

Lesson 4.1: Life Science – Introduction

Weekly Focus: Reading Comprehension
Weekly Skill: Main Idea

Lesson Summary: This week students will take a pre- self-evaluation to determine their background knowledge in Life Science. They will also work with vocabulary for life science and a reading passage as an introduction to this area of the GED science module in order to become more familiar with its content.

Materials Needed:

- Self-evaluation [Unit 4.1 Handout 1](#)
- Comprehension Reading [Unit 4.1 Handout 2](#) (Spectrum Science, Grade 7, pages 6-7)
- Main Idea Reading [Unit 4.1 Handout 3](#): "Cell Structure" (6-Way Paragraphs, Introductory Level #88, pages 176-177)
- Extra Work/Homework [Unit 4.1 Handout 4](#)

Objectives: Students will be able to...

- Activate prior knowledge in life science
- Read passages with vocabulary related to science inquiry

College and Career Readiness Standards: RI, RST, WHST, SL

ACES Skills Addressed: EC, LS, ALS, CT, SM, DFP

Notes: Please review and be familiar with classroom routine notes for: 6-way Paragraphs reading techniques (**Routine 3**) reading for fluency strategies (**Routine 2**), summarizing techniques (**Routine 4**), self-management skills (**Routine 1**). The notes for the different activities will help with making a smooth transition to each activity.

GED 2014 Science Test Overview – For Teachers and Students

The GED Science Test will be 90 minutes long and include approximately 34 questions with a total score value of 40. The questions will have focus on three content areas: life science (~40%), physical science (~40%), and Earth and space science (~20%). Students may be asked to read, analyze, understand, and extract information from a scientific reading, a news brief, a diagram, graph, table, or other material with scientific data and concepts or ideas.

The online test may consist of multiple choice, drop down menu, and fill-in-the-blank questions. There will also be two short answer portions (suggested 10 minutes each) where students may have to summarize, find evidence (supporting details), and reason or make a conclusion from the information (data) presented.

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The work students are doing in class will help them with the GED Science Test. They are also learning skills that will help in many other areas of their lives.

Activities:

Warm-Up: Journal Writing

Time: 10 - 15 minutes

As students enter the class, have students write in their journals, on a piece of notebook paper, or discuss with small groups the following: “What skills do you need to be a good scientist?” Note: write the question on the board or overhead. Circulate while students are writing. If students seem to be stuck with this question, try to prompt them with questions about what they already know about scientists and what science classes they have had earlier. Other prompts may include having students think of vocabulary they associate with science.

Activity 1: Pre- self-evaluation (Unit 4.1 Handout 1)

Time: 10 – 15 minutes

- 1) Hand out a self-evaluation sheet (Unit 4.1- Handout 1) for students.
- 2) Have students rate their background knowledge of life science by using the Likert rating scale. Remind students this is a way for them to assess their own knowledge and determine which areas they may need to work on during this unit.
- 3) Check to see if students are comfortable with sharing their self-evaluations; you can ask them how they answered each question or they can share in pairs or table groups.
- 4) Remind students to keep the evaluation in their folder/binder/notebook. Students will reassess with the bottom portion of the sheet (Unit 4.1 Handout 1) at the end of the unit.

Activity 2: Scientific Inquiry Reading – Unit 4.1 Handout 2)

Time: 40 - 45 minutes

- 1) Hand out **Unit 4.1 Handout 2** to students.
- 2) Explain to students they will read about skills needed in science and to be a good scientist. Some of the material may be a review if you have already covered Units 3.1 and 3.2 (Scientific Method). Remind students that they don't need to be a scientist, rather they should be “thinking like a scientist” for the 2014 GED Science test.
- 3) Discuss with students that when reading for comprehension, there are many strategies to use: read the title to predict what the reading is about; look at the words in bold and their definitions on the left side of page; if there are images, look at them to get a better understanding; while reading remember to ask “What is this all about?”
- 4) Have students read the passage and answer the questions independently.
- 5) Circulate class while they are reading to make sure they understand the information presented and see if there are any questions.
- 6) Review answers as a whole class – note: some answers may vary – ask students with different answers to discuss theirs with the class.

Break: 10 minutes

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Activity 3: Main Idea (Unit 4.1 Handout 3)

Time: 40 - 45 minutes

- 1) Distribute **Unit 4.1 Handout 3** to students.
- 2) Explain to students that the purpose of the 6-way Paragraphs reading passages is to master the essential skills needed to organize, understand, and apply information found in nonfiction texts.
- 3) Ask students to review the title and count the number of paragraphs in the reading passage. Ask students how they know where a paragraph begins. Explain that it is important to know how to find a paragraph quickly as some test questions may ask students to refer to a certain paragraph. If you have an overhead, point to it and/or label the indents.
- 4) Explain to students they should read all of the paragraphs silently in order to answer the questions that follow. To help students find the main idea of the reading passage, remind them to think “*What are all the paragraphs about?*” and “*What is the point that the author is trying to make?*” while reading.
- 5) Explain to students that they will decide which of the statements that follow the reading passage is the **main idea**, **broad idea**, or **narrow idea**. Use the explanations in Using 6-way Paragraphs Readings (**Routine 3 handout**).
- 6) While students are reading, circulate and discuss with students that when reading for comprehension, there are many strategies to use: read the title to predict what the reading is about; while reading remember to ask “*What is this all about?*”
- 7) Review answers as a whole class. Ask students to point out the evidence (proof) from the reading that led them to the answer. If there is extra time or to challenge and differentiate instruction for students, some can write a 3 – 5 sentence summary of all of the material presented. Use Routine 4 Summarizing Techniques Handout.
- 8) Remind students that they need to have a good foundational knowledge of cells in order to answer some questions that may be on the GED 2014 test.
- 9) If there is extra time, have students read passage in pairs to promote reading fluency. Students who finish early should try to paraphrase the main idea of the passage for extra practice.

Wrap-Up: Summarize

Time: 5 minutes

Have students turn to a partner (or write in their journals) and discuss what they have learned today about science inquiry (scientific method) or cells. Ask them to tell a partner one thing they learned today in one or two sentences. *Note: Use Routine 4 Handout*

Extra Work/Homework: Unit 4.1 handout 4

Time: 30 minutes outside of class

Students can continue work with plant cells with a diagram and vocabulary matching exercise (2 pages total). This is an excellent opportunity for students to review today's material in an independent manner. It can also help some students who may have missed class or arrived late to gain information on today's lesson.

Differentiated Instruction/ELL Accommodation Suggestions

If some students finish early, they can turn their paper over and summarize the reading passage.

Activity

**Activity 2
&
Activity 3**

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Teachers should be aware that ELLs could have some difficult time with some of the vocabulary encountered in the handouts for Activity 2 and Activity 3, especially if they are new to class. Encourage them to look for context clues in the reading that will help them with interpreting the main idea of each reading passage.

Activity 2

Online Resources:

If students have Internet connection, they should practice reading and answering questions online. This is a great website with information similar to Unit 4.1. There are questions that follow.

<http://www.ck12.org/life-science/Characteristics-of-Life-in-Life-Science/lesson/Characteristics-of-Life-Basic/r21/>

Suggested Teacher Readings:

- GED Testing Service – GED Science Item Sample (to get an idea of what the test may be like)

<http://www.gedtestingservice.com/itemsamplerscience/>

- Assessment Guide for Educators: A guide to the 2014 assessment content from GED Testing Service:

<http://www.riaepdc.org/Documents/ALALBAASSESSMENT%20GUIDE%20CHAPTER%203.pdf>

- Minnesota is getting ready for the 2014 GED test! – website with updated information on the professional development in Minnesota regarding the 2014 GED.

http://abe.mpls.k12.mn.us/ged_2014_2

- Essential Education's 2014 GED Test Curriculum Blueprint (PDF)

<http://www.passged.com/media/pdf/educators/curriculum-blueprint.pdf>

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Unit 4.1 Handout 1

Pre- and Post- Self Evaluation

Pre-Evaluation – Life Science

Statement	Self-Rating				
1. I can define basic vocabulary in the building blocks life: cells, DNA, mitosis, organelles, chromosomes, etc.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
2. I can describe the theory of evolution.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
3. I can describe the basics of heredity in humans.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
4. I can state some effects of disease and disease prevention.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
5. I can interpret food chains and food webs with relations to ecosystems.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree

Post-Evaluation – Life Science

Statement	Self-Rating				
1. I can define basic vocabulary in the building blocks life: cells, DNA, mitosis, organelles, chromosomes, etc.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
2. I can describe the theory of evolution.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
3. I can describe the basics of heredity in humans.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
4. I can state some effects of disease and disease prevention.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree
5. I can interpret food chains and food webs with relations to ecosystems.	1 strongly agree	2 agree	3 somewhat agree	4 disagree	5 strongly disagree

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Unit 4.1 Handout 2

TEACHER ANSWER KEY

1. C
2. Answers will vary. Possible answer – **You can't make a discovery if you don't see it or notice it.**
3. Answers will vary. Possible answer – **You should first conduct the experiment again to make sure there were no mistakes. If the results are the same, publish the results so other scientists can review them. They can design other experiments to see if they get the same results. They might also see information in the results that you missed.**
4. Answers will vary. Possible answer – **A good scientist needs strong math and communication skills, as well as knowledge in his or her field of scientific study.**

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Unit 4.1 Handout 3

TEACHER ANSWER KEY

1. a. **M** (main idea)
b. **N** (narrow idea)
c. **B** (broad idea)
2. **d**
3. **b**
4. **c**
5. **a**
6. **d**

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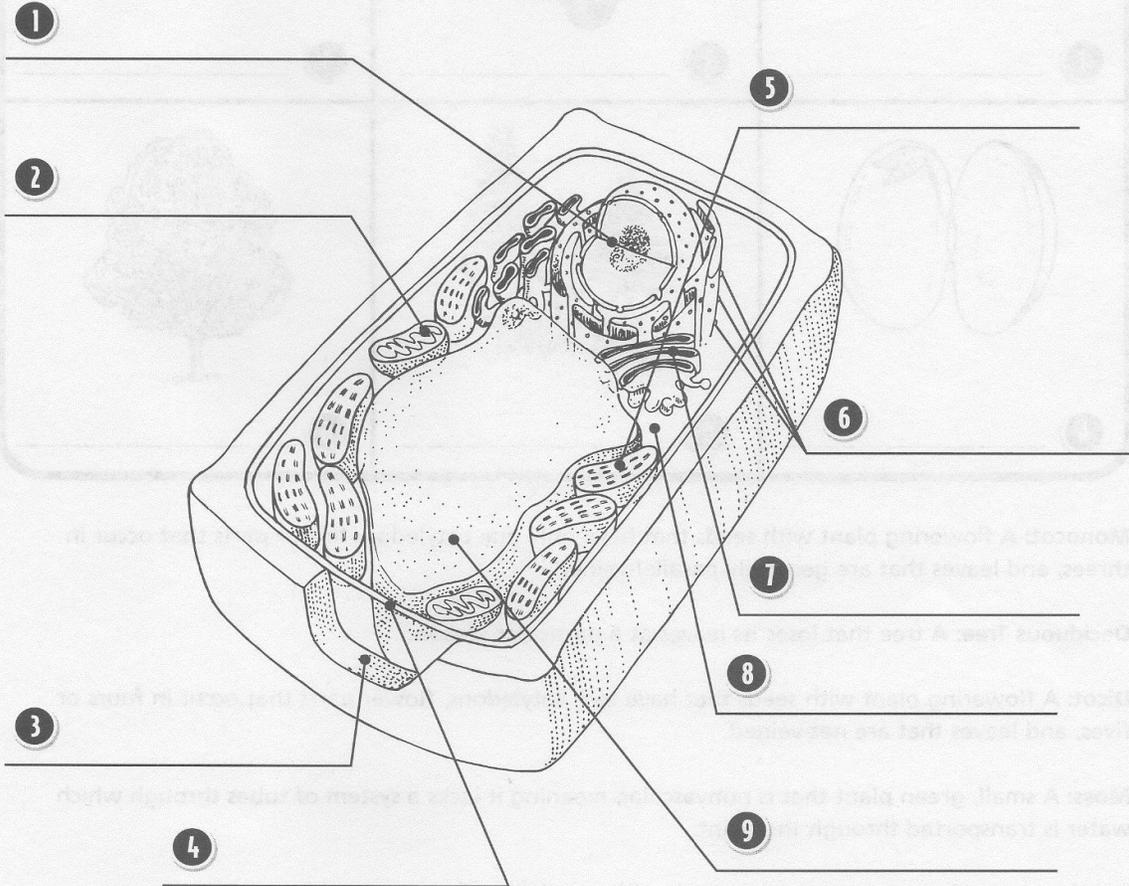
Unit 4.1 Handout 4 (2 pages total)

Name _____ Date _____

A Typical Plant Cell

Plant cells have basic structures in common, even though plant cells are as varied as the plants themselves. Each individual plant cell is partly self-sufficient, carrying on processes contained within the cell membrane. A plant cell differs from an animal cell because it contains chloroplasts and has a cell wall made of cellulose. Use the terms in the word box to label the diagram.

- | | | |
|-----------------------|-------------|---------------|
| cytoplasm | chloroplast | vacuole |
| endoplasmic reticulum | ribosomes | nucleus |
| mitochondrion | cell wall | cell membrane |



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Name _____ Date _____

Functions within a Plant Cell

Each of the structures, or organelles, within a plant cell serves a specific purpose. Match each term in the word box to its definition.

cytoplasm
endoplasmic reticulum
mitochondrion
cell membrane

chloroplast
ribosome
cell wall

vacuole
nucleus
organelle

- 1 _____ This is the tough, nonliving outer layer of each plant cell. It gives the cell shape, strength, and support.
- 2 _____ This is a structure that stores water and helps keep the plant from wilting.
- 3 _____ This is a structure that contains chlorophyll, giving the plant its green color, and traps energy from sunlight.
- 4 _____ This is a structure that moves material throughout the cell.
- 5 _____ This is a substance that fills most of the cell outside the nucleus and contains the other organelles.
- 6 _____ This is any tiny structure in the cytoplasm of the cell that performs a special job.
- 7 _____ This is an organelle that puts together proteins for the cell.
- 8 _____ This is a structure where food and oxygen react to release energy.
- 9 _____ This acts as the control center for the cell.
- 10 _____ This is a layer that holds the parts of the cell together and controls movement of materials into and out of the cell.

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Unit 4.1 Handout 4

TEACHER ANSWER KEY

A Typical Plant Cell

- | | |
|--------------------------|------------------|
| 1. nucleus | 2. Mitochondrion |
| 3. cell wall | 4. Cell membrane |
| 5. chloroplast | 6. Ribosomes |
| 7. endoplasmic reticulum | 8. Cytoplasm |
| 9. vacuole | |

Functions within a Plant Cell

- | | |
|----------------|--------------------------|
| 1. cell wall | 2. vacuole |
| 3. chloroplast | 4. endoplasmic reticulum |
| 5. Cytoplasm | 6. organelle |
| 7. ribosome | 8. mitochondrion |
| 9. nucleus | 10. Cell membrane |