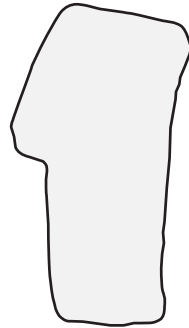


# **Tennessee Biology I End of Course Assessment Student Review Guide**

## Practice Test



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- 34** A student tested an unknown cloudy white liquid for the presence of protein, lipids, starches, and sugars. The observations are given in the chart below.

**Unknown Solution Results**

Testing Indicator	Observed Change in Color
Iodine	from cloudy white to yellow
Benedict's Solution	from cloudy white to yellow
Sudan Red	little change in cloudy white liquid; no red ring or layers
Biuret Solution	from cloudy white to purple

**Based on the data, which molecules are present in the unknown liquid?**

- F** sugars and proteins
- G** lipids and proteins
- H** starches and sugars
- J** starches and lipids

(F) (G) (H) (J)

- 
- 35** Diabetics commonly check their blood glucose levels by pricking their skin for a blood sample and then testing a droplet of blood using test strips and a glucose monitor. A biomedical device company claims to have developed a blood glucose monitor that uses skin cells instead of a blood sample to determine blood glucose levels. This device would eliminate the need for skin pricking. Which step will most help the company determine if the new glucose monitoring device is as effective in accurately determining blood glucose levels as blood testing?

- A** conduct a pilot study to test the new device in a controlled experiment
- B** market the new device directly to diabetic patients
- C** recruit diabetic and non-diabetic volunteers to use the new device for a trial period
- D** encourage doctors to prescribe the new device to their diabetic patients

(A) (B) (C) (D)

**GO ON**

# Biology I

## Practice Test 1

### Evaluation Chart

Circle the questions you answered incorrectly on the chart below, and review the corresponding sections in the book. Read the instructional material, do the practice exercises, and take the section review tests at the end of each section.

If you missed question #:	Go to section(s):	If you missed question #:	Go to section(s):	If you missed question #:	Go to section(s):
1	17.1	21	Section 6	41	7.3, 7.4, 14.4
2	1.1, 1.3	22	2.3	42	20.1, 20.2
3	12.1, 12.2	23	21.5, 22.4	43	3.1, 19.2, 19.3
4	Section 12, 13.4, 13.5	24	Section 6	44	10.4, 13.3
5	7.4	25	21.4, 22.3	45	11.5
6	21.3	26	Section 12, 13.4	46	20.1, 20.2
7	3.1	27	11.3	47	6.1, 6.6
8	12.1, 12.2	28	20.2, 20.3	48	8.3
9	8.1, 8.2, 8.3	29	1.4	49	9.1, 9.3
10	7.3	30	12.1, 12.2, 13.5	50	3.1, 3.2, 15.2, 21.1
11	20.2, 20.3	31	4.3	51	6.4
12	10.4, 11.4	32	9.2, 9.3, 9.4	52	21.4, 21.5
13	Section 16	33	3.1, 21.5, 22.4	53	8.2
14	20.1, 20.2	34	6.1, 6.2, 6.3, 6.6	54	10.1
15	9.1, 9.3	35	2.1, 2.3, 2.5	55	15.3, 21.1
16	11.1, 11.3	36	10.2, 11.2	56	Section 12, 13.4
17	10.4, 10.5	37	9.2, 9.3, 9.4	57	15.2, 19.1, 19.2
18	11.3	38	Section 19, 20.3	58	Section 9
19	18.1	39	21.5, 22.2	59	10.4, 10.6
20	6.4	40	15.1, 15.3	60	

# **Tennessee Biology I End of Course Assessment Student Review Guide**

## **Practice Test**



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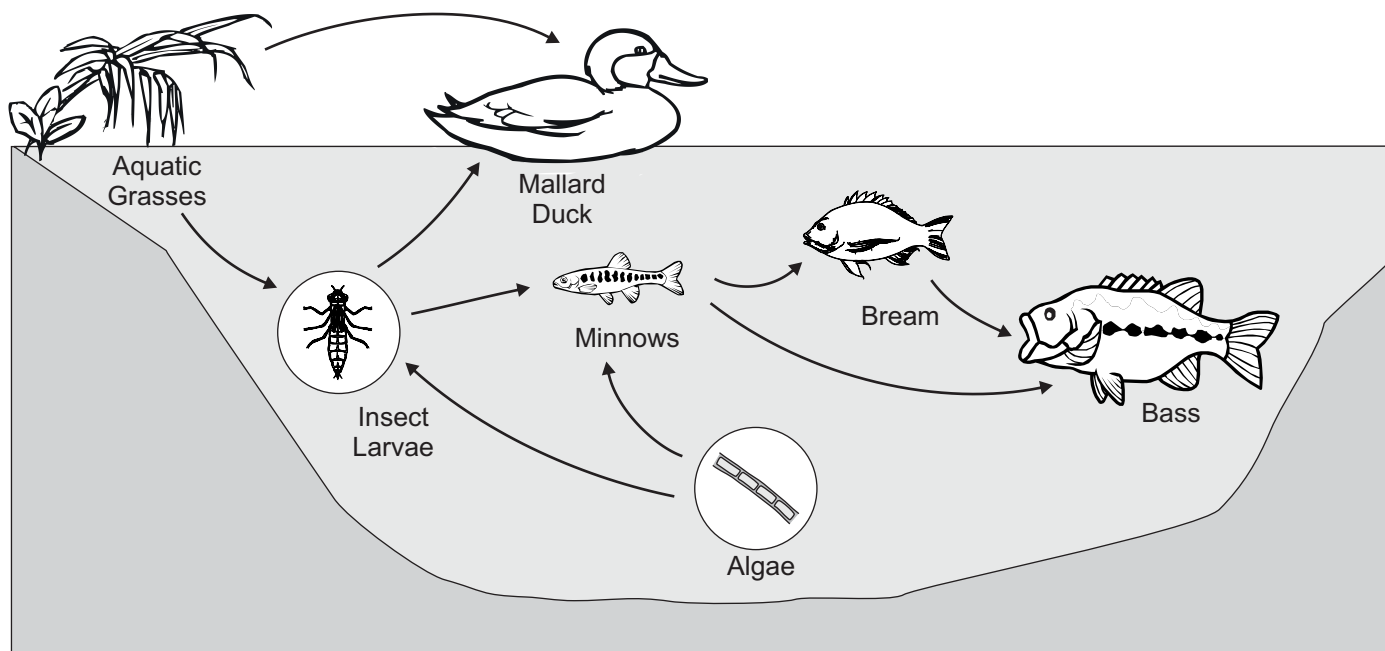
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45 Genotyping is a process that determines genetic variations in an individual. For a fee, a person can mail a sample of his or her DNA to a genotyping company and receive results that show ancestry, physical characteristics, and traits for inheritable diseases. Which is the most important ethical concern the genotyping company must consider?

- A keeping the cost of the test affordable
- B maintaining the privacy of customers' DNA results
- C processing DNA samples in a timely manner
- D ensuring the samples are free from contamination

(A) (B) (C) (D)

46 The diagram shows a pond food web.



In this diagram, which organism receives energy directly from the minnow?

- F Insect Larvae
- G Algae
- H Mallard Duck
- J Bass

(F) (G) (H) (J)

GO ON

# Biology I

## Practice Test 2

### Evaluation Chart

Circle the questions you answered incorrectly on the chart below, and review the corresponding sections in the book. Read the instructional material, do the practice exercises, and take the section review tests at the end of each section.

If you missed question #:	Go to section(s):	If you missed question #:	Go to section(s):	If you missed question #:	Go to section(s):
1	17.3	21	6.3	41	7.3
2	1.1, 1.3	22	2.1, 2.2	42	20.1, 20.2
3	Section 12	23	20.1, 22.4	43	3.1, 19.2, 19.3
4	Section 12, 13.4, 13.5	24	Section 6	44	10.4, 10.6, 16.1, 16.2, 16.3
5	7.4, 12.3	25	21.4, 21.5, 22.2	45	11.5
6	21.3	26	Section 12, 13.2	46	20.1, 20.2
7	3.2	27	11.1, 11.3	47	6.1, 6.6
8	12.1, 12.2, 13.1	28	19.3, 20.3, 21.4	48	Section 8
9	8.1, 8.2, 8.3	29	7.2	49	9.3
10	7.3	30	12.1, 12.2, 13.5	50	12.1, 13.3
11	20.1, 20.2	31	4.4	51	6.4
12	11.1, 11.2, 11.3, 11.4	32	9.2, 9.3, 9.4	52	20.2, 20.3
13	Section 16	33	4.2	53	8.2, 8.4
14	20.1, 20.2	34	6.1, 6.2, 6.3, 6.6	54	10.1, 10.2
15	9.1, 9.3	35	1.1, 1.4	55	15.3, 16.4, 16.5
16	6.5, 11.1, 11.3	36	10.2, 11.2	56	11.4
17	10.4, 10.5	37	9.2, 9.3, 9.4	57	19.1, 19.2, 19.3
18	11.3	38	21.4	58	9.2, 9.3, 9.4
19	18.1	39	21.4, 22.5	59	10.4
20	3.1, 6.4	40	15.1, 15.2, 21.1	60	15.1, 15.3, 15.4

# Competency Correlation Chart (Teacher's Edition)

The chart below correlates each standard as given in the 2009 Tennessee Biology I Framework to the student guide. The Text Section column gives the section numbers in the text where each competency is reviewed. The Practice Test columns give the question number(s) in that test that correlates to each competency.

Reporting Category, Standard, and State Performance Indicator	Text Section(s)	Practice Test 1	Practice Test 2
<b>Reporting Category 1 (Embedded Standard) Inquiry, Technology and Engineering, Mathematics</b>			
3210.T/E.1 Distinguish among tools and procedures best suited to conduct a specified scientific inquiry.	Section 1, Subsections 2.3, 2.5, 5.3, 7.2	29	29
3210.T/E.2 Evaluate a protocol to determine the degree to which an engineering design process was successfully applied.	Subsection 4.3	31	
3210.T/E.3 Evaluate the overall benefit to cost ratio of a new technology.	Subsection 4.4		31
3210.T/E.4 Use design principles to determine how a new technology will improve the quality of life for an intended audience.	Subsections 2.3, 2.5, 4.3	35	
3210.Math.1 Interpret a graph that depicts a biological phenomenon.	Section 3, Subsections 4.1, 6.4, 13.2, 16.1, 19.3, 21.1	7	7
3210.Math.2 Predict the outcome of a cross between parents of known genotype.	Sections 12, 13	8	8
3210.Inq.1 Select a description or scenario that reevaluates and/or extends a scientific finding.	Subsections 7.1, 12.1, 12.2, 13.3, Section 14		50
3210.Inq.2 Analyze the components of a properly designed scientific investigation.	Section 2, Subsection 14.1	22	22
3210.Inq.3 Determine appropriate tools to gather precise and accurate data.	Section 1, Subsection 7.2	2	2
3210.Inq.4 Evaluate the accuracy and precision of data.	Section 1		35
3210.Inq.5 Defend a conclusion based on scientific evidence.	Subsections 2.4, 2.5, 4.1, 14.1, Section 3	50	
3210.Inq.6 Determine why a conclusion is free of bias.	Subsections 2.3, 2.5, 4.2		33
3210.Inq.7 Compare conclusions that offer different, but acceptable explanations for the same set of experimental data.	Subsections 2.5, 4.1, 14.1 Section 3	33	

Reporting Category, Standard, and State Performance Indicator	Text Section(s)	Practice Test 1	Practice Test 2
<b>Reporting Category 2, Standard 1 Cells</b>			
3210.1.1 Identify the cellular organelles associated with major cell processes.	Subsections 7.4, 7.5, 9.2, 9.3, 14.4	5	5
3210.1.2 Distinguish between prokaryotic and eukaryotic cells.	Subsections 7.3, 7.5, 14.4	10, 41	10, 41
3210.1.3 Distinguish among proteins, carbohydrates, lipids, and nucleic acids.	Sections 5, 6	21, 24	21, 24
3210.1.4 Identify positive tests for carbohydrates, lipids, and proteins.	Subsections 6.1, 6.2, 6.3, 6.6	34, 47	34, 47
3210.1.5 Identify how enzymes control chemical reactions in the body.	Section 5, Subsection 6.4	20, 51	20, 51
3210.1.6 Determine the relationship between cell growth and cell reproduction.	Subsections 10.1, 10.2, 10.3	54	54
3210.1.7 Predict the movement of water and other molecules across selectively permeable membranes.	Sections 5, 8	9, 48	9
3210.1.8 Compare and contrast active and passive transport	Section 8	53	48, 53
<b>Reporting Category 3, Standard 2 Interdependence</b>			
3210.2.1 Predict how populations changes of organisms at different trophic levels affect an ecosystem.	Subsections 19.2, 20.2, 20.3	11	11
3210.2.2 Interpret the relationship between environmental factors and fluctuations in population size.	Subsections 20.2, 20.3, 21.4, 21.5	52	52
3210.2.3 Determine how the carrying capacity of an ecosystem is affected by interactions among organisms.	Subsections 19.3, 21.5	43	43
3210.2.4 Predict how various types of human activities affect the environment.	Subsections 19.3, 20.3, 21.4, 21.5	25	25
3210.2.5 Make inferences about how a specific environmental change can affect the amount of biodiversity.	Section 16, Subsections 19.1, 21.1, 21.2, 21.4, 21.5	57	57
3210.2.6 Predict how a specific environmental change may lead to extinction of a particular species.	Subsections 19.3, 21.4, 21.5	38	38
3210.2.7 Analyze factors responsible for the changes associated with biological succession.	Subsection 21.3	6	6



<b>Reporting Category, Standard, and State Performance Indicator</b>	<b>Text Section(s)</b>	<b>Practice Test 1</b>	<b>Practice Test 2</b>
<b>Reporting Category 4, Standard 3 Flow of Matter &amp; Energy</b>			
3210.3.1 Interpret a diagram that illustrates energy flow in an ecosystem.	Section 20	14, 42, 46	14, 42, 46
3210.3.2 Distinguish between aerobic and anaerobic respiration.	Subsections 9.1, 9.3	15, 49	15, 49
3210.3.3 Compare and contrast photosynthesis and cellular respiration in terms of energy transformation.	Subsection 7.5, Section 9	32, 37, 58	32, 37, 58
3210.3.4 Predict how changes in a biogeochemical cycle can affect an ecosystem.	Subsections 21.4, 21.5, Section 22	23, 39	23, 39
<b>Reporting Category 5, Standard 4 Heredity</b>			
3210.4.1 Identify the structure and function of DNA.	Subsections 6.5, 6.6, 11.1, 11.2, 11.3	16	16
3210.4.2 Associate the process of DNA replication with its biological significance.	Subsections 10.2, 11.1, 11.2, 11.4, 13.2	36	36
3210.4.3 Recognize the interactions between DNA and RNA during protein synthesis.	Subsections 11.1, 11.3	18, 27	18, 27
3210.4.4 Determine the probability of a particular trait in an offspring based on the genotype of the parents and the particular mode of inheritance.	Sections 12, 13	3, 26, 56	3, 26, 56
3210.4.5 Apply pedigree data to interpret various modes of genetic inheritance.	Subsection 13.5	4, 30	4, 30
3210.4.6 Describe how meiosis is involved in the production of egg and sperm cells.	Subsections 10.4, 10.5	17	17
3210.4.7 Describe how meiosis and sexual reproduction contribute to genetic variation in a population.	Subsections 10.4, 10.6, 13.1	44, 59	44, 59
3210.4.8 Determine the relationship between mutations and human genetic disorders.	Subsections 11.4, 12.3, 13.4	12	12, 56
3210.4.9 Evaluate the scientific and ethical issues associated with gene technologies: genetic engineering, cloning, transgenic organism production, stem cell research, and DNA fingerprinting	Subsection 11.5	45	45

Reporting Category, Standard, and State Performance Indicator	Text Section(s)	Practice Test 1	Practice Test 2
<b>Reporting Category 6, Standard 5 Biodiversity &amp; Change</b>			
3210.5.1 Compare and contrast the structural, functional, and behavioral adaptations of animals or plants found in different environments.	Section 15, Subsection 18.1	40, 60	60
3210.5.2 Recognize the relationship between form and function in living things.	Section 15, Subsections 16.1, 17.4, 18.1, 19.2, 21.1, 21.2	55	40, 55
3210.5.3 Recognize the relationships among environmental change, genetic variation, natural selection, and the emergence of a new species.	Section 16	13	13
3210.5.4 Describe the relationship between the amount of biodiversity and the ability of a population to adapt to a changing environment.	Section 16, Subsection 20.3	28	28
3210.5.5 Apply evidence from the fossil record, comparative anatomy, amino acid sequences, and DNA structure that support modern classification systems.	Subsection 17.4, Section 18	19	19
3210.5.6 Infer relatedness among different organisms using modern classification systems.	Section 17	1	1