**Empowering Students to be Strategic Readers**

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| **Global Reading Strategies** | Understanding the author’s purpose |
| Planning and forming goals for reading | Noticing the relationship between main ideas and details |
| Reading selectively according to goals | **Monitoring Reading Strategies** |
| Previewing | Monitoring main idea comprehension |
| Forming predictions | Identifying reading difficulties |
| Checking (confirming, rejecting, or modifying) predictions | Taking steps to repair faulty comprehension |
| Posing questions | Judging how well objectives are met |
| Answering questions | Rereading for a purpose |
| Connecting text to background knowledge | Reflecting on what has been learned from the text |
| Identifying important information / main ideas | **Support Reading Strategies** |
| Paying attention to text structure | Using a dictionary |
| Using discourse markers to see discourse relationships | Taking notes |
| Connecting one part of the text to another | Paraphrasing |
| Making inferences | Translating |
| Creating mental images | Underlining or highlighting |
| Guessing meaning from context | Using graphic organizers |
| Summarizing | Synthesizing |
| Critiquing the author, the text, feelings about the text |  |

Strategies adapted from Grabe & Stoller (2011, p. 226)

Categories based on Mokhtari & Sheorey (2008)

**HOW DO ANIMALS NAVIGATE?**

**1**  *As a young hatchling, a female sea turtle leaves the beach where she was born in search of food. As she matures, she travels great distances, perhaps even crossing vast oceans. When she reaches adulthood, she finds a mate. As the pregnant turtle prepares to lay her eggs, she is somehow drawn instinctively back, perhaps from many hundreds of miles away, to the very same beach where she herself was hatched decades earlier. How is this incredible homecoming possible?*

**2** Scientists have long been puzzled

by the mysterious navigation skills of

certain birds and animals. One of the

most mysterious stories is that of the

sea turtles. After decades of research,

scientists now believe that sea turtles learn

and remember the particular magnetic

“address” of their birth place, helping

them return there decades later. To

navigate, turtles seem to be able to “read”

the Earth’s magnetic ﬁeld and recall the

magnetic characteristics of their place

of birth. Since the Earth’s magnetic ﬁeld

changes slightly over time, turtles can use

information to ﬁnd their way back to the

area of their birthplace, but not the exact

spot. Once they are in the general vicinity,

turtles probably rely on sight and smell to

choose the best place to lay their eggs.

**3** Another navigation genius is the homing

pigeon. Moving through the sky rather

than the sea, homing pigeons are famous

for their ability to ﬁnd their way home.

They can fly hundreds of miles over

unfamiliar territory without becoming

disoriented. Scientists have studied

homing pigeons for many years, and now

with global positioning satellite (GPS)

devices, they can track the exact routes

that the birds take. While it has been

found that pigeons may use the sight

of familiar land marks or smells, they

only do this when they are near their

ﬁnal destination. However, pigeons

seem adept at using a variety of

methods for navigation. Like sea

turtles, their main tools are their

knowledge and memory of Earth’s

magnetic ﬁelds. This “map” helps

them determine where they are in

relation to their home.

**4** It seems that pigeons use the

easiest and most reliable method

in each circumstance, and they are very

adept at changing their navigational

methods to suit the situation. A ten-

year study conducted by scientists

at Oxford University showed that

some breeds of pigeons actually

follow roads and highways,

turning at intersections as they ﬂy,

even if there is a shorter way to

reach their destination. Another

navigational tool that pigeons may

use is infrasound. These are very low

frequency sounds that on travel

thousands of miles and can only be

heard by some animals. lnfrasound

can be generated by ocean waves,

for example, and the constant

presence of these sound waves

can help pigeons ﬁgure out where

they are.

**5** In 1997, a great homing pigeon

race from France to England turned

into a disaster when the Concorde

supersonic jet ﬂew over the ﬂight

path of the pigeons The tremendous

shock wave of sound greatly

disoriented the pigeons, and only a

few thousand of the 600,000 racing

pigeons made it home.

**6**  Like pigeons, bats also use several

different strategies in order to ﬁnd

their way around. Using tiny GPS

devices, scientists conducted several

different experiments to learn

more about how Egyptian fruit bats

navigate, and they published their

results in the September 2011 issue

of Proceedings of the [US] National

Academy of Sciences. These fruit bats

go out at night in search of their

favorite foods, often returning to the

same trees over and over again at

distances of 12 to 25 kilometers from

their caves. Experiments showed that

bats seem to have a mental map of

a large area of up to 100 kilometers,

which includes familiar visual clues

such as lights and hills to help them

go in the right direction. The bats

probably also use magnetic ﬁelds

and smell when they need to, but it

appears that for their regular night-

time excursions they depend most

heavily on their memorized maps.

From *Skillful Reading & Writing*, *Student’s Book 3*, by Jennifer Bixby and Jaimie Scanlon. London: Macmillan, page 51.

**Worksheet for Strategic Reader Training**

“How Do Animals Navigate?” from *Skillful Reading & Writing 3*

1. Read the title and look at the illustrations. What do you think the article will be about? Write your prediction(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Turn to a partner and compare your answer to question 1. Then discuss what you know about the question in the title.

3. Read the first paragraph. What is it about? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Underline the thesis statement. Modify your prediction from question 1 if needed. Compare answers with a classmate. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Skim paragraphs 2-6. Answer the questions.

a. Which animals does the article discuss? Write them in the margins.

b. Which transition words signaled each new animal? Circle the transitions.

5. Read the article. Circle or highlight the phrase or sentence that answers the question in the title.

6. Look at the segments you underlined. Turn to your partner. Answer the question in the title.

7. Read the article again. In each paragraph, underline the sentence that gives the main idea. (Hint: The main idea is not always the first sentence of the paragraph.)

8. Read paragraph 2-6 again As you read, complete the graphic organizer on the back.

9. One navigation technique is mentioned first in paragraph 3 and again in paragraph 4. Draw an arrow from the first mention to the second.

10. Re-read paragraph 5.

a. Why does the writer include this information?

b. Why do you think the shock waves disoriented the pigeons?

11. Write a 6-8 sentence summary about the navigation techniques used by different animals. Include examples from the article.

12. Reflect on what you have learned. What do you know now that you didn’t know before? Talk about other animals that use the navigation techniques in the article.

[continued on the next page]

**Question 8 Graphic Organizer**

|  |  |  |  |
| --- | --- | --- | --- |
| Par. | Animal | Navigation techniques | Details |
| 2 | sea turtle | read earth’s mag. field | a. return to birthplace \_\_\_\_\_\_\_\_\_\_\_\_\_\_ later  b. use sight & smell to choose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 3 | homing pigeon | 1. sight of familiar landmarks or smell  2. knowledge of earth’s magnetic fields | 1a. only when near final destination  2a. tells them where they are in relation to \_\_\_\_\_\_\_\_\_\_\_\_\_. |
| 4 | homing pigeon | 3. infrasound | 3a. Definition: \_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3b. generated by \_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3c. help pigeons\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 6. | fruit bats | 1. mental map / visual clues  2. magnetic fields  3. smell | 1a. up to \_\_\_\_\_\_\_\_ km  1b. used most heavily |

**Reading Strategies Practiced**

|  |  |
| --- | --- |
| 1. Previewing, forming predictions  2. Connecting text to background knowledge  3. Checking predictions  4. a. Connecting one part of the text to another; Identifying important information; annotating  b. Using discourse markers; paying attention to text structure; annotating  5. Identifying main ideas; annotating  6. Identifying main ideas / Summarizing | 7. Re-reading for a purpose; identifying main ideas.  8. Re-reading for a purpose; paying attention to text structure; noticing the relationship between main ideas and details  9. Connecting one part of the text to another  10. Rereading for a purpose; understanding the author’s purpose (10a); making inferences (10b)  11. Summarizing  12. Reflecting on what has been learned from the text |

**Selected References**

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Mokhtari, K. & Sheorey, R. (Eds.) (2008). *Reading Strategies of first- and second-language learners: See how they read*. Norwood, MA: Christopher-Gordon.