

CURRICULUM IDEAS

Around One Cactus:
Owls, Bats and
Leaping Rats

by

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Great Ideas . . . Super Stuff . . . Cool Projects

Around One Cactus: Owls, Bats and Leaping Rats

This dynamically illustrated book takes readers into the heart of the Sonoran Desert to watch the "happenings" that take place in and around a single Saguaro cactus. The young boy in the story doesn't think there is much going on at the cactus and so, near the end of the day, he leaves. But, that's when all the activity begins. Rattlesnakes, elf owls, kangaroo rats, scorpions and other denizens of the desert come out to "play and prey." This is an active community—one not often seen by visitors—but one that has lots of excitement and lots to discover. According to one reviewer, "the creative [text]...creates an almost 'interactive' feeling between reader and book."

Critical Thinking Questions:

1. Which of the creatures did you enjoy the most?
2. Which animal would you like to learn more about?
3. How did the illustrations help you enjoy the story?
4. Are you similar to any of the creatures in this book?
5. What are some other animals that live in the desert?
6. If you could ask the author one question, what would it be?

Activities:

1. A terrarium is a miniature controlled environment containing plants in an artificial situation that can closely imitate the natural living conditions of desert organisms. Carefully set up, a desert terrarium can endure for long periods of time and provide students with a close-up look of this "sample" of nature. You'll need:
 - A glass container (A 10-gallon aquarium purchased at a pet store or garage sale or a large pickle jar can be used.)
 - Small pebbles, gravel, and coarse sand
 - potting soil
 - plants, rocks, pieces of wood
 - a. Be sure the container is thoroughly cleansed (be sure there is no soap or detergent residue left behind).
 - b. Spread a one-inch layer of gravel over the bottom of the aquarium. Combine three parts fine sand with one part potting soil. Spread this mixture over the base layer of gravel. Set the soil mixture about 3" deep towards the back of the terrarium and slightly shallower in front.
 - c. Decorate with rocks and small branches.
 - d. Sprinkle this mixture lightly with water. It's better to underwater than overwater—too much water is deadly for most desert plants. Stick your finger into the soil—if it's damp don't add water.
 - e. Place several varieties of cactus into the terrarium (it might be a good idea to wear gloves). Most nurseries carry cacti, or they can be ordered through the mail from selected seed companies and mail-order nursery houses. The following varieties are suggested:

Gasteria	Crassula	Aloe
Pincushion cactus	Adromischus	Opunita
Sedum	Lithops	Fishhook cactus
Astrophytum	Rebutia senilis	Night-blooming cereus

- f. When planting the cacti, be sure that the roots are covered completely by the sandy mixture.
 - g. The desert terrarium can be left in the sun and does not need a glass cover. If you cannot leave it in the sun, rig a lamp over the terrarium. Put a 60-watt light bulb in the lamp and leave it on for about 10 hours every day.
2. Students may enjoy creating their own "Desert Dictionary." Invite them to form small groups—with each group responsible for gathering words and definitions for several letters of the alphabet. For example:
- | | |
|------------------|--------------------------|
| A Arid | D Desertification |
| Arizona | Diamondback rattlesnake |
| Apache Indians | Dunes |
| B Beetles | E Endangered environment |
| Bats | F Fox |
| C Cactus | Flowers |
| California Poppy | |
3. Invite students to write to one or more of the following national parks and request information about the flora and fauna that inhabit those special regions. When the brochures, flyers, leaflets, and descriptive information arrives invite students to assemble it into an attractive display in the classroom or a school display case.
- | | |
|--|--|
| Death Valley National Park
P.O. Box 579
Death Valley, CA 92328 | Great Basin National Park
Baker, NV 89311 |
| Joshua Tree National Park
74485 National Park Drive
Twentynine Palms, CA 92277 | Big Bend National Park
Big Bend, TX 79834 |
4. Students may enjoy creating a large wall mural about the four major desert areas in the United States. Assign each of four separate groups one of those desert area (Sonoran, Mojave, Chihuahuan, Great Basin) and invite them to do the necessary research. Completed murals can be posted in the classroom or the school library. Interested students may also wish to do some comparative murals on U.S. deserts vs. deserts from other locations around the world (e.g. Atacama, Sahara, etc.).
5. Deserts get less than 10 inches of rain a year. Invite students to complete the chart below—filling in the amount of rain each of these desert towns receives in a year. They may wish to consult books or relevant web sites.

Mojave, CA	
Phoenix, AZ	6.5 inches
Needles, CA	
Tucson, AZ	
Palm Springs, CA	
Las Vegas, NV	4 inches
El Centro, CA	
(your home town)	

6. Invite students to read two other books by the author of *Around One Cactus: Owls, Bats and Leaping Rats*. Here they are: *Under One Rock: Bugs, Slugs and Other Ughs* (Dawn Publications, 2001) and *In One Tidepool: Crabs, Snails and Salty Tails* (Dawn Publications, 2002). How are all three of these books similar?
7. After students have had an opportunity to read other books about the desert, encourage them to create a sequel to *Around One Cactus*. What animals would they like to include in an "extension" of the *Around One Cactus* story? Invite students to create and post their creations throughout the classroom.
8. Students may be interested in obtaining travel and tourist information about Arizona. They can log on to <http://www.arizonatourism.com/> and obtain a wide variety of resources. Invite them to share these resources with others.
9. Invite each student to select one of the creatures from the book. Invite students to read the "Field Notes" pertaining to that animal in addition to conducting more library research. Afterwards, invite each student to create a series of diary entries told from the perspective of that animal. For example, "A Day in the Life of a Rattlesnake" or "A Day in the Life of a Gila Monster."
10. Using Styrofoam® create a large replica of a saguaro cactus. Invite students to break 100 toothpicks in half and stick each of the broken pieces into the model cactus. You may wish to spray paint the creation and let it dry before placing it in a prominent position in the classroom. Students can arrange models (see #32 below) around the cactus. Models can include creatures mentioned in the story as well as others students learn about during outside reading assignments.
11. Invite students to participate in a game of "Charades." Each student can select an appropriate desert animal and demonstrate its movements for others to guess.
12. Talk with students about some of the "Fantastic Facts" included in the back of the book. Which ones did they find most amazing? Invite students to assemble their own collection of "Desert Fantastic Facts" or "Cactus Fantastic Facts."
13. Invite students to log onto www.desertusa.com and select one of the animals profiled on this site. Encourage students to work in teams of 2-3 to assemble and collect information about their designated animals for presentation to the class.
14. Invite youngsters to create a "Wanted" poster for some of the more dangerous creatures (rattlesnake, scorpions) in the book. What information should be included on each poster? What are some of the "vital statistics" that students would want to share with others via their

posters? If possible, obtain one or more "Wanted" posters from your local post office and use them as models for your students' posters.

15. The following chart contains a list of each of the animals in the book along with a descriptive adjective. Encourage students to gather additional information about each animal and to add two more adjectives for each one. Students may wish to work in teams and compare their lists when completed.

ANIMAL	ADJECTIVE(S)
Kangaroo Rat	Hairy soles,
Elf Owl	Yellow eyes,
Long-Nose Bat	Night flyer,
Rattlesnake	Pit viper,
Scorpions	Poor eyesight,
Kit Fox	Long nose,
Gila Monster	Black spots,

16. Divide students into two separate groups. Assign one group the task of writing a prequel to the story; the other group the task of writing a sequel. Encourage students to discuss the various types of actions and/or creatures they could include in their additions.
17. Invite students to put clean, dry sandbox sand into a rectangular cake pan (about 9"x 12" x 2"). Fill the cake pan about halfway up with sand. Gently shake the pan until the sand is fairly smooth in the pan. Provide one or two students each with a drinking straw. Ask the students to gently blow across the surface of the sand to create sand dunes, sand patterns and other shapes (you may wish to provide students with photographs of sand dunes or sand patterns from a magazine or web site). Invite students to discuss the various patterns that may be found in the desert—particularly those created by wind blowing over the sand for extended periods of time. Students may wish to place a few rocks in the pan to see how those objects might affect the patterns in the sand.
18. Invite students to write the names of each of the animals in *Around One Cactus* on an individual 3 x 5 index card. Ask students to research other Sonoran desert animals and to write each of those animals on a separate index card. Then, invite students to work in pairs (additional research may also be necessary) to sort all the cards into the following categories:
- Diurnal vs. nocturnal
 - Birds vs. mammals vs. reptiles
 - Herbivores vs. carnivores vs. omnivores
- Students may also wish to place selected cards into a line representing a Sonoran desert food chain. For example: elf owl—kangaroo rat—rattlesnake.
19. Students may wish to assemble a "Cactus Dictionary." Invite them to research other types of cacti from across the United States or from around the world. Ask students to include an illustration of photograph of each cactus on one page of the dictionary along with relevant information about geographical range, dimensions, etc.
20. Invite students to obtain different types of cactus plants from a nearby nursery or garden center. Ask students to arrange the cacti in an attractive display—a single cactus garden or several smaller groupings of cacti arranged around the classroom. Encourage students to research and assemble a

- guidebook on how to take care of cacti. Students may also wish to prepare a PowerPoint® presentation for other students on the various types of cacti found in the U.S. or throughout the world.
21. Invite students to create posters or advertisements to attract other students to this book. What information, data or illustrations should be included? Students may wish to hang their illustrations or posters throughout the school or in the library.
 22. Invite students to survey other students who have read this book. Ask them to make lists of all the creatures in the book and question others about who their favorite animals are. They can then tabulate the results and present them in the form of bar graphs, pie charts or line graphs.
 23. Invite students to each select one of the animals featured in the book. Invite each child to demonstrate the movement of that creature in a designated area. For example, for a rattlesnake, students can slither across the floor on their bellies; for a scorpion they can scuttle across the floor on the hands and feet. Provide opportunities for students to describe their movement and why they may be unique to each individual animal.
 24. Invite students to read other desert books such as the following:
 - a. *Saguaro Moon: A Desert Journal* by Kristin Joy Pratt-Serafini
 - b. *Desert Song* by Tony Johnson
 - c. *Cactus Hotel* by Brenda Z. Guiberson
 - d. *Desert Giant: The World of the Saguaro Cactus* by Barbara Bash
 - e. *America's Deserts* by Marianne Wallace
 - f. *One Small Square: Cactus Desert* by Donald M. Silver
 25. Students may wish to correspond with a zoologist or biologist at a local college or university. They may wish to obtain some first-hand information about selected creatures from the book or about desert animals in general. You may be able to make arrangements for the expert to visit your classroom along with several desert creatures.
 26. Invite students to put together a "cactus newspaper" (in a newspaper format) that presents interesting facts and observations about animals that live in and around a Saguaro cactus. Invite students to use the same sections as the local newspaper (e.g. Sports—how fast scorpions or other animals run; Fashion—what the "well-dressed long-nose bat or elf owl is wearing tonight; Food and Health—the different diets of herbivores and carnivores; Apartments—places to live in the cactus). Invite students to assemble their newspaper using an appropriate piece of software. Be sure to distribute it to other classrooms.
 27. Invite students to create their own desert songs using the music from another song. For example, here is a song that can be sung to the tune of "I've Been Working on the Railroad":

I've been watching gila monster
All the live-long day
I've been watching gila monster
Just to see what he would say.
Can't you hear him mumbling, grumbling
Stuck in between the crack
Don't you ever want to meet him
'Cause he just might attack.

28. Invite students to rewrite part of the story from the perspective of one of the animals. For example, how would the rattlesnake view the actions of the other animals? How would the long-nose bat view the other creatures?
29. Invite students to create a desert environment in the classroom. Cover the walls with newsprint and invite students to paint scenes of a desert, using vibrant colors. Individual animals can be painted directly on the paper or created out of papier-mâché or cardboard and suspended from the ceiling with strings. Make some cacti and other desert plants in relief by constructing them out of cardboard and attaching them so they stand out from the wall.
30. Invite students to visit a local travel agency and collect travel posters or brochures for an imaginary visit to Arizona. Invite students to read the materials and then to create an Arizona travel brochure specifically geared for kids. What new or different information should be included in this brochure? (For students living in Arizona, invite them to create a brochure that entices other kids to come and visit their state.)
31. Provide students, working individually or in small groups, with a small sponge saturated with water. Explain to them that this represents a desert animal with a limited amount of available water. Over a 24-hour period, students should take care of their "animal" in a manner that will best conserve the water it contains, using only natural materials. Their "animal" must be in the open for at least four hours during that time to "feed." To measure the beginning moisture content, each student or group should use the balance to determine the mass of its sponge. A control sponge should be left unprotected for the experiment's duration. Students should then plan a strategy and write it down along with predictions of what will happen. During the 24-hour period, students should make and record observations. At the end of the allotted time, students again record the mass of their sponges. Students should compare with the previous mass and make inferences about the results in relation to real organisms with limited or temporary water supplies, such as lizards, pack rats, and coyotes. Have individuals or groups share their experiments and results with the entire class. Afterward conduct a class discussion of methods, results, and how this relates to adaptations for survival in real organisms.
32. Students can create various desert animals from homemade clay. Here's a recipe: Mix 1 cup flour and 1/2 cup salt. Add 1/3 cup water, a little at a time. Squeeze the dough until it is smooth. Form into shapes; let air dry or bake at 225° for 30 minutes. Paint with tempera paints. (Note: Adjust the recipe according to the number of students participating).
33. Invite students to imagine that they are one of the creatures in the story. Encourage them to create a poster that says "Save Our Home." They can include a full-color drawing of the selected creature and write a convincing ad for preserving the Sonoran desert environment.
34. Invite students to imagine that they are a Saguaro cactus. Encourage them to write a life story told from the perspective of the cactus. What happens to the cactus during the course of a year? During a decade? During a century? How is the cactus's life similar to or different from a human beings life?
35. Invite an employee of a local garden center or nursery to visit the classroom and discuss various types of cacti sold there. What are some planting techniques? How should cacti be cared for? Why are some cacti easier to grow than others? Invite students to gather the responses to those

- questions as well as their own into an informative brochure or PowerPoint presentation that could be shared with other classes.
36. Invite a local artist to visit your classroom and describe some of the procedures used in illustrating a book or advertisement. How does the artist take advantage of color, "white space," size, dimension, and perspective in deciding how a final illustration will look? Invite the artist to describe some of the artistic techniques used in the book's illustrations.
 37. Invite students to discuss the similarities between human dwellings and animal homes. What are some of the things that determine where an animal lives? Are those conditions or features similar to the considerations of humans in selecting a living site? Do animals, particularly desert animals, have more options for living spaces than humans?
 38. Students may be interested in logging on to several web sites that describe Saguaro National Park in Arizona. After obtaining important information about the Park, invite students to share their collective data with other classes or groups of students. The following web site will get them started:
 - a. http://www.americansouthwest.net/arizona/saguaro/national_park.html
 - b. <http://www.nps.gov/sagu/>
 - c. http://www.desertusa.com/sag/du_sag_index.html
 39. Invite students to imagine they are living in the desert and are writing to a friend to convince him or her to visit for several days. What features or attractions should be pointed out in the letter? Afterward, invite students to imagine they are in an urban environment and writing to a friend who lives in the desert—inviting that person for a visit.
 40. If possible, obtain a copy of the following video *The Amazing Giant Saguaro of America's Southwest* (The Gold Dust Twins Enterprises, 1994). This video is an excellent introduction to Saguaro—particularly for those not familiar with these denizens of the Arizona desert. After viewing, plan time to discuss with students new information they obtained from the video or misconceptions about desert life that were cleared up by the video.
 41. Students may enjoy eating foods made from cacti. If possible, obtain one or more of the following (www.desertusa.com is a good source) for students to taste: prickly pear cactus candy, prickly pear cactus jelly, prickly pear cactus honey, prickly pear cactus syrup (makes a great "lemonade") and/or cactus marmalade.
 42. Discuss the differences between venomous and non-venomous snakes. Ask students to determine if there is a danger of venomous snakes in the area where you live. Identify the venomous snakes in your area and where they can be found on a classroom map. Invite local emergency medical personnel to discuss caring for a snakebite wound. Share and discuss any similarities between venomous snakes in your area and rattlesnakes that inhabit the Sonoran desert.
 43. Invite students to create their own booklets or informational brochures about bats. Divide the class into several cooperative groups and invite each group to research a specific category (e.g. habits, habitats, life cycles, diets, etc.). Invite the various groups to compile their data into a printed form which can be shared with other students in the school.
 44. Wind erosion is a common occurrence in the desert. If possible, invite a geologist from a local college or university to visit your class and discuss the short-term and long-term effects of wind

- erosion—particularly in a desert environment. Be sure to share some photographs of the effects of wind erosion, too.
45. Obtain a copy of *Cactus Poems* by Frank Asch. Share some of the poems with your students. Afterwards, invite students to create their own cactus poetry. The completed poems can be posted on an oversized cutout of a Saguaro cactus.
46. Invite students to collect several copies of travel magazines or nature periodicals. Ask them to prepare a “desert collage” composed of pictures, photographs and illustrations cut from these magazines. Be sure the collage is posted in a prominent place.
47. Invite students to gather information and data from the school and/or public library. They can put together a booklet or notebook entitled *Cactus Olympics*—a compendium of the world records held by individual cactus species or single cacti throughout the world. Some of the following designations may be appropriate:
- | | |
|-------------------------------|--------------------------------|
| World's tallest cactus | Cactus with the smallest seeds |
| World's oldest cactus | Heaviest cactus |
| World's smallest cactus | Most common cactus |
| Cactus with the longest roots | Rarest cactus |
| Cactus with the biggest seeds | |
48. Invite students to check out the wide variety of books about cacti on the following web site: <http://cactus-books.com>. Encourage students to assemble a comparable resource (web sit, bibliography, etc.) on cactus books that are particularly appropriate for elementary students.
49. Invite students to gather data on the various Native American tribes that live (or have lived) in the Sonoran desert. How did they survive? What did they grow or hunt? What were some of their uses for cacti? Plan appropriate opportunities for students to share their research.
50. Invite students to create a “word poem” about the Saguaro cactus. Write the term “Saguaro cactus” vertically on the left side of a piece of poster board. Encourage students to suggest words or phrases that are indicative of the Saguaro cactus for each letter. The following example has been partially completed:

S _____
 A _____
 G Gila monsters and snakes live around it
 U _____
 A _____
 R Rain rarely falls
 O _____
 C _____
 A A den of foxes is nearby
 C _____
 T Time seems to stand still
 U _____
 S Scorpions scuttle along on unseen trails

CURRICULUM IDEAS

In One Tidepool:
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and Salty Tails

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Great Ideas . . . Super Stuff . . . Cool Projects

In One Tidepool: Crabs, Snails and Salty Tails

Summary:

In this imaginatively illustrated book, a young girl takes readers into the magical and captivating world of a single tidepool. Together they discover an array of interesting and intriguing creatures including barnacles, anemones, a blood-red sponge, snail, crabs and a knobby sea star. Using a rhythmic verse that invites active reader participation, this book provides youngsters with a scientific and literary "field trip" into this community by the sea. According to one reviewer, "[the] rhyming text of humor and wit are broad-based and so amusing that this title will appeal to a wide range of readers."

Critical Thinking Questions:

1. What was the most interesting creature in the book?
2. Which of the animals would you like to learn more about?
3. What are some other animals that might be found in a tidepool?
4. How are all the animals able to live together?
5. What did you like best about the book?
6. If you could ask the author one question, what would it be?

Activities:

1. Invite a group of students to brainstorm what a tidepool would be like if there were no creatures living in it. For example, imagine no more sea stars, no more fish, or no more crabs. Invite students to discuss and list the implications of creature-less tidepools.
2. Provide students with an assortment of magazines that contain pictures of small ocean animals—creatures that might be found in a tidepool. These may include (but not be limited to) Ranger Rick's Nature Magazine, National Geographic, Discover, etc. Encourage students to make a class collage by pasting pictures of different creatures on a tidepool graffiti wall.
3. Discuss with students the similarities (or differences) between the community of animals in the tidepool and the community in which they live. Invite students to create an oversize Venn diagram which illustrates those comparisons.
4. Invite students to each select one of the animals mentioned in the book. Invite each child to demonstrate the movement of that animal in a designated area. For example, a sea star moves very slowly over a surface; a crab scampers quickly from one hiding place to another. Provide opportunities for students to describe their movements and why they may be unique for each animal.
5. Students may enjoy reading two other books in this series: *Under One Rock: Bugs, Slugs and Other Ughs* (2001) and *Around One Cactus: Owls, Bats and Leaping Rats* (2003).
6. The book begins with a letter from "Your Five-Armed Buddy"—the Sea Star. Invite students to create other possible introductory letters for the book using one or more of the other featured animals as narrator(s). Provide opportunities for students to share these letters with each other.

7. You may enjoy obtaining some land hermit crabs for your classroom. They can be purchased through Carolina Biological Supply (www.carolina.com) [Check under "Classroom Critters"]. You can also obtain hermit crab food and a land hermit crab habitat from Carolina. Incidentally, hermit crabs make wonderful classroom creatures—easy to care for and fun to observe!
8. Draw and cut out an oversized outline of a sea star body from stiff cardboard or oaktag. Invite students to illustrate the sea star in accordance with the illustrations in the book or with those in informational books in the library. Encourage students to record information on sea stars that can be written inside the sea star outline.
9. Replicate the activity above using cardboard outlines of the other creatures profiled in the tidepool. What are some amazing facts students can locate for each animal—facts that can be listed on each illustrative outline?
10. Cut off the fingers from a pair of inexpensive work gloves. Invite students to use a variety of art materials (crayons, yarn, felt-tip pens, sequins, etc.) to turn each "finger" into a puppet representing one of the creatures in the book. Students can use these puppets as part of a finger play during a retelling of the story. Students may elect to display the puppets in an appropriate "museum" in the classroom.
11. Invite students to create a "world's record" book of seashore animal measurements. Encourage them to conduct some library research in response to the following and to record their results on an oversized classroom chart:
 - a. World's largest sea star
 - b. World's largest crab
 - c. Fastest tidepool animal
 - d. Slowest tidepool animal
 - e. World's largest sponge
 - f. World's oldest sponge
 - g. World's largest seashell
 - h. World's smallest seashell
12. Invite each student to choose an animal to study. Students can pretend they are writing a newspaper announcement for the birth of their animal. They will need to do some research to collect necessary information. Provide the birth announcement section from the daily newspaper for students to use as a reference.
13. Invite youngsters to keep a journal of the activities, habits, travels, and motions of a single animal. Kids may want to select a house pet or some other animal that can be observed quite regularly throughout the day. Provide youngsters with a field journal—a simple notebook wildlife biologists frequently use to track the activities of one or more wild animals over the course of an extended period of time.
14. Invite youngsters to each take on the role of one of the animals in the book. Encourage them to do the necessary library research on the habits and behaviors of their selected animals. Then invite each youngster to write a diary entry—as his or her selected animal might record it—on a day in the life of that species.

15. Before reading this book to students invite them to look at the cover of the book and guess what it is about. Ask students to predict the animals that might be found in a tidepool. What do they know about tidepool animals?
16. Invite a biologist or zoologist from a local college or university to speak to your students about tidepool animals and the special environment in which those animals live. How does the information shared by the expert compare with the information shared in the book? Any similarities? Any differences/
17. Invite students to create a sequel to this book, such as one titled "Along the Shore: Critters, Creatures and Other Features." What other types of animals could the young girl discover—either in another tidepool or along the beach? Invite students to defend their selections.
18. Invite students to log onto the National Wildlife Federation's web site "Keep the Wild Alive" (<http://www.nwf.org/keepthewildalive/>). Here students learn about a variety of endangered species from around the world, the challenges they face, and what they can do to help. Invite students to focus on endangered species in the ocean or along the seashores of the world.
19. Invite students to put together an identification guide for various tidepool animals from around the world. What types of tidepool creatures can be found in Europe, or Africa, or South America? How are tidepool animals on the West Coast of the U.S. similar to, or different from, those on the East Coast?
20. Provide each student with two paper plates. Invite each student to cut out a circular section from one plate and glue blue cellophane over the inside of the hole to create a water effect. Encourage students to draw illustrations of seaweed, various tidepool creatures from the book, and other underwater items on the face of the uncut paper plate. They may wish to glue birdseed on the "tidepool floor" to simulate sand or to use fish crackers to provide a 3-dimensional effect. Invite students to glue or staple the two plates together (face to face) to create an imaginary "porthole" into a tidepool.
21. Invite students to contact several of the following groups and ask for information on the work they do and the types of printed materials they have available for students:

American Littoral Society
Sandy Hook
Highlands, NJ 07732
(201-291-0055)

American Oceans Campaign
725 Arizona Ave., Suite 102
Santa Monica, CA 90401
(310-576-6162)

Center for Marine Conservation
1725 DeSales St., NW, Suite 500
Washington, DC 20036
(202-429-5609)

Coastal Conservation Association
4801 Woodway, Suite 220 West
Houston, TX 77056
(713-626-4222)

The Coral Reef Alliance
809 Delaware St.
Berkeley, CA 94710
(510-528-2492)

International Oceanographic Foundation
4600 Rickenbacker Causeway
Virginia Key, Miami, FL 33149
(305-361-4888)

Marine Environmental Research Institute
772 W. End Ave.
New York, NY 10025
(212-864-6285)

Marine Technology Center
1828 L St., NW, Suite 906
Washington, DC 20036-5104
(202-775-5966)

National Coalition for Marine Conservation
3 W. Market St.
Leesburg, VA 20176
(703-777-0037)

National Wildlife Federation
8925 Leesburg Pike
Vienna, VA 22184-0001
(703-790-4000)

Ocean Voice International
P.O. Box 37026
3332 McCarthy Rd.
Ottawa, Ontario, Canada K1V 0W0

22. Invite students to put together a "tidepool newspaper" (in a newspaper format) that presents interesting facts and observations about tidepool creatures. Invite students to use the same sections as the local newspaper (Sports—how fast some tidepool animals can move; fashion—what are the latest "colors" all the fashionable critters are wearing; Food and Health—the different diets of various tidepool animals). Students can use a word processing program to assemble the newspaper and then print it for distribution to other classrooms.
23. Invite students to create their own tidepool song using the music from another song. For example, here is a song that can be sung to the tune of "I've Been Working on the Railroad":
- I've been watching one small tidepool
All the livelong day
I've been watching one small tidepool
Just to watch the creatures play
Can't you see them hurry, scurry
Across the rocks and flats
Watch the crabs dash and tumble
In their funny hats.
24. In the "Field Notes" section in the back of the book there is a "Fantastic Fact" about Owl Limpets. Share that fact with students and then invite students to create a "Wanted" poster for owl limpets.
25. Provide students with blank maps of the U.S. Invite them to color in the places on both the West and East coast where tidepools would be found. Which coast seems to have the most tidepool areas?
26. Students may enjoy reading or listening to other animal books by the author. These could include the following: *Weird Walkers* (NorthWord Press, 2000), *Surprising Swimmers* (NorthWord Press, 2000), *Elephants for Kids* (NorthWord Press, 1999), and *Clever Camouflagers* (NorthWord Press, 2000).
27. Invite students to imagine that they are one of the creatures in the story. Encourage them to create a poster that says "Save Our Home." They can include a full-color drawing of the selected creature and write a convincing ad for saving their specific tidepool or tidepools in general.

28. Create a tidepool environment in the classroom. Cover the walls with paper and let students paint the scenes of a tidepool, using vibrant colors. They can paint individual animals directly on the paper or create them out of paper mache or cardboard and suspend them from the ceiling with strings. Make some of the rocks and background details in relief by constructing them out of cardboard and attaching them so they stand out from the wall.
29. Education Planet has a variety of resources, books and lesson plans on tidepools. Check out their site for some great teaching tools and learning opportunities.
(<http://www.educationplanet.com/search/Environment/Ecology/Tidepools/>)
30. Talk with students about some of the "fantastic facts" included throughout this book. Which ones did they find most amazing? Why? Why did the author include those facts?
31. Students may wish to observe their own "tidepool critters" in action. Here's an activity that will help them do just that:

Materials:

brine shrimp eggs (available from any pet store)
non-iodized kosher salt (available at most grocery stores)
two-quart pot
water
teaspoon
medicine dropper
hand lens or inexpensive microscope
aged tap water

Procedure:

- a. Fill the pot with two quarts of water and allow it to sit for two days, stirring it occasionally (Most city water has chlorine in it which would kill the shrimp. "Aging" for several days allows the chlorine gas to escape from the water). Mix 5 teaspoons of non-iodized salt with the water until dissolved. Add $\frac{1}{2}$ teaspoon of brine shrimp eggs to the salt water and place the pot in a warm spot. Invite students to use the medicine dropper to remove some eggs from the water and observe them with a hand lens or microscope. They may wish to check a drop of water every day. They also may wish to create a series of drawings or illustrations which record the growth of the brine shrimp.
 - b. The brine shrimp eggs will begin to hatch in about two days. They will continue to grow in the water until they reach their adult stage. Students will be able to watch this growth process over a period of many days.
 - c. NOTE: Brine shrimp eggs that are purchased at a pet store are the fertilized eggs of very tiny animals—called brine shrimp. The eggs are dried and can be kept for very long periods of time (especially when kept in a dry place). When they are added to the salt water, the eggs "wake up" and begin to grow. Although the shrimp are very small, students can watch them grow for many days. Brine shrimp eggs are sold as fish food for aquariums. Make sure students do not try to eat them.
32. Invite students to create posters or advertisements to attract other students to this book. What information, data, or illustrations should be included? Students may wish to hang their posters or advertisements in the school library.

33. Involve students in a readers theatre adaptation of this book. Readers theatre is an oral interpretation of a piece of literature read in a dramatic style. Students use prepared scripts (no memorization is necessary) to present their own adaptation of a book. For more information consult *Tadpole Tales and Other Totally Terrific Treats for Readers Theatre* by Anthony D. Fredericks (Westport, CT: Teacher Ideas Press, 1997).
34. Invite students to create a wordless picture book using important events from this book. This activity can be done in small groups with each group displaying its book on the bulletin board. What challenges are there in creating a wordless version of this story? What are some of the things an artist must think about in creating a wordless picture book as opposed to a text-driven picture book?
35. Work with the school's music teacher to compile a selection of songs related to the oceans, ocean animals, the seashore or tidepools. Plan opportunities when students can share these songs in class.
36. Invite students to compare the illustrations in this book with photographs in non-fiction books about tidepools? What similarities do they notice? What were some things the artist had to consider in drawing the pictures for this book?
37. Invite students to create a flip book illustrating the sequence of activities that took place in this book. These flip books can be donated to the school library for others to enjoy.
38. Invite students to discuss the similarities between human dwellings and animal homes. What are some of the things that determine where an animal lives? Are those conditions or features similar to the considerations of humans in selecting a living site? Do animals have more options for living spaces than humans?
39. Ask students how they think nature has influenced art over the years. If possible, shows students a selection of paintings that represent things in nature. Obtain books of prints representing artists that traditionally painted nature scenes (for example, Frederic Church, Claude Monet). Are there any artists or paintings that would be representative of a tidepool environment?
40. Invite students to imagine that they are a tidepool creature and are writing to another animal in another tidepool to convince him or her to visit. What features or attractions should be pointed out in the letter? What is it about that specific tidepool environment that would make it appealing for another creature?
41. As an adaptation of the previous activity, invite youngsters to look through the classified section of your local newspaper. Based on examples in the newspaper, challenge students to create an original classified advertisement based on information in the book. For example;

FOR RENT: Rock ledge. Sometimes wet, sometimes splashy. Lots of neighbors. Lots of plants. Good view of ocean. 50 clams per month. Available immediately. Call Sea Star at 123-4567 after high tide.

42. Invite students to create an alphabet book about tidepools. For example: **A** = Anemone; **B** = Barnacles; **C** = Crab; **D** = Dark colored, etc.
43. Encourage students to write a fictitious letter to the girl in the story. What would they like to say to her? What would they like to know about her adventures with the tidepool in the book?

44. Form a tidepool club. Interested students can create an informational newsletter, watch specially selected videos, take field trips (when possible), construct a special aquarium display or read additional books.
45. Invite students to write and perform a "tidepool" skit. The skit could involve a meeting between two or more creatures who live in a single tidepool. Or, it could be an imaginative scene in which a visitor to the tidepool shows up unexpectedly.
46. Provide students with some modeling clay (available at any hobby store). Work with them to make small models of each of the animals mentioned in the book.
47. Invite students to survey all the other students who have read this book. Ask them to make list of all the creatures in the book and question others about who their favorite one is. The results can be presented in the form of bar graphs.
48. The Surfrider Foundation USA (<http://www.surfrider.org>) is a non-profit organization dedicated to protecting the coastal environment of California beaches. Your students may wish to log on to their web site and obtain information about their preservation efforts.
49. Dr. Stephen Leatherman ("Dr. Beach") of Florida International University has ranked the best beaches in the world. Students may be interested in looking at photographs of his choices (<http://www.petix.com/beaches/index.html>). After observing some of these choices, students may wish to post an oversize map of the world on one wall of the classroom. Encourage them to post index cards with the names of each of these beaches around the map. Pieces of yarn can be strung between each index card and the location of the designated beach on the wall map.
50. Waves constantly pound on the shoreline. This is a process that has been going on for millions of years. As a result, sand is created through continual wave action. Here's a fun activity that demonstrates this process.

Materials:

white glue, playground sand, water, small coffee can (with lid), cookie sheet.

Directions:

- a. Mix together six tablespoons of white glue with six tablespoons of sand in a bowl.
- b. Using the tablespoon, place small lumps of the mixture on a cookie sheet.
- c. Place the cookie sheet in a slow oven (250° F) and "bake" them for three to four hours.
- d. Remove the "rocks" and allow them to cool.
- e. Put three or four "rocks" into a coffee can with some water and place the lid securely on top.
 - a. Shake for four to five minutes and remove the lid.

The rocks will begin to wear down. Some of the "rocks" will be worn down into sand. The action of the "waves" inside the coffee can causes the "rocks" to wear against each other. As a result, they break down into smaller and smaller pieces. On a beach or shoreline this process takes many years, but the result is the same. Rocks become smaller by being tossed against each other by the action of the waves. Over time rocks wear down into sand-like particles which eventually become part of the beach or shoreline.

CURRICULUM IDEAS

Under One Rock:
BUGS, SLUGS
AND OTHER UGHS

by

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Great Ideas . . . Super Stuff . . . Cool Projects

Under One Rock: Bugs, Slugs and Other Ughs

Summary:

In this creatively illustrated book, readers make some amazing discoveries about an ecosystem right in their own back yard. They'll journey with a youngster as he lifts up a single rock to find an amazing collection of creatures that take up residence on and in the ground. Using a rhythmic verse, this book introduces youngsters to some delightful inhabitants of this community of critters ("This is the spider with her eight-eyed face/Who builds a home in this cool dark place.").

Critical Thinking Questions:

1. Which of the creatures was most amazing?
2. How did the illustrations help you learn about the animals in this book?
3. Which of the animals would you like to learn more about?
4. How are so many different animals able to live together in one place?
5. What other animals do you think could be found under a single rock?
6. If you could tell the author one thing, what would you like to say?

Reading/Language Arts:

1. Invite each student to choose an animal from the book to study. Students can pretend that they are writing a newspaper birth announcement for the birth of their animal. They will need to do some research to collect necessary information. Provide the birth announcement section of daily newspapers for students to use as a reference for writing their article. Decorate a bulletin board to look like a section of a newspaper, and hang the animal birth announcements there. Students can include an illustration of the new "baby."
2. Several of the animals mentioned in this book live in very specific environments and a few are fascinating simply because they do things no other animals do. Children can learn more about these animals as well as others throughout the world by obtaining copies of or subscribing to one or more of the following children's magazines:

Audubon Adventure
National Audubon Society
613 Riversville Rd.
Greenwich, CT 06830

Chickadee
Young Naturalist Foundation
P.O. Box 11314
Des Moines, IA 50340

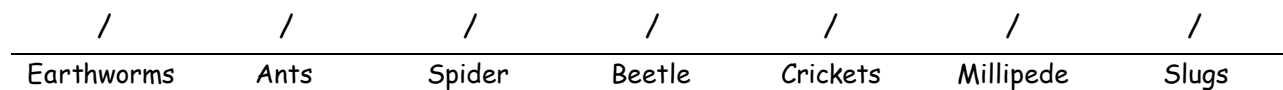
Dolphin Log
Cousteau Society
8430 Santa Monica Blvd.
Los Angeles, CA 90069

Naturescope
National Wildlife Federation
1912 16th St., NW
Washington, DC 20036

Ranger Rick
National Wildlife Federation
1412 16th St., NW
Washington, DC 20036

Zoobooks
Wildlife Education, Ltd.
930 West Washington St.
San Diego, CA 92103

3. As a class, brainstorm about what the planet earth would be like if there were no insects. For example, imagine no more mosquito bites or bee stings, no more honey, no more flowers, no more butterflies, and so on. Invite students to list the positive and negative effects on insects on the chalkboard. They can also write and illustrate stories about the planet with no insects.
4. Encourage students to read other books by the author of Under One Rock. Here are a few to get you started: *Weird Walkers*, *Elephants for Kids*, *Cannibal Animals*, *Clever Camouflagers*, *Animal Sharpshooters*, *Surprising Swimmers*, *In One Tidepool*.
5. Encourage students to write a sequel to this book. What others creatures would the boy discover under other rocks?
6. Invite each student in the class to select one of the animals illustrated in the book. Encourage each child to conduct necessary library research on his or her identified species. Then, invite each student to write a series of diary entries told from the perspective of the creature, for example, "A Day in the Life of a Slug" or "My Life as an Ant."
7. In a class discussion have students determine where important events took place. Invite them to record these events on a timeline to reinforce the sequential development of the story line. Here is an example of a simple timeline:



8. Encourage students to create an original "rock" dictionary. Invite them to collect "rock-related" words and terms from various books and resources. These can be compiled into a dictionary (cut into the shape of a rock).
9. Invite students to write and perform a "rock" skit. The skit could involve a meeting between two or more creatures who live under a rock. Or it could involve an imaginative scene in which a visitor to the rock shows up unexpectedly.
10. Divide the class in half. One half can be predators and the other half can be prey. A predator is matched up with a prey. Invite each pair to construct a book on the life of a predator trying to catch its prey and the prey's attempt at escape. Illustrations should also be included.

Science/Health:

1. Encourage students to keep an "Animal Journal". This can be a record of all the animals they see during the week. This should include pets, wild animals, insects, and animals seen on television. Hang posters for mammals, fish, birds, reptile and amphibians, etc. Students can add to the charts daily.
2. Invite youngsters to keep a journal of the activities, habits, travels, and motions of a single animal. Kids may want to select a house pet or some other animal that can be observed quite regularly throughout the day. Provide youngsters with a "Field Journal" - simple notebook wildlife biologists frequently use to track the activities of one or more wild animals over the course of an extended period of time.
3. Invite students to complete the following list using animals from the book. Encourage them to research other "rock creatures" and add them to this list or an over-size wall chart posted in the classroom.

ANIMAL

Earthworms

Ants

Spider

Beetle

Field crickets

Millipede

Slugs

TWO ADJECTIVES

squiggly, round

tiny, diggers

8-eyed, busy

shiny, black

singers, leapers

many feet, sensitive

slimy, creepers

4. Invite children to go outside and select a section of grassy area (part of a yard, lawn, or playground). Encourage them to push four sharpened pencils into the soil in a one-foot square pattern. Have kids tie string around the pencils, making a miniature "boxing ring" on the ground. Invite them to get on their hands and knees and look closely inside the square. Encourage them to make notes of all the different types of animals they see inside the ring. They should note the movements, habits, or behaviors of any animals (ants, grasshoppers, caterpillars, worms) as they travel (jump, crawl, slither) through the ring. Encourage youngsters to visit their "rings" frequently over a period of several weeks.
5. Students may wish to "capture" their own spider webs—here's how: Materials needed: transparent self-adhesive plastic (e.g. clear Contac paper), dark-colored construction paper, masking tape, aerosol hair spray. Invite students to go outside with the hair spray, masking tape and construction paper and locate several spider webs. Selected students can each make five rings of masking tape and slip them over the fingers of one hand. Instruct each student to press the construction paper to their hand so that it sticks to the rings of the masking tape (this allows them to hold the construction paper vertically so that it doesn't fall). Tell them to carefully hold the construction paper just behind a spider web. With their other hand (or a friend can assist) gently spray the web from the other side (this will cause the web to stick to the construction paper). Invite students to carefully remove the web and it will stick to the face of the construction paper. When they return to the classroom they can place a sheet of the transparent self-adhesive plastic over the web (or laminate it) and seal it (this will preserve the spider web). [NOTE: This process takes some practice, so tell students not to get discouraged if they can't do it the first time.] Students may wish to collect several different examples of spider webs from around the school or neighborhood. A scrapbook of different webs can be put together.
6. Invite students to create a variety of birdfeeders. These can be hung in various locations around the school. Bird populations, as well as the various varieties of birds in your area, can be recorded over an extended period of time. Following are several possible birdfeeders:
 - Tie a string to a pinecone. Fill the crevices in the cone with peanut butter and roll the cone in some birdseed. Hang the cone from a tree branch.
 - Cut a large section from the side of a waxed or plastic milk carton. Fill with birdseed and hang from a branch.
 - Tie several pieces of orange peel onto lengths of string. Hang these in various places in a nearby tree.
 - Tie some unsalted peanuts onto various lengths of string. Hang these in a tree.

7. Invite students to create their own classroom terrariums. Provide each of several groups with a clean, two-liter, plastic soda bottle (cut off the top beforehand). Ask students to cover the bottom with a layer of small pebbles mixed with bits of charcoal (aquarium charcoal from a pet supply center works well). A second layer of soil (about twice as deep as the first layer) is then placed in the bottle. Sprinkle the soil with just enough water to keep it moist. Place several plants, such as mosses, ferns, lichens and liverworts in the soil. Grass seed may be sprinkled, too. Place several rocks or pieces of wood in the bottle. Small land animals (e.g. slugs, earthworms) can be added. Cover the top (to allow humidity to build up), ventilate and keep out of direct sunlight. Invite students to record animal observations over a period of time.
8. Invite a local zoologist or biologist from a local college to visit your classroom and share information related to a specific animal or group of animals. Invite students to prepare a list of questions beforehand to be sent to the guest speaker.
9. 10. Students may enjoy observing how different kinds of animals grow and mature. The following specialized containers (and the accompanying animals and creatures) can all be obtained through the mail from Delta Education (P.O. Box 950, Hudson, NH 03051, 800.442.5444, <http://www.delta-education.com/index.html>).
 - a. Aquaria/terraria (Catalog No. 57-200-6256 - includes coupons for goldfish, tadpole, hermit crab, or chameleon).
 - b. The Bug House (Catalog No. 57-020-8086).
 - c. Critter City (Catalog No. 57-031-6557).
 - d. Fruit flies, Mealworms, & Butterflies Mini-Kit (Catalog No. 57-740-0096)—includes coupon for living organisms.
 - e. Butterfly Garden (Catalog No. 57-716-0010)—includes coupon for 25 larvae.
 - f. Giant Ant Farm (Catalog No. 57-010-2310)—includes coupon for ants.
 - g. Grow A Frog (Catalog No. 57-110-0296)—includes a coupon for tadpoles.
10. Invite students to select a rock near the school. Encourage them to take periodic photographs of the rock throughout the year and maintain a diary or journal of the events or changes that take place around the rock. Who comes to visit the rock (animals)? What does the rock look like when it rains, snows or is sunny outside? Periodically, talk with students about any changes in the surrounding environment and how those changes may be similar to or different from some of the events in the story.
11. Talk with students about some of the "Fantastic Facts" included in the back of this book. Which ones did they find to be most amazing? Why did the author include those facts?
12. Invite students to create a "Rock Observation Manual," a guide to watching and observing the creatures and critters that could be found under and around a rock. Small groups of students may wish to create various "manuals" based on the design and organization of Peterson's Field Guides. These creations can then be donated to the school library.

Art:

1. Invite youngsters to create "Wanted" posters for some of the animals in the book. What information should be included on each poster? What are some of the "vital statistics" that students would want to share with others via their posters? If possible, obtain one or more "Wanted" posters from your local post office and use them as models for your students' posters.
2. Invite youngsters to locate animal tracks in soft dirt or mud (these can be cat or dog tracks, or a deer or some other wild animal in your area). Place a circle of cardboard around the track and push it partway down into the soil (be careful not to disturb the track). Mix up some plaster of paris according to the package directions. Pour it into the mold up to the top of the cardboard strip. Wait until the plaster cast hardens and then remove the cast from the ground print. Take off the cardboard strip and clean off the bottom. Students may wish to make several of these (each a separate animal) and display them in the classroom along with pertinent research notes.
3. Provide inked stamp pads and invite students to use their thumbprints to make insect/spider bodies and then draw legs and antennae. Encourage students to also illustrate the environment in which they would find their selected creatures.
4. Provide students with an assortment of magazines that contain pictures of insects and spiders. Encourage them to bring in old magazines from home. Invite students to make a class collage by pasting pictures of different insects and spiders on an insect graffiti wall.
5. Cut off the fingers from two pairs of inexpensive work gloves. Invite students to use a variety of inexpensive art materials (crayons, yarn, felt-tip pens, sequins, etc.) to turn each "finger" into a puppet representing one of the animals in the book. Students can use these puppets as part of a finger play they create or they can display them in an appropriate "museum" in the classroom.
6. Provide students with some modeling clay (available at any hobby store). Work with them to make small models of each of the animals mentioned in the book. These can be displayed in a special "museum" in the classroom.
7. Provide students with egg cartons cut in half lengthwise. Invite students to paint them. When the cartons are dry, have students paint a face on one end and insert pipe cleaners for feelers. The result—a classroom full of millipedes.
8. Students may enjoy preparing the following snack:

Yummy CrittersIngredients

2 cups peanut butter
 4 tablespoons honey
 1 cup nonfat dry milk
 8 tablespoons toasted wheat germ
 unsweetened cocoa powder
 sliced almonds

Directions

In a mixing bowl, mix peanut butter and honey. Stir in dry milk and wheat germ until well mixed. Lay waxed paper on a baking sheet. Using 1-3 tablespoons at a time, form peanut butter mixture into the shapes of selected animals from the book. Put on baking sheet. Dip a toothpick in cocoa powder and press lightly across the top of the "creatures" to make various body patterns. Stick on almonds for tongues, scales, or legs. Chill for 30 minutes.

9. Invite students to imagine that they are one of the creatures in the story. Encourage them to create a poster that says "Save Our Home." They can include a full-color drawing of the selected creature and write a convincing ad for saving the ecosystem represented by the rock.
10. Invite students to create posters or advertisements to attract other students to this book. What information, data or illustrations should be included? Students may wish to hang their posters or advertisements in the school library.

Math:

1. Invite students to develop charts and graphs that record the number of species of each of the animals described in the book. Which species has the greatest number of members around the world? Which has the fewest number of members? Based on the numbers alone, which species is in greatest danger of being placed on an "endangered species" list?
2. Invite children to make a large chart (on an oversized piece of poster board, for example) listing the speeds at which selected animals (from the book or in your neighborhood) travel. The chart can rank order animals from the fastest to the slowest or vice versa. Be sure to encourage kids to add additional animals with which they are very familiar (i.e. dogs, cats, guinea pigs, etc.). How much faster is their pet than the slowest animal on the chart? What is the fastest animal found Under One Rock?
3. Invite students to keep a logbook of the numbers of selected bugs located in a specific area (a room in their house, a section of the classroom, a plot of land in the backyard). Encourage students to record numbers of bugs observed during a designated part of each day (from 3:30 to 4:00 P.M., for example) over a selected period of time (one week, for example). Invite students to create a chart or graph that records those numbers and that can be displayed.
4. Invite students to survey all the other students who have read this book. Ask them to make lists of all the creatures in the book and question others about who their favorite one is. They can then tabulate the results and present them in the form of bar graphs, pie charts or line graphs.
5. Invite students to list all the animals in the book and categorize those animals from smallest to largest.

Music:

1. Youngsters may be surprised to discover the wide variety of animal sounds in their neighborhood. You can assist them in discovering those sounds as follows:

Provide a child with an inexpensive tape recorder that has a corded microphone. Invite the child to tape the microphone handle to the end of a broom handle or a long pole (be sure no tape covers the microphone itself). Encourage the child to go outside on a clear and calm day (no wind blowing, for example) and place the microphone near one or more wildlife homes (i.e. a bird's nest, a beehive, a wasp's nest, etc.). The child may wish to check first to be sure the animal(s) are at home.

The child can either hold the microphone on the pole near the animal's home or stick the pole into the ground. It's important that care is taken not to disturb the animal or its dwelling. Invite the youngster to turn on the microphone and record the noises or sounds the animal makes over a pre-selected time period.

2. Several recorded tapes of outdoor and nature sounds are available (one good source in NorthSound, P.O. Box 1360, Minocqua, WI 54548 [1-800-336-6398]). Play one or more of these tapes for students and invite them to identify the objects or animals making those sounds. How many of the animals are insects? What information about those animals can students locate in the school library?
3. Invite students as a class to generate a list of creature characteristics (squiggly, wiggly, etc.) and use this list to create a class song set to the tune of a popular children's song. For example (to the tune of "Old MacDonald"):

Old MacDonald had a rock
E-I-E-I-O
And 'neath this rock he had an earthworm
E-I-E-I-O
With a squiggle, squiggle here
And a wriggle, wriggle there
Here a squiggle
There a wriggle
Everywhere a squiggle, wriggle
Old MacDonald had a rock
E-I-E-I-O
4. Various musical instruments sound "slow." For example, bassoons and cellos are usually played in a slow methodical manner. Invite the music teacher to visit your classroom to demonstrate several different musical instruments. Ask students to select those that would be most appropriate in "describing the movements of a creature in the book. For example, a bassoon could be used to describe the movements of an earthworm; a flute could be used to describe the movements of a field cricket. Invite students to select an instrument for each animal in the book.

Social Studies:

1. Invite students to post a large map of the world on one wall of the classroom. Encourage them to print the names of the animals in this book on individual index cards and post the cards around the perimeter of the map. Invite students to use lengths of yarn to attach each animal to its country or region of origin. As students learn about other "rock creatures" invite them to add those animals to the map.
2. People in this country live in a wide variety of houses or dwellings—so do animals. Invite youngsters to create a chart and investigate the wide variety of homes and dwellings used by animals. They may wish to use some of the following examples and add to the list through their library readings:

nest	burrow	cave	tunnel	branch	ledge
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 Invite students to discuss the similarities between human dwellings and animal homes. What are some of the things that determine where an animal lives? Are those conditions or features similar to the considerations of humans in selecting a living site? Invite youngsters to create a chart of animal homes and examples of the animals that might live in or on those spaces. Do animals have more options for living spaces than humans do?

3. Provide children with drawing materials or (if possible) a camera. Take a walking trip around the neighborhood or across a playground or field. Invite children to note the different types of animal homes they see. Instruct them to be especially watchful and not take anything for granted (For example, an ant hole, a pile of leaves, a bird's nest, etc.). Encourage them to take photographs or make drawings of each of those dwellings. After the trip children can categorize the animal homes into one or more categories (i.e. group homes, home for individual animals, temporary homes, permanent homes, underground homes, above ground homes, well-protected homes, homes with special features, etc.). Invite children to share and discuss the similarities and/or differences they note in their photos and/or illustrations. This can be an on-going project lasting several months (youngsters could compare summer homes with winter homes, for example).
4. Create an ecology club. Interested students can initiate school and community projects aimed at improving the environment (see *Simple Nature Experiments with Everyday Materials* by Anthony D. Fredericks: New York, Sterling Publishing, 1996, for ideas). Invite local senior citizens to join the club and help out with the projects.

Physical Education:

1. The human character in the book asks the question, "What could be hiding in the red-rich ground?" Invite students to create their own version of "Hide and Seek" in which selected students take on the roles of certain designated animals and hide from other members of the class.
2. Invite students to each select one of the critters mentioned in the book. Invite each child to demonstrate the movement of that insect in a designated area. For example, for an earthworm, students can slither across the floor on their bellies; for a cricket, students can leap on their hands and knees. Provide opportunities for students to describe their movements and why they may be unique to each selected animal.
3. Invite a local expert to your class to explain orienteering (contact a local hiking club or scouting group). Invite the visitor to take the class through a demonstration of orienteering on the school grounds or in any nearby woods. Assist students in locating trees, bushes and rocks that may be similar to those illustrated in the book.