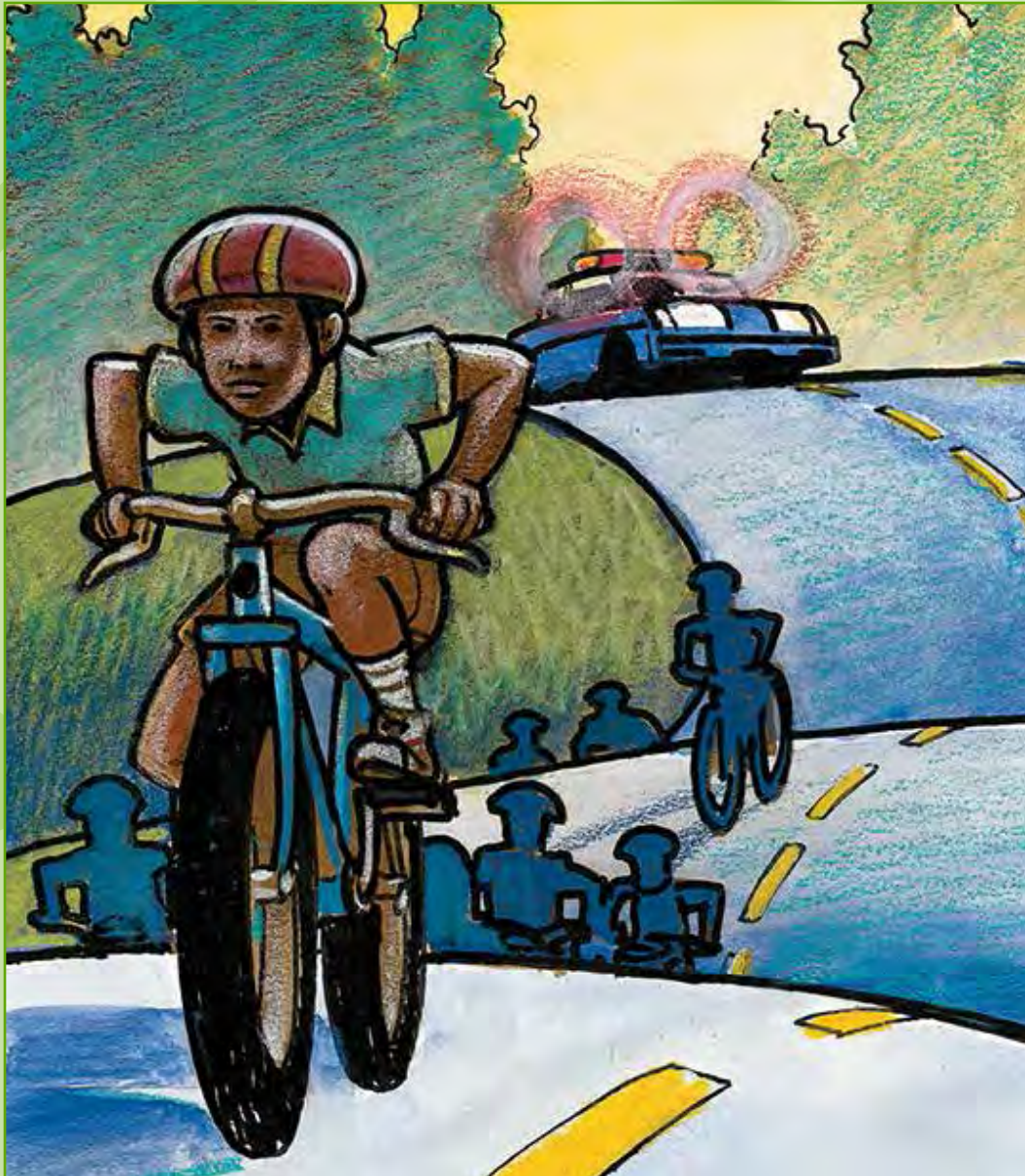


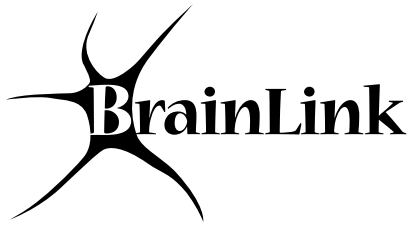
MEMORY AND LEARNING

THE READING LINK

for the *Memory and Learning Teacher's Guide* and *Danger at Rocky River*



Baylor
College of
Medicine



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The Reading Links have been created as ready-to-use reading and writing activities that are directly related to BrainLink integrated units. They are not intended to represent a comprehensive reading program. The activities are related to reading objectives common to many curricula and cover a range of grade and ability levels. Teachers may wish to select from these activities those that are most appropriate for their own students.

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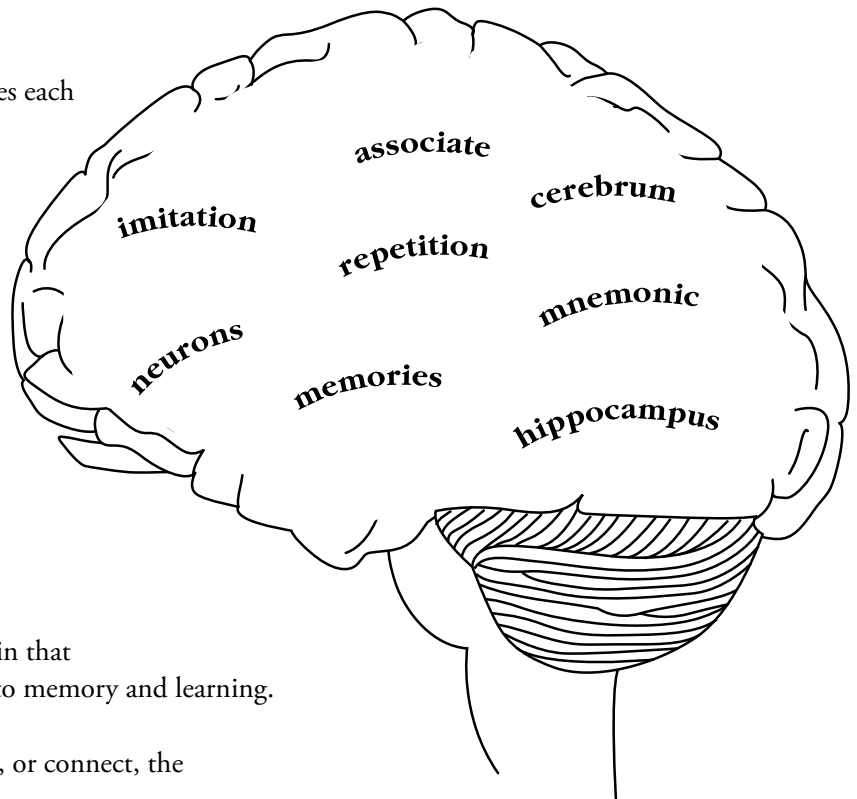


WORD MEANINGS



1. Each of the sentences below is missing a word. Choose the word in the brain that best completes each sentence, and write it in the space provided. (Not all of the words are used in the sentences.)

- a. Memories are stored as connections among _____ in the brain.
- b. _____, or doing something over and over, is one way to make a long-lasting memory.
- c. When you watch your Dad hit a tennis ball and copy his movements, you are learning by _____.
- d. The _____, a small part of the brain that is shaped like a seahorse, is very important to memory and learning.
- e. Ivan Pavlov's dogs learned to _____, or connect, the sound of a bell with being fed.

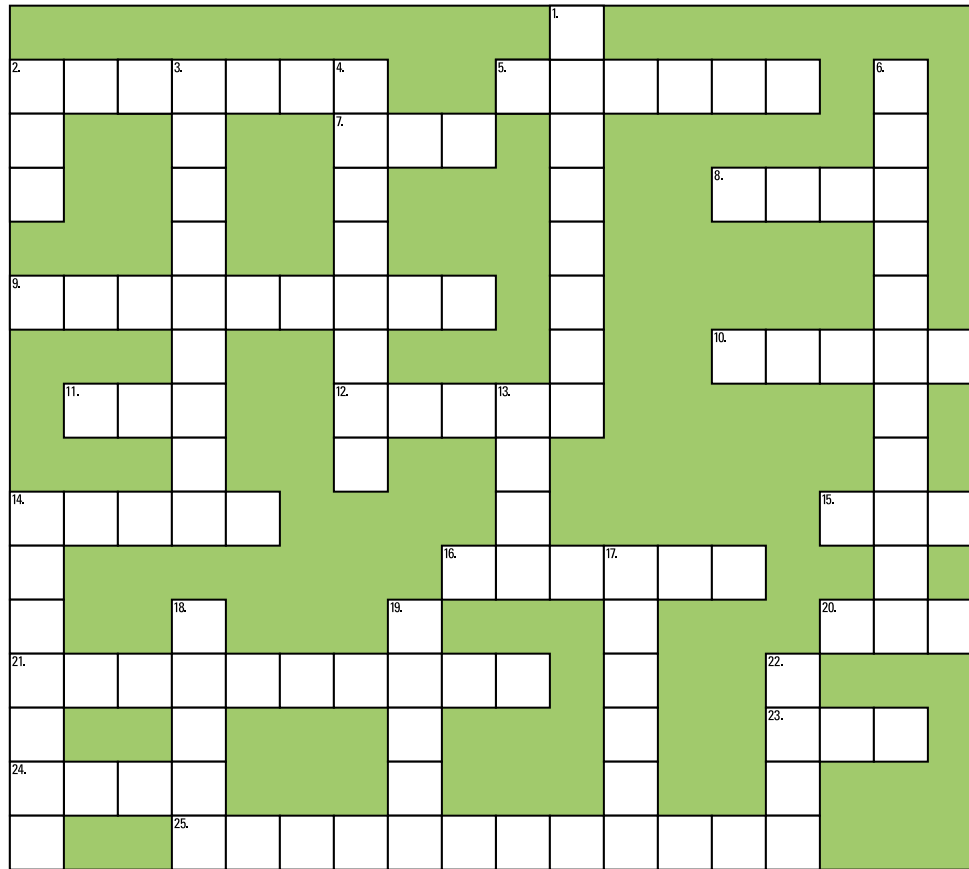


WORD MEANINGS

(CONTINUED)



2. Complete the puzzle.



ACROSS

2. Tiny gap between axon of one neuron and dendrite of another neuron
5. Information that is stored in the brain over time
7. Mr. Miller writes notes to himself on this.
8. The NeuroExplorers have an adventure when they visit _____'s Grandfather.
9. Mr. Miller lives in _____ Gardens Retirement Center.
10. Command center of the body
11. The NeuroExplorers are saved when Mr. Miller helps them to find this.
12. All the bones of the head
14. Put away
15. Lakeisha likes to do this when she plays chess.
16. A cell of the nervous system that

- conducts signals
20. Number of hippocampi on each side of the brain
21. A way of learning something by doing it over and over
23. When Max found his Grandfather, he gave him one of these.
24. B.J. felt this when the dog leaped at her.
25. A branch of science related to the study of the nervous system

DOWN

1. The _____ cortex is the outermost layer of the brain's cerebrum.
2. Max felt this way when he learned about his Grandfather's illness.
3. Person who first described a memory disease that affects older people

4. Condition brought about by sudden changes in the activity of neurons in the brain, often with jerking movements of the body and limbs
6. Way of learning by making connections
13. A curved or rounded part of a body organ
14. He warned the NeuroExplorers about floods near Rocky River.
17. Stop working at a paid job, usually when someone is over 65 years old.
18. When you gain new knowledge or a skill, you _____ it.
19. In the mnemonic for remembering a seahorse-shaped part of the brain, this animal takes a dive.
22. Isley II lost one of these in the river.

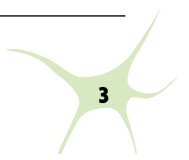
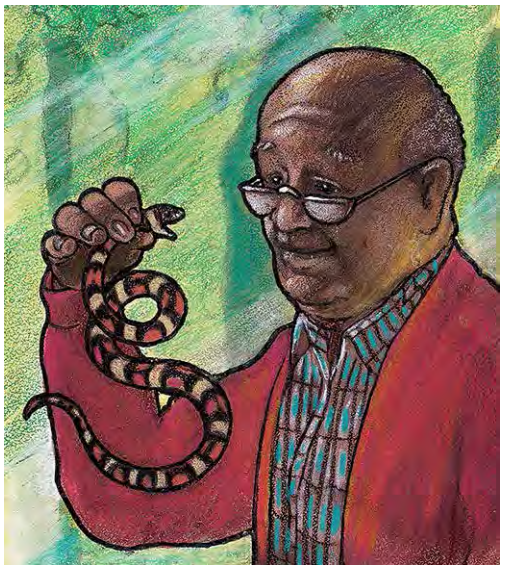
DETAILS AND SUPPORTING IDEAS



1. What facts do you remember after reading *Danger at Rocky River*? Mark whether each of these statements is True (T) or False (F).

- _____ Learning by association is learning by making connections.
- _____ Memories of what we have learned about people and things are processed in the cerebellum.
- _____ Each person has two hippocampi.
- _____ Repetition is important for making memories of procedures and movements.
- _____ People with Alzheimer's disease suddenly can't remember anything at all.
- _____ Memories associated with disagreeable experiences can be very strong.

2. Your friend Thomas has never heard of Alzheimer's disease. What could you tell him about it? Explain what you have learned about Alzheimer's disease to your friend. For example, what is Alzheimer's disease like? Where did its name come from? What causes it? How can relatives and friends help people with this disease? Write down what you would tell Thomas.



DETAILS AND SUPPORTING IDEAS

(CONTINUED)

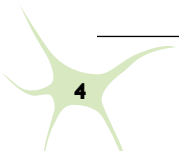


- Pretend you are Lakeisha, writing a letter to your Aunt Jane, who works in a nursing home. Your trip to Riverbend Gardens was your first visit to a retirement home, and you want to tell your aunt all about it.

Describe Riverbend Gardens to her, telling as many details as you can. Tell her whether it was like you thought it would be, or not. Mention the things that were going on there, what you did there, and how you felt about it.



Dear Aunt Jane,



SEQUENCE OF EVENTS / MAIN IDEA OF THE STORY



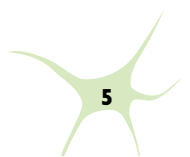
Sequence of Events

Which of the events below happened LAST in the story? Write 4 next to it. Then number the other events (1, 2, 3) to show the order in which they happened.

- _____ Max's grandfather shocked everyone by reaching down and picking up a snake with his bare hands.
- _____ Vince went back to Riverbend Gardens to get a pair of binoculars for bird watching.
- _____ As B.J. tapped out a "hippo camp" rhyme with her drumsticks, a dog growled and leapt toward her.
- _____ The sheriff told the NeuroExplorers about heavy rains to the north and warned them to stay away from the lowlands around Rocky River.

Main Idea of the Story

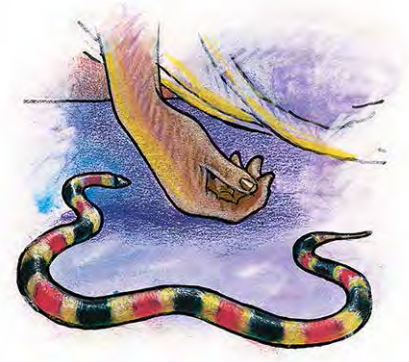
1. Look at the science box on page 4. Which sentence below best tells the main idea of this Science Box? Fill in the circle by your answer.
 - We can recall stored memories by returning to the place where something happened.
 - Some people are better than others at remembering things.
 - Mnemonics are tricks we can use to help us remember things.
 - Memories of what we have learned about people, events and facts of the world are processed in the part of the brain known as the cerebrum.
2. Look at the science box on page 7. Which sentence below best tells the main idea of this Science Box? Fill in the circle by your answer.
 - Memories associated with disagreeable experiences often are very strong.
 - Blue jays, for example, learn to avoid Monarch butterflies after trying to eat just one.
 - Monarch butterflies taste extremely bad.
 - After the first experience, a jay will never try to eat a Monarch butterfly ever again!
3. Read Chapter 8 (pages 17–19) in *Danger at Rocky River*. Which of the following sentences best states the main idea of that chapter?
 - Everyone looked at Max and listened quietly to his story.
 - Two years ago, Max's Grandpa started having trouble with his memory and was diagnosed with Alzheimer's disease.
 - Max is worried and afraid, because his Grandpa has Alzheimer's disease and is unable to remember things any more.
 - Because he has trouble remembering, Max's Grandpa had to move to a place where someone takes care of him all the time.



CAUSE AND EFFECT RELATIONSHIPS



1. Why did Isley I think the snake in his dream was poisonous?

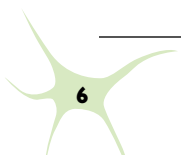


2. Why did Pavlov growl and leap at B.J.?

3. Why was Max afraid to visit his Grandpa?

4. Why did Grandpa Miller get lost?

5. Why was Grandpa Miller able to lead the NeuroExplorers back to Riverbend Gardens?



SUMMARY OF A SELECTION/ PREDICTING FUTURE OUTCOMES



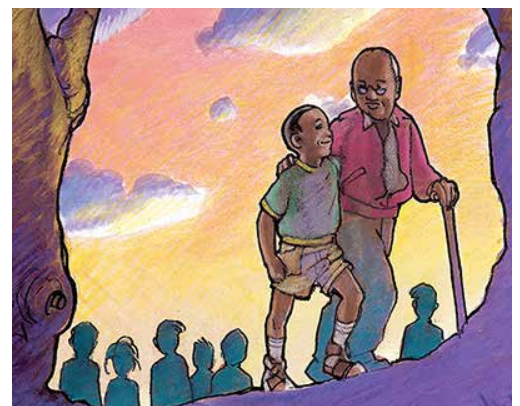
Summary of a Selection

Re-read Chapter 12 (pages 25–27). Think about what happened to Isley II and his friends in that chapter. Write a short descriptive summary.

Predicting Future Outcomes

1. Do you think the NeuroExplorers will go back to Riverbend Gardens again? Why or why not?

2. Think about how *Danger at Rocky River* ended. Can you imagine a different ending? Write a new possible ending of your own. Use the back of this sheet if you need more room to write.



GENERALIZATIONS AND DRAWING CONCLUSIONS

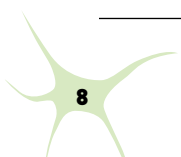


1. When Isley II finally came out of the flooding river, scratched up and out of breath, he said, "What a ride! Man, those are some rapids.... You guys ought to try it!" Why do you think he said that? Write down all the possible reasons you can.



2. Based on the story, *Danger at Rocky River*, decide whether each of these sentences is True or False. Mark T or F on the line by each sentence. If you decide a sentence is false, rewrite it to make it a true statement.)

- _____ The markings on some snakes can be a quick clue to whether they are poisonous or not.
- _____ People who are not good memorizers will never be able to remember lists of things.
- _____ Animals can be conditioned to react in certain ways for their whole lives by things that happened to them long ago.
- _____ People who live in places like Riverbend Gardens are very unhappy.
- _____ It does not help people with Alzheimer's disease to write things down.
- _____ Max would have made a big mistake if he had not dared to go to see his Grandpa.



FACT OR OPINION / FOOD FOR THOUGHT



Fact or Opinion



Tell whether the following statements are fact or opinion (Write F or O).

- _____ Isley I had a ridiculous nightmare.
- _____ Hippocampus is a very hard word to remember.
- _____ The hippocampus is important for learning and memory.
- _____ Lakeisha should have been able to beat Mr. Plotsky at chess.
- _____ Mr. Miller couldn't always remember people's names.

Food for Thought

Create your own mnemonic device to add the foods listed below to your long term memory. What words, sentence or rhyme can you create to help you remember all the food groups listed below? What are the names of individual foods that are not listed? Expand your mnemonic device to include these foods. Write and explain your mnemonic on the back of this sheet of paper.

Make half of your plate fruits and vegetables.

Select whole fruit over juices.

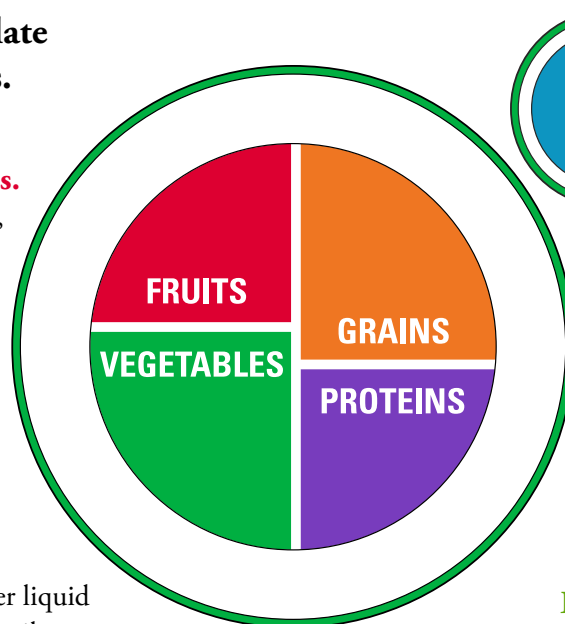
Fruits: Any raw or cooked fruit, dried fruit, or 100% fruit juice.

Try raw crunchy veggies.

Vegetables: 100% vegetable juice or any raw or cooked vegetables.

Look for healthier fats.

Fats and Oils: Use healthier liquid fats, such as olive or canola oil.



DAIRY

Drink water or milk instead of soft drinks.

Dairy: Milk, soymilk, yogurt, or cheese

Choose whole grains.

Grains: Bread, mini bagel, muffin, tortilla, crackers, popcorn, cold cereal, or cooked pasta or other grain, like oatmeal.

Go lean with protein.

Proteins: Meats, poultry, seafood, dried beans, nuts, tofu, hummus, or peanut butter.

Eat less of these.

Empty Calories: Eat just small amounts of foods with high levels of sugar or solid fats, such as butter.

Avoid "super-sized" portions

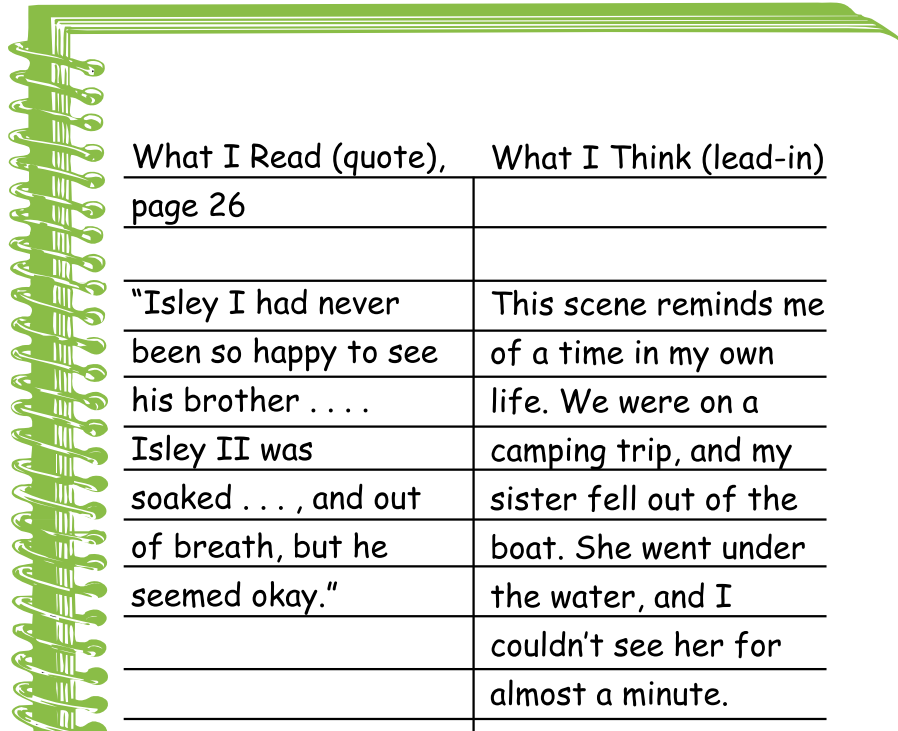


THINKING ABOUT WHAT I READ



Make a Double Entry Journal. Copy a passage from the story on the left side of your journal or notebook page, and write your reactions to that passage on the right side. Journal entries can be done every day and then brought to discussion groups.

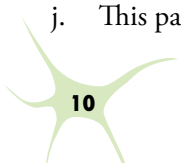
Example



What I Read (quote), page 26	What I Think (lead-in)
"Isley I had never been so happy to see his brother Isley II was soaked . . . , and out of breath, but he seemed okay."	This scene reminds me of a time in my own life. We were on a camping trip, and my sister fell out of the boat. She went under the water, and I couldn't see her for almost a minute.

Other possible lead-ins to use for your journal reactions are:

- This character reminds me of myself because....
- I wonder what this means....
- This scene reminds me of a similar scene in _____ because....
- I think this setting is important because....
- I think the relationship between _____ and _____ is interesting because....
- This situation reminds me of a similar situation in my own life. It happened when....
- Here's what I thought would happen next....
- I'm confused about....
- A question I would like to ask these characters right now is....
- This part is realistic/unrealistic because....



CROSSWORD ANSWER KEY



ACROSS

2. Tiny gap between axon of one neuron and dendrite of another neuron is called a **synapse**.
5. Information stored in the brain over time is called a **memory**.
7. Mr. Miller writes notes to himself on a **pad**.
8. The NeuroExplorers have an adventure when they visit **Max's** Grandfather.
9. Mr. Miller lives in **Riverbend** Gardens Retirement Center.
10. The command center of the body is the **brain**.
11. The NeuroExplorers are saved when Mr. Miller helps them find the **dam**.
12. All the bones of the head are called the **skull**.
14. To put away is to **store**.
15. Lakeisha likes to **win** when she plays chess.

16. A cell of the nervous system that conducts signals is a **neuron**.
20. Number of hippocampi on each side of the brain is **one**. Both hippocampi are called the hippocampus.
21. A way of learning something by doing it over and over is called **repetition**.
23. When Max found his Grandfather, he gave him a **hug**.
24. B.J. felt **fear** when the dog leaped at her.
25. A branch of science related to the study of the nervous system is called **neuroscience**.

DOWN

1. The **cerebral** cortex is the outermost layer of the brain's cerebrum.
2. Max felt **sad** when he learned about his Grandfather's illness.
3. The person who first described a

- memory disease that affects older people was named **Alzheimer**.
4. **Epilepsy** is the condition brought about by sudden changes in the activity of neurons in the brain, often with jerking movements of the body and limbs.
6. **Association** is a way of learning by making connections.
13. A curved or rounded part of a body organ is called a **lobe**.
14. The **sheriff** warned the NeuroExplorers about floods near Rocky River.
17. To **retire** is to stop working at a paid job, usually when someone is over 65 years old.
18. When you gain new knowledge or a skill, you **learn** it.
19. In the mnemonic for remembering a seahorse-shaped part of the brain, a **hippo** takes a dive.
22. Isley II lost a **shoe** in the river.

