

STAAR Spring 2024 Biology Answer Key

Item Position	Item Type	TEKS Assessed	Maximum Number of Points	Correct Answer(s)	Reporting Category	Readiness and Supporting
1	Multiple Choice	B.6(A)	1	C	2	Readiness
2	Multiple Choice	B.12(C)	1	B	5	Readiness
3	Multiple Choice	B.10(C)	1	B	4	Supporting
4	Multiple Choice	B.7(E)	1	A	3	Readiness
5	Multiple Choice	B.6(F)	1	B	2	Readiness
6	Multiple Choice	B.11(B)	1	D	5	Readiness
7	Hot Spot	B.5(A)	1	See Appendix 1.1	1	Readiness
8	Multiple Choice	B.10(B)	1	C	4	Readiness
9	Multiple Choice	B.5(C)	1	A	1	Supporting
10	Multiple Choice	B.10(A)	1	D	4	Readiness
11	Multiple Choice	B.12(D)	1	B	5	Supporting
12	Multiple Choice	B.4(C)	1	C	1	Readiness
13	Multiple Choice	B.6(E)	1	B	2	Readiness
14	Multi Part	B.12(E)	2	D, D	5	Readiness

15	Multiple Choice	B.11(A)	1	C	5	Supporting
16	Multiple Choice	B.8(B)	1	D	3	Readiness
17	Short Constructed Response	B.4(B)	2	See Appendix 1.2	1	Readiness
18	Multiple Choice	B.9(A)	1	B	4	Readiness
19	Multiple Choice	B.7(A)	1	D	3	Readiness
20	Drag and Drop	B.7(B)	2	4 See Appendix 1.3	3	Supporting
21	Multiple Choice	B.6(D)	1	A	2	Supporting
22	Drag and Drop	B.9(B)	2	Cellular respiration, Photosynthesis, Photosynthesis, Cellular respiration See Appendix 1.4	4	Supporting
23	Multiple Choice	B.4(A)	1	A	1	Supporting
24	Multiple Choice	B.6(C)	1	B	2	Supporting
25	Multiple Choice	B.11(B)	1	D	5	Readiness
26	Short Constructed Response	B.12(A)	2	See Appendix 1.5	5	Readiness
27	Multiple Choice	B.5(A)	1	A	1	Readiness
28	Multiple Choice	B.6(F)	1	A	2	Readiness

29	Multiple Choice	B.4(B)	1	B	1	Readiness
30	Multiple Choice	B.4(C)	1	D	1	Readiness
31	Multi Part	B.10(A)	2	A, A	4	Readiness
32	Drag and Drop	B.6(A)	2	Base pair, Nucleotide, Phosphate See Appendix 1.6	2	Readiness
33	Multiple Choice	B.7(F)	1	B	3	Supporting
34	Multiple Choice	B.7(D)	1	D	3	Supporting
35	Multiple Choice	B.8(C)	1	A	3	Supporting
36	Text Entry	B.6.G	1	15 See Appendix 1.7	2	Supporting
37	Multiple Choice	B.9(C)	1	C	4	Supporting
38	Multiple Choice	B.12(A)	1	D	5	Readiness
39	Multiple Choice	B.12(B)	1	A	5	Supporting
40	Multiple Choice	B.12(E)	1	C	5	Readiness
41	Hot Spot	B.9(A)	1	See Appendix 1.8	4	Readiness
42	Multiple Choice	B.5(B)	1	B	1	Supporting
43	Drag and Drop	B.6(B)	2	Triplet, amino acid See Appendix 1.9	2	Supporting

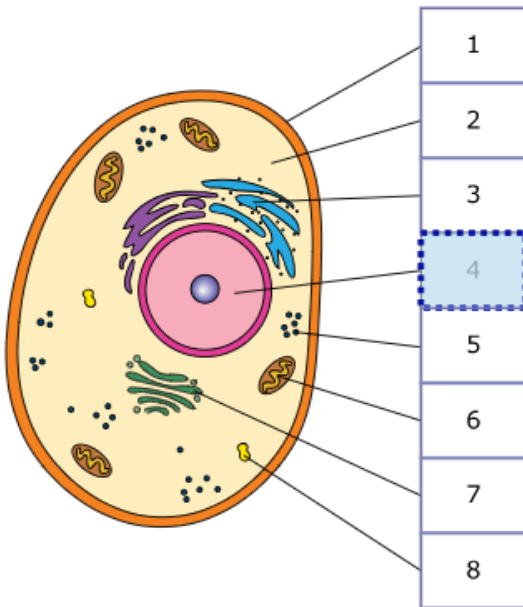
44	Multiple Choice	B.8(B)	1	B	3	Readiness
45	Multiple Choice	B.7(E)	1	D	3	Readiness

STAAR Spring 2024 Biology Appendix

1.1

Dogs have 39 pairs of chromosomes in their somatic cells. In which part of the cell are these chromosomes replicated during the cell cycle?

Select **ONE** correct answer.



1.2

In animal cells, the sodium-potassium pump moves sodium and potassium ions against a concentration gradient across the cell membrane.

What type of transport is used, **AND** why is this type of transport necessary?

Read the question carefully. Then enter your answers in the box provided.

Active transport is used in the process. **AND** The movement of sodium and potassium ions requires energy (ATP) because they need to be pumped against their concentration gradient from an area of low concentration to an area of high concentration.

1.3

Scientists can use the fossil record to determine changes in an environment. What does the abrupt appearance of new organisms show?

Move the correct answer to each box.

The abrupt appearance of new organisms is evidence of and .

OR

The abrupt appearance of new organisms is evidence of and .

1.4

A student is making a table to describe the processes of photosynthesis and cellular respiration. Complete the table by identifying which process causes each result shown in the table.

Move the correct answer to each box. Each answer may be used more than once.

Result	Process
Carbon dioxide is released to the atmosphere.	<input type="text" value="Cellular respiration"/>
Energy is stored in carbon compounds.	<input type="text" value="Photosynthesis"/>
Carbon dioxide is removed from the atmosphere.	<input type="text" value="Photosynthesis"/>
Energy is released from carbon compounds.	<input type="text" value="Cellular respiration"/>

1.5

Ecological relationships occur between two species that live close to each other. Two examples of ecological relationships are described.

- **Example 1:** Bees gather nectar and pollen from flowering plants, providing food for the bees. As the bees move to different flowers, some of the pollen attached to the bees' bodies is spread and released. If the pollen falls on the flower of a plant of the same species, it may fertilize the plant and produce seeds.
- **Example 2:** Orchids are flowering plants that grow on other plants. They typically grow in tall trees high in the canopy, where they can reach sunlight for photosynthesis. They get water and nutrients from rainwater runoff that carries organic material down the host plant's branches. No water or nutrients are taken from the host plant.

What is the main difference between the ecological relationships described in the two examples? Include the scientific term used to define each of the relationships.

Think about the question carefully. Then enter your answer in the box provided.

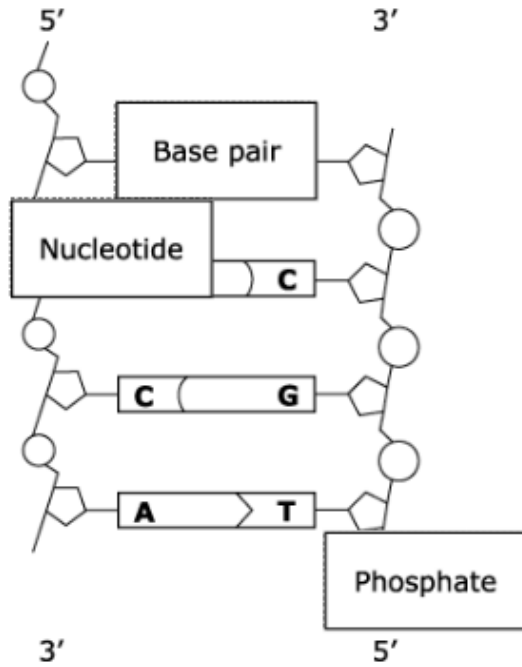
The student should describe example 1 as mutualism. The bees are benefiting by getting food (energy and nutrients) from the flowers. The flowering plants are benefiting by being pollinated (or cross-pollinated) resulting in fertilization or seed production (or increased biodiversity). **AND** The student should identify example 2 as commensalism. Orchids benefit from getting improved access to essential resources such as sunlight, water, and nutrients. The host plant/tree neither benefits nor is harmed by the presence of the orchids.

1.6

Identify the components of DNA.

Move the correct answer to each box. Not all answers will be used.

Deoxyribose sugar	Phosphate	Base pair	Nitrogenous base	Ribose sugar	Nucleotide
-------------------	-----------	-----------	------------------	--------------	------------



1.7

Giraffes (*Giraffa camelopardalis*) have 30 chromosomes in their somatic cells. How many chromosomes will each daughter cell have after the final step of meiosis?

Enter your answer in the box. Your answer must be a whole number.

1.8

A student athlete wants to choose a drink that will provide quick energy for track practice. Which portion of the label should provide the athlete with information about the amount of quick energy in the drink?

Select **ONE** correct answer.

Nutrition Facts					
Serving Size 8.0 fl. oz (240mL)					
Serving Per Container 2					
Amount Per Serving	Per 8 fl. oz	%DV*	Per Can	%DV*	
Calories	110		220		
Total Fat	0g	0%	0g	0%	
Sodium	180mg	8%	360mg	15%	
Total Carb	22g	10%	44g	10%	
Protein	0g		0g		
Riboflavin (Vit. B2)	100%		200%		
Niacin (Vit. B3)	100%		200%		
Vitamin B6	100%		200%		
Vitamin B12	100%		200%		

Not a significant source of calories from fat, saturated fat, trans fat, cholesterol, dietary fiber, vitamin A, vitamin C, calcium, and iron.
*Percent Daily Values are based on a 2,000 calorie diet.

1.9

Complete the sentences to describe a start codon.

Move the correct answer to each box. Not all answers will be used.

triplet

doublet

peptide

glucose

amino acid

Almost every organism begins the process of protein synthesis with a **triplet** nucleotide sequence. This start codon is translated to a common **amino acid** in all organisms.