

# FRANKLIN-SIMPSON HIGH SCHOOL

**Course Name:** Biology

**Unit Name: Unit 6 – Cellular Energetics**

**Quality Core Objectives:**

Unit 6 – Cellular Energetics	
B.1. Cells	h. Identify the cellular sites of and follow through the major pathways of anaerobic and aerobic respiration; compare reactants and products for each process, and account for how aerobic respiration produces more ATP per monosaccharide
	i. Explain how photosynthetic organisms use the processes of photosynthesis and respiration
E.2. Plants	b. Explain the functions of unique plant structures, including the cell wall, chloroplasts, and critical parts of the flower and the seed
	c. Explain the interaction between pigments, absorption of light, and reflection of light
	d. Describe the light-dependent and light-independent reactions of photosynthesis
	e. Relate the products of the light-dependent reactions to the products of the light-independent reactions
	f. Design and conduct an experiment (including the calculations necessary to make dilutions and prepare reagents) demonstrating effects of environmental factors on photosynthesis

**Purpose of the Unit:**

**Students will be able to describe the processes that store energy in sugar and takes energy out of sugars.**

**Prerequisites:**

The basic principles of biology (from earlier units), biochemistry, and cellular structures are required to understand this material.

**Daily Lesson Guide**

Day	Lesson Content and Daily Focus Questions	Tasks/Procedures		Engagement	Assessment and/or Accommodations
		Knowledge or Comprehension Activities	Critical Thinking (High Yield / Literacy /LTF/etc.)		
1	What are plants how are they structured? E.2.b I – ACT bell ringer (5 min) II – Plant/Flower Dissection(30 min) III – Post lab questions & guided notes (10 min)	1. ACT Bell ringer	1. Flower Diagraming 2. Guided notes	1. Lab (Novelty and Variety, working with others)	1. Post lab questions
2	What are plants how are they structured? E.2.b I – ACT bell ringer (5 min) II – commit and toss (30 min) III – Photosynthesis reading( 15)	1. ACT bell ringer	1. Commit and toss explanation 2. Annotation	1. Commit and toss (novelty and variety)	1. Commit and toss
3	What is photosynthesis and how does it work? E.2.c ; E.2.d	1. ACT bell ringer	1. Guided notes. 2. Gummy bear calculations	1. Gummy bear sacrifice video (novelty and	1. Note questions

	<p>I – ACT bell ringer (5 min)  II – Photosynthesis guided notes (20 min)  III – ‘How much light in a gummy bear?’ activity (30 min)</p>			variety)	
4	<p>What is photosynthesis and how does it work?  E.2.c; E.2.d; E.2.e  I – ACT bell ringer (5 min)  II – Light reaction guided notes (20 min)  III – ‘Design you own light reaction skit’ (30 min)</p>	1. ACT bell ringer	<p>1. Guided notes (advanced organizer)  2. Skit design (nonlinguistic representation)</p>	1. Skit design (Novelty and variety, Working with others)	1. Note questions
5	<p>What is photosynthesis and how does it work?  E.2.c; E.2.d; E.2.e  I – ACT bell ringer (5 min)  II – Light reaction skit presentations and ratings (45 minutes)  III – Light reaction organizer</p>	1. ACT bell ringer	<p>1. Light reactions organizer (advanced organizer)  2. Skit design (nonlinguistic representation)</p>	1. Skit design (Novelty and variety, Working with others)	1. Skit ratings
6	<p>What is photosynthesis and how does it work?  E.2.c; E.2.d; E.2.e  I – ACT bell ringer (5 min)  II – Dark reaction guided notes (20</p>	1. ACT bell ringer	<p>1. Guided notes (advanced organizer)  2. Skit design (nonlinguistic representation)</p>	1. Skit design (Novelty and variety, Working with others)	1. Note questions

	min) III –‘Design you own dark reaction skit’ (30 min)				
<b>7</b>	What is photosynthesis and how does it work? E.2.c; E.2.d; E.2.e I – ACT bell ringer (5 min) II – Dark reaction skit presentations and ratings (45 minutes) III – Dark reaction organizer	1. ACT bell ringer	1. Dark reactions organizer (advanced organizer) 2. Skit design (nonlinguistic representation)	1. Skit design (Novelty and variety, Working with others)	1. Skit ratings
<b>8</b>	What is photosynthesis and how does it work? E.2.c; E.2.d; E.2.e I – ACT bell ringer (5 min) II – Photosynthesis Quiz (30 min) III – Going over and grading quiz (20 min)	1. ACT bell ringer			1. Quiz
<b>9</b>	What is cellular respiration and how does it work? B.1.h; B.1.i I - ACT bell ringer (5 min) II – Cellular respiration guided notes (20 min) III – Revisiting the gummy bear sacrifice (15 min) IV – Respiration reading( 10 min)	1. ACT Bell ringer	1. Guided notes (advanced organizer)	1. Gummy bear sacrifice video	1. Note Questions

<p><b>10</b></p>	<p>What is cellular respiration and how does it work?  B.1.h; B.1.i  I - ACT bell ringer (5 min)  II – Cellular respiration guided notes (20 min)  III – Revisiting the gummy bear sacrifice (15 min)  IV – Respiration reading( 10 min)</p>	<p>1. ACT Bell ringer</p>	<p>1. Guided notes (advanced organizer)</p>	<p>1. Gummy bear sacrifice video</p>	<p>1. Note Questions</p>
<p><b>12</b></p>	<p>How is the information in DNA used to make proteins?  B.1.h; B.1.i  I – ACT bell ringer (5 min)  II – Reading annotation (10 min)  III – Aerobic and anaerobic respiration compare and contrast (30)</p>	<p>1. ACT bell ringer</p>	<p>1. Advanced organizer  2. Annotation</p>	<p>1.</p>	<p>1. Organizer</p>
<p><b>13</b></p>	<p>What is cellular respiration and how does it work?  B.1.h; B.1.i  I - ACT bell ringer (5 min)  II – Cellular respiration guided notes (20 min)  III – Manipulatives modeling activity (15 min)</p>	<p>1. ACT bell ringer</p>	<p>1. Manipulatives (non-linguistic representation)</p>	<p>1. Manipulatives (novelty and variety)</p>	<p>1. Note questions</p>

14	<p>What is photosynthesis and how does it work?</p> <p>B.1.h; B.1.i</p> <p>I – ACT bell ringer (5 min)</p> <p>II – Respiration Quiz (30 min)</p> <p>III – Going over and grading quiz (20 min)</p>	1. ACT bell ringer			1. Quiz
15	Test review				
16	Unit Exam				