

Practice Test – Biology Answer Key

Item Position	Item Type	TEKS Alignment	Maximum Number of Points	Correct Answer(s)
1	Multiple Choice	Bio.1.B.4.A	1	B
2	Multiple Choice	Bio.3.B.7.B	1	C
3	Multiple Choice	Bio.4.B.10.A	1	C
4	Multiple Choice	Bio.5.B.12.A	1	A
5	Multiple Choice	Bio.2.B.6.C	1	C
6	Multiple Choice	Bio.1.B.4.B	1	A
7	Text Entry	Bio.5.B.11.A	1	See Appendix 1.1
8	Multiple Choice	Bio.4.B.10.B	1	D
9	Multiple Choice	Bio.2.B.6.E	1	C
10	Multiple Choice	Bio.1.B.4.C	1	D
11	Short Constructed Response	Bio.5.B.12.C	2	See Appendix 1.2
12	Multiple Choice	Bio.3.B.7.F	1	B
13	Multiple Choice	Bio.1.B.5.C	1	C
14	Multiple Choice	Bio.2.B.6.D	1	B
15	Multiple Choice	Bio.3.B.8.B	1	C
16	Multiple Choice	Bio.4.B.9.C	1	B
17	Evidence Based Selected Response	Bio.3.B.7.A	2	A, B
18	Multiple Choice	Bio.5.B.12.B	1	A
19	Drag and Drop	Bio.2.B.6.C	2	See Appendix 1.3
20	Multiple Choice	Bio.1.B.5.B	1	A
21	Multiple Choice	Bio.5.B.11.A	1	D
22	Short Constructed Response	Bio.1.B.4.C	2	See Appendix 1.4
23	Multiple Choice	Bio.3.B.7.E	1	C
24	Multiple Choice	Bio.1.B.4.A	1	B
25	Multiple Choice	Bio.2.B.6.A	1	C
26	Hotspot	Bio.4.B.10.B	2	2, 3 See Appendix 1.5
27	Multiple Choice	Bio.5.B.12.E	1	A
28	Multiple Choice	Bio.2.B.6.B	1	C
29	Multiple Select	Bio.2.B.6.G	2	B, D See Appendix 1.6
30	Evidence Based Selected Response	Bio.4.B.10.C	2	D, C
31	Multiple Choice	Bio.3.B.7.A	1	C
32	Multiple Choice	Bio.5.B.11.B	1	C
33	Multiple Choice	Bio.3.B.7.C	1	D
34	Drag and Drop	Bio.4.B.9.A	2	See Appendix 1.7
35	Multiple Choice	Bio.3.B.8.A	1	C
36	Multiple Choice	Bio.5.B.12.D	1	C

Item Position	Item Type	TEKS Alignment	Maximum Number of Points	Correct Answer(s)
37	Text Entry	Bio.2.B.6.E	1	5 See Appendix 1.8
38	Multiple Choice	Bio.4.B.9.A	1	A
39	Multiple Choice	Bio.5.B.12.A	1	B
40	Multiple Select	Bio.1.B.5.A	2	C, F See Appendix 1.9
41	Multiple Choice	Bio.3.B.7.D	1	D
42	Multiple Choice	Bio.4.B.9.B	1	C
43	Multiple Choice	Bio.1.B.5.A	1	D
44	Multiple Choice	Bio.2.B.6.F	1	B
45	Multiple Choice	Bio.5.B.12.C	1	C

Practice Test – Biology

Appendix

1.1

Leguminous plants, such as bean plants, share a mutualistic relationship with certain rhizobium bacteria. The plants develop harmless nodules on their roots, where the bacteria live. In return, the bacteria convert an important element from the atmosphere into a nutrient form that the plants can use.

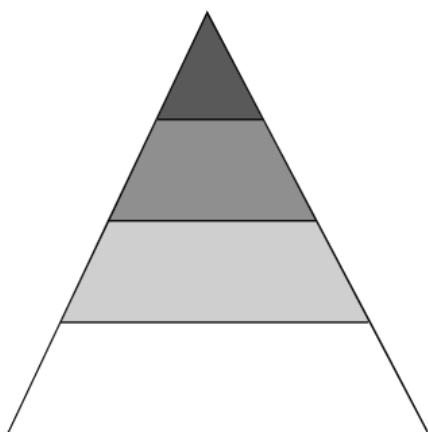
What essential element is converted to a useable form by the rhizobium bacteria?

Enter your answer in the box.

nitrogen **OR** Nitrogen **OR** N **OR** N₂ **OR** nitrogin **OR** nitrogen

1.2

A student is drawing an energy pyramid.



Examine the diagram and answer these questions:

- What is the original source of all energy for the energy pyramid?
- How does the amount of energy available at each level of the pyramid change from the bottom to the top?

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

B I U X

Chars 0/475

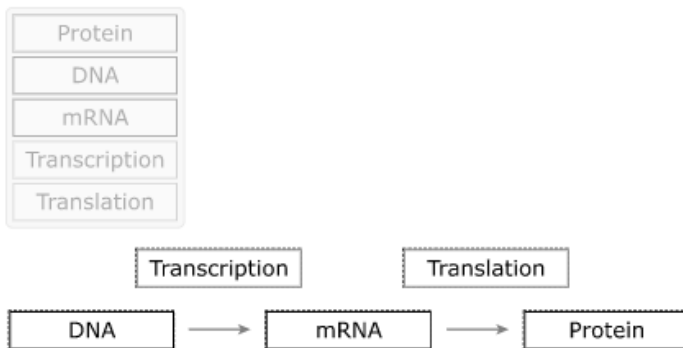
The student states that the sun is the source of all energy for the energy pyramid AND that energy is lost as you move from one trophic level to the next (from the bottom of the pyramid to the top).

1.3

A student makes a diagram to demonstrate how DNA encodes traits for organisms.

Complete the diagram to accurately show the relationship among the structures and processes.

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



1.4

A bacteriophage uses the lysogenic cycle to replicate itself. Describe the bacteriophage's replication process. Be sure to include information about what happens to the host cell during and as a result of this cycle.

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

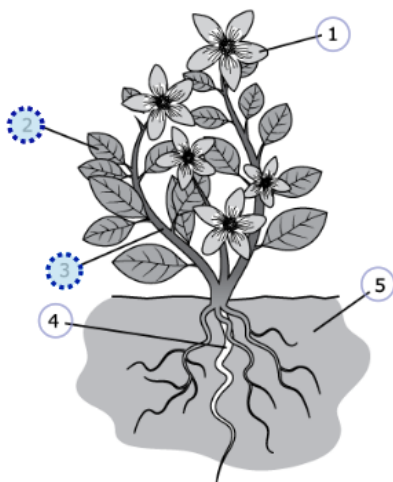
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Bacteriophages reproduce using the lysogenic cycle by inserting their nucleic acid into a host cell and reproducing without destroying the cell. This process results in each daughter cell containing the viral genome.

1.5

Which plant structures are **DIRECTLY** involved in the production and transport of glucose?

Select **TWO** correct answers.



1.6

Which two biological processes would **MOST LIKELY** result in offspring genetically different from their parents?
Select **TWO** correct answers.

DNA replication

Independent assortment

Mitosis

Crossing-over

Asexual reproduction

1.7

A Venn diagram comparing the functions of proteins and nucleic acids is shown.

Which functions **BEST** complete the Venn diagram?

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

Provide energy

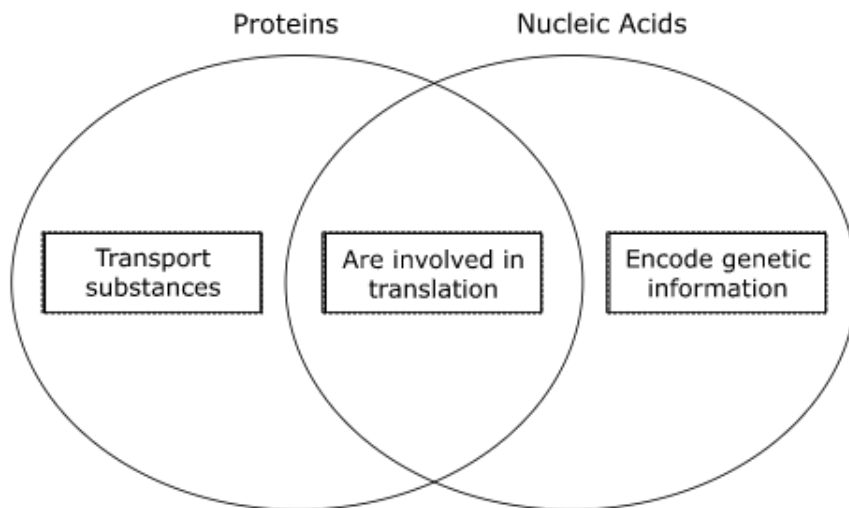
Are involved in translation

Encode genetic information

Transport substances

Provide insulation

Are stored as glycogen



1.8

A genetic sequence undergoes a mutation. The original sequence, the mutated sequence, and a codon chart are shown.

Original Sequence: 5' AUG CCG GCG AUU ACA 3'
 Mutated Sequence: 5' AUC GCC GGC GAU UAC A 3'

Codon Chart
Second letter

		U	C	A	G	
First letter	U	UUU } Phe UUC } UUA } Leu UUG }	UCU } UCC } Ser UCA } UCG }	UAU } Tyr UAC } UAA } Stop UAG } Stop	UGU } Cys UGC } UGA } Stop UGG } Trp	Third letter U C A G
	C	CUU } Leu CUC } CUA } CUG }	CCU } CCC } Pro CCA } CCG }	CAU } His CAC } CAA } Gln CAG }	CGU } Arg CGC } CGA } CGG }	
	A	AUU } Ile AUC } AUA } Met AUG }	ACU } ACC } Thr ACA } ACG }	AAU } Asn AAC } AAA } Lys AAG }	AGU } Ser AGC } AGA } Arg AGG }	
	G	GUU } Val GUC } GUA } GUG }	GCU } GCC } Ala GCA } GCG }	GAU } Asp GAC } GAA } Glu GAG }	GGU } GGC } Gly GGA } GGG }	

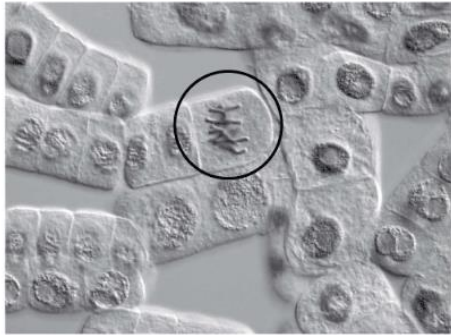
How many amino acid changes can be identified from the mutated sequence shown?

Enter your answer in the box.

5

1.9

A student studying mitosis captures an image of cells from an onion root tip with a camera mounted on a microscope.



Which events occur after the phase circled in the student's image?

Select **TWO** correct answers.

Spindle fibers form.

Chromosomes condense.

Paired chromosomes separate.

The nuclear membrane disappears.

Chromosomes attach to spindle fibers.

The cytoplasm separates into two cells.