demonstrate understanding of how scientists use specialized tools to study ocean animals	Presents science content mostly relevant to the prompt; shows basic or uneven understanding of how scientists use specialized tools to study ocean animals; some errors in explanation	Attempts to include science content in explanations, but understanding of how scientists use specialized tools to study ocean animals is weak; content is irrelevant, inappropriate, or inaccurate
	Uses labeled and captioned illustrations of at least three specialized tools and the ocean animals they are used to study; these effectively communicate relevant information	Uses labeled and captioned illustrations of three specialized tools and the ocean animals they are used to study; these sufficiently communicate relevant information	Illustrations are unlabeled / uncaptioned OR only one specialized tool and ocean animal is illustrated	No illustrations
	Consistent use of precise and domain-specific vocabulary where appropriate	Some use of precise and domain-specific vocabulary	Little use of domain-specific vocabulary	No use of domain-specific vocabulary
Development	Includes an opening section that clearly introduces the topic of scientists using specialized tools to study ocean animals	Includes an opening section about ocean animals	Includes an opening section that is insufficient or irrelevant	Does not include an introduction
	Essay includes detailed information about at least three specialized tools and the ocean animals they are used to study	Essay includes sufficient information about three specialized tools and the ocean animals they are used to study	Essay includes information about only one or two specialized tools and the ocean animals they are used to study	Essay does not include examples of specialized tools and the ocean animals they are used to study
	Provides a relevant concluding paragraph	Provides a relevant concluding section	Provides a concluding statement	Provides no sense of closure
Conventions	Demonstrates and maintains a well-developed command of standard English conventions and cohesion, with few errors; response includes language and tone consistently appropriate to the purpose and specific requirements of the prompt	Demonstrates a command of standard English conventions and cohesion, with few errors; response includes language and tone appropriate to the purpose and specific requirements of the prompt	Demonstrates an uneven command of standard English conventions and cohesion; uses language and tone with some inaccurate, inappropriate, or uneven features	Attempts to demonstrate standard English conventions, but lacks cohesion and control of grammar, usage, and mechanics

ARTICLE

Listening to Life in the Deep

Kelly in elementary school.

When Dr. Kelly Benoit-Bird was in third grade, her family took a vacation at SeaWorld. There, she learned about how animals like dolphins use sound instead of light to sense their world. They make clicking noises that bounce off objects and animals, and then they listen for the echoes. The echoes tell them where the objects and animals are located. This is called "**echolocation**." Kelly says, "I found that idea completely fascinating. Dolphins can't see very well underwater, even during the day. Instead, they use sound. I got really excited about how different the ocean world was from ours. It's like another planet!"

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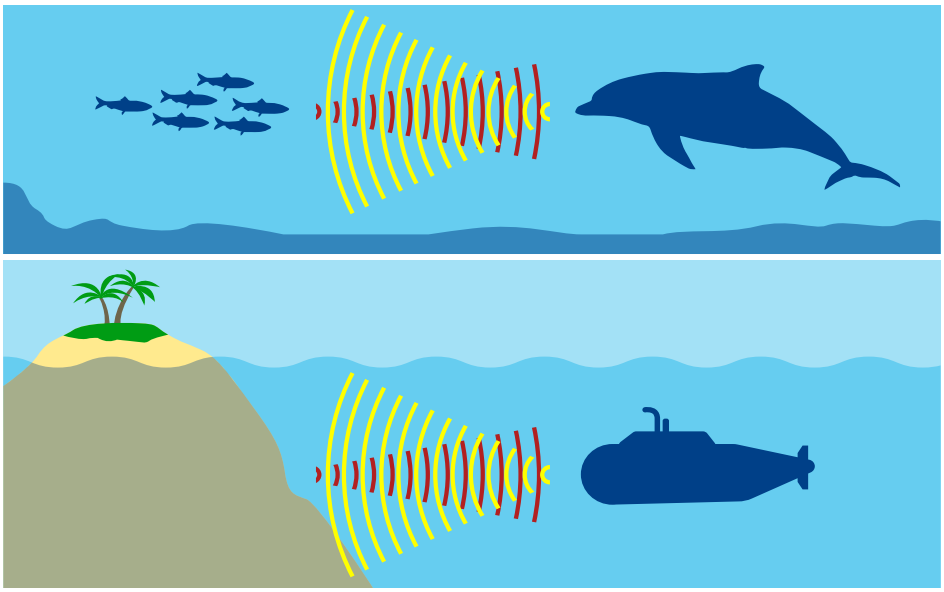
Using Sound to Study Life Underwater

It's difficult for humans to study the ocean. The ocean is huge, and deep below the surface it is also very dark. It's also hard for people to get there, because the farther down you go, the more water presses down on you from above. This can harm divers and crush equipment. Scientists need special tools to study life in the ocean. Fortunately, Kelly loves to build and fix things. She grew up helping her father—a mechanic—in his garage. "My dad can fix and build pretty much anything," she says. "Some of the best memories I have of my childhood are of being his 'second pair of hands.'" When she can't find the tools she needs to answer her questions, she makes new ones. Most of Kelly's tools involve using sound the same way a dolphin does—to "see" underwater.



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How Dolphins Herd Their Prey

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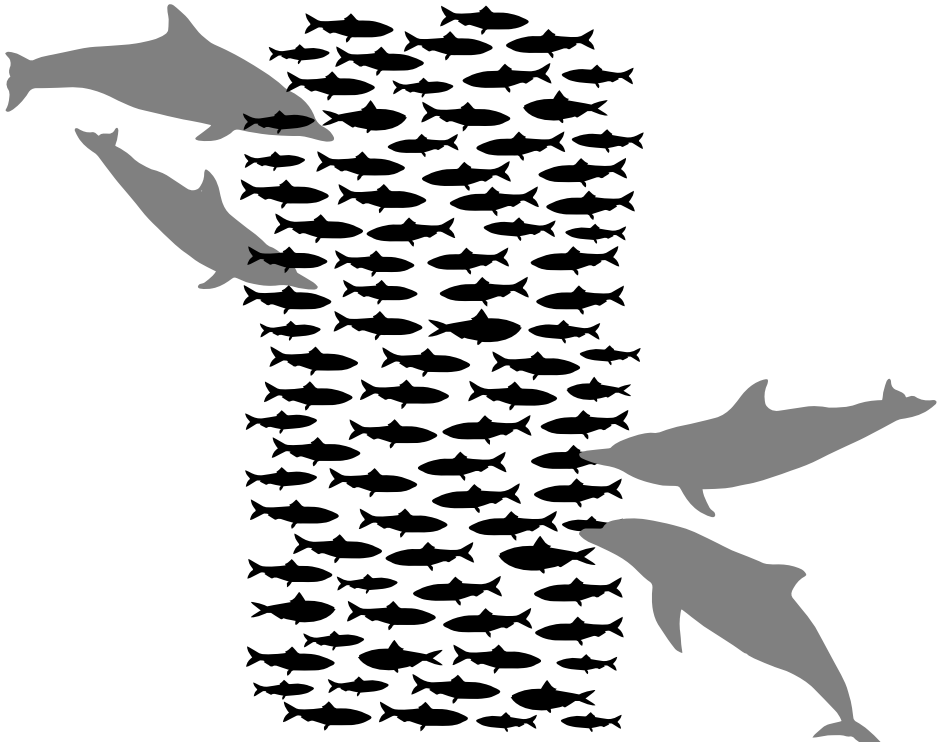

Dolphins swim in pairs to herd fish.

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IMAGES: Kelly Benoit-Bird as young girl, courtesy of Kelly Benoit-Bird; Kelly Benoit-Bird working, ©Todd Walsh/MBARI; Echolocation graphic, ©AMNH; dolphins hunting fish, ©AMNH

STUDENT WORKSHEET **Name:** _____

1. Find an example of a scientist or a team of scientists studying ocean animals.

What is/are their name/names?

_____

What are they learning about?

_____

Draw a picture that includes both the animal and the tool that scientists used to study it.

What is the tool?

_____

What did the scientist(s) learn about the animal by using the tool?

_____

_____

_____

STUDENT WORKSHEET **Name:** _____

2. Find another example of a scientist or a team of scientists studying ocean animals.

What is/are their name/names?

_____

What are they learning about?

_____

Draw a picture that includes both the animal and the tool that scientists used to study it.

What is the tool?

_____

What did the scientist(s) learn about the animal by using the tool?

_____

_____

_____

STUDENT WRITING TASK

After reading "Listening to Life in the Deep" and visiting the *Unseen Oceans* exhibition, write an essay. The essay will discuss what scientists have discovered about different ocean creatures using specialized tools.

Your essay should:

- Discuss the discovery that Kelly Benoit-Bird made about dolphins, the tool that she designed and built, and how this tool made the discovery possible.

- Include information about two other animals and the technologies that scientists are using to study them. For each example, include the scientist's (or group of scientists') name(s), the animal(s) they are studying, and a description of the tool or technology they used.

Include drawings of all three of the tools and animals that you described in the essay. For each drawing, write a caption about what the tool helped scientists learn about the animal, or what they hope to learn about the animal.

ESSAY SCORING RUBRIC: STUDENT VERSION

	Exceeds	Meets	Approaches	Needs Additional Support
	4	3	2	1
Research: "Listening to Life in the Deep" Article	I have used information correctly from the article to write my essay; I have given a lot of detail to explain the information in my own words.	I have used information correctly from the article to write my essay in my own words.	I have used information from the article to write my essay, but not all of my information is correct AND/ OR I didn't use my own words.	I did not use information from the article to write my essay.
Research: *Unseen Oceans* Museum Exhibition	I have used information correctly from the exhibition to write my essay; I have given a lot of detail to explain the information in my own words.	I have used information correctly from the exhibition to write my essay in my own words.	I have used information from the exhibition to write my essay, but not all of my information is correct AND/ OR I didn't use my own words.	I did not use information from the exhibition to write my essay.
Science Explanations	All of the information I included about what scientists have discovered about ocean animals using specialized tools is correct.	Most of the information I included about what scientists have discovered about ocean animals using specialized tools is correct.	Some of the information I included about what scientists have discovered about ocean animals using specialized tools is correct.	None of the information I included about what scientists have discovered about ocean animals using specialized tools is correct.
	I included labeled and captioned illustrations of three examples that help the reader understand how scientists use specialized tools to help them learn about ocean animals.	I included labeled and captioned illustrations of three examples.	I included labeled and captioned illustrations of fewer than three examples OR I didn't use captions OR I didn't use labels.	I did not include any illustrations.
	I used all appropriate science vocabulary words correctly.	I used most vocabulary words correctly.	I used some vocabulary words correctly.	I did not use any science vocabulary words.
Development	I included a clear introduction about scientists studying ocean animals with specialized tools.	I included an introduction in the essay.	I included an irrelevant introduction to the essay.	I did not include an introduction.
	I included Kelly Benoit-Bird and more than two other examples of scientists learning about ocean animals using specialized tools.	I included Kelly Benoit-Bird and two other examples of scientists learning about ocean animals using specialized tools.	I only included one example of scientists learning about ocean animals using specialized tools.	I didn't include any examples of scientists learning about ocean animals using specialized tools.
	I wrote a concluding paragraph that relates to the information in my essay.	I wrote a concluding sentence that relates to the information in my essay.	I wrote a concluding sentence at the end of the essay.	I did not write a concluding sentence at the end of the essay.
Conventions	I edited my essay for spelling, punctuation, and grammar; there are no errors.	I edited my essay for spelling, punctuation, and grammar; there are some minor errors but the reader can still understand my writing.	I did not carefully edit my essay for spelling, punctuation, and grammar; there are errors that may make the essay hard for readers to understand.	I did not edit my essay for spelling, punctuation, and grammar; there are many errors that make the essay hard for readers to understand.