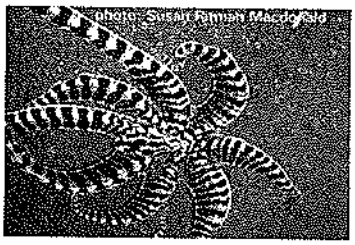
Crazy Camouflage

This text is provided courtesy of OLogy, the American Museum of Natural History's website for kids.

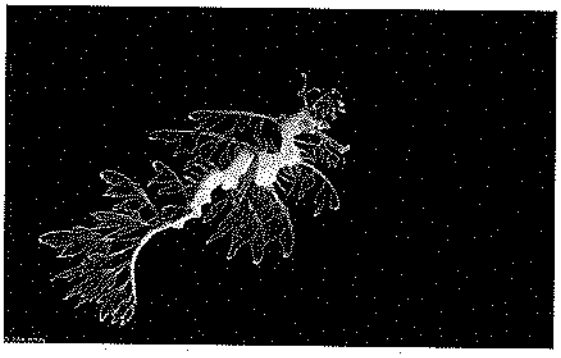
If you were in the ocean, could you spot the mimic octopus, sea dragon, stonefish, or flounder?



The coloring of the mimic octopus matches the sandy area it is lying on.
Courtesy of NOAA, Susan Ritman Macdonald

This flounder can look like a sandy seafloor one minute, and a rocky bottom the next!
© Robert S. Michelson/AGE Fotostock

The stonefish looks like a harmless stone, but it's covered with venomous spikes!
Jeffrey Rosenfeld



The body of the sea dragon resembles the algae in its environment.
Courtesy of California Academy of Sciences, John White

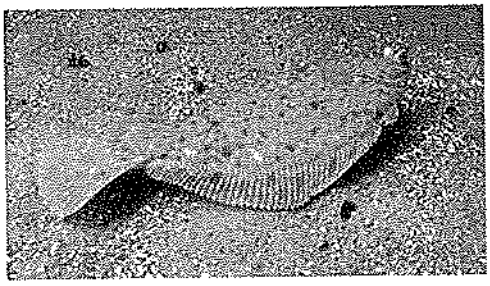
These marine animals all use camouflage (KAM-uh-flahj), the ability to blend in or resemble an element of the surroundings.

Camouflage helps animals survive in different ways.

Some animals use camouflage to help them sneak up on their prey. By the time an unsuspecting prey notices its disguised predator-CHOMP!-it's too late.

Camouflage also helps some animals hide from their predators. They can instantly change the coloring and pattern on their skin if they need to hide against a different background.

How does a flounder blend in with its environment?



Some flounders are masters of disguise, able to blend into a variety of backgrounds.
Courtesy of NOAA Sea Grant Program, James P. McVey

Some flounders have a kind of skin cells called chromatophores (krow-MAT-uh-forz). Chromatophores contain colors, or pigments, that can change the skin's appearance. These cells change because they get a message from the brain. When flounders swim near the surface to feed, their skin becomes almost see-through. This helps them avoid predators below them. When they swim near the bottom, their skin can imitate the different colors and textures found on the seafloor. They can look like sand one minute, and a rocky bottom the next! One scientist even put a flounder against a checkerboard to see what would happen. In less than a minute, the flounder's body started to resemble the black and white squares of the gameboard!

Why can't humans change their skin to match

their surroundings?

Unlike some lucky sea animals, humans cannot change the color or pattern of their skin. (If we could, Halloween would never be the same!) Like all mammals, humans have only a single chromatophore, called a melanophore, which contains a colored chemical called melanin (MEH-la-nuhn). Melanin causes the skin to darken and creates skin colors from pink to brown to black. It also protects the skin from the Sun's harmful ultraviolet (UV) radiation. When the skin is exposed to the Sun , more melanin is produced.

Name: _____ Date: _____

1. How does camouflage help animals? draw conclusion

A. It lets them choose what they look like.

B. It helps them survive.

C. It helps them hear prey.

D. It helps them talk to other animals.

2. Some predators use camouflage to sneak up on prey. How does the text contrast the way prey might use camouflage against predators? compare/contrast

A. They can use it to trap their predators.

B. They can use it to call others for protection.

C. They can use it to hide from predators.

D. They can use it to find food to eat.

3. Read the following sentences from the text.

"Some flounders have a kind of skin cells called chromatophores (krow-MAT-uh-forz). Chromatophores contain colors, or pigments, that can change the skin's appearance. These cells change because they get a message from the brain. When flounders swim near the surface to feed, their skin becomes almost see-through. This helps them avoid predators below them. When they swim near the bottom, their skin can imitate the different colors and textures found on the seafloor. They can look like sand one minute, and a rocky bottom the next!"

What conclusion can you draw from this evidence? inference / draw conclusion

A. Flounders can play games like checkers because they are able to look like the gameboard.

B. Humans have chromatophores that can make then almost see-through when they are swimming.

C. Flounders do not have predators they need to avoid and only use camouflage to hunt their prey.

D. A flounder's brain sends a message to its chromatophores to change colors depending on where it is.

4. Based on the text, why might someone say that humans probably need protection from the Sun more than they need to be able to look like their environment? inference

A. because human skin camouflages to the color of the moon when the Sun is out

B. because human skin cannot camouflage but it can protect them from the Sun

C. because human skin is the same color as the Sun and does not change colors

D. because human skin is on the Sun more often than any other environment

5. What is the main idea of this text? main idea

A. When flounders swim near the bottom of the ocean, they can change color and texture quickly to look like whatever is there.

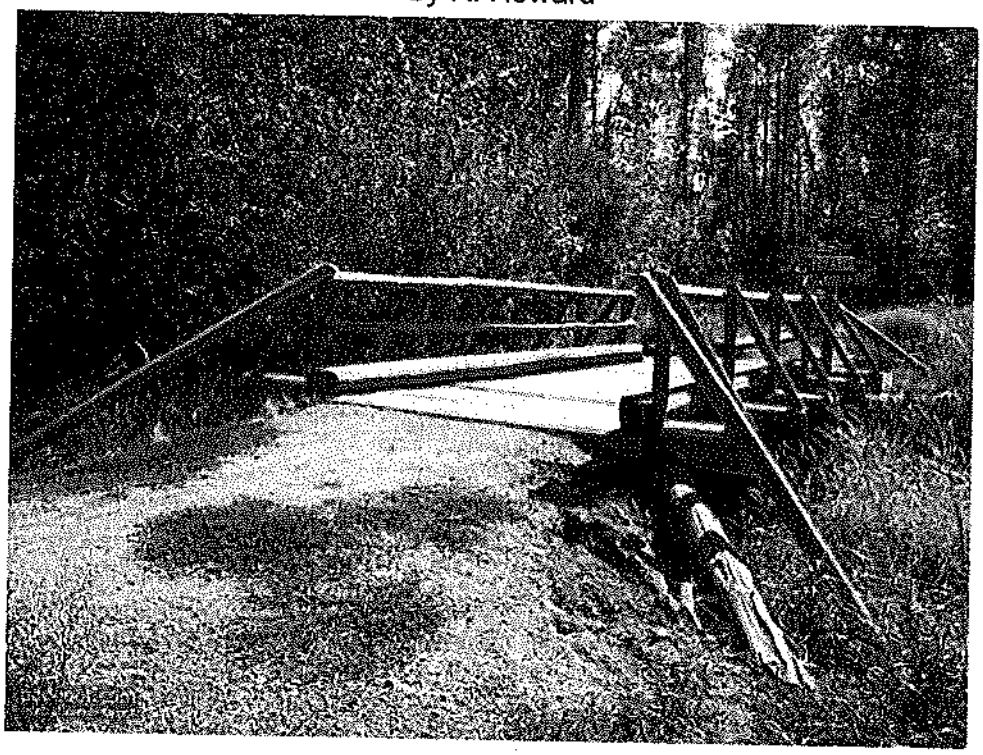
B. Chromatophores are a special kind of skin cell found in flounders that have different colors and help change what their skin looks like.

C. Human skin only has one type of chromatophore with melanin that causes the skin to darken and protects it from the Sun.

D. Animals, like flounders, can change their skin by camouflaging to survive, while human skin only changes for protection from the Sun.

Building a Bridge

by R. Howard



Summer vacation had just begun, and Alex and Maria were ready to spend all day outside. They decided to walk to the neighborhood park, where there was a river that they liked to swim in when it was particularly hot. Alex and Maria began to sweat as they walked, even though their house was only ten minutes away from the park's entrance.

When they got to the river, they saw that it was too shallow to swim in. The rocks that made up the bed of the river were even poking out of the water in some places, glistening in the sun. Alex and Maria were frustrated. On the other side of the river, about fifty yards away, and in a welcoming courtyard, there was a fountain spewing water in beautiful arcs.

"We should go play in the fountain," Maria said.

"How will we get there?" asked Alex.

They thought for a moment. They knew if they walked upriver, they would eventually come to a walkway that crossed the river, but it was so hot, and they were eager to get to the fountain.

Maria looked around the grassy riverbank and noticed a few logs and branches lying close to the water. "We could build a bridge!" she said. She ran over to a thick tree branch that looked

long enough to be placed across the river. Together, she and Alex hefted the branch onto their shoulders and walked it to the water. Here, they stopped. How would they get the branch across?

Maria suggested throwing it down into the water and seeing if it reached the other side. That seemed imprecise to Alex - what if the branch did not reach the other side of the river, and got stuck or swept away by the water? Then they would be unable to walk all the way across the river.

Maria wondered if they could measure the distance from the riverbank they stood on to the other shore. They put the log carefully down and decided to test the distance with lighter, thinner branches. They found a few wispy branches by the spot where they had first found the log, and they tied the branches together using their hair bands.

On their first attempt, they tied two branches together and went back to the river to test the length. The branches barely reached the center of the swirling water. After tying two more branches together to the initial branches, Alex and Maria were able to get the thin makeshift model bridge to touch the far bank.

"Hooray!" Maria said. "Now we know how long the log needs to be."

They set the tied branches on the ground next to the log. The log was luckily the exact length of the tied branches. Now Alex and Maria had to figure out how to make sure the log was secure on both sides of the bank before they walked across it to reach the other side of the river.

"I know!" Alex said. She began to gather thinner branches, like the ones they had tied together, which were pliable and easy to bend. She twisted them together into a tight bundle, then laid them horizontally across the edges of the log. Then she and Maria hauled some of the stones out of the river and placed them on the branches on either side of the log. In this way, they were able to stabilize the log-at least on one side-in order to run across.

When Alex and Maria got to the other side of the river, they secured the other side of the log with more branches and rocks, and looked back at their handiwork. It had been a good day's work, but now they were free to enjoy the cool water in the fountain.

Name: _____ **Date:** _____

1. What did Alex and Maria want to build? literal

A. a pool

B. a car

C. a fountain

D. a bridge

2. What is the main challenge faced by the characters in this story? central idea

A. how to swim in a river so shallow that rocks are poking out of the water in some places

B. how to get from one side of the river to the other without using the walkway

C. how to find the distance from one side of the river to the other without measuring tools

D. how to make sure the log they use for their bridge is secure on both sides of the river

3. Which of the following sentences from the story provides evidence that Maria was deliberate and thoughtful in her plans? relevant detail / draw conclusion

A. "Maria looked around the grassy riverbank and noticed a few logs and branches lying close to the water."

B. "Maria wondered if they could measure the distance from the riverbank they stood on to the other shore."

C. "Maria suggested throwing it down into the water and seeing if it reached the other side. "

D. "Alex and Maria were frustrated."

4. Which sentence from the text supports the idea that Alex and Maria used teamwork to build the bridge? relevant detail / draw conclusion

A. "Alex and Maria began to sweat as they walked, even though their house was only ten minutes away from the park's entrance."

B. "Together, she and Alex hefted the branch onto their shoulders and walked it to the water."

C. "'I know!' Alex said. She began to gather thinner branches, like the ones they had tied together, which were pliable and easy to bend."

D. "'Hooray!' Maria said. 'Now we know how long the log needs to be.'"

5. What is this passage mostly about? central idea

A. the importance of girl power and teamwork

B. two girls solving a problem together

C. the benefits of urgency when working toward goals

D. the difference between two girls' plans to get across a river

6. Read this sentence: "Now Alex and Maria had to figure out how to make sure the log was **secure** on both sides of the bank before they walked across it to reach the other side of the river."

What is the meaning of the word secure in this sentence? vocab/context clue

A. secure (*adjective*): self-confident

B. secure (*adjective*): fastened, stable

C. secure (*verb*): to make safe or lock up

D. secure (*verb*): to obtain or get ahold of

7. The question below is an incomplete sentence. Choose the answer that best completes the sentence.

The friends placed rocks on either side of the log to hold down the lighter branches; _____, the log was stable enough to walk on. grammar/language arts

A. before

B. as a result

C. especially

D. meanwhile

8. It was important to measure the distance across the river before putting the log in the water.

Use evidence from the story to prove or disprove this statement.

9. What are two ways Alex helps to solve the problem facing her and Maria?

10. If Alex and Maria had not worked together to solve their problem, what might have happened? Use evidence from the text to support your answer.

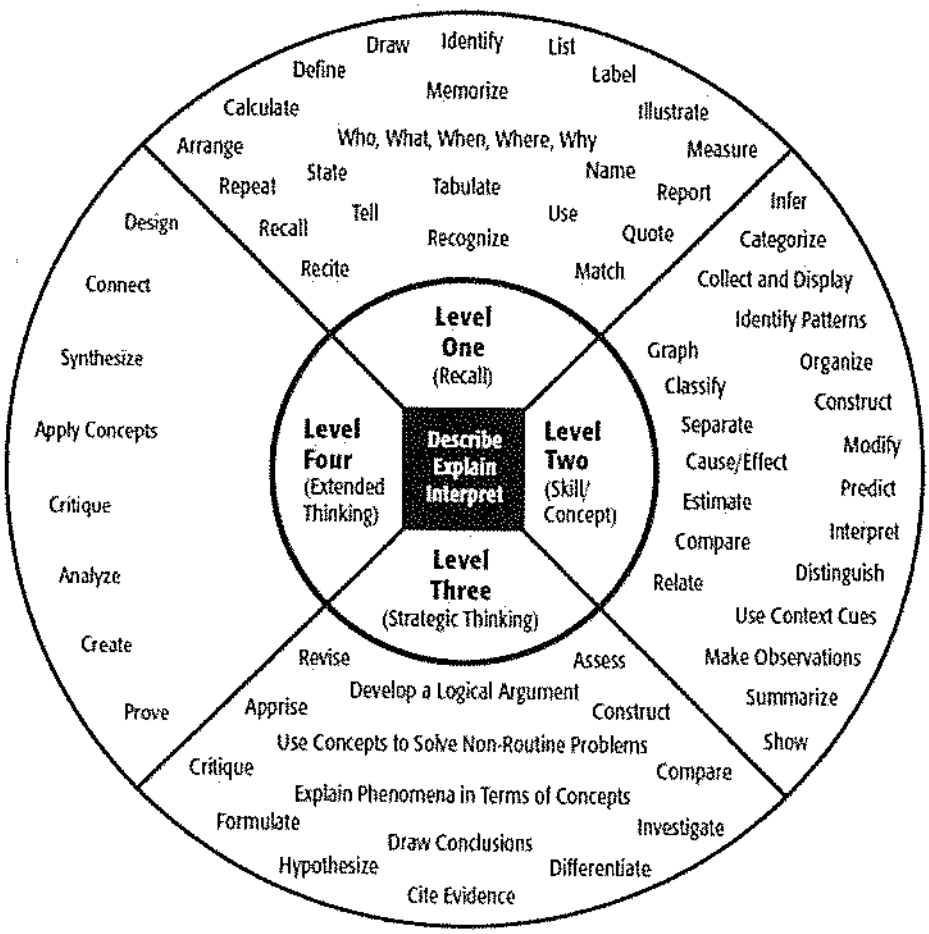
Context Clues

Type	Definition	Example
Definition	The definition of the word is incorporated into the text.	Carey was lethargic; she did not have enough energy to get out of bed and go to swim practice.
Synonyms	The author uses a word having the same or similar meaning to other words in a sentence.	Rebecca, my best friend, has been a companion to me for many years.
Antonyms	The author hints at the meaning by providing a non-example or opposite.	Kim was anxious about the test, but Christy was not worried at all.
Examples	The definition of the word is given in the form of an example.	Krystle will serve cold beverages, such as soda, tea, and juice, to the guests.
Inference	The reader is able to make an educated guess, use reasoning or background knowledge to determine the meaning of an unknown word.	You can speak candidly to Mrs. Dodd. She is an affable guidance counselor.

Word Relationships

Relationship	Definition	Examples
Synonym	Two words having the same or nearly the same meaning	strong : powerful tired : lethargic stroll : amble
Antonym	Two words having opposite meanings	hot : cold punctual : tardy gorgeous : grotesque
Homonym	Two words having the same pronunciation and spelling, but having different meanings	lie (untruth) : lie (prone) address (location) : address (speak to)
Homophone	Two words having the same pronunciation, but having different spellings and meanings	there : their to : too here : hear

Depth of Knowledge (DOK) Levels



Depth of Knowledge Question Stems

DOK 1

- Can you recall _____?
- When did _____ happen?
- Who was _____?
- How can you recognize _____?
- What is _____?
- What is the meaning of ___?
- Can you select _____?
- What might you include on a list about _____?
- Who discovered _____?
- What is the formula for ___?
- Can you identify _____?
- How would you describe?

DOK 2

- Explain how _____ affected _____.
- How would you apply what you learned to develop ___?
- How would you compare and contrast?
- How would you classify?
- How are ___ alike? _____ different?
- What can you say about _____?
- How would you summarize?
- What steps are needed to edit _____?
- When would you use an outline to _____?
- How would you estimate _____?
- How could you organize _____?
- What do you notice about _____?
- What strategy can be used to solve _____?

DOK 3

- What conclusions can you draw?
- How would you adapt ___ to create a different?
- How would you test?
- What is the best answer? Why?
- What is the most efficient way to solve this problem? Justify your response.
- What is your interpretation of this text? Support your answer.
- What would happen if...?
- How would you design _____?
- Elaborate on the reason_____.

DOK 4

- Problem based learning:
  - How can we provide ways to solve the water crisis in Africa?
  - How can we construct a roundabout that reduces traffic, facilitates flow, and accommodates different sized vehicles for a particular location in Henry County?
  - How can we create a butterfly garden with appropriate plants to enhance the beauty of our school?
- True interdisciplinary work