STAAR Spring 2025 Grade 9 Biology
Answer Key

Item Position	Item Type	TEKS Assessed	Maximum Number of Points	Correct Answer(s)	Reporting Category	Readiness or Supporting
1	Multiple Choice	B.9.B	1	B	3	Supporting
2	Multiple Choice	B.7.A	1	B	2	Readiness
3	Multiple Choice	B.5.B	1	D	1	Supporting
4	Multipart	B.13.D	2	B, A	5	Readiness
5	Multiple Choice	B.12.A	1	B	4	Readiness
6	Multiple Choice	B.7.B	1	C	2	Supporting
7	Multiple Choice	B.10.C	1	B	3	Readiness
8	Multiple Choice	B.5.A	1	D	4	Readiness
9	Short Constructed Response	B.5.B	2	See Appendix 1.1	1	Supporting
10	Multiple Choice	B.13.C	1	D	5	Supporting
11	Multiple Choice	B.10.A	1	A	3	Supporting
12	Multiple Choice	B.12.B	1	C	4	Readiness
13	Drag and Drop	B.6.C	2	See Appendix 1.2	1	Supporting

14	Multiple Choice	B.8.A	1	A	2	Supporting

15	Multiple Choice	B.13.C	1	C	5	Supporting
16	Multiple Choice	B.5.C	1	D	1	Readiness
17	Multiple Choice	B.11.A	1	B	4	Supporting
18	Multiple Choice	B.13.B	1	D	5	Readiness
19	Multipart	B.8.B	2	C, A	2	Readiness
20	Multiple Choice	B.10.B	1	C	3	Supporting
21	Multiple Choice	B.5.D	1	A	1	Readiness
22	Multiple Choice	B.7.A	1	C	2	Readiness
23	Multiselect	B.12.A	2	A, D See Appendix 1.3	4	Readiness
24	Drag and Drop	B.10.D	2	See Appendix 1.4	3	Supporting
25	Multiple Choice	B.13.D	1	A	5	Readiness
26	Multiple Choice	B.5.C	1	D	1	Readiness
27	Multiple Choice	B.8.B	1	B	2	Readiness
28	Short Constructed Response	B.9.A	2	See Appendix 1.5	3	Readiness
29	Multiple Choice	B.11.B	1	C	4	Supporting

30	Multiple Choice	B.13.B	1	B	5	Readiness
31	Multiple Choice	B.6.B	1	D	1	Supporting
32	Hot Spot	B.9.A	1	See Appendix 1.6	3	Readiness
33	Multiple Choice	B.12.B	1	A	4	Readiness
34	Multiple Choice	B.7.C	1	B	2	Readiness
35	Multiple Choice	B.13.A	1	A	5	Readiness
36	Multiple Choice	B.7.B	1	C	2	Supporting
37	Drag and Drop	B.5.D	2	See Appendix 1.7	1	Readiness
38	Multiple Choice	B.11.B	1	A	4	Supporting
39	Multiple Choice	B.10.C	1	C	3	Readiness
40	Multiple Choice	B.13.A	1	B	5	Readiness
41	Hot Spot	B.7.C	1	See Appendix 1.8	2	Readiness
42	Multiple Choice	B.6.A	1	A	1	Readiness
43	Multiple Choice	B.8.A	1	A	2	Supporting
44	Multiple Choice	B.5.A	1	C	4	Readiness
45	Multiple Choice	B.6.A	1	D	1	Readiness

STAAR Spring 2025 Grade 9 Biology
Appendix

1.1

Two students list characteristics of an organism:

- has cytoplasm
- has DNA in a nucleus
- has ribosomes
- has a cell wall

Based on the list of characteristics, Student A claims that the organism is prokaryotic, while Student B claims that the organism is eukaryotic.

Identify which student is correct **AND** why that student is correct.

Think about the information carefully. Then enter your response in the box provided.

Student B is correct because eukaryotic organisms have DNA stored within a nucleus, while prokaryotic organisms do not.

1.2

The intestine is lined with many fingerlike structures called villi, which allow increased absorption of digested materials. The cells within a villus change position and migrate as they mature. Each cell then dies and is sloughed off. For each of three locations within villi, the table shows the number of cells that are undergoing a cellular change called apoptosis, or programmed cell death.

Location within Villi	Number of Cells Undergoing Apoptosis (per 200 Villi Samples)
Base	0
Middle	60
Top	80

Hall, P. A., et al., *Journal of Cell Science*, 1994

Based on the information in the table, how does apoptosis **LIKELY** affect cells?

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

Apoptosis is a normal cellular process that [destroys] cells. A cell may enter apoptosis [at the end of its lifespan]. Without apoptosis, the cell may [become cancerous].

1.3

How do other body systems interact with the endocrine system to regulate body processes?

Select **TWO** correct answers.

- [x] The nervous system helps control the release of hormones throughout the body.
- [x] The immune system helps prevent infection from hormones within the body.
- [ ] The digestive system helps convert hormones into proteins that are absorbed within the body.
- [x] The circulatory system helps transport hormones throughout the body.
- [ ] The integumentary system helps provide oxygen to initiate hormone production throughout the body.

1.4

There are only about 3,000 to 4,000 wild tigers left on Earth. Due to a decrease in habitat, wild tiger populations have become isolated.

How is the genetic diversity of the species affected by decreasing tiger habitat?

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

The genetic diversity of wild tiger populations is [decreasing], because the gene flow is [decreasing] due to isolation from habitat loss.

1.5

Cytochrome c is a protein that helps release energy from food and is produced by nearly all organisms. The table shows a short sequence of the amino acids in cytochrome c for several species.

Organism	Amino Acid Sequence				
	9	**10**	**11**	**12**	**13**
Tuna	Glycine	Aspartic acid	Valine	Alanine	Lysine
Chicken	Glycine	Aspartic acid	Isoleucine	Glutamic acid	Lysine
Neurospora	Glycine	Aspartic acid	Serine	Lysine	Lysine
Gray whale	Glycine	Aspartic acid	Valine	Glutamic acid	Lysine
Silkworm moth	Glycine	Asparagine	Alanine	Glutamic acid	Asparagine

Identify the organism that is **MOST CLOSELY** related to tuna **AND** explain your reasoning using evidence from the table.

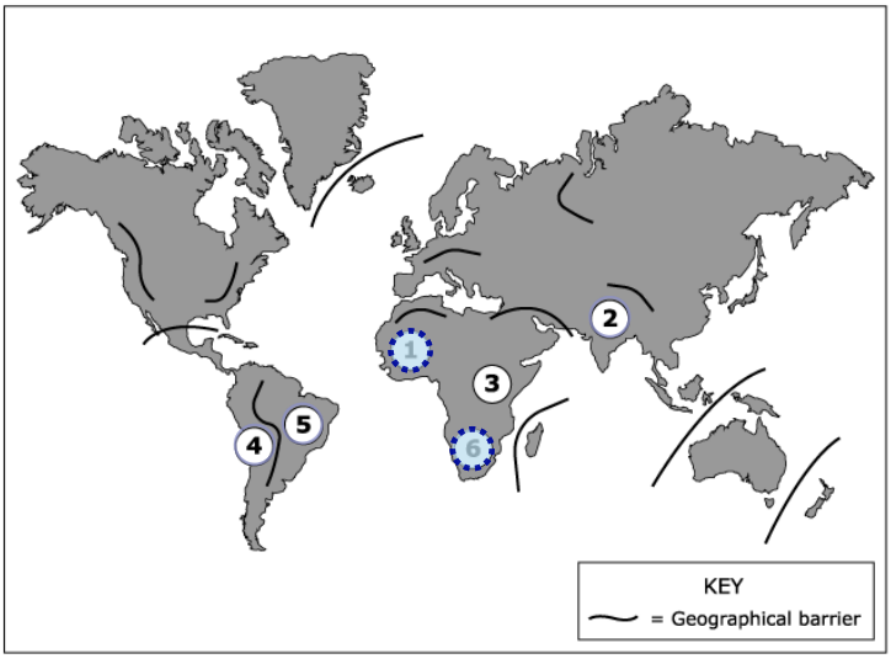
Think about the information carefully. Then enter your response in the box provided.

The tuna is most closely related to the gray whale because the only difference in the amino acid sequence provided is at amino acid 12.

1.6

The geographical distribution of flightless birds is shown on the map. Which locations **MOST LIKELY** share a most recent common ancestor with the birds found at Location 3?

Select **TWO** correct answers.



1.7

A student creates a table to describe some properties of viruses. How should the student complete the table?

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

Properties of Viruses

Reproduction	Size	Genetic Material
Is dependent on a [host cell]	Is [smaller than] human cells	Uses [DNA or RNA]

1.8

Some inherited health disorders are caused by nondisjunction. During nondisjunction, homologous chromosomes fail to separate properly during the formation of sex cells.

Based on the images, which cells **MOST LIKELY** show examples of nondisjunction?

Select **TWO** correct answers.