



LIFE: Body Systems
Cool Runnings

PRE-READING PROMPTS:

- Do you think you could survive a two-day, 225-kilometer race in freezing weather, driving a dogsled team?
- What tools and supplies would you need to pack for your dogs and yourself during this journey?

DID YOU KNOW?

- The Alaskan Husky, or Alaskan Malamute, is the dog most often used in races like the Junior Iditarod. Sled dogs must be trained and conditioned to be capable of withstanding environmental and exercise extremes. They also must show a willingness to be harnessed and a desire to compete.
- All sled dogs that compete in the adult Iditarod are identified by a rice-size microchip and collar tags. The microchips are programmed with an identification number. The microchips are then inserted under the dog's coat and can be read with a special scanner. The identification number can be double-checked against the information on the dog's collar tags. This ensures that if a tired dog has to be left behind at a checkpoint, the racer will be able to identify the dog when they reunite at the finish line in Anchorage.

CRITICAL THINKING:

- DeeDee Jonrowe, a musher who has raced in the Iditarod for the past 20 years wrote in her book *Iditarod Dreams*, "I'm sure the average Iditarod dog gets better care than 99 percent of the dogs in America." Why might Jonrowe have made this statement? How do you think a musher trains and treats his or her canine athletes in order to get them to perform well during such a hard race?

CROSS-CURRICULAR CONNECTIONS:

MATH: Calculate the combined amount of calories required by the 10 dogs in each dogsled team during the 2-day Junior Iditarod. Refer to the article to find out how many calories each dog requires per day during the race season (# of calories per dog × 10 dogs × 2 days). If a team in the adult race takes 13 days with 14 dogs, how many more calories do the dogs in the adult race require? (*Answer: Junior Iditarod: 240,000 calories, adult Iditarod: 2,184,000.*)

RESOURCES

- How do you think mushers communicate with the 10 dogs on their team? Check out the list of mushing terms here: www.iditarod.com/learn/terminology.html.
- To find out more about Alaskan Malamutes, check out the American Kennel Club site: www.akc.org/breeds/alaskan_malamute/index.cfm.

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PHYSICAL: Electromagnetic Spectrum
The Sky's the Limit

PRE-READING PROMPTS:

- What types of electromagnetic radiation can you name?
- Dave Finley of the National Radio Astronomy Observatory says that future generations will call today the "Golden Era of Astronomy." Why might this be?

DID YOU KNOW?

- While he did not invent the telescope, Galileo was the first to use it to systematically study the night sky through observation.
- In 2013, NASA will launch the Webb Space Telescope. It will be able to detect infrared radiation. Scientists hope it will unleash a torrent of discoveries about supernovae, black holes, and young galaxies—all of which will help them learn more about how the universe formed.

CRITICAL THINKING:

- Telescopes are located all over the world—and even in space. Imagine you are the director of NASA and you want to build a new telescope that observes the visible light region of the electromagnetic spectrum. Can you think of a good location for the telescope? Explain why you chose this location.

CROSS-CURRICULAR CONNECTIONS:

SOCIAL STUDIES: Create a timeline showing the history of the telescope. Begin with the invention of the telescope by Dutch spectacle makers in 1608 (there is still debate over who the actual inventor was) and note significant advances or modifications including all of the telescopes mentioned in this article. Use the following Web sites as resources: <http://galileo.rice.edu/sci/instruments/telescope.html> and www.antiquetelescopes.org/history.html.

RESOURCES

- See images of astronomical objects in various wavelengths here: http://coolcosmos.ipac.caltech.edu/cosmic_classroom/multiwavelength_astronomy/multiwavelength_astronomy/index.html.
- For more information on the Fermi Space Telescope including animations, quizzes, videos, and a glossary of terms, take a look at this NASA Web site: www.nasa.gov/mission_pages/GLAST/main/index.html.
- Visit NASA's Hubblesite for podcasts, images, videos, facts, and activities for stargazers, educators, and kids: <http://hubblesite.org>.

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EARTH: Oceanography
Animal Oceanographers

PRE-READING PROMPTS:

- Where can you stand only a few feet away from 2,267 kilogram (5,000 pound) wild animals that are fighting, sleeping, nursing young, or even giving birth?
- What do you think makes elephant seals and narwhals ideal for helping scientists collect data about the ocean?

DID YOU KNOW?

- The narwhal is sometimes called the unicorn of the sea. This is because the male's left front tooth develops into a sword-like, spiraling, ivory tusk that grows right through its upper lip. This tusk can reach 2.7 meters (8.75 feet) in length.
- Elephant seals are pinnipeds, meaning "fin-footed", semi-aquatic marine mammals that have a torpedo shape. Other pinnipeds are seals, sea lions, and walruses.

CRITICAL THINKING:

- Narwhals are social whales that can live to be 50 years old. They live in cold Arctic seas and rarely stray far from ice. How do these mammals, which are related to dolphins, porpoises, and orcas, survive in such an extreme climate? How do you think climate change will affect these marine mammals?

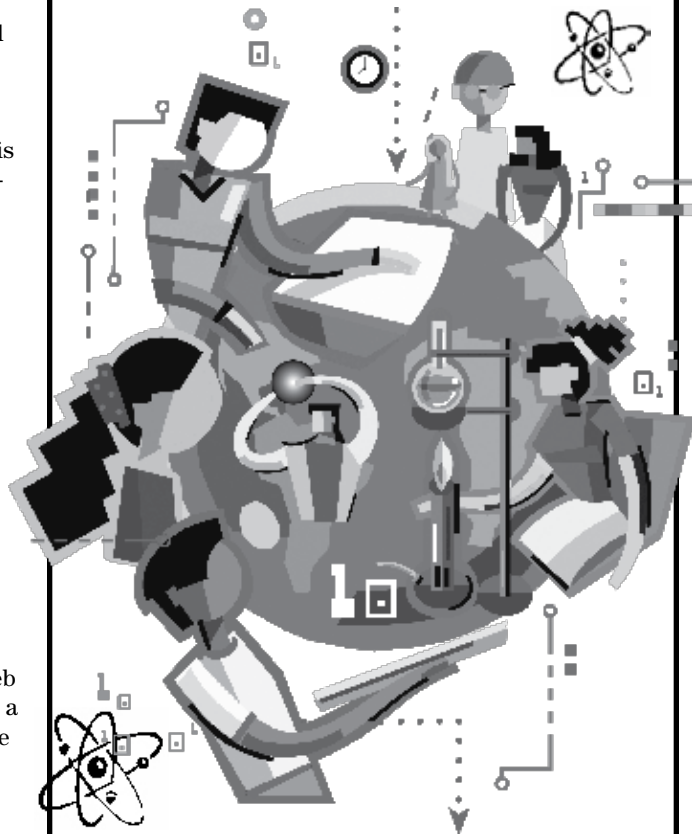
CROSS-CURRICULAR CONNECTIONS:

LANGUAGE ARTS: Read about the life and habits of the Northern elephant seal (*Mirounga angustirostris*) at this Web site: www.pinnipeds.org/species/nelephnt.htm. Then, write a short story from the point of view of an elephant seal. Be sure to include details such as where you live, what you eat, and how you interact with your fellow elephant seals.

RESOURCES

- California State Parks' PORTS program provides teachers with complete units of study and live videoconferences. Some of these resources are also available in Spanish. Find a multi-lesson unit on the evolution of elephant seals targeted for 7th-graders here: www.ports.parks.ca.gov/?page_id=23103.
- California State University, Monterey Bay has an NSF-funded Web site about elephant seals centered on a continuously updated database of images and environmental data. Lesson plans, activities, several short movies, and video clips (including some in Spanish) are available. Check it out at: <http://essp.csumb.edu/eseal>.
- Listen to a narwhal's call, watch a video, and learn more about these tusked whales on the National Geographic Web site: <http://animals.nationalgeographic.com/animals/mammals/narwhal.html>.

Do You Know Teens Who Are Making a Difference?



If you know of teens making achievements in areas related to life, Earth, or physical sciences, we'd like to learn about them. *Science World* is scouting for dynamic teens to feature in upcoming issues. If you have a class or a particular student who is making cool science contributions, e-mail us at scienceworld@scholastic.com, or write us at:

**Attn: Amazing Teens
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