

Instructional Recipe

How Can Turtles Survive on Land and in the Water?

4th Grade
Science and Language Arts

Step 1 – Ask

Objectives: Students will identify adaptations that help an animal survive in its environment. Students will compare and contrast the adaptations of two species of animals. Students will research two different animal species using a variety of resources.

Introduction: Show students pictures of turtles that live in the sea and ones that live mainly on land. You can find pictures of turtles in the EBSCO Image Collection. Ask them to describe each turtle. What similarities and differences do they notice? Explain that each turtle's body is adapted to live in its environment.



"Green sea turtle swimming," Online Photograph. EBSCO Image Collection. 9 Sep, 2009
<<http://search.ebscohost.com/login.aspx?direct=true&db=imh&AN=imh214717&site=srck5-live>>

"Profile of turtle on pine needles," EBSCO Image Collection. 9 Sep, 2009 <<http://search.ebscohost.com/login.aspx?direct=true&db=imh&AN=imh214887&site=srck5-live>>

Ask:

- ★ What is an adaptation?
- ★ What adaptations do some turtles have that help them live on land?
- ★ What adaptations do sea turtles have that help them survive in the ocean?
- ★ How are turtles alike and different?

Vocabulary:

- ★ Adapt - To change so as to be suitable for a different condition or purpose
- ★ Adaptation - The act or process of adapting to new conditions.

Science TEKS:

(10) Organisms and environments. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:

(A) explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants;

English Language Arts TEKS: (23) Research/Research Plan. Students ask open-ended research questions and develop a plan for answering them. Students are expected to: (A) generate research topics from personal interests or by brainstorming with others, narrow to one topic, and formulate open-ended questions about the major research topic; and (B) generate a research plan for gathering relevant information (e.g., surveys, interviews, encyclopedias) about the major research question.

(24) Research/Gathering Sources. Students determine, locate, and explore the full range of relevant sources addressing a research question and systematically record the information they gather. Students are expected to: (A) follow the research plan to collect information from multiple sources of information both oral and written, including: (i) data from experts, reference texts, and online searches; and (B) use skimming and scanning techniques to identify data by looking at text features (e.g., bold print, italics); (C) take simple notes and sort evidence into provided categories or an organizer; (D) identify the author, title, publisher, and publication year of sources; and (E) differentiate between paraphrasing and plagiarism and identify the importance of citing valid and reliable sources

(25) Research/Synthesizing Information. Students clarify research questions and evaluate and synthesize collected information. Students are expected to improve the focus of research as a result of consulting expert sources (e.g., reference librarians and local experts on the topic).

(26) Research/Organizing and Presenting Ideas. Students organize and present their ideas and information according to the purpose of the research and their audience. Students are expected to draw conclusions through a brief written explanation and create a works-cited page from notes, including the author, title, publisher, and publication year for each source used.

Technology Application TEKS:

4A Apply appropriate electronic search strategies in the acquisition of information including keyword and Boolean search strategies; **4B** Select appropriate strategies to navigate and access information on local area networks (LANs) and wide area networks (WANs), including the Internet and intranet, for research and resource sharing; **5A** Acquire information including text, audio, video, and graphics; **7A** Use software programs with audio, video, and graphics to enhance learning experiences; **7B** Use appropriate software to express ideas and solve problems including the use of word processing, graphics, databases, spreadsheets, simulations, and multimedia; **7C** Use a variety of data types including text, graphics, digital audio, and video; **10A** Use font attributes, color, white space, and graphics to ensure that products are appropriate for the defined audience; **10B** Use font attributes, color, white space, and graphics to ensure that products are appropriate for the communication media including multimedia screen displays, Internet documents, and printed materials **11B** Use presentation software to communicate with specific audiences

Step 2 – Investigate

Students may read the following articles from the K-12 Databases which discuss land and sea turtles. Students should take notes about ways that the turtles' bodies are adapted to their environment. They can also write facts about the turtles' diet, threats to survival, and other interesting details they learn.

- ★ The Sea Turtle's Built-In Compass. By: Bardhan, Sudipta. *Highlights for Children*, Jul2009, Vol. 64 Issue 7, p20-21, 2p; Reading Level (Lexile): 950; (AN 41994909)
<http://search.ebscohost.com/login.aspx?direct=true&db=prh&AN=41994909&site=srck5-live>
- ★ Green turtle. *Encyclopedia of Animals*, 2006, p1, 1p, 1 chart, 1 color; Reading Level (Lexile): 1040; (AN 20073322)
<http://search.ebscohost.com/login.aspx?direct=true&db=prh&AN=20073322&site=srck5-live>
- ★ Nature Watch. *Highlights for Children*, Apr2001, Vol. 56 Issue 4, p24, 1/2p, 1 color; Reading Level (Lexile): 760; (AN 4166677)
<http://search.ebscohost.com/login.aspx?direct=true&db=prh&AN=4166677&site=srck5-live>
- ★ Don't Take the Turtles. *Boys' Quest*, Apr/May2003, Vol. 8 Issue 6, p20, 2p, 3 bw; Reading Level (Lexile): 740; (AN 9426348)
<http://search.ebscohost.com/login.aspx?direct=true&db=prh&AN=9426348&site=srck5-live>
- ★ "turtle." *Britannica Elementary Encyclopedia*. 2009. *Encyclopædia Britannica Online School Edition*. 9 Sept. 2009 <<http://school.eb.com/elementary/article?articleId=353877>>.

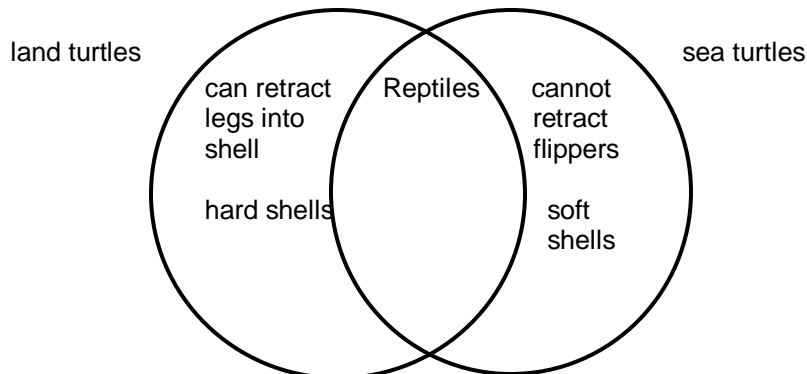
Additional Websites:

<http://kids.yahoo.com/animals/reptiles> - scroll to the bottom of the page to see a list of different types of turtles. Pick a land and sea turtle to compare.

<http://kids.nationalgeographic.com/Animals/CreatureFeature/> - click the link for Reptiles and browse for turtles.

Step 3 – Create

Students can use their notes to create a Venn diagram that compares the box turtle to the leatherback turtle. They should list as many similarities and differences as they can find. Beneath the diagram, students can write a paragraph that explains how each turtle's adaptations help it to live in its environment. Share and discuss students' diagrams as a whole class.



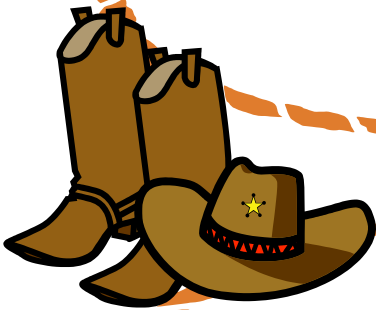
🔗 **Technology Link** – Students can use a graphic organizer program, such as Inspiration or <http://www.readwritethink.org/materials/venn/> to create their Venn diagram.

Step 4 – Discuss

What adaptations do other animals have? Ask students to research two similar species of animals. Students can select their own animals and generate research questions about those animals. Encourage students to take brief notes as they gather information. They will share what they learned in a presentation that compares and contrasts the animals and explains how each is adapted for its environment.

Some suggestions are alligators and crocodiles, frogs and toads, lizards and salamanders, killer whales and humpback whales, koala bears and panda bears, lions and tigers. Let students research their set of animals using the K-12 Databases, library books, encyclopedias, and other Internet resources. They may include graphics from the K-12 Databases. Make sure students cite the resources they use in their presentation.

🔗 Technology Link – Use a multimedia program, such as Microsoft PowerPoint or AppleWorks, to create the presentation.



Step 5 – Reflect

Allow students to present their projects to the rest of the class. Use the following suggested rubric to assess the students' work. Make sure that the students are familiar with the rubric *before* they begin creating their project. They should refer to the rubric repeatedly to monitor their progress in creating their project.

🔗 Technology Link: You can also create your own rubric with your students at <http://rubistar.4teachers.org/index.php>.

Animal Adaptations Presentation

CATEGORY	4	3	2	1
Description of Adaptations	Student describes 5 or more adaptations of each animal in detail.	Student describes 3 to 4 adaptations of each animal in detail.	Student describes only 2 adaptations of each animal in detail.	Student only describes 1 adaptation of each animal.
Comparison of two species	Student describes at least 5 similarities and differences of the two animals.	Student describes 3 to 4 similarities and differences of the two animals.	Student describes only 2 similarities and differences of the two animals.	Student describes only 1 similarity or difference of the two animals.
Organization	Content is well organized using headings or bulleted lists to group related material.	Content is logically organized for the most part using headings or bulleted lists.	Uses headings or bulleted lists to organize, but the overall organization of topics appears flawed.	There was no clear or logical organizational structure, just lots of facts.
Attractiveness	Makes excellent use of font, color, graphics, effects, etc. to enhance the presentation.	Makes good use of font, color, graphics, effects, etc. to enhance to presentation.	Makes use of font, color, graphics, effects, etc., but occasionally these detract from the presentation content.	Uses font, color, graphics, effects etc. but these often distract from the presentation content.
Presentation	Well-rehearsed with smooth delivery that holds audience attention.	Rehearsed with fairly smooth delivery that holds audience attention most of the time.	Delivery not smooth, but able to maintain interest of the audience most of the time.	Delivery not smooth and audience attention often lost.
Sources	Source information collected for all graphics, facts and quotes. All documented in desired format.	Source information collected for all graphics, facts and quotes. Most documented in desired format.	Source information collected for graphics, facts and quotes, but not documented in desired format.	Very little or no Source information was collected.