

LIVING AND NON-LIVING THINGS IN THE WATER (MODIFIED FOR ADEED)

INSTRUCTIONS

Overview:

In this 6-9 day investigation, children assemble simple puzzles to learn more about aquatic animals and their life cycles. They look closely at the parts of a small aquatic animal with a listening and drawing activity, then learn to describe and explain the things in aquatic environments by making mini-books, a class book, and a large class mural.

(Note: This is the third investigation from the science unit "Discovering Our Blue Planet." Online investigation can be found at <http://seagrant.uaf.edu/marine-ed/curriculum/kindergarten/investigation-3.html>.)

Targeted Alaska Content Standards:

This lesson is from a primary grade unit. There are no GLEs for K-2nd grade. Standards addressed at Kindergarten through 2nd grade level are included.

Science

- SA2 Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review.
- SC2 Students develop an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms.
- SC3 Students develop an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy.

Additional Targeted Alaska Grade Level Expectations:

Science

- [3] SA 2.1 The student will demonstrate an understanding of the attitudes and approaches to scientific inquiry by answering, "how do you know?" questions with reasonable answers.
- [3] SC 2.1 The student demonstrates an understanding of the structure, function, behavior, development, life cycles, and diversity of living organisms by sorting animals and plants into groups based on appearance and behaviors.
- [3] SC 3.1 The student demonstrates an understanding that all organisms are linked to each other and their physical environments through the transfer and transformation of matter and energy by identifying and sorting examples of living and non-living things in the local environment (L).

Materials:

- Tagboard or construction paper for puzzles
- Science notebooks
- Resource books, posters, pictures, ID charts, films
- Objects from aquatic environments (shells, rocks, etc.)
- Picture and description of pseudoscorpion
- One mini-book per student
- "Class Book" pages with words printed on them
- A wide variety materials with texture; cloth, plastic, thread, yarn, etc.
- Glue or glue sticks
- Magazines for cutting
- Art materials: large sheets of paper, tempera paints, construction paper, newspaper, paper fasteners (brads), toothpicks, paper bags, markers, wire, and other materials. Children may have ideas of materials to use.
- TEACHER INFORMATION SHEET: "Mini-book Folding Instructions"
- VISUAL AID: "Pseudoscorpion" (large)
- TEMPLATE: "Mini-Book" (included as a separate PDF file)
- TEMPLATE: "Marine Puzzles" (included as a separate PDF file)
- TEMPLATE: "Freshwater Puzzles" (included as a separate PDF file)
- TEMPLATE: "Pseudoscorpion" (small)

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Teacher Background Information:

More teacher background information can be accessed online at <http://seagrant.uaf.edu/marine-ed/curriculum/kindergarten/teacher-background.html>.

All living things can be classified as belonging to either the plant kingdom or the animal kingdom. Vertebrates and invertebrates are the two major subdivisions of the animal kingdom. Vertebrates are animals with backbones: humans, horses, elephants, mice, fishes, etc. Invertebrates are animals without backbones: sponges, sea stars, insects, worms, jellies, etc. Ninety-five percent of all animal species are invertebrates.

There is a great assortment of colors, shapes and sizes among invertebrates found in Alaskan waters. Lacking backbones, they have various ways of supporting their bodies. Some, such as anemones, rely on the water itself to give them shape and support.

Sponges have a support system of needlelike structures, which form an intertwining mesh. Crabs, shrimps, and beach hoppers have external skeletons, or "exoskeletons," that must be shed as they grow. The skeletons of sea stars are composed of small plates; the plates of sea urchins and sand dollars are fused together to form a test. The soft bodies of snails and clams are encased in protective shells that increase in size as the animals grow.

Go online to find detailed information about common Alaska marine invertebrates.

Go online to find detailed information about common freshwater invertebrates, amphibians, and mammals.

Activity 3A: Aquatic Puzzles

Be sure to encourage vocabulary with this lesson. Showing a variety of the puzzles will be important so they understand that they are looking at how living things move, grow and change. This big idea is critical for developing understanding in this unit! Once children can successfully recognize and put puzzles together it can become an independent choice during Science Centers time in the classroom.

Students will have information about plankton and microscopic creatures from previous lessons. Photos and hands on dramatic play creatures will be useful for students to start thinking about the size of living things as they grow.

Most zooplankton need to be near the surface to feed upon the phytoplankton. In order to stay afloat near the surface, plankton have evolved in many ways to control their position in the sea. Spikes and other projections on a plankton help to distribute the organisms weight over a large surface area, slowing its sinking. (p. 17 *The Seaside Naturalist*)

Go online to find these online resources: Masterbug theatre – insect metamorphosis; Freshwater insect and larval stages photos

Activity 3B: Drawing from Description

This is a great lesson for students who enjoy drawing monsters and other scary things. Read the information about the pseudoscorpion, and make connections to other tiny creatures that can be found in the local environment. Having an understanding of what body parts are used for movement, eating and protection helps to support student questioning and understanding.

It would be helpful if children had lots of experiences with noticing body parts – legs, arms, claws and how those parts help us move or grab. Connections to class pets and/or pets at home as well as the human body are helpful to make.

Go online to access the following pseudoscorpion information and photos: Wikipedia: Pseudoscorpion; Photos of pseudoscorpions; Utah State University Extension pseudoscorpion information; Description of pseudoscorpions from the Royal Alberta Museum; Description of pseudoscorpions from Penn State College of Agricultural Sciences; Description and information about pseudoscorpions.

Activity 3C: How Does it Look and Feel?

Students need to have had lots of experiences with a variety of living and non-living things in the aquatic environment. Photos, posters, books and other resources are important to have in the room for visual support. Puppets, dramatic play, games and other resources of the aquatic environment continue this support.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Activity 3D: Our Book About Things in the Water

Students will bring their knowledge of a specific living or non-living thing to this activity. They should have an understanding of how something feels and the accurate color, shape and size. They should have awareness or experiences with glue or glue sticks. The teacher may need to research how a living or non-living thing feels if it is not available for touching in the local area.

Activity 3E: Making A Mural

Local knowledge of aquatic environments is helpful, so that you will have ideas about the tiniest plankton to larger aquatic creatures that will help to support students as they represent their understanding on a mural. It also helps to be familiar with art materials, use of brushes, paints, paper for sculpture and different ways fasteners can be used to make moving parts such as legs, antennae, claws, etc. For fingerpainting, have smocks and clean up material close at hand. Parent volunteers are valuable for this activity.

Students should be able to recall from their memory of experiences, books and other resources in the classroom. Encouraging children to describe their plan before they start in with art materials is helpful – have them describe the size, shape and color and possibly what placement on the mural to make sure there is room.

Prior Student Knowledge:

Information from previous lessons with plankton and microscopic creatures. Experience with animals such as class pets, and with a variety of living and nonliving things in the aquatic environment. Experience with glue or glue sticks.

Activity Preparation:

1. Prepare puzzles.
2. Print the photos and description of the pseudoscorpion. Print the small picture.
3. Compile resources and materials.
4. Print, copy and fold mini-books.
5. Prepare class book pages with the words printed out.
6. Cut, sort and organize textured materials.
7. Gather, prepare, and organize art materials for murals.
8. Useful vocabulary words for this lesson are: aquatic, balance, body, bristles, change, claws, color, develop, environment, feel, grow, jaws, legs, living, look, move, mural, oval, non-living, phytoplankton, pincers, segments, shape, size, texture, zooplankton.
9. Read through the Teacher Background information.
10. Make several 2- or 3-part puzzles showing life cycle stages of aquatic animals, for Activity 3A.
11. If it is known that the class may have challenges with the drawing activity in Activity 3B, prepare templates of ovals, pincers, walking legs, etc. The children could then use these shapes to trace and put together the pseudoscorpion so they can be successful. Later a different creature could be drawn from oral description.
12. Print (or prepare to project) the drawing and print the description of the pseudoscorpion to read to students. Copy the small drawing of the pseudoscorpion for each science notebook.
13. Compile resources including books, posters, and aquatic objects.
14. Create a mini-book with pages relevant to your area, or copy and fold the mini-books provided here for students to complete in Activity 3C. See instructions.
15. For Activity 3D, cut, sort, and organize fabrics to represent textures.
16. Prepare class book pages with printed words.
17. For Activity 3, have large pieces of paper along with smaller colorful paper to use.
18. Make tempera paints accessible, with large brushes. An assortment of sculpture materials can be sorted into small boxes or containers: wire, toothpicks, pipe cleaners (chenille sticks), popsicle sticks, cellophane, etc.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Tips from Teachers:

1. Use whiteboards instead of notebooks for the drawings from descriptions. This helps alleviate some of the pressure to make drawings 'perfect' if you have perfectionists in your class. This also lets students play more with drawing from descriptions, without worrying about materials.
2. (Activity 3B) Instead of sky-writing have the students use write on/wipe off boards with dry erase markers and mittens as erasers.
3. (Activity 3B) Pre-teach vocabulary words: oval, jaw, pincer, bristles, claws and segments.
4. (Activity 3C) Before beginning the activity, teach the words - living and nonliving by making posters on butcher paper with pictures that students cut from magazines and catalogs. Compile a graph of living and nonliving things.
5. (Activity 3D) Draw visual clues for the class book. For example: You learn by (draw a pair of eyes) looking.
6. Use aquarium background sheets cut into sections for each group. The children can make other living and nonliving objects to glue to the aquarium background papers.
7. Make "mini-murals" as a precursor to a collaborative mural. Use a big piece of paper with a simple water line and sea floor (indicating depth) and add fingerprints all over it. Students can turn their fingerprints into all sorts of creative marine organisms. Ask them to pay attention to habitats and water depths for specific organisms.

Lesson Credit:

Alaska Seas and Rivers curriculum, published by Alaska Sea Grant College Program, University of Alaska Fairbanks. ©2007 Alaska Sea Grant. Reproduced with permission from Kurt Byers, Education Services Manager, NOAA Alaska Sea Grant College Program, University of Alaska Fairbanks.

The Alaska Sea Grant College Program at the University of Alaska Fairbanks helps ensure the vitality of Alaska's marine resources and communities through research, education and extension. In addition to the complete Alaska Seas and Rivers curriculum, Alaska Sea Grant has many books, brochures, posters, and videos about Alaska's seas and coasts that teachers, students, and parents can enjoy. Visit the Alaska Sea Grant online bookstore at www.alaskaseagrant.org.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Activity 3A: Aquatic Puzzles (one class period)

Focus Questions: How do we know living and nonliving things are in the water around us? What do they look like when they are growing?

Procedure:

Engagement (5 minutes):

1. Introduce the tiny creatures of our blue planet by making a dot with a pencil on a piece of paper. Explain to students that this is how big the animals are, that they will be looking at and studying through books, puzzles, and investigations. Remind them that through earlier investigations they found out about plankton and how they feed bigger animals. Explain that they will now look at the characteristics of these living creatures!

Exploration (20 minutes):

2. Show the students a full puzzle. Explain that when the puzzle pieces are assembled and lined up they show how one creature develops, from zooplankton (stage) to adult animals.
3. Ask the students, "What do you notice about the zooplankton stage of the animal?"
4. Show a variety of puzzles and support students' vocabulary.
5. Distribute the two-part puzzles of marine or freshwater animals for students to assemble.
6. Students will notice and describe the difference between the 2 stages of development.
7. On the bottom of each puzzle is a simple sentence. I am a _____. Children may practice recognizing the different animals and checking the sentence to see if they are correct.

Explanation (at same time as Exploration):

8. Have students explain their thinking by showing the puzzle piece and identifying the characteristics of each creature. They can notice the size, shape, and possible features of the animal that help it move in an aquatic environment. Rather than just putting the puzzles together, the children need to be supported to notice specific characteristics as they work on the puzzles.
9. Using the question "what is your evidence?" will support students to recognize the need to explain their thinking.

Elaboration (ongoing):

10. Give students opportunities to continue putting these puzzles together during activity center time. In this way, children will explain their thinking to their peers and connect it to other activities and games they are playing. Students could also make connections of other developing animals they are familiar with, applying it to classroom pets (fish, turtles, doves) and/or family pets or themselves. Having large paper available in the classroom and paper at the easel for drawing and painting, along with posters of life cycles of aquatic animals, will assist children to make these connections.

Evaluation:

11. Listen to student's thinking and document understanding with a checklist. Misconceptions and/or misunderstandings of developing creatures can be addressed through small group discussion or by bringing it back to a large group discussion about the use and understanding of the puzzles.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Activity 3B: Drawing from Description (1 class period)

Focus Question: What parts of an animal make it special?

Procedure:

Engagement (10 minutes):

1. Hold a small, simple object (toy, block, etc.) in your hand or in a bag and explain that you will describe it without showing it.
2. The students will draw a picture of it in the air (using their finger as a sky-writer) as they hear words that describe it. Use simple descriptions at first so that everyone is successful: "It is round," "It has four lines," "It is smaller than my hand," etc.
3. Ask the students to be scientists, using the clues to draw the object and think about what it could be.
4. Let them know they will be doing a drawing activity, and they are only going to get an oral description so they will have to listen carefully!

Exploration (20 to 30 minutes):

5. Explain that without looking at a picture, the students will be drawing a creature.
6. Guide the students through a drawing discovery activity:
7. Ask everyone to open their science notebook to a clean page. Explain that you will ask students to draw one part at a time of a special creature. The students will have to listen carefully.
8. Read the drawing directions:
 - I have 2 parts. One is big and the other is smaller. They are oval in shape. Draw 2 body parts! (You may provide scaffolding by giving more information—put one oval near the side of your paper, draw another oval so that one side touches the first oval.)
 - The small body part has a pair of biting jaws. Draw them. (You can demonstrate with your finger and thumb, moving back and forth.)
 - The small body part has 2 pincers. Draw 2 pincers. (You can demonstrate by moving hands and thumbs together, describing the pincers coming out of the small oval.)
 - Put tiny bristles on both pincers (little lines).
 - The small body part has 4 pairs of walking legs. Draw the 4 pairs of walking legs.
 - Each walking leg is armed with claws. Draw claws on each walking leg. (Again, a visual image of fingers shaped to look like claws may be helpful.)
 - The large body part has 12 segments. Make 12 segments (lines) on your animal.Now your creature is complete—does it look like a living animal?

Explanation (10 minutes):

9. Have children pair up and share the animals that they drew in their science notebooks. Then, show the drawing of the pseudoscorpion (they are less than 1/3 of an inch long).
10. Read a description of the pseudoscorpion from one of these sources:
 - Utah State University Extension: <http://seagrant.uaf.edu/marine-ed/curriculum/images/stories/kindergarten/pseudoscorpion.pdf>
 - Description of pseudoscorpions from Penn State College of Agricultural Sciences: <http://ento.psu.edu/extension/factsheets/pseudoscorpions>
 - Photos and description for the Royal Alberta Museum: <http://www.royalalbertamuseum.ca/natural/insects/bugsfaq/pseudo.htm>

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Information from the University of Minnesota: <http://www.extension.umn.edu/yardandgarden/ygbriefs/e610pseudoscorpion>

If you have the book, *The Nature of Southeast Alaska*, there is an interesting description of the pseudoscorpion!

Elaboration:

11. Give each student a small drawing of a pseudoscorpion that matches the size of the science notebook. Students can glue this in their science notebook next to their own drawing. Have children compare their drawing to the scientist's drawing. Some students may go on to label each part or write a short description of the pseudoscorpion.
12. This activity could be repeated with an animal or plant description that is very common to the local area. Students will have the opportunity to continue to practice listening and drawing skills.

Evaluation:

13. Notice children who are able to draw from oral description, and those who may need more experience with the vocabulary that describes a pseudoscorpion.

Extension:

14. Allow children to practice giving clues to others for drawing.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Activity 3C: How Does it Look and Feel? (1-2 class periods)

Focus Question: What words can you use to describe this aquatic living or non-living thing?

Procedure:

Engagement (15 minutes):

1. Read a book specific to the living and nonliving things in your aquatic environment. Books with simple text and photos, such as those published by Heinemann, are useful. Possible books are listed in the Bibliography and Resources section for this unit. Have children notice the photos and/or illustrations, and talk about what they see and what words they can use to describe it.
2. Model the use of the sentence "I see a ..."
3. Model first using one describing word and eventually two describing words such as a color word and a texture word. For example; "I see a soft green anemone." Use a pocket chart to model matching words with the picture, and/or display a photo or drawing of the anemone (or other local creature) along with the sentence strip. Model both a living thing and a nonliving thing. You might also model the characteristics with the pocket chart, and sort them by color, shape, and size. The pocket chart could be used as a "word bank" for children to have support with writing their mini-book.

Exploration (20 to 30 minutes):

4. Children will use their experiences with both living and nonliving aquatic things to make a mini-book. By this time there should be scallop books, posters, drawings, science notebooks and other resources around the room to use for getting ideas. These mini-books will focus on shape, size, and color. Children may start their book with illustrations and/or with words. The teacher emphasizes that the pictures must match the words. For example: "I see a red sea star." "I see an oval limpet." "I see a large sea anemone." "I see a dark rock." "I see squishy mud." "I see a white barnacle." "I see a _____." "I see a _____."
5. Students write and draw something unique that they see. They can start with one descriptive word and extend to two, such as "I see a large white barnacle." The teacher may want to decide how many nonliving things to put in the book to support comparison and contrast of living and nonliving things.

Explanation (10 minutes):

6. After children have finished their book they can read and share their book with a friend. Provide support for the children to compare and contrast the things they chose to put in their book: "What is the same?" "What is different?" "How many are living?" "How many are nonliving?" Challenge children to come up with more than one way that they can know if something is living or nonliving. Some children may want to make more books.

Elaboration (15 minutes):

7. Gather students as a large group (or smaller groups if they are finishing at different times). Ask them to discuss their ideas of living and nonliving things in aquatic environments. Mini-books can be compared and a class list of all the living and nonliving things in the books can be made. If desired, put all of the items on tagboard (using both the word and a child-drawn picture) so that students can move them on a pocket graph, noting which is living and which is nonliving and then explaining how they know. These same cards could also be used for a graph of how living things move—legs, fins, tail, etc. This could become an independent center to encourage use of the vocabulary and understanding of the characteristics.

Evaluation:

8. Students will be able to show their understanding of a variety of characteristics in an individually made and colored mini-book. Use authentic assessment, having children read their books to the teacher or a peer. A checklist may also be used to note which students are able to match pictures to the words, and which children are able to sort nonliving and living things on the pocket chart.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Activity 3D: Our Book about Things in the Water (1-2 class periods)

Focus Question: How can you describe the characteristics of this living or non-living thing?

Procedure:

Engagement (10 minutes):

1. Pass an object around the group, and ask children to describe how it feels. Use their words to model describing sea creatures or other aquatic living or nonliving things. Use objects from the local area such as rocks, shells, bark, sticks, feathers, leaves, etc.
2. For example, to describe a scallop shell: "Bumpy," "smooth," "sharp edges."
3. Ask the children "What kinds of materials could we use to show that in a book?"
4. Paper, fabric, and other materials will be used to create a class book that supports children's use of descriptive words.

Exploration (30 to 40 minutes):

5. Students will work in pairs to create a page for the class book. Using photos, magazine cutouts, or drawings of local living and nonliving things, children then describe how the thing would feel. They choose a material with an authentic texture.
6. For example, cardboard = bumpy (shell or a sea creature), sea star = sandpaper, bird = feathers, fish = scaly fabric.
7. Each pair will use a page that already has words printed on it, taken from the previous lesson. Students can then read the words and add their drawing and texture. Brainstorm additional textures for living and nonliving things, including lots of repetition.
8. Pages for the class book can be as follows:
Page 1: You can learn by looking.
Page 2: You can learn by touching.
Page 3. The sea star looks rough.
Page 4. This feels rough.
Page 5. The _____ looks smooth. (shell) ?
Page 6. This feels smooth.
Page 7. The _____ looks hard. (rock) ?
Page 8. This feels hard.
Page 9. The _____ looks bumpy. (barnacles) ?
Page 10. This feels bumpy.
Page 11. The _____ looks soft. (feather) ?
Page 12. This feels soft.
Last page: Can you remember the way each thing feels?

Explanation (20 minutes):

9. As students work together on their page, they talk with each other about how they will use materials to show and demonstrate the texture. When the whole class reads the book together, each team will be able to explain their thinking to the group. If someone disagrees with the material they used, the teacher supports the team to defend their thinking.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Elaboration:

10. When students have finished their pages, they can make their own small book or an additional page for the class book.

Evaluation:

11. Note the ways students are able to work together, learn from one another, and show their understanding on the class book page. Also note the students' ability to talk about their work and identify how they knew about their chosen item on the page (past experiences, books, film, television, etc.).

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Activity 3E: Making a Mural (2-3 class periods)

Focus Questions: How do we know living and non-living things are in the water around us? How can we show this to others? How can we share our learning with others?

Procedure:

Engagement (20 minutes):

1. Tell the children they are going to create a mural of an aquatic environment to teach others about their experiences and learning. Ask them to name all the living and nonliving things they can think of that are a part of an aquatic environment.
This could become:
 - An interactive writing activity to engage more learners. Share the pen with children as they write the letters and/or words they know. Keep this part of the lesson going by providing paper and/or white boards to other children to keep them writing and engaged at the same time. Everyone gets an opportunity to add to the big class list.
 - A roleplay of creatures or nonliving things. Children can act out the thing while others guess what it is, giving their explanations of how they know. For example, a child sits still and doesn't move for a rock, or moves their fins to be a fish.
2. Support students to make a choice of how they will represent their living or nonliving thing. Explain how paints, markers, paper for sculpture, and/or bags for puppets might be used. Children will start with a first choice and then later they can self-choose an additional item or a way to add color or texture to the mural.

Exploration (45 minutes to one hour):

3. The aquatic environment may be a tide pool, lake, river, puddle, or something that is specific to their local experiences. Allow students choices of making living and nonliving things for that environment. Set up the classroom to have students work in small teams; some will work on the mural background while others cut and draw aquatic creatures, and others make rocks, sand, or mud. Place aquatic resources around the room (photos, magazines, books, and posters, etc.). Encourage the students to make textures by placing sand in the paint for sea stars, or supply a variety of fabrics with textures for students to create plants and animals with. Finger paints can be used for the background. Use large sheets of paper and cover a large area on the floor with a shower curtain to make a work area. Movement of water can be made with lines and movement of the hands. Paper in strips with paper fasteners can be used for sculptures with moving parts. Paper bags can be used to make puppets. Colorful paper can be used to make streamers in the classroom to simulate seaweed or kelp. Newspaper can be used for stuffing paper sculptures of larger rocks and/or living things. Once the living and nonliving things have been painted and dried they are attached to the mural with tape or in some other way.
4. As an example, a tide pool mural might include rocks, sand, mud, small fish, crabs, sea anemones, limpets, clams, seaweed, and sea stars. Some children may want to add gulls or other birds that get their food from an aquatic environment. This adds to the complexity of the art lesson, and adds ideas to make for a richer discussion.

Explanation (20 minutes):

5. When the mural is nearly done, children can gather to show their additions to each other. Support the students to use aquatic vocabulary along with describing words. Questions such as, "Why did you put your sea star in this place?" or "How did you know where to put the rocks?" will support children to explain and defend their thinking with visual evidence.
6. Later, students can notice many of the things on the mural and explain their thinking of how they chose color, texture, size, and shape. This is good practice for presenting to an audience, as they will do during the culminating activity later.

LIVING AND NON-LIVING THINGS IN THE WATER

INSTRUCTIONS

Elaboration:

7. As students finish their work on the big mural they can create their own individual tide pool and/or river environment, using art materials and supplies. Or, they could help a friend finish a part of the project. Children can read, write, or draw as they finish, letting others finish before everyone helps with the cleanup and once again gathers as a large group.

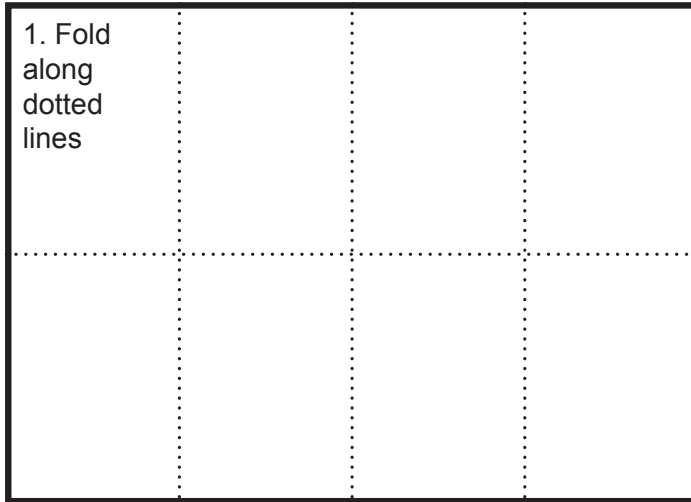
Evaluation:

8. Gather the children together as a large group, or in smaller groups if some children need more time to finish their work. Use a checklist or a record of how children are able to explain their placement of a nonliving or living thing on the mural. Individual tide pools or other aquatic environments also provide evidence of understanding. Note which children are able to use their descriptive language independently and which children might need more support.

LIVING AND NON-LIVING THINGS IN THE WATER

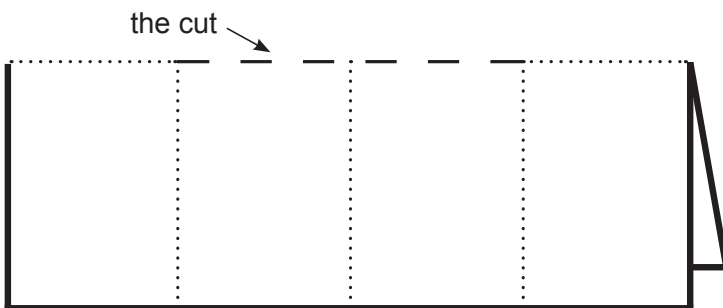
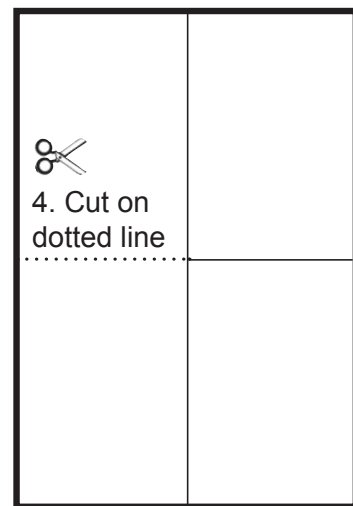
TEACHER INFORMATION SHEET

Follow these instructions to make a mini-book, or guide students through the steps. Instructions also available online at <http://library.thinkquest.org/J001156/makingbooks/minibook/index.htm>.

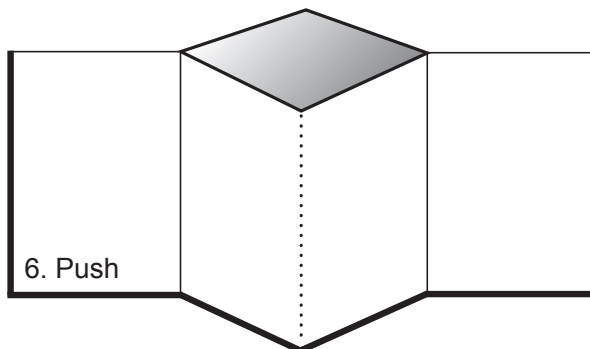


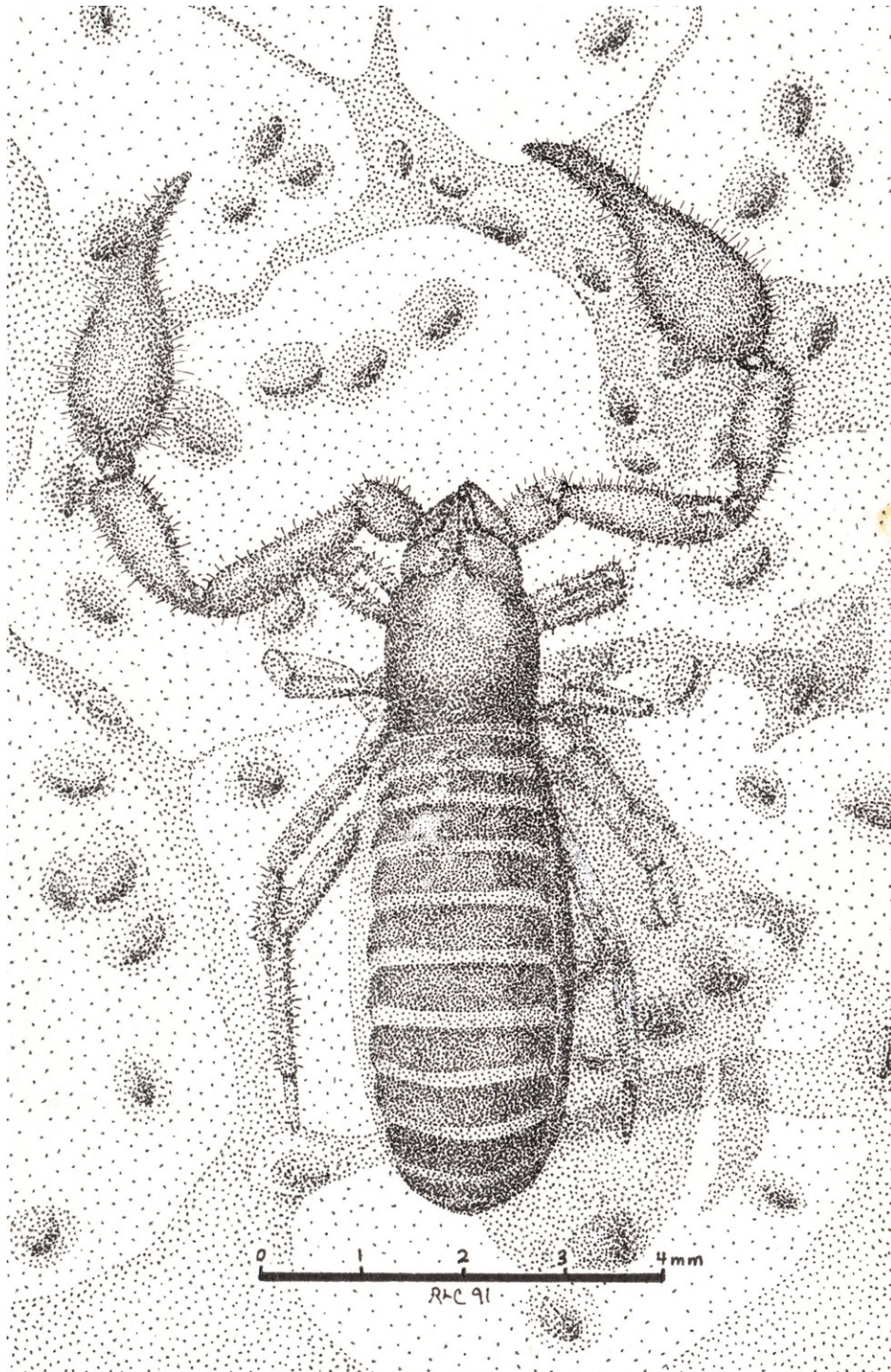
2. Fold in half (like a book)

3. Fold in half again to make a crease for cutting



5. Open and fold lengthwise





<http://seagrant.uaf.edu/marine-ed/curriculum/images/stories/kindergarten/psuedoscorpion.jpg>

PSEUDOSCORPION

TEMPLATE

