

SEASHELL HOMES

OVERVIEW	During this interdisciplinary lesson, students listen to a story about seashells, discuss shelled animals to gain scientific understanding and participate in a visual arts activity that reinforces the lesson's key concept that shells are made by certain marine animals called mollusks for shelter and protection.
OBJECTIVES	Following completion of this lesson, the students will be able to: <ul style="list-style-type: none">• Describe the function of a seashell;• Relate the function of a seashell to their own dwelling (shelter and protection);• Differentiate between shelled animals that make their shell (crabs, mollusks, turtles) from those that do not (hermit crabs);• Become acquainted with the group of animals known as mollusks and be able to identify the seashells made by four mollusks common to New Jersey's beaches (clam, scallop, moon snail and whelk).
GRADE LEVELS	Pre-K - 4 th grades
NJCC STANDARDS	Science Indicators: 5.5: End of Grade 2: A-1, A-2, B-1; End of Grade 4: A-3, B-2 Visual and Performing Arts Indicators: 1.2, 1.3 Language Arts Indicators: 3.1, 3.2, 3.5
MATERIALS	<i>What Lives In a Shell?</i> by Kathleen Weidner Zoefeld, ISBN # 0-06-445124-0, Shell templates to trace (included in this lesson), Paper, Crayons or markers, Clam, Scallop, Whelk and Moonshell shells .
PROCEDURES	Read book aloud. When finished, review text for understanding then focus discussion on seashells made by mollusks. Discuss what mollusks are (soft-bodied invertebrate animals), that mollusks make their own shells, that the mollusk's shell is separate from its body (unlike turtles, crabs and other crustaceans) and that the shell offers the mollusk protection or shelter (remember that the mollusk's body is soft, spineless and boneless and needs a protective cover). Using seashells, introduce the common mollusks, the clam, scallop, moon snail and whelk. Review their relationship to the animal that made them. If necessary, correct for the common misconception that hermit crabs make their shells. Hermit crabs are crustaceans (crab/shrimp family) and merely move into shells made by mollusks (see NJMSC lesson, <i>Homes for Hermit Crabs</i> for more information). Explain to students that there are over 80,000 species of mollusks, that most mollusks make shells and that the shells of no two species look alike.

Introduce art activity. During this activity, students create their own “custom-made” mollusk home based on the shape of a clam, scallop, whelk or snail. Show the students the shell templates included in this lesson one at a time and reinforce each shell’s name. Explain that each student will choose one shell template, trace it with a pencil then “customize” it using crayons or markers to create a unique “home.” You may show a sample project if you desire or offer prompts such as “If you could have anything you wanted for your special house, what would you choose?” or “How would you decorate the house of your dreams?” When children have completed their drawings ask them to share their creations by describing them to the class or writing a story about their seashell home.

BACKGROUND

Mollusks are invertebrate (spineless, boneless) soft-bodied animals belonging to the phylum Mollusca. Their bodies consist of a soft, visceral mass, a fleshy muscular foot for crawling and burrowing and, in all mollusks except **bivalves**, a head. The main part of the body, the visceral mass, contains organs for respiration, circulation (heart), reproduction (gonads), digestion (stomach, intestines), and excretion (kidneys). A wall of flesh, or **mantle**, surrounds the body of all mollusks. The mantle usually contains glands that secrete the raw materials for building the shell, although certain mollusks (squid and octopus) do not create shells for themselves.

The phylum Mollusca contains over 80,000 species. These are divided into seven classes, with four living close to the shore. These four are: Gastropoda (snails), Bivalvia (two-shelled mollusks), Polyplacophora (chitons), and Cephalopoda (squids and octopi). Most mollusks are aquatic, breathing via gills, and live primarily in marine environments. There are also freshwater species, and some species with lungs that live on land (slugs!).

VOCABULARY

Bivalve - Mollusks with two shells joined together at one side by a hinge. Strong muscles hold the two valves together tightly, except when the mollusk feeds or breathes. Clams, scallops, oysters, and mussels are examples of bivalves.

Exoskeleton - External skeleton.

Gastropoda/Gastropod - Mollusks with their shells in one piece (also called **univalves**). The shell is usually coiled in a spiral with the body coiled within. Gastropods can push their heads or muscular foot outside the shell, but the body remains protected inside. Snails, whelks, slipper shells, and oyster drills are examples of gastropods.

Mollusk - Invertebrate animals (Phylum Mollusca) that in most cases produce seashells to house and protect their soft bodies.

Univalve – Gastropods or mollusks with a one part-shell

EXTENSIONS

Look at the mollusk food chain (Bivalves are filter feeders that filter water for small bits of food; gastropods are either predators or grazers which eat algae off rocks). The specific eating habits of our four varieties of seashells included in this lesson are:



Clams: filter feeders with two tubes (one eats, one excretes) called siphons, which can be found sticking out the side of the shell when they are in water. They eat microscopic plants (phytoplankton) and animals (zooplankton). Clams burrow quickly for protection, but move slowly when on the surface. They are eaten by gulls,

skates and rays, flounders, seals, octopi, moon snails, oyster drills, walruses, crabs (predatory crabs as green, blue sometimes rock), and humans.

Scallops: Their diet and predation methods are the same as clams, except scallops are fast swimmers so they are not caught by the drillers (moon snails and oyster drills).



Moon snails: This predator eats anything with a shell including clams, scallops, oysters, other moon snails, mussels, and slipper shells. Moon snails are eaten by birds, walruses, skates, rays,



crabs and in some cases, humans.



Whelk: predators, which eat bivalves including oysters, clams, mussels, and moon snails.

Humans, moon snails, crabs, octopi, clams, scallops oysters, mussels, and slipper shells eat them.

REFERENCES

Teacher References:

Gosner, K.L. 1978. The Peterson Field Guide Series - A Field Guide to the Atlantic Seashore from the Bay of Fundy to Cape Hatteras. Houghton Mifflin Company, Boston.

Rehder, H.A. 1990 (5th printing). National Audubon Society Field Guide to North American Seashells. Alfred A. Knopf, Inc., New York.

Student References:

Pre-K through 3:

Carle, E. 1987. A House For Hermit Crab. Simon & Schuster Books for Young Readers, New York. .

Grades 2 & 3:

Coldrey, J. 1993. Shells. DK Publishing, Inc., New York. .

de Leiris, L. 1983. Shells of the World Coloring Book. Dover Publications, Inc., Mineola, New York.

Zoefeld, K.W. 1994. What Lives in a Shell? Harper Collins Publishers, New York.

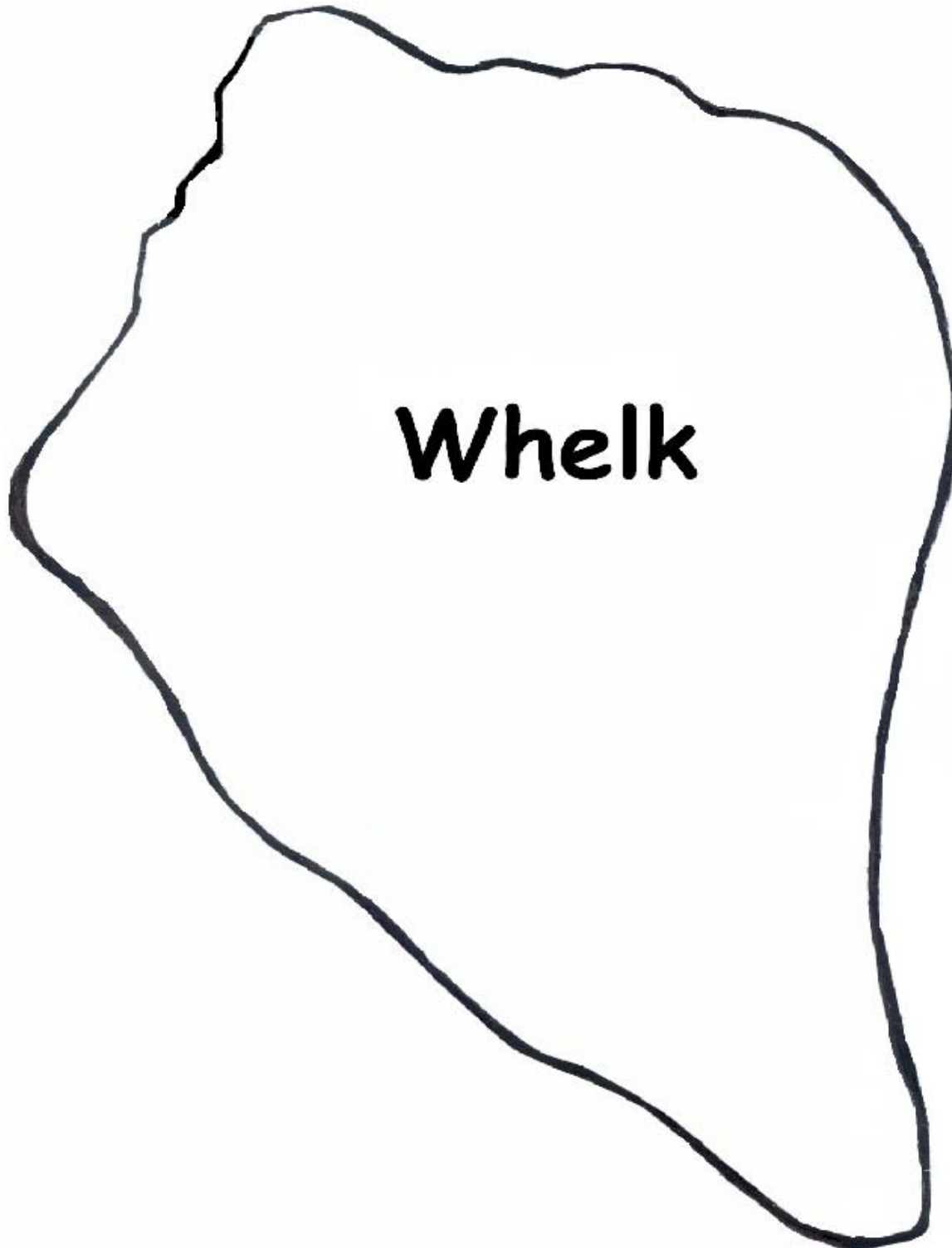
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**The Education Program at the
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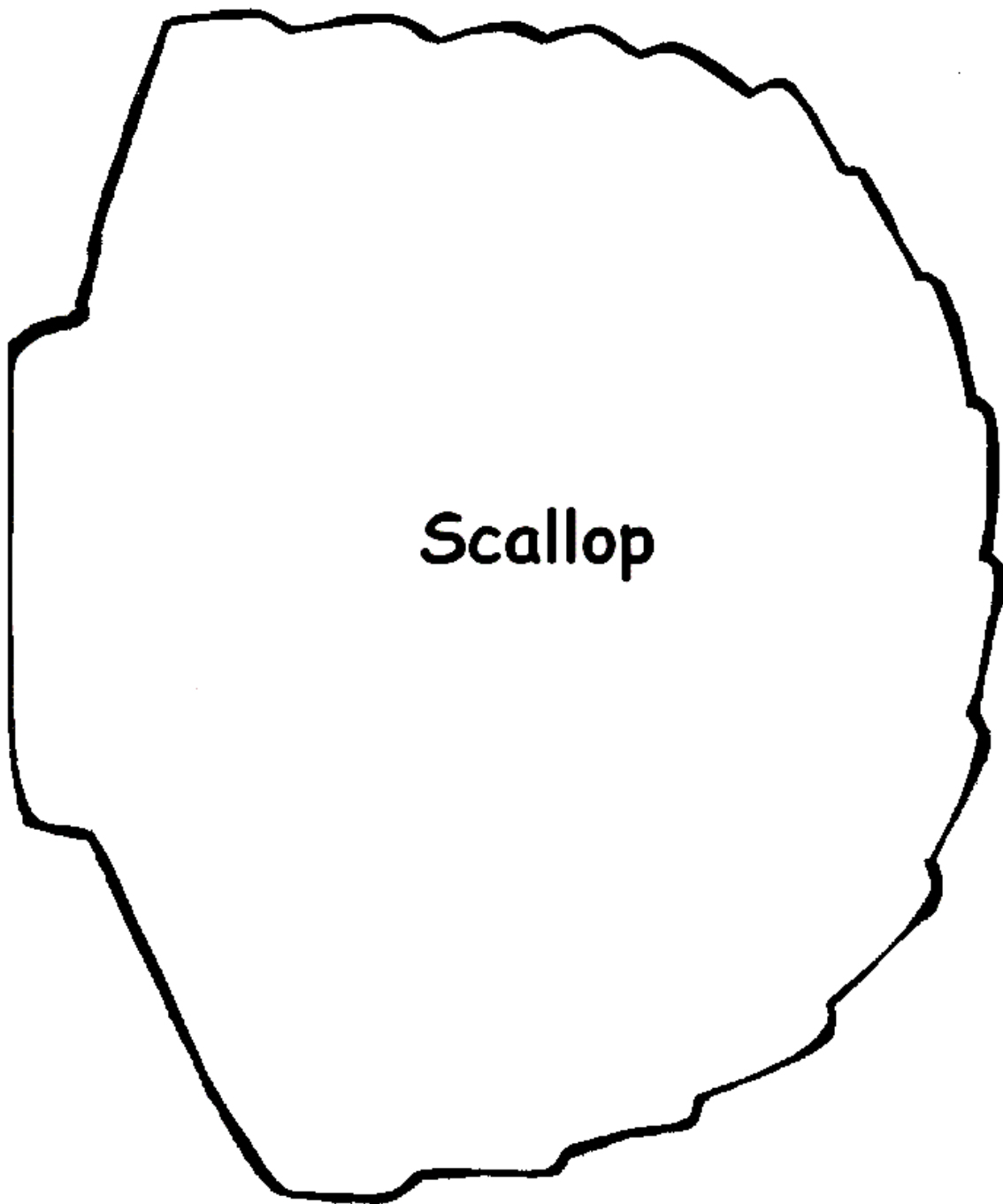
Clam



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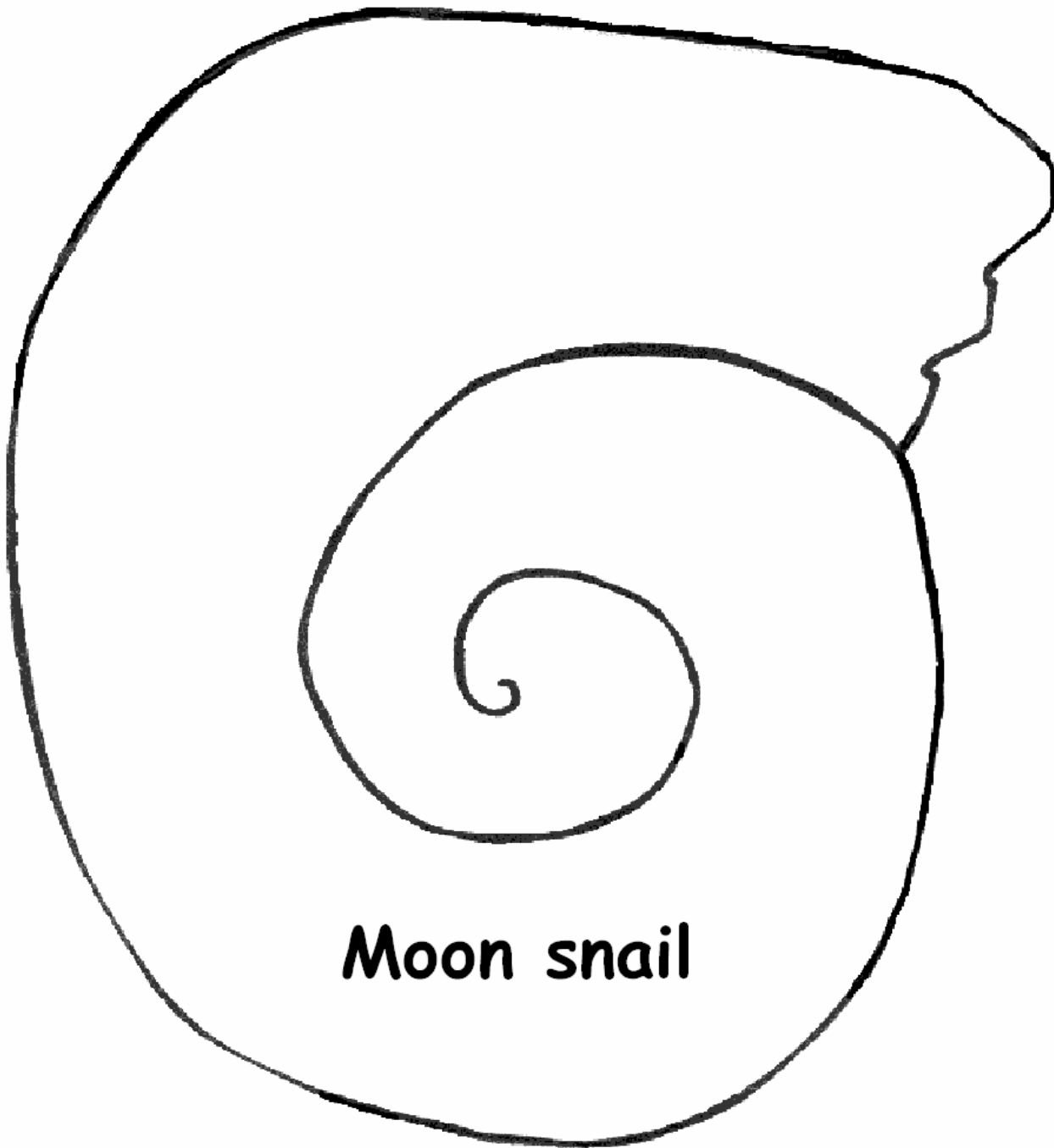
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Moon snail



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