**Honors Biology Teach the Class “Mini Lesson Project”**

**Lesson Plan Outline:**

Student(s) Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Topic: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**FOCUS:** [Identify what you envision your students exploring or finding out] \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**OBJECTIVES:** The student will be able to: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Make sure you identify a learning goal, what you want your students to learn or accomplish, your lesson should include your learning goal and you should identify this to your students when teaching]

**VOCABULARY:** [What are the words that you will need to define for your students?]

**MATERIALS:** [In a numbered list, identify all materials and resources you used in preparing and delivering the mini lesson. For example, if you are using internet resources for information, provide the websites that you visited. If you made a PowerPoint, video, poster, or want to use the Elmo for display, include that as well.]

**ACTIVITIES AND PROCEDURES:** [Provide a topic outline of your mini lesson using the following main headings: Introduction (Bell work), Activities (how will you teach), and Closure (how will you close the lesson). Your lesson must include the use of computer technology BUT you may not play a video for the entire lesson. You should indicate important vocabulary, examples in real life, interesting facts, and questions to ask your students. Please plan 10 – 15 minutes for your presentation. Please indicate if you will be using handouts.]

* Introduction: (How will you introduce your topic? How will you get your students interested in your topic?)
* Activities: (How are you teaching your topic? PowerPoint, Nearpod, Skit, lab, activities, worksheets, what examples do you need to provide your students? Are you completing a demonstration, if so what? Are you playing a song or video? Is it appropriate?)
* Closing: (How will you wrap everything up? Will you do a review of concepts, provide a real life example? Kahoot?)

**EVALUATION AND ASSESSMENT:** [How will your students demonstrate their learning? How will you know the mini lesson has been successful? Will you give them a test, have students demonstrate the concept, perform a lab, etc.]. If testing please list your questions…

**Lesson Plan:**

1. Completed Plan:
	1. *Topic and objectives: (Put in lesson plan) (10 pts)*
	2. *Five (5) References: (Put in lesson plan) (10 pts)*
	3. *Vocabulary and Materials: (Put in lesson plan) (10pts)*
	4. *Activities and Procedures: (Put in plan) (10 pts)*
	5. *Assessment (Questions given to class): (10 pts)*
2. Class Project Presentations. ***(50 pts)***
3. Your lesson plan is 50 Project Points. Class Presentation is worth 50 Project Points.

**Lesson Plan Rubric:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Focus Areas****Range of Point** | **Excellent****4-5** | **Good****3-4** | **Poor****1-2** | **Total****Score** |
| **Quality of Presentation** | Highly interesting and engaged the entire class, use of technology. | Interesting and engaged most of the class | Not entirely interesting and some of the class engaged | \_\_\_\_\_x2\_\_\_\_/10 |
| **Student Involvement** | All students equally involved | One student dominated, others marginally involved | Students were not actively involved | \_\_\_\_/5 |
| **Preparedness and Organization** | Teacher’s presentation was smooth and professional, indicating extensive preparation, important vocabulary are identified. | Teacher’s presentation was fairly smooth, indicating practice, not all vocabulary addressed. | Teacher’s presentation was not entirely organized, indicating limited preparation | \_\_\_\_x2\_\_\_\_\_/10 |
| **Quality of experiences provided to students** | Experiences provided were meaningful, student-centered and engaging. Teacher treated students respectfully throughout lesson.  | Experiences were somewhat meaningful, student-centered and engaging | Experiences lacked meaning,  | \_\_\_\_x2\_\_\_\_10 |
| **Teacher Understanding of Content** | Teacher exhibited an extensive understanding of topic by making connections between the topic being taught and other real life situations or by building on student contributions | Teacher exhibited good understanding of topic being covered by discussion of the topic | Teacher exhibited adequate understanding of topic being covered. | \_\_\_\_x2\_\_\_\_\_/10 |
| **Effectiveness of Teacher Questions/Responses to Students** | Teacher responded well to students questions and provided questions that promoted student thinking | Teacher responded well to student questions and probed student understanding with simple questions | Teacher responded to student questions | \_\_\_/5 |
| **Written Lesson Plan** | A complete and thorough written lesson plan with clearly-stated and highly-appropriate objectives and a detailed outline of teaching and learning activities that fulfill all of the lesson requirements | A complete written lesson plan with appropriate objectives and an outline of teaching and learning activities that fulfill most of the lesson requirements | A written lesson plan with adequate objectives and an outline of the teaching and learning activities that fulfill many of the lesson requirements | \_\_\_x10\_\_\_/50 |
| **Total** |  |  |  | **/100** |

**Topic and Objective**

1. Students will be able to:
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Vocabulary students need to know (define them)
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain on how you plan on helping your students learn and understand these words: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. List all needed materials for lesson (include resources like websites, videos, books, etc.)
*
*
*
*
*

**Activities and Procedures:**

1. ***Introduction***: ***(What are you going to do to open your lesson? It could be a demonstration, a video clip, go over previous vocabulary, display bell work questions, be creative!) Describe your ideas below.***

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain how this will relate back to the learning goals you created:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. ***Activities: (How are you teaching your topic? PowerPoint, lab, activities, worksheets, What examples do you need to provide your students? Are you completing a demonstration, if so what? Are you playing a song or video? Is it appropriate?)***

First\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This is important to do with the class because it will... \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Next\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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After\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. ***Closing: (How will you wrap everything up? Will you do a review of concepts, provide a real life example?)***

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Evaluation and Assessment**

Create at least 3 test questions specifically related to your lesson and provide the answers below.

1.
2.
3.

Explain how you will determine what the students learned from your lesson (Are you going them an exit slip, make a kahoot, make a mini quiz, give them a review worksheet, perform a lab, etc. Attach any hand-outs you may use for your assessment).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 0: Characteristics of Life Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
|  |  |  |
| Biology |  |  |
| Synthesis |  |  |
| Transport |  |  |
| Excretion |  |  |
| Reproduction |  |  |
| Nutrition |  |  |
| Growth & Development |  |  |
| Regulation |  |  |
| Respiration |  |  |
| Homeostasis |  |  |
| Metabolism |  |  |

**Unit 0: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives: (NCES: Bio.1.1 & 1.2.3)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. **I can** distinguish between what is living and nonliving based

upon life processes. |  |  |  |
|  | 1. **I can** describe the 8 characteristics of life and provide examples of each.
 |  |  |  |
|  | 1. **I can** relate homeostasis to STERNGRR.
 |  |  |  |
|  | 1. **I can** connect the life processes and their role in an organism’s metabolism
 |  |  |  |

**Unit 1Biochem: Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
| pH Scale |  |  |
| Acidic |  |  |
| Basic |  |  |
| Buffer |  |  |
| Inorganic Molecule |  |  |
| Organic Molecule |  |  |
| Monomer |  |  |
| Polymer |  |  |
| Carbohydrate |  |  |
| Lipid |  |  |
| Protein |  |  |
| Nucleic Acid |  |  |
| Indicators |  |  |
| Glucose |  |  |
| Starch |  |  |
| Glycogen |  |  |
| Cellulose |  |  |
| Phospholipid |  |  |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Fatty Acid |  |  |
| Triglyceride |  |  |
| Saturated Fat |  |  |
| Unsaturated Fat |  |  |
| Amino Acids |  |  |
| Peptide Bond |  |  |
| Hemoglobin |  |  |
| Insulin |  |  |
| Enzymes |  |  |
| Catalyst |  |  |
| Activation Energy |  |  |
| Substrate/Reactant |  |  |
| Active Site |  |  |
| Enzyme/Substrate Complex |  |  |
| Product |  |  |
| Nucleotide |  |  |
| ATP |  |  |
| DNA |  |  |

**Unit 1: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives: (NCES: Bio.1.2.1, 4.1.1 & 4.1.3)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. **I can** describe the pH scale and give examples of substances that are acidic and basic.
 |  |  |  |
|  | 1. **I can** define organic and inorganic in terms of biochemistry and give examples of each.
 |  |  |  |
|  | 1. **I can** list the four biological molecule groups and give examples of each. (Including monomers & polymers)
 |  |  |  |
|  | 1. **I can** describe and identify (visually) the structure of carbohydrates, proteins, lipids, and nucleic acids.
 |  |  |  |
|  | 1. **I can** explain and identify the function of the four (4) biological molecules.
 |  |  |  |
|  | 1. **I can** identify an unknown substance and which biological molecule group it belongs to using indicators.
 |  |  |  |
|  | 1. **I can** diagram and label the structures of an enzyme and explains its function.
 |  |  |  |
|  | 1. **I can** explain what it means for enzymes to function best at optimum levels.
 |  |  |  |

**Unit 2 Cells: Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Spontaneous Generation |  |  |
| Abiogenesis |  |  |
| Biogenesis |  |  |
| Francesco Redi |  |  |
| Louis Pasteur |  |  |
| Anton van Leeuwenhoek |  |  |
| Robert Hooke |  |  |
| Theodor Schwann |  |  |
| Matthias Schleiden |  |  |
| Rudolf Virchow |  |  |
| Cell Theory |  |  |
| Unicellular |  |  |
| Multicellular |  |  |
| Prokaryotic |  |  |
| Eukaryotic |  |  |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Organelle |  |  |
| Cell/Plasma Membrane |  |  |
| Cytoplasm |  |  |
| Ribosome |  |  |
| Nucleus |  |  |
| Nuclear Membrane |  |  |
| Cell Wall |  |  |
| Mitochondria |  |  |
| Chloroplast |  |  |
| Central Vacuole |  |  |
| Centrioles |  |  |
| Flagella |  |  |
| Autotroph |  |  |
| Heterotroph |  |  |
| Cell Specialization |  |  |

**Unit 2: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives: (NCES: Bio.1.1 & 1.2.3)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. **I can** explain how spontaneous generation was disproved.
 |  |  |  |
|  | 1. **I can** identify the major contributors to the development of cell theory and the three (3) major parts.
 |  |  |  |
|  | 1. **I can** differentiate between prokaryotic and eukaryotic cells based upon their structures and complexity.
 |  |  |  |
|  | 1. **I can** identify the parts of a microscope and be able to use it to distinguish the type of cells visible.
 |  |  |  |
|  | 1. **I can** summarize the structure and function of organelles in eukaryotic cells.
 |  |  |  |
|  | 1. **I can** list the three (3) organelles unique to plant cells.
 |  |  |  |
|  | 1. **I can** describe how organelles interact with each other to

perform cellular functions. |  |  |  |
|  | 1. **I can** explain how cell differentiation occurs and how specialized cells perform specific functions in multicellular organisms.
 |  |  |  |

**Unit 3 Cell Energetics: Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |
| --- |
| **Part I: Cell Transport** |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Phospholipid |  |  |
| Lipid Bilayer |  |  |
| Fluid Mosaic Model |  |  |
| Selectively Permeable |  |  |
| Passive Transport |  |  |
| Diffusion |  |  |
| Osmosis |  |  |
| Concentration Gradient |  |  |
| Solute |  |  |
| Solvent |  |  |
| Equilibrium |  |  |
| Regulation |  |  |
| Homeostasis |  |  |
| Facilitated Diffusion  |  |  |
| Protein Pump |  |  |
| Active Transport |  |  |
| Turgor Pressure |  |  |

|  |
| --- |
| **Part IIA: Photosynthesis** |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Chloroplast |  |  |
| Chlorophyll |  |  |
| Cuticle |  |  |
| Stomata |  |  |
| Palisade Mesophyll |  |  |
| Guard Cells |  |  |
| Xylem |  |  |
| Phloem |  |  |
| Reactants |  |  |
| Products |  |  |
| CO2 |  |  |
| H2O |  |  |
| Glucose (C6H12O6) |  |  |
| Autotroph |  |  |
| Heterotroph |  |  |
| Pigment |  |  |
| Light Absorption |  |  |
| **Part IIB: Cellular Respiration** |
| Mitochondria |  |  |
| Anaerobic Respiration |  |  |
| Alcoholic Fermentation |  |  |
| Lactic Acid Fermentation |  |  |
| Aerobic Respiration |  |  |
| ATP |  |  |

**Unit 3: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Part I: Cell Transport (NCES: Bio.4.2.2)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. **I can** diagram and label the parts of a cell membrane.
 |  |  |  |
|  | 1. **I can** list the functions of the cell membrane.
 |  |  |  |
|  | 1. **I can** explain what selective permeable means and its importance to the cell membrane.
 |  |  |  |
|  | 1. **I can** explain and show what a concentration gradient is and its role in cell transport.
 |  |  |  |
|  | 1. **I can** define and show how molecules move in passive transport within diffusion and osmosis.
 |  |  |  |
|  | 1. **I can** describe what equilibrium is and looks like for a cell’s concentrations of molecules.
 |  |  |  |
|  | 1. **I can** differentiate between passive and active transport and give examples of both.
 |  |  |  |
|  | 1. **I can** determine molecule movement in scenarios.
 |  |  |  |
| **Part IIA: Photosynthesis (NCES: Bio.4.2.1)** |  |
|  | 1. **I can** diagram the anatomy of both a leaf and a chloroplast including explaining the functions of each structure.
 |  |  |  |
|  | 1. **I can** describe photosynthesis and identify reactants, products, and overall equation.
 |  |  |  |
|  | 1. **I can** locate/identify where reactants enter & products exit a plant
 |  |  |  |
|  | 1. **I can** list and describe the adaptations of a plan and those necessary for photosynthesis.
 |  |  |  |
|  | 1. **I can** describe the importance of light energy to plants and discuss how light is absorbed via pigments.
 |  |  |  |
| **Part IIB: Cellular Respiration (NCES: Bio.4.2.1)** |  |
|  | 1. **I can** review the structures of mitochondria.
 |  |  |  |
|  | 1. **I can** describe cellular respiration identify the reactants, products, and overall equation.
 |  |  |  |
|  | 1. **I can** describe what ATP is, its importance and how it is recycled.
 |  |  |  |
|  | 1. **I can** compare and contrast the types of respiration including examples of each and what is produced.
 |  |  |  |
|  | 1. **I can** connect how energy is produced, utilized and stored within various organisms.
 |  |  |  |

**Unit 4: DNA Replication & Protein Synthesis**

**Part I: DNA Replication**

|  |  |  |
| --- | --- | --- |
| Key Words | Before Instruction | After Instruction |
| DNA |  |  |
| Nucleotide |  |  |
| Deoxyribose |  |  |
| Nitrogen – Base |  |  |
| Phosphate |  |  |
| Chromosome |  |  |
| Complimentary Base Pairs |  |  |
| Adenine |  |  |
| Thymine |  |  |
| Cytosine |  |  |
| Guanine |  |  |
| Hydrogen Bond |  |  |
| Helicase |  |  |
| DNA Polymerase |  |  |
| Ligase |  |  |
| Semi – conservative |  |  |

**Part II: Protein Synthesis**

|  |  |  |
| --- | --- | --- |
| Key Words | Before Instruction | After Instruction |
| Ribonucleic acid (RNA) |  |  |
| Ribose |  |  |
| Uracil |  |  |
| Complimentary Bases |  |  |
| Codon |  |  |
| Anticodon |  |  |
| Translation |  |  |
| mRNA (messenger) |  |  |
| tRNA (transfer) |  |  |
| Amino acid |  |  |
| Polypeptide chain |  |  |
| Central Dogma |  |  |
| Mutation |  |  |
|  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Part I: DNA Replication: NCES:** 3.1.1 | **I’m Stuck** | **I’m****Getting It** | **I Got It** |
|  | 1. **I can** describe the shape and orientation of DNA.
 |  |  |  |
|  | 1. **I can** identify the three (3) parts of a nucleotide.
 |  |  |  |
|  | 1. **I can** name the 4 nitrogen bases of DNA and

 the complimentary pairs. |  |  |  |
|  | 1. **I can** list and explain the steps of DNA replication

(including the 3 enzymes involved).  |  |  |  |
|  | 1. **I can** explain what semi – conservative means.
 |  |  |  |
| **Date** | **Learning Objectives (NCES: Bio.3.1.2 3.1.3, & 4.1.2)** | **I’m Stuck** | **I’m****Getting It** | **I Got It** |
|  | 1. I can list three differences between DNA and RNA.
 |  |  |  |
|  | 1. I can explain the structure and function of mRNA & tRNA

and where they are located within the cell.  |  |  |  |
|  | 1. I can describe the steps of transcription.
 |  |  |  |
|  | 1. I can describe the steps of translation.
 |  |  |  |
|  | 1. I can tell what of part of a cell transcription & translation occurs in.
 |  |  |  |
|  | 1. I can describe the central dogma of protein synthesis.
 |  |  |  |
|  | 1. I can explain what a mutation is and give types and examples.
 |  |  |  |

**Unit 4: Learning Objectives**

**Unit 5: Reproduction Vocabulary**

|  |  |  |
| --- | --- | --- |
| Key Words | Before Instruction | After Instruction |
| Single Chromosome |  |  |
| Centromere |  |  |
| Duplicated Chromosome |  |  |
| Sister Chromatids |  |  |
| Homologous Chromosomes |  |  |
| Centriole |  |  |
| Spindle Fibers |  |  |
| Nuclear Membrane |  |  |
| Interphase |  |  |
| M – Phase |  |  |
| Mitosis |  |  |
| Prophase |  |  |
| Metaphase |  |  |
| Anaphase |  |  |
| Telophase |  |  |
| Cleavage Furrow |  |  |
| Key Words | Before Instruction | After Instruction |
| Cell Plate |  |  |
| Cytokinesis |  |  |
| Diploid |  |  |
| Asexual Reproduction |  |  |
| Binary Fission |  |  |
| Vegetative Propagation |  |  |
| Sexual Reproduction |  |  |
| Meiosis |  |  |
| Crossing – over |  |  |
| Haploid |  |  |
| Gametes |  |  |
| Sperm |  |  |
| Egg |  |  |
| Spermatogenesis |  |  |
| Oogenesis |  |  |
| Zygote |  |  |

**Unit 5: Learning Objectives**

**Directions:**

* Each objective must be included in your study guide (Hint: Use the vocab. that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Objectives: (NCES:** **Bio.1.2.2)** | **I’m Stuck** | **I’m****Getting It** | **I Got It** |
|  | 1. **I can** explain reasons why cells must divide.
 |  |  |  |
|  | 1. **I can** describe asexual reproduction including examples
 |  |  |  |
|  | 1. **I can** identify the parts of a chromosome and explain their functions during cellular division.
 |  |  |  |
|  | 1. **I can** identify the structures used within a cell during cellular division.
 |  |  |  |
|  | 1. **I can** describe all major and sub – phases of the cell cycle.
 |  |  |  |
|  | 1. **I can** visually identify the stage of mitosis and explain what is occurring in each.
 |  |  |  |
|  | 1. **I can** contrast structures used for cytokinesis in plant & animal cells.
 |  |  |  |
|  | 1. **I can** compare and contrast the overall process of mitosis with meiosis (# of cells and chromosomes)
 |  |  |  |
|  | 1. **I can** explain the importance of meiosis and variation.
 |  |  |  |
|  | 1. **I can** explain the types of gametes and the differences in how each is produced.
 |  |  |  |

**Unit 6: Biotechnology Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Biotechnology |  |  |
| Gel Electrophoresis |  |  |
| DNA Fingerprinting |  |  |
| Genetic Engineering  |  |  |
| Transgenic Organism |  |  |
| Bacterial Transformation |  |  |
| Human Genome Project |  |  |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Gene Therapy |  |  |
| Severe Combined Immunodeficiency  |  |  |
| Cystic Fibrosis |  |  |
| Stem Cells  |  |  |
| Cloning |  |  |
| Genetically Modified Organisms (GMO’s) |  |  |
|  |  |  |

**Unit 6: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives (NCES: Bio.3.3)** | **I’m Stuck** | **I’m****Getting It** | **I Got It** |
| aaa | 1. **I can** describe how gel electrophoresis separates DNA and applications for DNA finger printing.
 |  |  |  |
|  | 1. **I can** describe the application of transgenic organisms within agriculture and industry including pharmaceutical.
 |  |  |  |
|  | 1. **I can** summarize the steps necessary in bacterial transformation.
 |  |  |  |
|  | 1. **I can** describe the reason for and importance of the Human Genome Project.
 |  |  |  |
|  | 1. **I can** describe the uses for gene therapy.
 |  |  |  |
|  | 1. **I can** discuss various ethical issues relating to biotechnology.
 |  |  |  |

**Unit 7: Genetics Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Genetics |  |  |
| Trait |  |  |
| Allele |  |  |
| Heredity |  |  |
| Dominant |  |  |
| Recessive |  |  |
| Homozygous |  |  |
| Heterozygous |  |  |
| Codominant |  |  |
| Incomplete Dominance |  |  |
| Punnett Square |  |  |
| Genotype |  |  |
| Phenotype |  |  |
| Polygenetic Trait |  |  |
| Sex/X – Linked Trait |  |  |
| **Key Word** | **Before Instruction** | **After Instruction** |
| True/Pure Breeding |  |  |
| Hybrid |  |  |
| Law of Dominance |  |  |
| Law of Independent Assortment |  |  |
| Law of Segregation |  |  |
| Amniocentesis |  |  |
| Karyotype |  |  |
| Autosome |  |  |
| Sex-Chromosome |  |  |
| Pedigree |  |  |
| Carrier |  |  |
| Nondisjunction |  |  |
| Aneuploidy |  |  |
|  |  |  |

|  |  |  |
| --- | --- | --- |
|  |  |  |

**Unit 7: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

* \*You will evaluate your understanding the day before the best\*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives (NCES: Bio.3.1.3, 3.2.2, & 3.2.3)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. **I can** define genotype and phenotype.
 |  |  |  |
|  | 1. **I can** define homozygous and heterozygous.
 |  |  |  |
|  | 1. **I can** complete a Punnett square.
 |  |  |  |
|  | 1. **I can** determine probability in fractions and percentages when completing Punnett square
 |  |  |  |
|  | 1. **I can** explain what is meant by hereditary.
 |  |  |  |
|  | 1. **I can** determine the inheritance of codominant, incomplete dominant and sex-linked traits
 |  |  |  |
|  | 1. **I can** give examples of genetic traits/disorders that do not follow typical Mendelian inheritance patterns.
 |  |  |  |
|  | 1. **I can** discuss various genetic diseases including their causes, results, and inheritance patterns.
 |  |  |  |
|  | 1. **I can** read and trace the pattern of inheritance of a

genetic disease using a pedigree chart.  |  |  |  |

**Unit 8: Evolution Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Evolution |  |  |
| Biogenesis  |  |  |
| Miller & Urey |  |  |
| Prebiotic Earth  |  |  |
| Heterotroph Hypothesis  |  |  |
| HMS Beagle  |  |  |
| Charles Darwin |  |  |
| Natural Selection  |  |  |
| Survival of the Fittest  |  |  |
| Variation  |  |  |
| Common Ancestor |  |  |
| Resistance  |  |  |
| Speciation  |  |  |
| Fossil Record |  |  |
| Mutation |  |  |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Comparative Embryology |  |  |
| Adaptation |  |  |
| Homologues Structures |  |  |
| Analogous Structures  |  |  |
| Vestigial Structures |  |  |
| Geographic Isolation |  |  |
| Reproductive Isolation |  |  |
| Directional Selection |  |  |
| Stabilizing Selection |  |  |
| Disruptive Selection |  |  |
| Binomial Nomenclature |  |  |
| Phylogenic Tree  |  |  |
| Cladogram |  |  |
| Dichotomous Key |  |  |

**Unit 8: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives (NCES: 3.4 & 3.5.2)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. I can explain who Charles Darwin is and his impact and contributions to evolution.
 |  |  |  |
|  | 1. I can describe what natural selection is and factors that affect it.
 |  |  |  |
|  | 1. I can explain what a common ancestor is and ways in which to describe relatedness.
 |  |  |  |
|  | 1. I can discuss how variation is created and what effect it can have on the evolutionary process.
 |  |  |  |
|  | 1. I can describe 4 sources of evidence in support of evolution.
 |  |  |  |
|  | 1. I can explain the connection between gene flow and environmental changes over time.
 |  |  |  |
|  | 1. I can define geographic isolation and its impact on the species.
 |  |  |  |
|  | 1. I can describe the conditions of the prebiotic earth.
 |  |  |  |
|  | 1. I can explain what steps lead to formation of cells and how heterotroph hypothesis relates.
 |  |  |  |
|  | 1. I can connect Urey & Miller’s experiment with Endosymbiotic Theory.
 |  |  |  |
|  | 1. I can explain the role of disease agents in regards to natural selection (antibiotics, pesticides, vaccines and immunities.)
 |  |  |  |
|  | 1. I can interpret and understand how to use tools to view existing relationships
 |  |  |  |

**Unit 9: Ecology Vocabulary**

**Directions:** Rate your understanding of each word based upon the given scale below:

|  |  |  |
| --- | --- | --- |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Carbon Cycle |  |  |
| Fossil Fuels |  |  |
| Greenhouse Effect |  |  |
| Global Warming |  |  |
| Climate Change |  |  |
| Nitrogen Cycle |  |  |
| Nitrogen Fixation |  |  |
| Assimilation |  |  |
| Abiotic Factor |  |  |
| Biotic Factor |  |  |
| Symbiotic Relationship |  |  |
| Mutualism |  |  |
| Parasitism |  |  |
| Carnivore |  |  |
| Herbivore |  |  |
| Omnivore |  |  |
| Decomposer |  |  |
| Food Chain |  |  |
| **Key Word** | **Before Instruction** | **After Instruction** |
| Food Web |  |  |
| Population Dynamics |  |  |
| Equilibrium |  |  |
| Predator/Prey Relationship |  |  |
| Density-Independent Factors |  |  |
| Density-Dependent Factors |  |  |
| Logistic Growth |  |  |
| Exponential Growth |  |  |
| Carrying Capacity |  |  |
| Population Density |  |  |
| Age Structure |  |  |
| Animal Behavior |  |  |
| Stimulus |  |  |
| Pheromones |  |  |
| Courtship Dances |  |  |
| Territorial Defense |  |  |
|  |  |  |

**Unit 9: Learning Objectives**

**Directions:** each objective must be included in your study guide (Hint: Use the vocabulary that applies to each)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Date** | **Learning Objectives (NCES: Bio.2.1, 2.2 & 3.5.1)** | **I’m Stuck** | **I’m Getting It** | **I Got It** |
|  | 1. **I can** list both abiotic and biotic factors within an ecosystem.
 |  |  |  |
|  | 1. **I can** describe various relationship types within an ecosystem and their effect on each other and the environment.
 |  |  |  |
|  | 1. **I can** trace the flow of energy within an ecosystem and show via food chains, webs, and trophic pyramids.
 |  |  |  |
|  | 1. **I can** describe the cycling of matter within the ecosystem in regards to carbon and nitrogen specifically.
 |  |  |  |
|  | 1. **I can** describe the stability of an ecosystem over time with regards to population growth and the factors which affect it.
 |  |  |  |
|  | 1. **I can** graph and analyze types of population growth and the limiting factors to each.
 |  |  |  |
|  | 1. **I can** track the human population through time and predict the possible future population and regulating factors.
 |  |  |  |
|  | 1. **I can** to describe how human activity has impacted the planet as a whole.
 |  |  |  |
|  | 1. **I can** identify examples of human activity negatively affecting the ecosystem and describe ways to minimize the future effect.
 |  |  |  |
|  | 1. **I can** describe ways in which conservation and preservation techniques can be utilized within an ecosystem.
 |  |  |  |
|  | 1. **I can** analyze the survival and reproductive success of organism in relation to specific adaptations.
 |  |  |  |