

Name _____

Period _____

Date _____

Unit 3 Energy: Reflecting on your learning

- “Traffic Light”: In this section of the chart you will indicate with a color or number what your current level of knowledge is for the standard at the start of the unit (pre), midway through the unit (mid) and at the end of the unit (post):

 - Red (0 or 1) = I’m confused! I need some help understanding the standard.
 - Yellow (2 or 3) = I’ve tackled the standard but I have not mastered it.
 - Green (4 or 5) = I’ve mastered the standard!
- “Evidence”: At the end of the unit, think about the activities you did during the unit that helped you learn about each standard. In the evidence column, write down specific assignments, notes (include page numbers in your notebook) or lab write-ups that helped you learn about the standard.
- You will receive a grade for the classwork that you turn in during the unit which will count 40% towards your final grade for each quarter. If you think that the grade you earned does NOT reflect your level of knowledge of the essential standards, you may schedule a meeting with me during a designated Smart lunch and use the evidence you provide in this chart to negotiate a higher grade.

Traffic Light			Learning Objective	Date Accomplished	Evidence
Pre	Mid	Post			
			Bio.4.2.1 Analyze photosynthesis and cellular respiration in terms of how energy is stored, released, and transferred within and between these systems.		
			Bio.4.2.2 Explain ways that organisms use released energy to maintain homeostasis.		
			Bio.4.1.1 Compare the structures and functions of carbohydrates as related to the survival of living organisms.		
			Bio.4.1.3 Explain how enzymes act as catalysts for biological reactions.		

Anchor Activities – Unit 3 Energy

Check point due dates: December 13

Due date signature: _____

FINAL DUE DATE: Unit 3 Exam: Tuesday December 19

Grading Rubric:

Score	
4	EXCEEDS the requirements (ex: does more than the minimum number of constructs); accurate; understanding of concept is demonstrated at a deeper level
3	MEETS all requirements of task; accurate; understanding of the concept is demonstrated
2	Most of the requirements are met; minor inaccuracies; understanding of concept is partially developed
1	Few requirements are met; several inaccuracies; understanding of concept poorly developed
0	No requirements are met

Grade:

Activity	Grade
Example: Vocabulary, column A	
1.	
2.	
3.	
4. Reflection	
Total	

Instructions:

- Choose 1 activity from each row of the table on the back of this sheet. **Choose the activity that most challenges you.**
- Write the topic and column in the table above.
- Attach (staple, paperclip) completed activities to this sheet (rubber band or paperclip flashcards together).
- Final due date will be the day of the Unit exam.

Anchor Activity Chart: Complete 1 activity IN EACH ROW (topic)				
Topic	A	B	C	D
Vocabulary	Create a concept map linking at least 20 of the vocabulary words in the unit. You must include an explanation of each link in your concept map.	Create a Frayer model for at least 10 vocabulary words in the unit. Each Frayer model should include the following for each word: definition, original sentence, picture and examples.	Create at least 20 flashcards using vocabulary words in the unit. Each flashcard should include an original sentence using the word.	Create a cartoon using at least 20 of the vocabulary words in the unit. You may create 1 cartoon with illustrations using all 20 words or several cartoons.
Science in the news	Find an article in a newspaper or magazine about a current event relating to this unit. Write a 1 page summary about the article explaining the event and the central idea or conclusion of the article. INCLUDE THE NAME OF THE ARTICLE AND WHERE YOU FOUND IT.	Research an important event or discovery relating to this unit. Write a 1 page summary about the event. CITE ANY ARTICLES OR INFORMATION YOU USE IN YOUR SUMMARY.	Select two of the science articles in Actively Learn. Respond to the prompts embedded in the article on Actively Learn.	Write a 1 page letter to a famous scientist or person who has contributed to what we know about photosynthesis or cellular respiration. Include in your letter a summary of what the person did and any questions you'd like this person to answer for you. CITE ANY ARTICLES OR INFORMATION YOU USE IN YOUR SUMMARY.
Review	Create a review game. Include at least 20 of the vocabulary words and 2 of the essential questions in your game.	Write 10 test questions for the current unit. Your questions should be a combination of multiple choice and free response questions.	Select 2 of the unit essential questions and write a paragraph for each answering the question using the information you've learned in class.	Write a song about the current unit. Include at least 10 of the vocabulary words from the word wall and incorporate at least 2 essential questions.
Reflection	Complete the "Reflecting on your learning" Chart			

Essential Questions:

- Bio.4.2.1 How is energy stored, released, and transferred within and between organisms (photosynthesis and cellular respiration)?
- Bio.4.2.2 How do organisms use released energy to maintain homeostasis?
- Bio.4.1.1 How is the structure and function of carbohydrates related to the survival of living organisms?
- Bio.4.1.3 How do enzymes act as catalysts for biological reactions?

Key Ideas and Topics:

- Energy is a property of an object that can be transferred to other objects. Energy can be (and is) converted from one form to another in an organism and within an ecosystem.
- The different form of energy that are important to organisms and ecosystems are heat, chemical and solar.
- Cellular respiration is the process of converting chemical energy in the form of food into another type of chemical energy (ATP) that can be used to power the essential functions in the cell.
- All eukaryotic cells must produce ATP and, thus, all have mitochondria where cellular respiration occurs.
- Aerobic cellular respiration requires oxygen and yields up to 38 molecules of ATP.
- Anaerobic cellular respiration is called fermentation, occurs in the absence of oxygen and yields only 2 molecules of ATP.
- Photosynthesis is the process of converting solar energy into chemical energy and occurs within the chloroplast of plant cells.
- There are 2 important reactions in photosynthesis – the light-dependent reaction and the light-independent reaction.
- Organelles interact with each other to perform the essential functions of the cell.
- Organisms require a constant supply of energy to help maintain homeostasis.
- Movement of substances into and out of a cell by active transport requires energy in the form of ATP.
- Inside all living organisms, many biological reactions are occurring all the time – these reactions are essential to the survival of the organism.
- Enzymes are proteins that catalyze biological reactions – they help reactions occur.
- The structure of an enzyme is important to its function – errors in the structure can make the enzyme not work or work incorrectly.

Vocabulary:

- Active Site
- Active Transport
- Aerobic Respiration
- Alcoholic Fermentation
- Anaerobic Respiration
- Cell Membrane
- Cellular Respiration
- Cellulose
- Chloroplast
- Concentration
- Denaturation
- Disaccharides
- Ecosystem
- Electron Transport Chain
- Endocytosis
- Enzyme
- Exocytosis
- Fermentation
- Fructose
- Galactose
- Glucose
- Glycogen
- Glycolysis
- Homeostasis
- Kreb's Cycle
- Lactic Acid Fermentation
- Light-dependent reactions
- Light-independent reactions
- Mitochondria
- Monosaccharides
- Phagocytosis
- Photosynthesis
- Polysaccharides
- Product
- Starch
- Substrate