Here's Looking at You, Kid!

| **Key Words**		
eyespots	microscopic	nocturnal
predators	prey	primitive
reproduce	sensitive	survive

Long, long ago, when Earth was still quite young, life was very simple. Most of the life on Earth, in fact, was **microscopic,** floating invisible in the newly formed oceans.   And yet these **primitive** creatures still knew a little something about the world around them. They knew light and dark, and they could sense warmth and cold, thanks to something called **eyespots,** small clumps of cells that are **sensitive** to light. They eyespots worked well enough for the first life-forms, but they would never do for the more complex animals that were to come. Something much better would be needed.

Some primitive animals like the planarian still have eyespots. The planarian is a very tiny flatworm with a special talent. If it is cut into pieces, each piece will grow into another planarian!
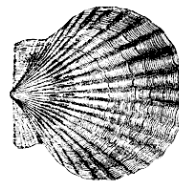
The scallop's eyes are arranged in rows. The scallop can't see objects very clearly, but it can tell when something's moving.

The first big improvement came when eyes developed the ability to detect motion. This would turn out to be very important. It would help an animal catch food and avoid everybody else who though it was food.

All animals' eyes are special and unique because each species has different needs. Animals that hunt other animals are called **predators.** Just being able to see motion is not enough. Predators must also be able to judge distance. Predatory birds, like the eagle, watch for food as they soar high above the ground. That's why birds have the best distance vision of any creatures on Earth.

But what about the animals that are hunted? What about the **prey**? The three animals pictured below are all prey to other animals, they they're not helpless. Look at their eyes. Where are they?

Zebra   **Jackrabbit**   **Field mouse**

Drawings NOT to scale.

Notice that all of the animals pictured above have eyes on either side of their head. This is the perfect position because it lets an animal see if something is sneaking up behind it.

Animals' eyes can be located in some wacky places—at least that's what we might think. But to a hermit crab, having your eyes at the ends of long stalks is a good idea. The hermit crab has a very soft body but no shell to protect it. So it scrounges around on the beach, looking for shells that other animals have left behind. Very often these shells are huge and would block much of the hermit crab's vision if it weren't for nature's version of the periscope. The crab's stalk eyes clear the shell and allow the crab to see all around it.

Many animals, like the raccoon and skunk, are **nocturnal**. Nocturnal animals are active and night and rest during the day. When the sun sets and the land grows dark, nocturnal animals find themselves in a world with very little color. If you think that nocturnal animals have poor color vision, you are correct. They don't need to see colors. Raccoons can't really see anything brighter than the color green. Red, yellow, and orange just look dark to them. But nocturnal animals do need good night vision—the ability to see when it is dark.

Animals have eyes that allow them to gather the information they need to survive in their environment. For some species, this means being able to escape predators. For others, survival means being able to catch prey. In either case, the eyes of the animal help it to **survive**, thrive and **reproduce** in its ecosystem.

1. How are a hermit crab's eyes like a periscope?

   A A periscope and the crab's stalk eyes both use lenses and mirrors.

   B Both the eyes and the periscope help an organism see in one direction.

   C A periscope is found on submarines under the surface of the ocean.

   D The crab's stalk eyes clear the shell and allow it to see all around.

2. What are eyespots?

   A Markings on an animal that look like eyes

   B Organs that can detect movement

   C A cluster of cells that can detect light and dark

   D Very small, spot-like eyes

3. In paragraph 1, which of the following words is the antonym of simple?

   A Microscopic

   B Complex

   C Sensitive

   D Primitive

4. You can infer from the article that having eyes on either side of the head benefit an animal because they—

   A make it possible for the animal to see farther

   B allow the animal to see better in the dark

   C give the animal the ability to see bright colors

   D help the animal see if something is sneaking up on it

5. The eyes of a predator must be able to—

   A judge distance and see motion

   B see color and sense heat

   C blink quickly and see clearly underwater

   D glow in the dark and change size

6. What do nocturnal animals need the MOST?

   A Good color vision

   B Good night vision

   C Good distance vision

   D Good hearing

Synonyms are words that have similar meanings. Find a synonym in the Word Box for each of these words from the story. You will NOT use all of the words in the Word Box.

7. primitive _____

8. detect _____

9. motion _____

10. judge _____

11. version _____

Word Bank	
form	side
complex	movement
visible	simple
determine	sense

Antonyms are words that have opposite, or nearly opposite, meanings. Unscramble the words in the word box to find an antonym for each word below.

12. primitive _____

13. predators _____

14. brighter _____

15. unique _____

Word Bank
mpocexl
ryep
ledurl
dyrronia

The prefix *in-* sometimes means "not." It is added to many words to turn them into antonyms. For example, *inactive* means "not active." If you remove the prefix, you get the word *active*, an antonym for *inactive*. Circle all of the words below whose meaning turns into an antonym by adding the prefix *in-.*

dependent   nocturnal   sensitive

detect   visible   dangerous

eyespots	microscope
nocturnal	predators
prey	primitive
reproduce	sensitive
survive	

Behavior

Directions: Classify each activity below as an inherited or a learned behavior by putting a check mark in the correct column.

Behavior	Inherited	Learned
Waking up		
Brushing teeth		
Riding a bicycle		
Eating lunch		
Walking		
Reading a book		
Breathing		
Whistling		
Running		
Drinking water		
Wearing shoes		
Tying a shoelace		
Falling asleep		
Blinking your eyes		
Watching television		
Kicking a ball		
Sneezing		

Name _____ **Date**_____

Dependence of Organisms

1. What is the ultimate source of energy for an ecosystem?

   A   The sun

   B   Water

   C   Food

   D   Oxygen

2. What type of animal is most often found at the top of a food chain?

   A   A producer

   B   A decomposer

   C   An herbivore

   D   A carnivore

3. Look at the diagram below.

   Sun → ? → fish → bird → alligator

   Which living thing below BEST completes this food chain?

   A   Shark

   B   Seaweed

   C   Hawk

   D   Insect

4. An ecosystem contains acorns from oak trees, hawks, squirrels, snakes, grass, and mice. Which of those organisms are predators?

   A   Mice and acorns

   B   Snakes and hawks

   C   Squirrels and snakes

   D   Oak trees and grass

5. Carnivores eat other animals. Which explains why carnivores also depend on producers for their survival?

   A   Carnivores only eat other animals.

   B   Carnivores eat both plants and other animals

   C   Carnivores eat animals that eat plants.

   D   Carnivores eat producers.

6. What information can you get from a food web that you cannot get from a food chain?

   A   The direction in which energy flows

   B   What animals eat producers

   C   What producers eat consumers

   D   The various foods that a consumer eats

7. Green plants are important to animals because plants—

   A   consume food and give off oxygen

   B   consume food and give off carbon dioxide

   C   produce food and give off oxygen

   D   produce food and give off carbon dioxide