The Department of Juvenile Justice

7th Grade Life Science

Units of Instruction Resource Manual

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**Acknowledgements**

The Georgia Department of Juvenile Justice Department of Education would like to thank the many educators who have helped to create this 7th Grade Life Science Units of Instruction Resource Manual. The educators have been particularly helpful in sharing their ideas and resources to ensure the completion and usefulness of this manual.

Students served by the DJJ require a special effort if they are to become contributing and participating members of their communities. Federal and state laws, regulations, and rules will mean nothing in the absence of professional commitment and dedication by every staff member.

The Georgia Department of Juvenile Justice is very proud of its school system. The school system is Georgia’s 181st and is accredited by the Southern Association of Colleges and Schools (SACS). The DJJ School System has been called exemplary by the US Department of Justice. This didn’t just happen by chance; rather it was the hard work of many teachers, clerks, instructors and administrators that earned DJJ these accolades and accreditations. The DJJ education programs operate well because of the dedicated staff. These dedicated professionals are the heart of our system.

These Content Area Units of Instruction were designed to serve as a much needed tool for delivering meaningful whole group instruction. In addition, this resource will serve as a supplement to the skills and knowledge provided by the Georgia Department of Juvenile Justice Curriculum Activity Packets (CAPs).

I would like to thank all the DJJ Teaching Staff, the Content Area Leadership Teams, Kimberly Harrison, DJJ Special Education/Curriculum Consultant and Martha Patton, Curriculum Director for initiating this project and seeing it through. Thank you all for your hard work and dedication to the youth we serve.

Sincerely yours,

James “Jack” Catrett, Ed.D.

Associate Superintendent

**Mission**

The mission of Department of Juvenile Justice Science Consortium (DJJSC) is to build a multiparty effort statewide to achieve continuous, systemic and sustainable improvements in the education system serving the Science students of the Department of Juvenile Justice (DJJ).

**Vision**

To achieve the mission of the DJJSC, members work collaboratively in examining the Georgia Performance Standards. These guidelines speak specifically to teachers being able to: deliver meaning content pertaining to the Characteristics of Science and its content standards across the Science units of instruction. The DJJSC will master and develop whole-group unit lessons built around Curriculum Activity Packets (CAPs), critique student work, and work as a team to solve the common challenges of teaching within DJJ. Additionally, the DJJSC jointly analyzes student test data in order to: develop strategies to eradicate common academic deficits among students, align curriculum, and create a coherent learning pathway across grade levels. The DJJSC also reviews research articles, attends workshops or courses, and invites consultants to assist in the acquisition of necessary knowledge and skills. Finally, DJJSC members observe one another in the classroom through focus walks.

**Introduction**

The 7th Grade Life Science Units of Instruction Resource Manual is a tool that has been created to serve as a much needed tool for delivering meaningful whole group instruction. This manual is a supplement to the skills and knowledge provided by the Georgia Department of Juvenile Justice Curriculum Activity Packets (CAPs). It is imperative that our students learn to identify and investigate problems scientifically, and to work in cooperative learning groups. Best practices in education indicate that teachers should first model new skills for students. Next, teachers should provide opportunities for guided practice. Only then should teachers expect students to successfully complete an activity independently. The 7th Grade Life Science Units of Instruction meets that challenge.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | **The Georgia Department of Juvenile Justice**  **Office of Education**  **Direct Instruction Lesson Plan** | | |
| Teacher: | | | | |
| Subject:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date:\_\_\_\_\_\_\_\_\_\_\_\_\_to­\_\_\_\_\_\_\_\_\_\_\_­­\_\_\_\_\_\_\_  Period  □ 1st  □ 2nd  □ 3rd  □ 4th  □ 5th  □ 6th | | | Students will engage in:  □ Independent activities □ pairing  □ Cooperative learning □ hands-on  □ Peer tutoring □ Visuals  □ technology integration □ Simulations  □ a project □ centers  □ lecture □ Other | |
| Essential Question(s):  Standards:  CAPs Covered:  Grade Level:\_\_\_\_ Unit:\_\_\_\_\_\_  RTI Tier for data collection: 2 or 3  Tier 2 Students:  Tier 3 Students: | | | | |
| **Time** | **Procedures Followed:** | | | **Material/Text** |
| \_\_\_\_\_\_\_  Minutes | Review of Previously Learned Material/Lesson Connections:  Recommended Time: 2 Minutes | | |  |
| \_\_\_\_\_\_\_  Minutes | Display the Georgia Performance Standard(s) (project on  blackboard via units of instruction located at  <http://thevillage411.weebly.com/units-of-instruction2.html>, or print on blackboard) Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.  Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard). Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.  Recommended Time: 2 Minutes | | |  |
| \_\_\_\_\_\_\_  Minutes | Introduce task by stating the purpose of today’s lesson.  Recommended Time: 2 Minutes | | |  |
| \_\_\_\_\_\_\_  Minutes | Engage students in conversation by asking open ended questions related to the essential question(s).  Recommended Time: 2 Minutes | | |  |
| \_\_\_\_\_\_\_  Minutes | Begin whole group instruction with corrective feedback:  Recommended Time: 10 Minutes | | |  |
| \_\_\_\_\_\_\_  Minutes | Lesson Review/Reteach:  Recommended Time: 2 Minutes | | |  |
| \_\_\_\_\_\_\_  Minutes | Independent Work CAPs:  Recommended Time: 30 Minutes | | |  |
| Teacher Reflections: | | | | |

The Instructional Rotation Matrix has been designed to assist language arts teachers in providing a balanced approach to utilizing the Science Units of Instruction across all grade levels on a rotating schedule.

|  |  |  |  |
| --- | --- | --- | --- |
| Monday | Tuesday | Wednesday | Thursday |
| 6th Grade Content  Middle School | 9th Grade Content  High School | 7th Grade Content  Middle School | 10th Grade Content  High School |
| 8th Grade Content  Middle School | 11th Grade Content  High School | 6th Grade Content  Middle School | 12th Grade Content  High School |
| 7th Grade Content  Middle School | 9th Grade Content  High School | 8th Grade Content  Middle School | 10th Grade Content  High School |
| 6th Grade Content  Middle School | 11th Grade Content  High School | 7th Grade Content  Middle School | 12th Grade Content  High School |

**Georgia Performance Standards**

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and**

**skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

a. Understand the importance of—and keep—honest, clear, and accurate records in science.

b. Understand that hypotheses can be valuable, even if they turn out not to be completely accurate.

**S7CS2. Students will use standard safety practices for all classroom laboratory and field investigations.**

a. Follow correct procedures for use of scientific apparatus.

b. Demonstrate appropriate techniques in all laboratory situations.

c. Follow correct protocol for identifying and reporting safety problems and violations.

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

b. Use the mean, median, and mode to analyze a set of scientific data.

c. Apply the metric system to a scientific investigation that includes metric to

metric conversion. (i.e. centimeters to meters)

d. Draw conclusions based on analyzed data.

e. Decide what degree of precision is adequate, and round off appropriately.

f. Address the relationship between accuracy and precision and the importance

of each.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

b. Use appropriate tools for measuring objects and/or substances.

c. Learn and use on a regular basis standard safety practices for scientific investigations.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

a. Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in a community/ecosystem.

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

a. Write clear, step-by-step instructions for conducting particular scientific investigations, operating a piece of equipment, or following a procedure.

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS7. Students will question scientific claims and arguments effectively.**

a. Question claims based on vague attributions (such as “Leading doctors say...”) or on statements made by people outside the area of their particular expertise.

b. Identify the flaws of reasoning that are based on poorly designed research (i.e., facts intermingled with opinion, conclusions based on insufficient evidence).

c. Question the value of arguments based on small samples of data, biased samples, or samples for which there was no control.

d. Recognize that there may be more than one way to interpret a given set of

findings.

**S7CS8. Students will investigate the characteristics of scientific knowledge and how that knowledge is achieved.**

a. When similar investigations give different results, the scientific challenge is to judge whether the differences are trivial or significant, which often requires further study. Even with similar results, scientists may wait until an investigation has been repeated many times before accepting the results as meaningful.

b. When new experimental results are inconsistent with an existing, well-established theory, scientists may pursue further experimentation to determine whether the results are flawed or the theory requires modification.

c. As prevailing theories are challenged by new information, scientific knowledge may change.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

a. Investigations are conducted for different reasons, which include exploring new phenomena, confirming previous results, testing how well a theory predicts, and comparing competing theories.

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

c. Scientific experiments investigate the effect of one variable on another. All other variables are kept constant.

d. Scientists often collaborate to design research. To prevent this bias, scientists conduct independent studies of the same questions.

e. Accurate record keeping, data sharing, and replication of results are essential for maintaining an investigator’s credibility with other scientists and society.

f. Scientists use technology and mathematics to enhance the process of scientific inquiry.

g. The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research.

**S7CS10. Students will enhance reading in all curriculum areas by:**

a. Reading in All Curriculum Areas

Read a minimum of 25 grade-level appropriate books per year from a

variety of subject disciplines and participate in discussions related to

curricular learning in all areas Read both informational and fictional texts

in a variety of genres and modes of discourse Read technical texts related

to various subject areas

b. Discussing books

Discuss messages and themes from books in all subject areas.

Respond to a variety of texts in multiple modes of discourse.

Relate messages and themes from one subject area to messages and

themes in another area.

Evaluate the merit of texts in every subject discipline.

Examine author’s purpose in writing.

Recognize the features of disciplinary texts.

c. Building vocabulary knowledge

Demonstrate an understanding of contextual vocabulary in various

subjects.

Use content vocabulary in writing and speaking.

Explore understanding of new words found in subject area texts.

d. Establishing context

Explore life experiences related to subject area content.

Discuss in both writing and speaking how certain words are subject area

related.

Determine strategies for finding content and contextual meaning for

Unknown words.

**S7L1. Students will investigate the diversity of living organisms and how they can be compared scientifically.**

a. Demonstrate the process for the development of a dichotomous key.

b. Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

a. Explain that cells take in nutrients in order to grow and divide and to make needed materials.

b. Relate cell structures (cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria) to basic cell functions.

c. Explain that cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.

d. Explain that tissues, organs, and organ systems serve the needs cells have for oxygen, food, and waste removal.

e. Explain the purpose of the major organ systems in the human body (i.e., digestion, respiration, reproduction, circulation, excretion, movement, control, and coordination, and for protection from disease).

**S7L3. Students will recognize how biological traits are passed on to successive**

**generations.**

a. Explain the role of genes and chromosomes in the process of inheriting a specific trait.

b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants & animals).

c. Recognize that selective breeding can produce plants or animals with desired traits.

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

b. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.

c. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.

d. Categorize relationships between organisms that are competitive or mutually beneficial.

e. Describe the characteristics of Earth’s major terrestrial biomes (i.e. tropical rain forest, savannah, temperate, desert, taiga, tundra, and mountain) and aquatic communities (i.e. freshwater, estuaries, and marine).

**S7L5. Students will examine the evolution of living organisms through inherited characteristics that promote survival of organisms and the survival of successive generations of their offspring.**

a. Explain that physical characteristics of organisms have changed over successive generations (e.g. Darwin’s finches and peppered moths of Manchester).

b. Describe ways in which species on earth have evolved due to natural selection.

c. Trace evidence that the fossil record found in sedimentary rock provides evidence for the long history of changing life forms.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| DJJ 7th Grade Life Science  Georgia Performance Standards:  Curriculum Map | | | | | | | | | | | | | | | | |
| **1st Semester** | | | | | | | | | **2nd Semester** | | | | | | | |
| The Study of Living Things | | Cells | | Heredity, Evolution, and Classification | | Simple Organisms, Fungi, and Plants | | Animals | | | Ecology | | Human Body Systems | | Human Health | |
| Chapter  1 | CAPs  1-3 | Chapter  3 | CAPs  6-8 | Chapter  5 | CAPs  12-14 | Chapter  10 | CAPs  25-28 | Chapter  14 | | CAPs  38-41 | Chapter  18 | CAPs  51-53 | Chapter  22 | CAPs  62-65 | Chapter  27 | CAPs  78-79 |
| 2 | 4-5 | 4 | 9-11 | 6 | 15-16 | 11 | 29-31 | 15 | | 42-44 | 19 | 54-56 | 23 | 66-69 | 28 | 80-82 |
|  |  |  |  | 7 | 17-19 | 12 | 32-34 | 16 | | 45-47 | 20 | 57-59 | 24 | 70-71 |  |  |
|  |  |  |  | 8 | 20-22 | 13 | 35-37 | 17 | | 48-50 | 21 | 60-61 | 25 | 72-74 |  |  |
|  |  |  |  | 9 | 23-24 |  |  |  | |  |  |  | 26 | 75-77 |  |  |
| GPS:  S7CS1.a,b  S7CS3.a,b,c  S7CS9.a,b,c,e,f,g  S7CS4.a,b  S7CS6.b,c  S7CS8.a,b,c  S7CS5.b  S7CS7.d  S7L3.a,b  S7L4.a | | GPS:  S7CS3.a,c,d  S7CS5.b  S7CS6.a,b,c  S7L2.a,b,c ,d  S7CS1.a  S7L4.b  S7CS9.b | | GPS:  S7CS3.a,c,e  S7L3.a,b,c  S7CS6.b,c  S7CS9.b,d,f  S7CS4.a,c  S7CS5.a,b  S7L5.a,c  S7CS1.b  S7CS8.c  S7CS10.d  S7L1.a,b | | GPS:  S7CS3.a,b  S7L1  S7CS5.a  S7CS6.a,b,c  S7CS9.a,b.  S7L4.a,b  S7CS4.a,b,d  S7L3.b  S7L2.b,d | | GPS:  S7CS1.b  S7CS3.a,c  S7L1  S7L2.c,b,d  S7L3.b,c  S7CS5.a,b  S7CS6.a,b,c:  S7CS9.a,b:  S7L4.a,d,c  S7CS4.a  S7L5.a,c | | | GPS:  S7CS3.c  S7CS5.a,b,e,c:  S7L4.a,c,d,e:  S7L5:  S7CS1.a,b:  S7CS4.a:  S7CS6.b,c:  S7CS9.b: | | GPS:  S7CS3.a  S7L2.c,d,e.  S7CS4.a  S7CS6.b,c:  S7CS9.b,c,g  S7CS5.b.  S7CS1.b | | GPS:  S7CS3.a,d  S7CS4.a  S7CS9.a,g  S7L4  S7CS6.c,b  S7CS1.b:  S7CS5.b  S7L2.e.a | |
| Focus CAPs:  5 | | Focus CAPs:  11 | | Focus CAPs:  16,19,22,24 | | Focus CAPs:  31,34,37 | | Focus CAPs:  44,47,50 | | | Focus CAPs:  56,59,61 | | Focus CAPs:  69,71,74,77 | | Focus CAPs:  82 | |

**Enduring Understandings & Essential Question**

**The Study of Living Things**

**Enduring Understandings:**

Levels of cellular organization serve the needs of cells for obtaining oxygen and food, and removing waste.

The functions of the major systems (digestion, respiration, reproduction,

transport/circulation, excretion, movement, control, and coordination, and for protection from disease) Differences and similarities exist within the structures and functions among the six kingdoms of life.

**Essential Questions:**

In what way is science beneficial to living things?

What are three of the major careers in the field of life science?

What is a scientific method?

How can you use graphs and tables to analyze experimental results?

How can scientific knowledge change over time?

What are the six characteristics of living things?

How do organisms maintain stable internal conditions?

How does asexual reproduction differ from sexual reproduction?

**Cells**

**Enduring Understandings:**

Cells take in nutrients to grow, divide, and make needed materials.

Cell structure is related to cell function. (Teacher Note: cell membrane, nucleus, cytoplasm, mitochondria, chloroplasts)

Cell parts are interdependent.

Levels of cellular organization (cells ? tissue ? organs ? systems ? organism)

**Essential Questions:**

How do you explain the relationship between the structures and functions of cell organelles?

Why is each part of the cell essential to survival?

How is a living organism the sum of all of its parts?

Why must cells absorb energy and nutrients?

How do cells, tissues, organs, and organ systems relate to the complexity of living organisms?

How does scientific development rely on our knowledge of cells?

What happens when cells cease to function adequately or at all?

Can plant and animal cells function without sunlight?

What do cells tell us about basic processes of life…life, death, reproduction, etc?

How are cells like building blocks?

**Heredity, Evolution, and Classification**

**Enduring Understandings:**

Many traits of an organism are inherited from its biological parents.

Genes and chromosomes determine the expressions of inherited traits.

All organisms reproduce sexually or asexually.

Selective breeding is used to enhance a desired trait.

Physical characteristics of organisms change over time.

Changes in species occur due to natural selection, reproduction and environmental conditions.

Fossils provide evidence of change.

**Essential Questions:**

How do genes contribute to an organism’s survival?

Why are genes important in determining hereditary traits?

How can a mutation be helpful?

Why do I look the way I do?

How can I predict what traits will be passed from one generation to another?

Why is selective breeding important to me?

How is genetic material passed from parents to their offspring?

How can our knowledge of genetics be useful?

**Simple Organisms, Fungi, and Plants**

**Essential Questions:**

How do prokaryotes reproduce?

What is the difference between bacteria and archaea?

What are four ways in which protists get food?

How do protists reproduce?

What are the characteristics of Fungi?

How many groups of fungi are there?

How do lichens affect their environment?

What four characteristics are common to all plants?

What are the four main groups of plants?

What are the origins of plants?

What is photosynthesis?

What are the differences between photosynthesis and cellular respiration?

How is gas exchanged in the leaves of plants?

In what two ways is photosynthesis important?

**Animals**

**Essential Questions:**

How do sponges get food?

What are the three kinds of flat worms?

How do mollusks eat, control body functions, and circulate blood?

What are the three types of annelid worms?

What are the four common body parts of chordates?

What are the two main characteristics of vertebrates?

What is the difference between an ectotherm and an endotherm?

What are the four characteristics that all fish share?

How does a bird’s diet, breathing, muscles, and skeleton hel[ it fly?

How do birds raise their young?

What are the seven common characteristics of mammals?

**Ecology**

**Enduring Understandings:**

The survival of organisms in a biome is affected by living and nonliving factors.

Terrestrial biomes and aquatic communities have similar, yet unique characteristics.

Organisms are interdependent on their environment and each other.

Within a biome, an organism can be identified by its physical characteristics through the use of a dichotomous key.

**Essential Questions:**

What are three zones of a lake?

How does a lake become a forest?

How is life like a web?

Why is it necessary for everything in an ecosystem work together?

How do you fit into the larger world?

How does a change in climate affect the living things in an environment?

How are earth’s biomes differentiated by ecologists?

Why has human population growth increased?

How does pollution affect humans?

What are nonrenewable and renewable resources?

**Human Body Systems**

**Essential Questions:**

How are organs and organ systems related?

How do organ systems work together to maintain homeostasis?

What are the functions of bones?

What are the major organs of the skeletal system?

**Human Health**

**Essential Questions:**

How does the body naturally keep out pathogens?

How does the immune system work?

What are the six groups of nutrients?

What are the dangers of nutritional disorders?

What is a drug?

What is drug abuse?

What are some of the health hazards of tobacco, alcohol, and illegal drugs?

What are the positive and negative uses of drugs?

**The Study of Living Things**

**Georgia Performance Standards**

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

a. Understand the importance of—and keep—honest, clear, and accurate records in science.

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a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

b. Use the mean, median, and mode to analyze a set of scientific data.

c. Apply the metric system to a scientific investigation that includes metric to metric conversion. (i.e. centimeters to meters)

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

a. Investigations are conducted for different reasons, which include exploring new phenomena, confirming previous results, testing how well a theory predicts, and comparing competing theories.

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

c. Scientific experiments investigate the effect of one variable on another. All other variables are kept constant.

d. Scientists often collaborate to design research. To prevent this bias, scientists conduct independent studies of the same questions.

e. Accurate record keeping, data sharing, and replication of results are essential for maintaining an investigator’s credibility with other scientists and society.

f. Scientists use technology and mathematics to enhance the process of scientific inquiry.

g. The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

b. Use appropriate tools for measuring objects and/or substances.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS8. Students will investigate the characteristics of scientific knowledge and how that knowledge is achieved.**

a. When similar investigations give different results, the scientific challenge is to judge whether the differences are trivial or significant, which often requires further study. Even with similar results, scientists may wait until an investigation has been repeated many times before accepting the results as meaningful.

b. When new experimental results are inconsistent with an existing, well-established theory, scientists may pursue further experimentation to determine whether the results are flawed or the theory requires modification.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7CS7. Students will question scientific claims and arguments effectively.**

d. Recognize that there may be more than one way to interpret a given set of

findings.

**S7L3. Students will recognize how biological traits are passed on to successive generations.**

a. Explain the role of genes and chromosomes in the process of inheriting a specific trait.

b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants & animals).

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

**Task: 1**

**Essential Question(s):**

What is a scientific method?

How can scientific knowledge change over time?

**Resources:**

[Controlled experiment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E16/E16.html)

[Solving a Scientific Problem](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::380::410::/sites/dl/free/0078617022/164155/428_02.swf::Solving%20a%20Scientific%20Problem)

[CRCT Practice](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/unit1/chapter1/standardized_test_practice.html)

[Section quick check](http://glencoe.mcgraw-hill.com/sites/0078778069/student_view0/unit1/chapter1/section_1_self-check_quiz-eng_.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Scientific Method p.10

b. Scientific Models p.18

8. Engage students in conversation by asking students to write a brief response to the following question: Which is more important, imagination or knowledge? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Controlled experiment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E16/E16.html) and [Solving a Scientific Problem](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::380::410::/sites/dl/free/0078617022/164155/428_02.swf::Solving%20a%20Scientific%20Problem)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [Controlled experiment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E16/E16.html) as a whole group activity. Students will then be divided into cooperative learning groups to complete the journal activity at the end of the [Controlled experiment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E16/E16.html).

The students and teacher will complete the [section quick check](http://glencoe.mcgraw-hill.com/sites/0078778069/student_view0/unit1/chapter1/section_1_self-check_quiz-eng_.html) as a lesson wrap up.

**Task: 2**

**Essential Question(s):**

How can you use graphs and tables to analyze experimental results?

**Resources:**

[Using graphs to analyze data virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E01/E01.html)

[Drop and drag puzzle](http://glencoe.mcgraw-hill.com/sites/dl/free/0078778069/161760/index.html)

[Measurement lesson overview](http://glencoe.mcgraw-hill.com/sites/dl/free/0078778069/161752/00076709.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Tools, Measurement, and Safety p.22

8. Engage students in conversation by asking students the following question: Why do you think scientist use tools such as graduated cylinders? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Using graphs to analyze data virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E01/E01.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [Using graphs to analyze data virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E01/E01.html) as a whole group activity. Students will then work in cooperative learning groups to complete the journal activities at the end of the [Using graphs to analyze data virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E01/E01.html).

The teacher and students will view the [Measurement lesson overview](http://glencoe.mcgraw-hill.com/sites/dl/free/0078778069/161752/00076709.html) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Measurement lesson overview](http://glencoe.mcgraw-hill.com/sites/dl/free/0078778069/161752/00076709.html).

The teacher and students will complete the [Give It a Try Crossword Puzzle](http://glencoe.mcgraw-hill.com/sites/dl/free/0078778425/167358/index.html) as a lesson wrap up.

**Cells**

**Georgia Performance Standards**

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

c. Apply the metric system to a scientific investigation that includes metric to metric conversion. (i.e. centimeters to meters)

d. Draw conclusions based on analyzed data.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

a. Write clear, step-by-step instructions for conducting particular scientific investigations, operating a piece of equipment, or following a procedure.

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

a. Explain that cells take in nutrients in order to grow and divide and to make needed materials.

b. Relate cell structures (cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria) to basic cell functions.

c. Explain that cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.

d. Explain that tissues, organs, and organ systems serve the needs cells have for oxygen, food, and waste removal.

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

a. Understand the importance of—and keep—honest, clear, and accurate records in science.

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

b. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

**Task: 1**

**Essential Question(s):**

How do you explain the relationship between the structures and functions of cell organelles?

Why is each part of the cell essential to survival?

How is a living organism the sum of all of its parts?

Why must cells absorb energy and nutrients?

How do cells, tissues, organs, and organ systems relate to the complexity of living organisms?

How does scientific development rely on our knowledge of cells?

What happens when cells cease to function adequately or at all?

Can plant and animal cells function without sunlight?

What do cells tell us about basic processes of life…life, death, reproduction, etc?

How are cells like building blocks?

**Resources:**

[How Animal and Plant Cells Work Virtual Lab](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E08/E08.html)

[Click here to enter cell world](%20http:/go.hrw.com/resources/go_sc/hst/ia/hstl03.htm)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Hand out vocabulary graphic organizer and instruct students to complete the graphic organizer while viewing [How Animal and Plant Cells Work Virtual Lab](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E08/E08.html).

7. Reinforce learning by explaining to students that:

1. All living organisms are made of cells, and most organisms have specialized cells that perform different functions. Thus, most organisms have many types of cells.

2. There are some similarities between all animal cells, just as there are some similarities between all plant cells. Animal cells have organelles such as a nucleus, cell membrane, and mitochondria.

3. Plant cells have all of the organelles listed for animal cells, plus the presence of chloroplasts where photosynthesis takes place, cell walls that give the plant cell more structure, and a large central vacuole that stores water (also proteins and/or crystals) and helps give the plant rigidity.

4. Most cells are too small to see with the naked eye, but with the aid of a microscope, many can be viewed.

8. Engage students in conversation by asking students how do you explain the relationship between the structures and functions of cell organelles? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

Cognitive operations: valuing, judging, defending, justifying

10. Guide students into the activity [Click here to enter cell world](%20http:/go.hrw.com/resources/go_sc/hst/ia/hstl03.htm).

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [How Animal and Plant Cells Work Virtual Lab](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E08/E08.html) as a whole group activity. Students will then be placed in learning circles to complete the journal cities at the end of the [How Animal and Plant Cells Work Virtual Lab](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E08/E08.html).

The teacher and students will view the virtual lab titled cell world [Click here to enter cell world](%20http:/go.hrw.com/resources/go_sc/hst/ia/hstl03.htm) . Then create a virtual brochure informing tourists of the various places in "Cell World" that they might want to visit. Be sure to point out interesting features and dangerous places!

\* Teachers have students to follow along using the Organelles and Their Function Graphic Organizer on the following page as you create the virtual brochure. Also, make sure you publish and print the brochure to display in the classroom!

**Organelles and Their Function Graphic Organizer**

|  |  |
| --- | --- |
| Organelles | Functions |
| Chloroplast |  |
| Mitochondria |  |
| Nucleus |  |
| Liposome’s |  |

**Task: 2**

**Essential Question(s):**

How do you explain the relationship between the structures and functions of cell organelles?

Why is each part of the cell essential to survival?

How is a living organism the sum of all of its parts?

Why must cells absorb energy and nutrients?

How do cells, tissues, organs, and organ systems relate to the complexity of living organisms?

How does scientific development rely on our knowledge of cells?

What happens when cells cease to function adequately or at all?

Can plant and animal cells function without sunlight?

What do cells tell us about basic processes of life…life, death, reproduction, etc?

How are cells like building blocks?

**Resources:**

[All about cells virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS03/LS03.html)

[Cells Virtual Lesson](http://glencoe.mcgraw-hill.com/sites/dl/free/007877800x/164155/00035804.html)

[Overview of the cell](%20http:/www.nsf.gov/news/overviews/biology/int_full.jsp)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

1. Cell size

a. Most cells are too small to be seen without a microscope.

b. It would take about 50 human cells to cover the dot on this i.

2. Parts of a Cell

a. Cells come in many shapes and sizes.

b. Cells have many different functions. However, they all have

i. Cell Membrane and Cytoplasm

ii.Organelles

iii.Genetic Material (DNA)

3. Types of Cells

a. Prokaryotes- cells with no nucleus

b. Eukaryotic- cells that have a nucleus

8. Engage students in conversation by asking students what is the function of the nucleus? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [All about cells virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS03/LS03.html) , [Cells Virtual Lesson](http://glencoe.mcgraw-hill.com/sites/dl/free/007877800x/164155/00035804.html) and the [**Overview of the cell**](%20http:/www.nsf.gov/news/overviews/biology/int_full.jsp) **(please click the explore more button and watch the cell come alive)**

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [All about cells virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS03/LS03.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [All about cells virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS03/LS03.html).

Students will create a short picture book. Have them to draw a picture of a typical prokaryotic cell on one page. Have them to draw a picture of a typical eukaryotic cell on the next page. Students should label all parts of both cells.

**Task: 3**

**Essential Question(s):**

How do you explain the relationship between the structures and functions of cell organelles?

Why is each part of the cell essential to survival?

How is a living organism the sum of all of its parts?

Why must cells absorb energy and nutrients?

How do cells, tissues, organs, and organ systems relate to the complexity of living organisms?

How does scientific development rely on our knowledge of cells?

What happens when cells cease to function adequately or at all?

Can plant and animal cells function without sunlight?

What do cells tell us about basic processes of life…life, death, reproduction, etc?

How are cells like building blocks?

**Resources:**

[Respiratory system](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)

[Circulatory system](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

1. The organization of living things

a. The benefits of being multicellular

b. Cells working together

c. Tissues working together

2. Organs working together

a. Organisms

b. Structure and function

8. Engage students in conversation by asking students why can’t you use your teeth to breath? Why can’t you use your arm muscles to digest food? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [**Respiratory system over view**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23) **and** [**Circulatory system overview**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will view the [**Respiratory system over view**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)and[**Circulatory system overview**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23) as a whole group activity. Students will then be placed in two teams to complete the quiz at the end of the [**Respiratory system over view**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)andthe[**Circulatory system overview**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)**.**

**Additional Activities**

**Activity 1**

**Cell, Tissue, and Organ System Grouping Chart**

1. Write the following headings on the board: Cell, Tissue, Organ, Organ system, Organism.
2. Have the students write these headings on their paper and list at least two examples under each heading.
3. Make a wall chart to record examples as students share with the class.

**Activity 2**

**Cell Types Bar Graph**

1. Have students make a bar graph to represent the following information about different cell types:

* Cell Type A divides every 3 hours
* Cell Type B divides every 6 hours
* Cell Type C divides every 8 hours

1. Answer this question: If you start with one cell of each type, how many A, B, and C cells will be produced in a 24-hour period?
2. Graph the results and compare the number of cells of each type.

**Activity 3**

**Biography of a Cell**

Have students write and illustrate the biography of a cell. It can be humorous or serious, but it should include accurate descriptions of how materials are transported into and out of the cell and how cells reproduce. Allow students to share their work with the class.

**Heredity, Evolution, and Classification**

Georgia Performance Standards

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

c. Apply the metric system to a scientific investigation that includes metric to metric conversion. (i.e. centimeters to meters)

e. Decide what degree of precision is adequate, and round off appropriately.

**S7L3. Students will recognize how biological traits are passed on to successive generations.**

a. Explain the role of genes and chromosomes in the process of inheriting a specific trait.

b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants & animals).

c. Recognize that selective breeding can produce plants or animals with desired traits.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

d. Scientists often collaborate to design research. To prevent this bias, scientists conduct independent studies of the same questions.

f. Scientists use technology and mathematics to enhance the process of scientific inquiry.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

c. Learn and use on a regular basis standard safety practices for scientific investigations.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

a. Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in a community/ecosystem.

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7L5. Students will examine the evolution of living organisms through inherited characteristics that promote survival of organisms and the survival of successive generations of their offspring.**

a. Explain that physical characteristics of organisms have changed over

successive generations (e.g. Darwin’s finches and peppered moths of

Manchester).

c. Trace evidence that the fossil record found in sedimentary rock provides

evidence for the long history of changing life forms.

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

b. Understand that hypotheses can be valuable, even if they turn out not to be

completely accurate.

**S7CS8. Students will investigate the characteristics of scientific knowledge and how that knowledge is achieved.**

c. As prevailing theories are challenged by new information, scientific

knowledge may change.

**S7CS10. Students will enhance reading in all curriculum areas by:**

d. Establishing context

• Explore life experiences related to subject area content.

• Discuss in both writing and speaking how certain words are subject area

related.

• Determine strategies for finding content and contextual meaning for

unknown words.

**S7L1. Students will investigate the diversity of living organisms and how they can be compared scientifically.**

a. Demonstrate the process for the development of a dichotomous key.

b. Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

**Task: 1**

**Essential Question(s):**

How do genes contribute to an organism’s survival?

Why are genes important in determining hereditary traits?

How can a mutation be helpful?

Why do I look the way I do?

How can I predict what traits will be passed from one generation to another?

Why is selective breeding important to me?

How is genetic material passed from parents to their offspring?

How can our knowledge of genetics be useful?

**Resources:**

[How are traits passed from parent to offspring’s](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html) (only complete procedures 1& 2)

[**Heredity lesson overview**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Mendel and his peas p.114

8. Engage students in conversation by stating to student “you have probably noticed that different people have different traits, such as eye color, hair color, and ear lopes that do or do not match directly to their heads. Where do people get these different traits?” Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [How are traits passed from parent to offspring’s](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html) (only complete procedures 1& 2)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activities**

**Activity 1**

The teacher and students will view the [**Heredity lesson overview**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23) as a whole group activity. Students will then be placed in learning circles to complete the quiz at the end of the [**Heredity lesson overview**](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/brainpop_movies.html%23)**.**

**Activity 2**

Create a large table grid using graph paper to record the following traits of students in the class:

1. Widows peak
2. Ability to roll tongue
3. Attached ear lopes

Have pairs of students enter data for each other by adding tick marks on the table. Ask students if they can see any trends in the class data.

**Activity 3**

The teacher and students will complete the [How are traits passed from parent to offsprings virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html) as a whole group activity. Students will then work in cooperative learning groups to complete the journal activity at the end of the [How are traits passed from parent to offspring’s virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html).

**Task: 2**

**Essential Question(s):**

How do genes contribute to an organism’s survival?

Why are genes important in determining hereditary traits?

How can a mutation be helpful?

Why do I look the way I do?

How can I predict what traits will be passed from one generation to another?

Why is selective breeding important to me?

How is genetic material passed from parents to their offspring?

How can our knowledge of genetics be useful?

**Resources:**

[How are traits passed from parent to offsprings](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html) (only complete procedures 3-8)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Traits and inheritance p.120

8. Engage students in conversation by stating to student “if you flip a coin, what are the chances that it will land on heads or tails? Then state suppose you flip the coin once, get heads, and then flip it again. What are the chances that you will get heads again? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [How are traits passed from parent to offsprings](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html) (only complete procedures 3-8)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

1. Lead the students to make the inference that each flip of the coin in independent of the last.
2. Expand the concept to Punnett Squares. [Interactive Punnett Squares](http://www.athro.com/evo/gen/punexam.html)
   1. Use the Quick Lab activity on p. 121 as a guide.
3. Draw a square and divide it into 4 sections
4. Write the letters that represent alleles from one parent along the top of the box.
5. Write the letters that represent alleles from the other parent along the side of the box.

The teacher and students will complete [How are traits passed from parent to offsprings](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html)

(only complete procedures 3-8) as a whole group activity. Students will complete the journal activity at the end of [How are traits passed from parent to offsprings](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html) as a ticket out the door.

**Task: 3**

**Essential Question(s):**

How do genes contribute to an organism’s survival?

Why are genes important in determining hereditary traits?

How can a mutation be helpful?

Why do I look the way I do?

How can I predict what traits will be passed from one generation to another?

Why is selective breeding important to me?

How is genetic material passed from parents to their offspring?

How can our knowledge of genetics be useful?

**Resources:**

[Meiosis and fertilization](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::256::/sites/dl/free/0078617340/164155/405_Fig_2.swf::Meiosis%20and%20Fertilization)

[Heredity virtual lesson](http://glencoe.mcgraw-hill.com/sites/dl/free/0078617340/161752/00051105.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Meiosis p. 126

8. Engage students in conversation by asking students to write a sentence for each of the following terms: heredity, genotype, and phenotype. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Meiosis and fertilization](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::256::/sites/dl/free/0078617340/164155/405_Fig_2.swf::Meiosis%20and%20Fertilization)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will view the [Heredity virtual lesson](http://glencoe.mcgraw-hill.com/sites/dl/free/0078617340/161752/00051105.html) as a whole group activity. Students will then be placed in learning circles to complete the quiz at the end of the [Heredity virtual lesson](http://glencoe.mcgraw-hill.com/sites/dl/free/0078617340/161752/00051105.html).

Quick Lab Activity

Passing of Traits from Parents to Offspring

1. Divide the students into groups.
2. Distribute manipulatives to each group of students (beads, Styrofoam balls, small squares of construction paper).
3. Have the students model a cross between an organism with one pair of chromosomes and a member of the opposite sex of its species.
4. Have them illustrate with the manipulatives in this manner: F(1)F(2) X M(1)M(2).
5. Pose this question to each group: “If each parent contributes only one chromosome from his or her own pair to the offspring what are the possible combinations in the offspring?”

**Task: 4**

**Essential Question(s):**

How do genes contribute to an organism’s survival?

Why are genes important in determining hereditary traits?

How can a mutation be helpful?

Why do I look the way I do?

How can I predict what traits will be passed from one generation to another?

Why is selective breeding important to me?

How is genetic material passed from parents to their offspring?

How can our knowledge of genetics be useful?

**Resources:**

[DNA Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS04/LS04.html)

[DNA concept](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::550::400::/sites/dl/free/007874184x/365138/DNA.swf::DNA)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. What does DNA look like p. 144

8. Engage students in conversation by asking students to unscramble the following words and use them both in a sentence: tpsoneir (proteins) neesg (genes) Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [DNA concept](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::550::400::/sites/dl/free/007874184x/365138/DNA.swf::DNA)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [**DNA Virtual Lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS04/LS04.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [**DNA Virtual Lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS04/LS04.html)**.**

**Quick Lab**

Fingerprint Your Friends

1. Rub the tip of a pencil back and forth across a piece of tracing paper. Make a large, dark mark.
2. Rub the tip of one of your fingers on the pencil mark. Then place a small piece of transparent tape over the darkened area on your finger.
3. Remove the tape, and stick it on a piece of white paper. Repeat steps 1-3 for the rest of your fingers.
4. Look at the fingerprints with a magnifying lens. What patterns do you see? Is the pattern the same on every finger?

ANALYSIS:

1. Compare your fingerprints with those of your classmates. Do any two people in your class have the same prints? Try to explain your findings.

**Task: 5**

**Essential Question(s):**

How do genes contribute to an organism’s survival?

Why are genes important in determining hereditary traits?

How can a mutation be helpful?

Why do I look the way I do?

How can I predict what traits will be passed from one generation to another?

Why is selective breeding important to me?

How is genetic material passed from parents to their offspring?

How can our knowledge of genetics be useful?

**Resources:**

[DNA replication virtual lesson](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=avi::240::320::/sites/dl/free/007874184x/365138/DNA_Replication.AVI::DNA%20Replication)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

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4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. How does DNA work p.148

8. Engage students in conversation by asking students to write a sentence for each of the following terms: heredity, genotype, and phenotype. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [DNA replication virtual lesson](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=avi::240::320::/sites/dl/free/007874184x/365138/DNA_Replication.AVI::DNA%20Replication)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the following problem as a whole group activity

Suppose you have a segment of DNA that is six nitrogen base pairs in length. On paper, using the letters A, T, C, and G, write a combination of six pairs, remembering that A and T are always a pair and C and G are always a pair.

**Ticket out the door**

Students will complete the ticket out the door in peer to peer pairs.

Duplicate your segment of DNA. On paper, diagram how this happens and show the new DNA segments.

**Simple Organisms, Fungi, and Plants**

**Georgia Performance Standards**

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

b. Use the mean, median, and mode to analyze a set of scientific data.

**S7L1. Students will investigate the diversity of living organisms and how they can be compared scientifically.**

a. Demonstrate the process for the development of a dichotomous key.

b. Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

a. Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in a community/ecosystem.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

a. Write clear, step-by-step instructions for conducting particular scientific investigations, operating a piece of equipment, or following a procedure.

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

a. Investigations are conducted for different reasons, which include exploring new phenomena, confirming previous results, testing how well a theory predicts, and comparing competing theories.

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

b. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

b. Use appropriate tools for measuring objects and/or substances.

**S7L3. Students will recognize how biological traits are passed on to successive**

**generations.**

b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants & animals).

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

b. Relate cell structures (cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria) to basic cell functions.

d. Explain that tissues, organs, and organ systems serve the needs cells have for oxygen, food, and waste removal.

**Task: 1**

**Essential Question(s):**

How do prokaryotes reproduce?

What is the difference between bacteria and archaea?

**Resources:**

[**Germs virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS08/LS08.html)

[Bacteria virtual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044676.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Bacteria and Archaea p.246

b. Bacteria’s Role in the World p.252

8. Engage students in conversation by asking students what are the two domains of single-celled organisms without a nucleus? Also, ask students what are the three shapes of bacteria? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Bacteria virtual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044676.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activity

The teacher and students will complete the [**Germs virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS08/LS08.html)as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [**Germs virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS08/LS08.html)**.**

The teacher and students will view [Bacteria virtual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044676.html) as a whole group activity. Students will then be placed in two teams to complete the quiz at the end of the [Bacteria virtual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044676.html)

**Ticket out the door**

Students will work in peer to peer pairs to complete the ticket out the door.

Students will write a short story in which they discover a new type of disease-causing virus. Student should include specific details about the structure of the new virus and the way it reproduces.

**Task: 2**

**Essential Question(s):**

What are four ways in which protists get food?

How do protists reproduce?

**Resources:**

[Protists virual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044685.html)

[Structures of a Paramecium Concept](http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/unit2/chapter8/concept_animations.html%23)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Protists p.270

b. Kinds of Protists p.274

8. Engage students in conversation by asking students if they have heard of protists. If so, have students to make a list of examples of protists. If no, create a list for the students. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Protists virual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044685.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activity

The teacher and students will view the [Protists virual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044685.html) as a whole group activity. Students will then be placed in learning circles to complete the quiz at the end of the [Protists virual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044685.html).

**Ticket out the door**

Ask students to imagine that an organism needs to move itself without using arms, fins, wings, or legs. Ask students, how would the organism move? What environments could the organisms live in? Students should illustrate their answers whenever possible.

**Task: 3**

**Essential Question(s):**

What are the characteristics of Fungi?

How many groups of fungi are there?

How do lichens affect their environment?

**Resources:**

[Fungi virtual activity](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS09/LS09.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Fungi p.282

8. Engage students in conversation by asking students to answer the following questions: What are mushrooms? What is the function of a mushroom’s cap? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Fungi virtual activity](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS09/LS09.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity 1**

The teacher and students will complete the [Fungi virtual activity](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS09/LS09.html) as a whole group activy.

Students will then work in cooperative learning groups to complete the journal activity at the end of the [Fungi virtual activity](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS09/LS09.html)

**Activity 2**

**Quick Lab**

1. Students will dampen a slice of bread with a few drops of water, and then seal it in a plastic bag for 1 week.

2. Students will draw a picture of the bread in the plastic bag.

3. Students will predict what you think will happen during the week.

4. After the week has passed, students will check on the bread in the plastic bag. Compare it with their original drawing and answer the following questions;

a. What happened to the bread?

b. Where does mold spores come from and how do they grow?

**Task: 4**

**Essential Question(s):**

What four characteristics are common to all plants?

What are the four main groups of plants?

What are the origins of plants?

**Resources:**

[Plant life cycle virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS10/LS10.html) **procedures 1-5 only**

[Plant matching game](http://novella.mhhe.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078786770/167367/430.dcr::Drag%20And%20Drop%20Puzzle)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Engage students in conversation by stating to students that there are four types of plants. Ask the students to try to identify those types and to give at least two examples for each one. Write answers on the blackboard.

8. Introduce the following:

a. What is a Plant p. 300

b. Seedless Plants p. 304

c. Seed Plants p. 308

d. Structures of Seed Plants p.314

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [**Plant life cycle virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS10/LS10.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete [**Plant life cycle virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS10/LS10.html) as a whole group activity. Students will work in cooperative learning groups to complete the journal activity at the end of the [**Plant life cycle virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS10/LS10.html) .

**Animals**

**Georgia Performance Standards:**

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

b. Understand that hypotheses can be valuable, even if they turn out not to be completely accurate.

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

c. Apply the metric system to a scientific investigation that includes metric to metric conversion. (i.e. centimeters to meters)

**S7L1. Students will investigate the diversity of living organisms and how they can be compared scientifically.**

a. Demonstrate the process for the development of a dichotomous key.

b. Classify organisms based on physical characteristics using a dichotomous key of the six kingdom system (archaebacteria, eubacteria, protists, fungi, plants, and animals).

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

b. Relate cell structures (cell membrane, nucleus, cytoplasm, chloroplasts, mitochondria) to basic cell functions.

c. Explain that cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.

d. Explain that tissues, organs, and organ systems serve the needs cells have for oxygen, food, and waste removal.

**S7L3. Students will recognize how biological traits are passed on to successive**

**generations.**

b. Compare and contrast that organisms reproduce asexually and sexually (bacteria, protists, fungi, plants & animals).

c. Recognize that selective breeding can produce plants or animals with desired traits.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

a. Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in a community/ecosystem.

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

a. Write clear, step-by-step instructions for conducting particular scientific investigations, operating a piece of equipment, or following a procedure.

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

a. Investigations are conducted for different reasons, which include exploring new phenomena, confirming previous results, testing how well a theory predicts, and comparing competing theories.

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

c. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.

d. Categorize relationships between organisms that are competitive or mutually beneficial.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

**S7L5. Students will examine the evolution of living organisms through inherited characteristics that promote survival of organisms and the survival of successive generations of their offspring.**

a. Explain that physical characteristics of organisms have changed over successive generations (e.g. Darwin’s finches and peppered moths of Manchester).

**Task: 1**

**Essential Question(s):**

How do sponges get food?

What are the three kinds of flat worms?

**Resources:**

[Vertebrates virtual lesson](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00038302.html)

[Animal Behavior Matching Game Lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167376/index.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. What Is an Animal p. 356

b. Animal Behavior p.360

8. Engage students in conversation by asking students the following question: What is the best material for washing a car- a cotton rag, a scratch pad, or an animal skeleton? Next ask students to write a sentence that uses each of the following terms: predator and prey. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Vertebrates virtual lesson](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00038302.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activity

The teacher and students will view the [Vertebrates virtual lesson](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00038302.html) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of the [Vertebrates virtual lesson](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00038302.html).

**Ticket out the door**

Students will work in learning circles of four using their text book to explore the diversity of animals. Each group should write down two examples for each of the following:

1. Arctic Animals
2. Antarctic Animals
3. Animals that crawl
4. Animals that fly
5. Animals that backbones

Have each group share its answers while other groups cross out matches on their own page.

**Task: 2**

**Essential Question(s):**

How do mollusks eat, control body functions, and circulate blood?

What are the three types of annelid worms?

**Resources:**

[How are mollusks, worms, arthropods, and echinoderms classified virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS14/LS14.html)

[Invertebrates virtual lesson](http://novella.mhhe.com/sites/dl/free/0078786770/167348/00038301.html)

[Can you identify them virtual game](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167373/414.dcr::Drag%20And%20Drop%20Puzzle)

[How animals obtain food virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS13/LS13.html)

Teacher’s Place:

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

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3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Simple Invertebratesp. 380

b. Mollusks and Annelid Worms p.388

c. Arthropods p.392

d. Echinoderms p.398

8. Engage students in conversation by asking students to answer the following questions:

a. What is an invertebrate? What is your favorite invertebrate? What special features help your favorite invertebrate survive? Write answers on the blackboard.

b. Have students unscramble the following words and write a sentence that uses all of the words: gluss (slugs); isalns (snails); sdusqi ( squid); klomssul (mollusks)

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Invertebrates virtual lesson](http://novella.mhhe.com/sites/dl/free/0078786770/167348/00038301.html)**;** [Can you identify them virtual game](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167373/414.dcr::Drag%20And%20Drop%20Puzzle)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activity

The teacher and students will complete the [How are mollusks, worms, arthropods, and echinoderms classified virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS14/LS14.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How are mollusks, worms, arthropods, and echinoderms classified virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS14/LS14.html).

The teacher and students will complete the [How animals obtain food virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS13/LS13.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How animals obtain food virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS13/LS13.html)

The teacher and students will view the [Invertebrates virtual lesson](http://novella.mhhe.com/sites/dl/free/0078786770/167348/00038301.html) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Invertebrates virtual lesson](http://novella.mhhe.com/sites/dl/free/0078786770/167348/00038301.html).

**Task: 3**

**Essential Question(s):**

What are the four common body parts of chordates?

What are the two main characteristics of vertebrates?

What is the difference between an ectotherm and an endotherm?

What are the four characteristics that all fish share?

**Resources:**

[How are fish adapted to their environment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS15/LS15.html)

[Virtual lesson review on fish,amphibians, and reptiles](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167374/415.dcr::Drag%20And%20Drop%20Puzzle)

[All about the animal kingdom](http://animaldiversity.ummz.umich.edu/site/index.html)

**Teacher’s Place:**

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5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Fish the First Vertebrates p.412

b. Amphibians p.420

c. Reptiles p.426

8. Engage students in conversation by asking students the following:

a. what are some of the physical characteristics shared by dinosaurs and people? Write answers on the blackboard. (discuss when introducing fish the first vertebrates)

b. name an advantage to the thin, moist skin of amphibians? Write answers on the blackboard.( discuss when introducing amphibians)

c. Have students list three adjectives they associate with reptiles. Write answers on the blackboard. (discuss when introducing reptiles).

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Virtual lesson review on fish,amphibians, and reptiles](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167374/415.dcr::Drag%20And%20Drop%20Puzzle)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activities

The teacher and students will complete the [How are fish adapted to their environment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS15/LS15.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How are fish adapted to their environment virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS15/LS15.html)

The teacher and students will view the [Virtual lesson review on fish,amphibians, and reptiles](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167374/415.dcr::Drag%20And%20Drop%20Puzzle) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Virtual lesson review on fish,amphibians, and reptiles](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167374/415.dcr::Drag%20And%20Drop%20Puzzle).

**Additional Activities**

**Activity 1**

Students will work in groups of two and create a concept map using the following terms:

Vertebrate, chordate, notochord, tail, hollow nerve, and pharyngeal pouches.

**Activity 2**

Have students compose a song or poem that accurately describes the life cycle of an amphibian of their choice. Students may want to write lyrics about the stages of metamorphosis to the melody of a familiar song.

**Activity 3**

Have students investigate and write a report on the differences between the diet of an alligator and the diet of a similarly sized carnivorous mammal (a lion or tiger). Which of these animals eats more food and why?

**Task: 4**

**Essential Question(s):**

How does a bird’s diet, breathing, muscles, and skeleton help it fly?

How do birds raise their young?

What are the seven common characteristics of mammals?

**Resources:**

[How are birds adapted to their habitat virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS16/LS16.html)

[Can you identify the birds](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167375/416.dcr::Drag%20And%20Drop%20Puzzle)

[The Origin of Mammals Concept](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::355::356::/sites/dl/free/007877800x/164155/416_Fig_10.swf::The%20Origin%20of%20Mammals)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

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3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Characteristics of Birds p.442

b. Kinds of Birds p.448

c. Characteristics of Mammals p.452

8. Engage students in conversation by asking students the following: What are some ways that birds are beneficial to people? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Can you identify the birds](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167375/416.dcr::Drag%20And%20Drop%20Puzzle)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activity

The teacher and students will complete the [How are birds adapted to their habitat virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS16/LS16.html)as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How are birds adapted to their habitat virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS16/LS16.html)

**Ecology**

**Georgia Performance Standards**

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

c. Apply the metric system to a scientific investigation that includes metric to metric conversion. (i.e. centimeters to meters)

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

a. Observe and explain how parts can be related to other parts in a system such as predator/prey relationships in a community/ecosystem.

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

c. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.

d. Categorize relationships between organisms that are competitive or mutually beneficial.

e. Describe the characteristics of Earth’s major terrestrial biomes (i.e. tropical rain forest, savannah, temperate, desert, taiga, tundra, and mountain) and aquatic communities (i.e. freshwater, estuaries, and marine).

**S7L5. Students will examine the evolution of living organisms through inherited characteristics that promote survival of organisms and the survival of successive generations of their offspring.**

a. Explain that physical characteristics of organisms have changed over successive generations (e.g. Darwin’s finches and peppered moths of Manchester).

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and**

**skepticism in science and will exhibit these traits in their own efforts to**

**understand how the world works.**

a. Understand the importance of—and keep—honest, clear, and accurate records in science.

b. Understand that hypotheses can be valuable, even if they turn out not to be completely accurate.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

**Task: 1**

**Essential Question(s):**

What are three zones of a lake?

How does a lake become a forest?

**Resources:**

[What are the different types of land environments virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS19/LS19.html)

[Interactive tutor](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167386/index.html)

[The Ecosystems](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00076707.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Everything is connected p.480

8. Engage students in conversation by asking students to make a list of everything they can think of that are found in a pond ecosystem. When they have completed their list, have them indicate which of the things are living and which are nonliving. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [The Ecosystems](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00076707.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activity

The teacher and students will complete the [**What are the different types of land environments virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS19/LS19.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [**What are the different types of land environments virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS19/LS19.html)

**Ticket out the door**

**Students will work in learning circles to complete the ticket out the door**

Modeling an Ecosystem

1. Provide students with the following information:

Chipmunks, tree squirrels, and flying squirrels are related animals that eat seeds. However, each of these has its own *niche,* or way of life, that serves to limit the amount of competition between these species.

1. Have the students describe, to the best of their knowledge, the niche for each of these seed eaters.
2. Have students share their work with the class.

**Task: 2**

**Essential Question(s):**

How is life like a web?

Why is it necessary for everything in an ecosystem work together?

How do you fit into the larger world?

How does a change in climate affect the living things in an environment?

**Resources:**

[**How is energy transferred through a community of organisms virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT06/CT06.html)

[Ecology interactive tutor concentration game](%20http:/highered.mcgraw-hill.com/sites/0078617022/student_view0/unit5/chapter26/interactive_tutor.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

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2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Living things need energy p.484

b. Types of Interactions p. 490

8. Engage students in conversation by asking students the following question, How does the term prey relate to the term predator. Also, have students to identify predators that are

also prey. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10.Guide students into the activity utilizing

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [**How is energy transferred through a community of organisms virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT06/CT06.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [**How is energy transferred through a community of organisms virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT06/CT06.html)

**Ticket out the door**

Students will work in cooperative learning groups to complete the ticket out the door.

Predators and Prey

1. Organize students into groups of 4 or 6.
2. Within each group, have students pick a partner within the group.
3. Designate one of the students in each group of 2 as predator and one as prey.
4. Have the ‘predators’ name a prey animal and its ‘prey’ adaptation.
5. Have the ‘prey’ animal name a ‘predator’ animal and its adaptation.

**Task: 3**

**Georgia Performance Standards**

**Essential Question(s):**

How are earth’s biomes differentiated by ecologists?

**Resources:**

[How do organisms react to changes in abiotic factors virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT08/CT08.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Engage students in conversation by asking students the following questions: What do you think of when you think about polar bears? Write answers on the blackboard.

8. Introduce the following:

a. Land Biomes p.526

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [How do organisms react to changes in abiotic factors virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT08/CT08.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How do organisms react to changes in abiotic factors virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT08/CT08.html)

**Task: 4**

**Essential Question(s):**

Why has human population growth increased?

How does pollution affect humans?

What are nonrenewable and renewable resources?

**Resources:**

[When is water safe to drink virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT04/CT04.html)

[Controlling a Nuclear Reaction Concept](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::463::356::/sites/dl/free/007877800x/164155/437_Fig_6.swf::Controlling%20a%20Nuclear%20Reaction)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Environmental Problems p.554

8. Engage students in conversation by asking students the following question, What is the difference between renewable and nonrenewable resources? Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Controlling a Nuclear Reaction Concept](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::463::356::/sites/dl/free/007877800x/164155/437_Fig_6.swf::Controlling%20a%20Nuclear%20Reaction)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [**When is water safe to drink virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT04/CT04.html)

as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [**When is water safe to drink virtual lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/CT04/CT04.html)

**Ticket out the door**

Have student work in groups of four to come up with a list of environmental problems. Have groups pick from that list the four problems they think are most important, and have the groups explain why they think these problems are important.

**Human Body Systems**

**Georgia Performance Standards**

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

c. Explain that cells are organized into tissues, tissues into organs, organs into systems, and systems into organisms.

d. Explain that tissues, organs, and organ systems serve the needs cells have for oxygen, food, and waste removal.

e. Explain the purpose of the major organ systems in the human body (i.e., digestion, respiration, reproduction, circulation, excretion, movement, control, and coordination, and for protection from disease).

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

**S7CS6. Students will communicate scientific ideas and activities clearly.**

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

b. Scientific investigations usually involve collecting evidence, reasoning, devising hypotheses, and formulating explanations to make sense of collected evidence.

c. Scientific experiments investigate the effect of one variable on another. All other variables are kept constant.

g. The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

b. Understand that hypotheses can be valuable, even if they turn out not to be completely accurate.

**Task: 1**

**Georgia Performance Standards**

**Essential Question(s):**

How are organs and organ systems related?

How do organ systems work together to maintain homeostasis?

What are the functions of bones?

What are the major organs of the skeletal system?

**Resources:**

[The Skeletal System Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html)

[Bone Structure virtual Lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/161752/00053415.html)

[How joints work](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/161752/00053414.html)

[The concentration game](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167379/index.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Engage students in conversation by asking students to brainstorm problems they would have if they lacked bones. Write answers on the blackboard.

8. Introduce the following:

a. The skeletal System p. 584

b. The Muscular System p.588

c. The Integumentary System p. 592

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [**The Skeletal System Virtual Lesson**](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activity**

The teacher and students will complete the [The Skeletal System Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [The Skeletal System Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html)

The teacher and students will view the [Bone Structure virtual Lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/161752/00053415.html) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Bone Structure virtual Lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/161752/00053415.html)

**Task: 2**

**Essential Question(s):**

How are organs and organ systems related?

How do organ systems work together to maintain homeostasis?

What are the functions of bones?

What are the major organs of the skeletal system?

**Resources:**

[Pulmonary Circulation](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::488::356::/sites/dl/free/0078617022/164155/423_Fig_3.swf::Pulmonary%20Circulation)

[Click here to show respiratory video](http://glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00053416.html)

[Click here for virtual simulation of the digestive system](%20http:/glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00050758.html)

[Why exercise is cool](http://kidshealth.org/kid/stay_healthy/fit/work_it_out.html)

[Interactive Crossword Puzzle on the Systems of the Body](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167382/index.html)

[Regulation and Reproduction A Negative Feedback Video](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::560::277::/sites/dl/free/0078617022/164155/439_Fig_3.swf::A%20Negative%20Feedback%20System)

[What are the major bones in the human body virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html)

[What factors affect the likelihood of hypertension virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS23/LS23.html)

[How do the parts of the respiratory system work together virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS24/LS24.html)

[How does human hearing compare with that of other animals virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS25/LS25.html)

[What are the stages of development before birth virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS26/LS26.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Engage students in conversation by asking students the following question, When you think of the word heart, what do you think of first? Write answers on the blackboard.

8. Introduce the following:

a. The Cardiovascular System p. 606

b. Blood p.612

c. The Lymphatic System p. 616

d. The Respiratory System p. 620

e. The Digestive System p. 634

f. The Urinary Systems p. 642

g. The Nervous System p. 656

h. The Endocrine System p. 670

I. Reproduction and Development p.688

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing webpage’s listed under resources.

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

**Activities**

**Activity1**

The teacher and students will complete the [What are the major bones in the human body virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [What are the major bones in the human body virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html)

**Activity 2**

The teacher and students will view the [Click here to show respiratory video](http://glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00053416.html) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Click here to show respiratory video](http://glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00053416.html)

**Activity 3**

The teacher and students will complete the [What factors affect the likelihood of hypertension virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS23/LS23.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [What factors affect the likelihood of hypertension virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS23/LS23.html)

**Activity 4**

The teacher and students will view the [Click here for virtual simulation of the digestive system](%20http:/glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00050758.html) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Click here for virtual simulation of the digestive system](%20http:/glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00050758.html)

**Activity 5**

The teacher and students will complete the [How do the parts of the respiratory system work together virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS24/LS24.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How do the parts of the respiratory system work together virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS24/LS24.html)

**Activity 6**

The teacher and students will complete the [How does human hearing compare with that of other animals virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS25/LS25.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How does human hearing compare with that of other animals virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS25/LS25.html)

**Activity 7**

The teacher and students will complete the [What are the stages of development before birth virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS26/LS26.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [What are the stages of development before birth virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS26/LS26.html)

**Activity 8**

List all of the systems you can think of that help an organism with respiration. Then, explain the

reason you chose each system .

|  |  |
| --- | --- |
| Respiratory System | |
| Systems that help an organism with respiration | The Role this System Plays in Respiration |
| Example :Cardio Vascular System | Circulates Blood |
|  |  |
|  |  |
|  |  |
|  |  |

**Activity 9**

Using five sheets of legal sized paper, students will create a “Systems’ Functions Book” that organizes information about human body systems and their functions. Stack sheets one on top of another with approximately one inch between each sheet. Then fold the stack of paper from the bottom to create 10 flaps of paper. The top flap will be the title page and the next flap will be the author page. The remaining 8 flaps will be used for the following human body systems: circulatory, respiratory, nervous, skeletal, muscular, digestive, excretory, and endocrine. On each flap include the following information about each system: system function, major organs, how other systems that each particular system interacts with, and how the system/interaction addresses cellular needs. If desired, students may include an illustration

Here is an example of what the book will look like from the outside:

|  |
| --- |
| Circulatory |
| Respiratory |
| Nervous |
| Skeletal |
| Muscular |
| Digestive |
| Excretory |
| Endocrine |

**Activity 10**

Create a pamphlet for a doctor’s office or exercise facility explaining how exercise affects body systems in a positive manner. Information in the pamphlet can be supported with research and data from their inquiry task.

**Activity 11**

Too Cold for Comfort

Our nervous system sends you messages about your body. For example, if someone steps on your toe, your nervous system sends you a message. The pain you feel is a message that tells you to move your toe to safety. Try this exercise to watch your nervous system in action.

1. Hold a few pieces of ice in one hand. Allow the melting water to drip into a paper cup. Hold the ice until the cold is uncomfortable. Then release the ice into the cup.
2. Compare the hand that held the ice with your other hand. Describe the changes you see.

Analysis

1. What message did you receive from your nervous system while you held the ice?
2. How quickly did the cold hand return to normal?
3. What organ system do you think helped restore your hand to normal?

**Human Health**

Georgia Performance Standards

**S7CS3. Students will have the computation and estimation skills necessary for analyzing data and following scientific explanations.**

a. Analyze scientific data by using, interpreting, and comparing numbers in several equivalent forms, such as integers, fractions, decimals, and percents.

d. Draw conclusions based on analyzed data.

**S7CS4. Students will use tools and instruments for observing, measuring, and manipulating equipment and materials in scientific activities.**

a. Use appropriate technology to store and retrieve scientific information in topical, alphabetical, numerical, and keyword files, and create simple files.

**S7CS9. Students will investigate the features of the process of scientific inquiry.**

Students will apply the following to inquiry learning practices:

a. Investigations are conducted for different reasons, which include exploring new phenomena, confirming previous results, testing how well a theory predicts, and comparing competing theories.

g. The ethics of science require that special care must be taken and used for human subjects and animals in scientific research. Scientists must adhere to the appropriate rules and guidelines when conducting research.

**S7L4. Students will examine the dependence of organisms on one another and their environments.**

a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.

b. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.

c. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.

d. Categorize relationships between organisms that are competitive or mutually beneficial.

e. Describe the characteristics of Earth’s major terrestrial biomes (i.e. tropical rain forest, savannah, temperate, desert, taiga, tundra, and mountain) and aquatic communities (i.e. freshwater, estuaries, and marine).

**S7CS6. Students will communicate scientific ideas and activities clearly.**

b. Write for scientific purposes incorporating data from circle, bar and line graphs, two-way data tables, diagrams, and symbols.

c. Organize scientific information using appropriate simple tables, charts, and graphs, and identify relationships they reveal.

**S7CS1. Students will explore of the importance of curiosity, honesty, openness, and skepticism in science and will exhibit these traits in their own efforts to understand how the world works.**

b. Understand that hypotheses can be valuable, even if they turn out not to be completely accurate.

**S7CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.**

b. Understand that different models (such as physical replicas, pictures, and analogies) can be used to represent the same thing.

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

a. Explain that cells take in nutrients in order to grow and divide and to make needed materials.

e. Explain the purpose of the major organ systems in the human body (i.e., digestion, respiration, reproduction, circulation, excretion, movement, control, and coordination, and for protection from disease).

**Task: 1**

**Essential Question(s):**

How does the body naturally keep out pathogens?

How does the immune system work?

**Resources:**

[How does the body protect itself against foreign substances virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS27/LS27.html)

[Your Immune System](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::356::/sites/dl/free/0078617022/164155/427_Fig_4.swf::Your%20Immune%20System)

[The immune system over view](http://glencoe.mcgraw-hill.com/sites/dl/free/0078617022/161752/00051106.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

3. Read the Georgia Performance Standard(s) aloud and explain it to your students. You can rephrase the Georgia Performance Standard to make sure your students understand it.

4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Engage students in conversation by asking students to state as many diseases as they can. Write answers on the blackboard.

8. Introduce the following:

a. Disease p.710

b. Your Body’s Defenses p. 714

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Your Immune System](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::356::/sites/dl/free/0078617022/164155/427_Fig_4.swf::Your%20Immune%20System)

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

**\*The phrase, “whole group learning session” is utilized “rather than, the end of the activity” because all of the activities may not be completed in one day.**

Activities

Activity 1

The teacher and students will complete the [How does the body protect itself against foreign substances virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS27/LS27.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How does the body protect itself against foreign substances virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS27/LS27.html)

Activity 2

The teacher and students will view the [Your Immune System](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::356::/sites/dl/free/0078617022/164155/427_Fig_4.swf::Your%20Immune%20System) as a whole group activity. Students will then be divided into two teams to complete the quiz at the end of [Your Immune System](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::356::/sites/dl/free/0078617022/164155/427_Fig_4.swf::Your%20Immune%20System)

Activity 3

The teacher and students will complete the following lab:

1. The teacher will cut an apple in half

2. Place plastic wrap over each half. The plastic wrap will act as skin.

3. Use scissors to cut the plastic wrap on one of the apple halves, and then use an eyedropper to dip food coloring on each apple half. The food coloring represents pathogens coming into contact with your body.

4. The teacher and students will discuss the following as a whole group.

a. What happen to each apple half?

b. How is the plastic wrap similar to skin?

c. How is the plastic wrap different from skin?

Activity 4

Students will think back to a time when they were ill. Students will then list the ways in which their body reacted to the illness. Students will then share their list with a partner. The two students will skim the Your Body’s Defense lesson on page 714-715 in their text book. Lastly, students will try to link their body’s reactions with the reaction of the immune system to pathogenic invasion

**Task: 2**

**Essential Question(s):**

What are the six groups of nutrients?

What are the dangers of nutritional disorders?

**Resources:**

[How can you design a healthful diet virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS22/LS22.html)

**Teacher’s Place:**

Prior to beginning the performance activity, the teacher should implement the following steps using teaching techniques you have found to be effective for your students.

1. Explain the activity (activity requirements)

2. Display the Georgia Performance Standard(s) (project on blackboard via units of instruction located at <http://thevillage411.weebly.com/units-of-instruction2.html> units of instruction page, or print on blackboard)

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4. Display the Essential Question(s) (project on blackboard via units of instruction, or print on blackboard)

5. Read the Essential Question (s) aloud and explain it to your students. You can rephrase the Essential Question (s) to make sure your students understand it.

6. Review unit vocabulary with students.

7. Introduce the following:

a. Good Nutrition

b. Risk of Alcohol and Other Drugs

c. Healthy Habits

8. Engage students in conversation by asking students what they know about the following words: nutrients, calorie, carbohydrates, proteins, unsaturated fats, and minerals. Write answers on the blackboard.

9. Discuss answers with the students using the following questioning techniques as applicable:

**Questioning Techniques:**

**Memory Questions**

Signal words: who, what, when, where?

Cognitive operations: naming, defining, identifying, designating

**Convergent Thinking Questions**

Signal words: who, what, when, where?

Cognitive operations: explaining, stating relationships, comparing and

contrasting

**Divergent Thinking Questions**

Signal words: imagine, suppose, predict, if/then

Cognitive operations: predicting, hypothesizing, inferring, reconstructing

**Evaluative Thinking Questions**

Signal words: defend, judge, justify (what do you think)?

10. Guide students into the activity utilizing [Healthy Diet Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS22/LS22.html).

11. Complete the activity with the students (some tasks may require students to work independently, peer to peer, learning circles [2-3 students] or as a whole group [the entire class]. Therefore the teacher may serve as activity leader and or facilitator. When an activity calls for students to work in learning circles you should assign roles to students individually i.e. recorder, discussion leader or presenter)

12. At the end of the **\*whole group learning session**, students will transition into independent CAP assignments.

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Activities

Activity 1

The teacher and students will complete the [How can you design a healthful diet virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS22/LS22.html) as a whole group activity. Students will then be placed in learning circles to complete the journal activities at the end of the [How can you design a healthful diet virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS22/LS22.html)

Activity 2

The teacher will post the following list on the board

|  |  |
| --- | --- |
| Column A | Column B |
| nutrients | unit of energy |
| calorie | found in vegetable oils |
| carbohydrates | necessary for life processes |
| proteins | include calcium |
| unsaturated fats | build the body |
| minerals | main source of energy |

Students will match terms in column A to descriptions in column B

Activity 3

Students will create a table with the following headings across the top: Body fuel , Body builders, and Energy storage. On the side of the table have them list the following information categories: Type of nutrient and Food sources. Have students to complete the table.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Body fuel | Body builders | Energy storage |
| Type of Nutrient | carbohydrates | protein | fats |
| Food sources | rice  fruits | eggs | meat  dairy products |

**Task Websites**

<http://thevillage411.weebly.com/units-of-instruction2.html>

Unit 1

[The mystery of Life Virtual Lesson](http://www.brainpop.com/science/earthsystem/earth/)

[Solving a Scientific Problem](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::380::410::/sites/dl/free/0078617022/164155/428_02.swf::Solving%20a%20Scientific%20Problem)

[Scientific Method](http://www.brainpop.com/science/scientificinquiry/scientificmethod/)

[The Imagination](http://www.brainpop.com/english/writing/imagination/)

[Classifying living things](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E07/E07.html)

Unit 2

[How Animal and Plant Cells Work Virtual Lab](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E08/E08.html)

[Click here to enter cell world](%20http:/go.hrw.com/resources/go_sc/hst/ia/hstl03.htm)

[All about cells focus on the two kinds of cells](http://www.brainpop.com/science/cellularlifeandgenetics/cells/)

[Overview of the cell](%20http:/www.nsf.gov/news/overviews/biology/int_full.jsp)

Unit 3

[How are traits passed from parent to offsprings](http://www.glencoe.com/sites/common_assets/science/virtual_labs/E09/E09.html)

[Meiosis and fertilization](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::256::/sites/dl/free/0078617340/164155/405_Fig_2.swf::Meiosis%20and%20Fertilization)

[Heredity virtual lesson](http://glencoe.mcgraw-hill.com/sites/dl/free/0078617340/161752/00051105.html)

[DNA virtual lesson](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::550::400::/sites/dl/free/007874184x/365138/DNA.swf::DNA)

[DNA replication virtual lesson](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=avi::240::320::/sites/dl/free/007874184x/365138/DNA_Replication.AVI::DNA%20Replication)

Unit 4

[Bacteria virtual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044676.html)

[Protists virual lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/164155/00044685.html)

[Fungi virtual activity](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS09/LS09.html)

[Plant life cycle virtual lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS10/LS10.html)

[Plant matching game](http://novella.mhhe.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078786770/167367/430.dcr::Drag%20And%20Drop%20Puzzle)

[Plant Growth](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/164213/00076704.html)

Unit 5

[Vertebrates virtual lesson](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00038302.html)

[Animal Behavior Matching Game Lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167376/index.html)

[Invertebrates virtual lesson](http://novella.mhhe.com/sites/dl/free/0078786770/167348/00038301.html)

[Can you identify them virtual game](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167373/414.dcr::Drag%20And%20Drop%20Puzzle)

[Mollusks virtual lesson](http://www.brainpop.com/science/diversityoflife/mollusks/)

[Virtual lesson review on fish,amphibians, and reptiles](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167374/415.dcr::Drag%20And%20Drop%20Puzzle)

[All about the animal kingdom](http://animaldiversity.ummz.umich.edu/site/index.html)

[All about birds virtual lesson](%20http:/www.brainpop.com/science/diversityoflife/birds/)

[Can you identify the birds](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078617022/167375/416.dcr::Drag%20And%20Drop%20Puzzle)

[The Origin of Mammals Virtual lesson](%20http:/highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::355::356::/sites/dl/free/0078617022/164155/416_Fig_10.swf::The%20Origin%20of%20Mammals)

Unit6

[Interactive tutor](%20http:/highered.mcgraw-hill.com/sites/dl/free/0078617022/167386/index.html)

[The Ecosystems](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167348/00076707.html)

[Ecology interactive tutor concentration game](%20http:/highered.mcgraw-hill.com/sites/0078617022/student_view0/unit5/chapter26/interactive_tutor.html)

[Land Biomes virtual lesson](%20http:/www.brainpop.com/science/earthsystem/landbiomes/)

[All about land biomes](http://www.enchantedlearning.com/biomes/)

[Humans and the environment](http://www.brainpop.com/science/ourfragileenvironment/humansandtheenvironment/)

Unit 7

[The Human body virtual lesson](%20http:/www.brainpop.com/science/diversityoflife/humanbody/)

[Skin Structures Virtual Lesson](http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::356::/sites/dl/free/007877800x/164155/421_Fig_12.swf::Skin%20Structures)

[The Skeletal System Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS21/LS21.html)

[Bone Structure virtual Lesson](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/161752/00053415.html)

[How joints work](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/161752/00053414.html)

[The concentration game](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167379/index.html)

[Pulmonary Circulation](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::488::356::/sites/dl/free/0078617022/164155/423_Fig_3.swf::Pulmonary%20Circulation)

[Click here to show respiratory video](http://glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00053416.html)

[Click here for virtual simulation of the digestive system](%20http:/glencoe.mcgraw-hill.com/sites/dl/free/007877800x/161752/00050758.html)

[Why exercise is cool](http://kidshealth.org/kid/stay_healthy/fit/work_it_out.html)

[Interactive Crossword Puzzle on the Systems of the Body](http://highered.mcgraw-hill.com/sites/dl/free/0078617022/167382/index.html)

[Regulation and Reproduction A Negative Feedback Video](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::560::277::/sites/dl/free/0078617022/164155/439_Fig_3.swf::A%20Negative%20Feedback%20System)

[A Sexual Reproduction](http://www.brainpop.com/science/cellularlifeandgenetics/asexualreproduction/)

[The Endocrine System](http://www.brainpop.com/health/bodysystems/endocrinesystem/)

[The nervous system at work](http://www.brainpop.com/health/bodysystems/nervoussystem/)

Unit 8

[The Immune System](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS27/LS27.html)

[Your Immune System](http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::573::356::/sites/dl/free/0078617022/164155/427_Fig_4.swf::Your%20Immune%20System)

[Healthy Diet Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS22/LS22.html)

[Personal Health and Fitness](%20http:/www.brainpop.com/health/personalhealth/fitness/)

[Nutrition Virtual Lesson](http://www.brainpop.com/health/nutrition/nutrition/)

[Drug Abuse Virtual Lesson](http://www.brainpop.com/health/personalhealth/drugabuse/)

[Alcohol Virtual Lesson](http://www.brainpop.com/health/nutrition/alcohol/)

[Healthy Diet Virtual Lesson](http://www.glencoe.com/sites/common_assets/science/virtual_labs/LS22/LS22.html)