

SUCCESS IN



# ACADEMIC CONTENT CLASSES

**BIOLOGY**

**VOCABULARY**

*Plus*

**Reading and Spelling Intervention**

- *Provides powerful intervention in only a couple of hours a week for seven weeks.*
- *Helps at-risk students while teaching important content for all students.*

Matthew J. Glavach, Ph.D.

Zoe A. Gillespie, B.S.

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# Teacher's Guide

*Success in Academic Content Classes, Biology Vocabulary, provides biology teachers with reading and spelling intervention for at-risk students and important content for all students. The program is a scaffold to textbook reading and common core standards.*

## Introduction

Most words students encounter after fifth grade are complex, content-specific words.

EASY TO USE IN THE REGULAR CLASSROOM

The unique program design makes it possible for all students to benefit from the same program.

IMPROVED CLASSROOM BEHAVIOR

Successful students are not focused on inappropriate classroom behavior.

Middle school and high school students must decode, read fluently, and interpret books with complex words and technical information. Traditional reading intervention methods have not worked for many students. Even when students make progress in traditional interventions, they are not connected to the academic curriculum and its domain specific vocabulary.

*Success in Academic Content Classes, Biology Vocabulary*, is a program that includes instruction in advanced decoding, domain specific vocabulary (biology vocabulary with many Latin and Greek word roots), spelling, and reading fluency. Students reading at grade three through high school levels benefit from the program.

*Success in Academic Content Classes, Biology Vocabulary*, has seven lessons (with a packet for each lesson). Each of the seven lessons has the same structure, making the program comfortable for students and easy for teachers to present.

**Presenting the program requires only that teachers become familiar with the lesson structure by using the For the Teacher directions given for lesson 1**, following in the Teacher's Guide.

## LESSON 1

### ● For the Teacher:

For each student, duplicate and staple pages 2, 3, 4, 5, and 6, to make the lesson 1 packet. (When you are ready to begin lesson 1, give a lesson packet to each student.) Also for each student, duplicate Vocabulary Tests, Lesson 1, page 7; Spelling Chart, Lesson 1, page 8; and Practice Spelling Test, Lesson 1, page 9; to be given after the lesson 1 packet is completed.

### ● PAGE 1. (LESSON DIVIDER)

### ● PAGE 2. (WORD SORT)

#### Instruction 1.

Read the words in the word box with students. (The words are separated by syllables to help with pronunciation and spelling.) Discuss the general word meanings with students. Students tell words with which they are familiar.

Instruction 2. Students write the words under the correct ending spelling patterns. They write each word as one word.

#### Instruction 3. (OPTIONAL BUT RECOMMENDED)

Students cut out the word cards and use them for word sorting activities. Students practice sorting the words into the appropriate spelling categories. They say the words as they sort them. Later, they practice speed sorts to help them work toward automatic word recognition. Speed sorts work well with students in pairs or cooperative groups. Members of the pair or group that completes the word sort in the shortest time are the winners. Winners usually receive bonus points or prizes.

### ● PAGE 3. (VOCABULARY STUDY)

Part 1. Instruction. Students write definitions for the Vocabulary Study words, Part 1. Definitions are given on page 4. Tell students to study the definitions as they

Presenting words by syllables helps students break words into manageable parts.

Sorting words into categories helps students see features common to each word group.

Extra word exposure helps cement words into long-term memory.

When students are thousands of words behind in vocabulary, one solution is teaching domain specific vocabulary.

Writing definitions helps imprint word meanings to memory and is an activity where all students can succeed.

write them because they will be tested on them. Discuss word meanings and examples with students.

## Part 2. Instruction.

Tell students that learning the Latin and Greek word roots will help them learn the meanings of hundreds of words with the same word roots. Using the words in the Word Root Box, students write the word root meanings on the lines.

### ● PAGE 4. (VOCABULARY DEFINITIONS) (TIMED WORD READING)

Part 1. (Vocabulary Definitions, Student Resource)

Part 2. (Timed Word Reading Card)

Timed reading increases student reading speed and automatic word recognition.

Instruction 1. Before the timing, you and all students read the words aloud together.

Instruction 2. Then individually, students read as many words as they can in one minute aloud softly to themselves or to you or to a student partner. If students finish reading the words, they start again at the beginning and add to the total number of words they have already read. One point is subtracted for each missed word. Students write their scores at the bottom of the page. (Limit or have no interruptions of oral timed reading. If students need help, say the word and let them continue reading.)

### ● PAGE 5. (TIMED SENTENCE READING)

Instruction 1. Before the timing, you and all students read the sentences aloud together.

Instruction 2. Then individually, students read as many words in the sentences as they can in one minute or two minutes aloud softly to themselves to you or to a student partner. If students finish reading, they start again at the beginning and add to the total number of words they

Seeing words in different contexts aids in putting words into long-term memory.

“Reading fluency refers to the ability of readers to read quickly, effortlessly, and efficiently with good, meaningful expression.”

Research has demonstrated that helping students read in phrases and sentences will improve their reading fluency and overall reading achievement.

have already read. One point is subtracted for each missed word. Students write their scores at the bottom of the page.

● PAGE 6. (WORD ROOT CONCENTRATION GAME)

The Word Root Concentration Game is played like a Concentration Game. Cut out the cards and place face down. Each student chooses a card and tries to find a match. If students find a match they take turns until they do not find a match. The student with the most cards at the end is the winner.

● PAGE 7. (VOCABULARY TEST, LESSON 1)

Instruction.

Before administering Biology Vocabulary Test, Lesson 1, review the words and the word definitions orally using a general review or a game with all students in the class. Follow the instructions on the page to complete each section of the test.

● PAGE 8. (SPELLING CHART)

Instruction 1. Pronounce each word with students. Emphasize each syllable. Students write words on the lines. They write each word as one word without spaces for syllables.

● PAGE 9. (SPELLING TEST)

(The Spelling Test words are from page 8.)

Instruction. (SAY TO THE STUDENTS:)

I will say each word. You will write the letters on the lines to complete each word.

Number 1 is **solar**. Write the letters on the lines to complete the word **solar**.

**Solar** means relating to or involving the sun (REPEAT) **solar**.

Number 2 is **polar**. (CONTINUE THE PATTERN OF SAYING THE WORD, USING THE WORD IN A

PHRASE OR SENTENCE, AND REPEATING THE WORD.)

For additional timed reading practice, 25 Graded Reading Passages (for science, biology, and social studies at approximately grade 3 through grade 10 readability levels) is offered at [www.StrugglingReaders.com](http://www.StrugglingReaders.com).

**END NOTES:**

Cunningham, P.M. (1998). The multisyllabic word dilemma: Helping students build meaning, spell, and read "big" words. *Reading and Writing Quarterly*, 14(2), 189-218.

National Reading Panel. (2000). Report of the National Reading Panel: Teaching children to read. Report of the subgroups. Washington, DC: U.S. Department of Health and Human Services, National Institutes of Health.

Rasinski, T.V. (2003). *The fluent reader*. New York, NY: Scholastic, Inc.

Rasinski, T.V. (1990). The effects of phrase boundaries in texts. Bloomington, IN: ERIC Clearinghouse on Reading and Communication Skills (ED 313 689).

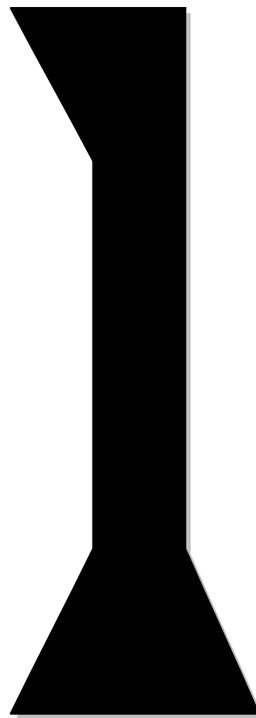
(Rasinski, T.V., Padak, N., Linek, W., & Sturtevant, E. (1994). The effects of fluency development instruction on urban second grade readers. *Journal of Educational Research*, 87, 158-164.

**READING INTERVENTION PROGRAM**

**BIOLOGY**

**VOCABULARY**

**LESSON**



**-ER, -OR, -AR**

# BIOLOGY WORD SORT, LESSON 1

<del>or</del> -der	so lar	sur vi vor	pre da tor
po lar	an ter i or	mus cu lar	cell u lar
char ac ter	sca ven ger	com pet i tor	pos ter i or
in cu ba tor	ther mom e ter	en dan ger	
u ni cell u lar	au di om e ter	mul ti cell u lar	

● Write each word under the correct spelling. (Write each word as one word.)

**-er**

**-or**

**-ar**

<u>order</u>	<hr style="border: 0; border-top: 1px solid black;"/>	<hr style="border: 0; border-top: 1px solid black;"/>
<hr style="border: 0; border-top: 1px solid black;"/>	<hr style="border: 0; border-top: 1px solid black;"/>	<hr style="border: 0; border-top: 1px solid black;"/>
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# BIOLOGY VOCABULARY STUDY LESSON 1

## PART 1

● Write a definition for each word.

1. polar \_\_\_\_\_
2. muscular \_\_\_\_\_
3. cellular \_\_\_\_\_
4. order \_\_\_\_\_
5. character (trait) \_\_\_\_\_
6. scavenger \_\_\_\_\_
7. incubator \_\_\_\_\_
8. survivor \_\_\_\_\_
9. predator \_\_\_\_\_
10. competitor \_\_\_\_\_

**PART 2** ● Use Latin and Greek word clues to figure out the definitions below.

<b>sol</b> - sun	<b>multi</b> - many	<b>therm</b> - heat	<b>meter</b> - measure
<b>uni</b> - one	<b>en</b> - into	<b>ante</b> - front, before	<b>post</b> - back, after
<b>aud</b> - hearing	<b>omni</b> - all	<b>carni</b> - flesh, meat	<b>herb</b> - grass, plants

(NOTE: Words may be in reverse order.)

1. solar heat from the \_\_\_\_\_
2. thermometer a device to \_\_\_\_\_
3. audiometer a device to \_\_\_\_\_
4. multicellular \_\_\_\_\_ cells
5. unicellular \_\_\_\_\_ cell
6. anterior placed or located on or near the \_\_\_\_\_
7. posterior placed or located on or near the \_\_\_\_\_
8. carnivore \_\_\_\_\_ or meat eating mammals
9. herbivore an animal that feeds on \_\_\_\_\_ and other plants.
10. omnivore an animal that feeds on \_\_\_\_\_ types food
11. endanger to put \_\_\_\_\_ danger

# BIOLOGY VOCABULARY DEFINITION CARD, LESSON 1

-ER

**character (trait)** - a distinct inherited feature

**order** - a group of related animals or plants

**scavenger** - an animal that feeds on dead organic matter

-AR

**cellular** - having to do with cells

**muscular** - strong; having firm, strong muscles (*muscular biceps*)

**polar** - relating to or near the North Pole or the South Pole (*a polar bear*)

-OR

**competitor** - an animal that competes with others for food, territory, and so forth

**incubator** - a container to keep eggs warm until they hatch

**predator** - an animal, such as a lion or shark, that hunts another animal for food

**survivor** - a person or thing that continues to live

---

## TIMED WORD READING CARD, LESSON 1

\_\_\_\_\_→  
solar

polar

muscular

cellular

multicellular

unicellular

order

border

scavenger

character

thermometer

audiometer

survivor

predator

competitor

incubator

anterior

posterior

carnivore

herbivore

omnivore

### BONUS WORD

neurotransmitter

NUMBER CORRECT \_\_\_\_\_ TIME \_\_\_\_\_

## TIMED SENTENCE READING, LESSON 1



Are sand sharks **scavengers**?

A **thermometer** measures temperature.

Are hair and eye color **character** traits?

The polar opposite of **anterior** is **posterior**.

**Herbivores** are animals adapted to eat plants.

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Are **polar** bears in danger of becoming extinct?

An **order** is a group of related animals or plants.

On the television, I saw a shark attack **survivor**.

Weight training can increase **muscular** strength.

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The prefix *uni* in the word **unicellular** means *one*.

Humans are the great white sharks' main **predator**.

The prefix *multi* in the word **multicellular** means *many*.

88

Are you building an egg **incubator** for your science project?

In the animal kingdom **carnivores** generally eat **herbivores**.

**Omnivores** eat plants and animals as their primary source of food.

117

The great white shark is one of the most feared **predators** in the ocean.

A **solar** eclipse happens when the moon is between the sun and the earth.

An **audiometer** is an instrument used to measure how well a person hears.

158

TIMED READING 1, NUMBER OF WORDS CORRECT \_\_\_\_\_

TIME \_\_\_\_\_

TIMED READING 2, NUMBER OF WORDS CORRECT \_\_\_\_\_

TIME \_\_\_\_\_

## Word Root Concentration Game 1

Cut out the word cards. Place them face down and match the pairs. Say the sample words.

<p><b>therm</b></p> <p><u>thermos</u> <u>thermostat</u> <u>thermometer</u></p>	<p><b>meter</b></p> <p>speed<u>o</u>meter therm<u>o</u>meter audi<u>o</u>meter</p>	<p><b>aud</b></p> <p><u>audio</u> <u>auditory</u> <u>audiometer</u></p>
<p><b>heat</b></p>	<p><b>measure</b></p>	<p><b>hear</b> <b>listen</b></p>
<p><b>herb</b></p> <p><u>herbivore</u> <u>herbivorous</u></p>	<p><b>carn / i</b></p> <p><u>carnage</u> <u>carnivore</u> <u>carnivorous</u></p>	<p><b>omni</b></p> <p><u>omnivore</u> <u>omnivorous</u> <u>omnipotent</u></p>
<p><b>plants, grass</b></p>	<p><b>flesh, meat</b></p>	<p><b>all</b></p>
<p><b>sol</b></p> <p><u>solar</u> <u>solarium</u> <u>parasol</u></p>	<p><b>ante</b></p> <p><u>anterior</u></p>	<p><b>post</b></p> <p><u>posterior</u> <u>postpone</u> <u>postgraduate</u></p>
<p><b>sun</b></p>	<p><b>front</b> <b>before</b></p>	<p><b>after</b> <b>behind</b></p>

# BIOLOGY VOCABULARY TEST, LESSON 1

●Write the word for the definition. **TEST ONE**

polar scavenger predator incubator character (trait)

- \_\_\_\_\_ an animal that feeds on dead organic matter
- \_\_\_\_\_ a distinct inherited feature
- \_\_\_\_\_ a container to keep eggs warm until they hatch
- \_\_\_\_\_ relating to or near the North Pole or the South Pole
- \_\_\_\_\_ an animal, such as a lion or shark, that hunts another animal for food

order cellular survivor muscular competitor

- \_\_\_\_\_ an animal that competes with others for food, territory, and so forth
- \_\_\_\_\_ strong; having firm, strong muscles
- \_\_\_\_\_ having to do with a cell
- \_\_\_\_\_ a group of related animals or plants
- \_\_\_\_\_ a person or thing that continues to live

## TEST TWO

unicellular carnivore thermometer posterior multicellular

- \_\_\_\_\_ a device to measure heat
- \_\_\_\_\_ many cells
- \_\_\_\_\_ one cell
- \_\_\_\_\_ placed or located on or near the back
- \_\_\_\_\_ flesh or meat eating animal

anterior solar herbivore omnivore audiometer

- \_\_\_\_\_ heat from the sun
- \_\_\_\_\_ a device to measure hearing
- \_\_\_\_\_ placed or located near the front
- \_\_\_\_\_ an animal that feeds on grasses and other plants
- \_\_\_\_\_ an animal that feeds on all types of foods

## TEST 3: LATIN AND GREEK WORD ROOTS

multi meter aud sol carni

1. hear \_\_\_\_\_ 2. measure \_\_\_\_\_ 3. sun \_\_\_\_\_ 4. meat \_\_\_\_\_ 5. many \_\_\_\_\_

ante post herb omni

6. back, after \_\_\_\_\_ 7. front, before \_\_\_\_\_ 8. plants, grass \_\_\_\_\_ 9. all \_\_\_\_\_

# BIOLOGY SPELLING CHART 1

1.                   so   lar                   \_\_\_\_\_
2.                   po   lar                   \_\_\_\_\_
3.                mus   cu   lar                   \_\_\_\_\_
4.                en   dan   ger                   \_\_\_\_\_
5.                sca   ven   ger                   \_\_\_\_\_
6.                char   ac   ter                   \_\_\_\_\_
7.                pre   da   tor                   \_\_\_\_\_
8.   com   pet   i   tor                   \_\_\_\_\_
9.    an   ter   i   or                   \_\_\_\_\_
10.   pos   ter   i   or                   \_\_\_\_\_

## BONUS WORDS

- mul   ti   cell   u   lar                   \_\_\_\_\_
- neur   o   trans   mit   ter                   \_\_\_\_\_