**Biology STAAR Review Stations**

**Day 9**

**Category # 4 Biological Processes and Systems (9.B, 9.C, 11.A)**

9.B compare the reactants and products of photosynthesis and cellular respiration in terms of energy and matter

9.C identify and investigate the role of enzymes

11.A describe the role of internal feedback mechanisms in the maintenance of homeostasis

**9.B, 9.C, 11.A Pre-Test Score\_\_\_\_\_\_\_\_\_\_ Focus TEKS\_\_\_\_\_\_\_\_\_\_**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **9.B** | **9.C** | **11.A** |
| **Interactive Quizzes** | **Photosynthesis and Respiration**  <http://www.proprofs.com/quiz-school/story.php?title=photosynthesis-respiration-block-3-group-4> | **Enzyme Quiz**  <http://www.biologycorner.com/quiz/qz_enzymes.html> | **Homeostasis**  [**http://www.spolem.co.uk/hotpots/homeo.htm**](http://www.spolem.co.uk/hotpots/homeo.htm) |
| **Graphic Organizers** | **Photosynthesis & Cellular Respiration Graphic Organizer**  Complete the graphic organizer provided. | **Enzyme Graphic Organizer**  [**http://tinyurl.com/offrq69**](http://tinyurl.com/offrq69) | **Feedback Mechanism Table**  Go the following link and read about negative and positive feedback mechanisms:  <http://anatomyandphysiologyi.com/homeostasis-positivenegative-feedback-mechanisms/>  Then complete the graphic organizer over the information. |
| **Virtual Labs** | **Photosynthesis and Respiration**  <http://sepuplhs.org/high/sgi/teachers/photosynthesis2_sim.html> | **Enzyme Controlled Reactions**  [**http://www.mhhe.com/biosci/genbio/virtual\_labs/BL\_11/BL\_11.html**](http://www.mhhe.com/biosci/genbio/virtual_labs/BL_11/BL_11.html) | **Interactive Homeostasis Activity**  <http://ats.doit.wisc.edu/biology/ap/ho/ho.htm>  Go through Topic 1 and Topic 2. Once you are at the interactive screen, click on the different times to go through the different scenarios. |
| **Vocabulary** | **Photosynthesis and Respiration Flashcards**  [**http://quizlet.com/706048/cell-energy-photosynthesis-and-respiration-flash-cards/**](http://quizlet.com/706048/cell-energy-photosynthesis-and-respiration-flash-cards/) | **Enzymes Flashcards**  <http://quizlet.com/51505298/enzymes-flash-cards/> | **Homeostasis Flashcards**  <http://quizlet.com/3481937/homeostasis-flash-cards/> |
| **Video Clips** | **BrainPOP Photosynthesis and Respiration Video and Quiz**  <http://glencoe.mcgraw-hill.com/sites/dl/free/0078802849/164155/00053412.html>  Watch the video and then take the quiz. | **Enzyme and…Pac-Man**  <http://www.youtube.com/watch?v=XUn64HY5bug&feature=youtu.be> | **Homeostasis**  https://www.khanacademy.org/partner-content/mit-k12/mit-k12-biology/v/homeostasis |

**Critical Thinking Questions**

1. Why are photosynthesis and cellular respiration viewed as complementary processes?

2. Describe and illustrate the process of homeostasis?

3. How are enzymes important in metabolism of biomolecules?

4. Describe the effect of enzymes on activation energy in relationship to reactions.

**9.B Photosynthesis & Cellular Respiration Graphic Organizer**

|  |  |  |
| --- | --- | --- |
|  | **Photosynthesis** | **Respiration** |
| **Organelle involved** |  |  |
| **Equation** |  |  |
| **Your definition** |  |  |
| **Occurs in what types of cells** |  |  |
| **Importance** |  |  |

**11.A Feedback Mechanism Table**

Go to the following link to help you complete the table:

<http://anatomyandphysiologyi.com/homeostasis-positivenegative-feedback-mechanisms/>

|  |  |  |
| --- | --- | --- |
|  | **Negative Feedback Mechanisms** | **Positive Feedback Mechanisms** |
| **Bodily example** |  |  |
| **Body systems involved with feedback mechanism** |  |  |
| **How this example maintains homeostasis** |  |  |

**Day 8 Review Questions**

9.B  
\_\_\_\_\_1. The breakdown of molecules by cells to produce energy is called \_\_\_\_.**[[http://glencoe.mcgraw-hill.com/olcweb/styles/shared/spacer.gif](http://glencoe.mcgraw-hill.com/sites/0078802849/student_view0/unit2/chapter8/standardized_test_practice-english.html#quest1)](http://glencoe.mcgraw-hill.com/sites/0078802849/student_view0/unit2/chapter8/standardized_test_practice-english.html" \l "quest1)**

a.http://glencoe.mcgraw-hill.com/olcweb/styles/shared/spacer.gifcatalyzinghttp://glencoe.mcgraw-hill.com/olcweb/styles/shared/spacer.gif

b. photosynthesishttp://glencoe.mcgraw-hill.com/olcweb/styles/shared/spacer.gif

c. cellular respirationhttp://glencoe.mcgraw-hill.com/olcweb/styles/shared/spacer.gif

d.http://glencoe.mcgraw-hill.com/olcweb/styles/shared/spacer.gifheterotrophism

Study the chemical reactions below:

**Photosynthesis:**





**Cellular respiration:**

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9.B

\_\_\_\_\_2. Plants produce **more oxygen** during **photosynthesis** than they use in cellular respiration. What happens to the **excess oxygen** produced during photosynthesis?

a. It is used as an energy source by plant cells.

b. It is released into the air and is used by other organisms for respiration.

c. It is converted into heat energy.

d. It is a waste product which is never reused.

9.B

\_\_\_\_\_3. One of the products of photosynthesis is **glucose** (C6H12O6). Which of the following statements about the **production** and **use** of this molecule is ***false***?

a. Plants use the energy from glucose to convert nutrients to body tissues and grow larger.

b. Glucose that is not immediately used by the plant is stored for later use.

c. Plants use the energy from glucose to manufacture a variety of plant products.

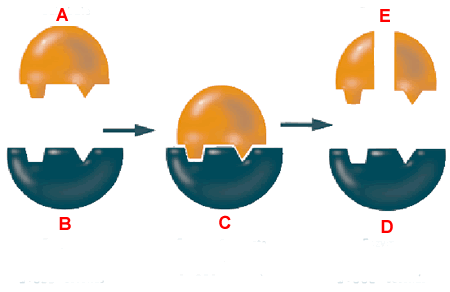
d. Glucose that is not immediately used by the plant is lost as waste material.

9.B

\_\_\_\_\_4. Which of the following are capable of photosynthesis?

1. plants and animals
2. plants, some bacteria, some protists, and algae
3. plants and some protists only
4. all of the above

9.C



\_\_\_\_\_5. Which letter represents the enzyme-substrate complex?

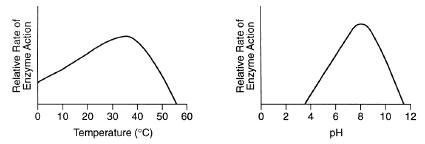
a.a

b.b

c.c

d.d

9.C

\_\_\_\_\_6. What is true regarding the two graphs?  


1. The enzyme is working at maximum potential.
2. This enzyme works best at a temperature of 35 C and a pH of 8.
3. This enzyme works best at a temperature of 50 C and a pH of 12.
4. Temperature and pH have no influence on the activity of this enzyme.

9.C

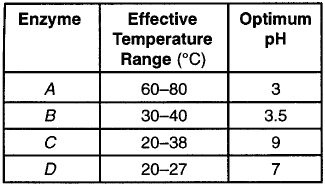
\_\_\_\_\_7. An enzyme

a. is not used up when catalyzing a reaction

b. lowers the activation energy of a reaction

c. bonds with a substrate molecule at the enzyme’s active site

d. All of the above



9.C

\_\_\_\_\_8. According to the table, if enzyme C is functioning at 25°C and a pH of 7, under which conditions would the rate of enzyme action probably increase?

1. The temperature is decreased to 22 C and the pH is kept the same.
2. The temperature is kept the same and the pH is decreased to 6.
3. The temperature is increased to 44 C and the pH is kept the same.
4. The temperature is increased to 30 C and the pH is increased to 8.

11.A

\_\_\_\_\_ 9. What is **homeostasis**?

a. the ability of an organism to maintain a relatively stable internal environment

b. the production of a hormone by an endocrine gland that works on another endocrine gland

c. a series of events that monitor how hormones work in the body

d. a process in which a change in the environment causes a response that returns conditions to their original status

11.A

\_\_\_\_\_10. You just ran a marathon (26.2 miles) and your body is trying to reach **homeostasis**.

Which of the following statements is ***true***?

1. Your blood vessels will constrict to conserve heat
2. Your blood vessels will dilate to release body heat
3. Your body’s control center will shut down
4. Your brain will tell your body not to sweat

11.A

\_\_\_\_\_11. What two things from the list below need to be controlled by homeostasis?

a. Carbon Dioxide

b. Growth Rate

c. Water

d. Hyperactivity

11.A

\_\_\_\_\_12. Which of the following is **not** an example of negative feedback?

a. Holding your breath to go underwater   
 b. Feeling thirsty when body fluids are low   
 c. Sweating when body heat is high   
 d. Urination when body fluids are high

**Day 9 Review Questions (9.B, 9.C, 11.A)**

**Answer Sheet**

**\_\_\_\_\_1.**

**\_\_\_\_\_2.**

**\_\_\_\_\_3.**

**\_\_\_\_\_4.**

**9.B Score\_\_\_\_\_\_\_\_\_\_/4**

**\_\_\_\_\_5.**

**\_\_\_\_\_6.**

**\_\_\_\_\_7.**

**\_\_\_\_\_8.**

**9.C Score\_\_\_\_\_\_\_\_\_\_/4**

**\_\_\_\_\_9.**

**\_\_\_\_\_10.**

**\_\_\_\_\_11.**

**\_\_\_\_\_12.**

**11.A Score\_\_\_\_\_\_\_\_\_\_/4**

**Day Nine Review Questions (9.B, 9.C, 11.A)**

**Key**

**\_\_C\_\_1.**

**\_\_B\_\_2.**

**\_\_D\_\_3.**

**\_\_B\_\_4.**

**\_\_C\_\_5.**

**\_\_B\_\_6.**

**\_ D\_\_7.**

**\_ D \_\_8.**

**\_\_A\_\_9.**

**\_\_B\_\_10.**

**A,C\_\_11.**

**\_\_A\_\_12.**