



Nebraska State Accountability

**Grade 11
Science
Practice Test**

Name:

Directions:

On the following pages of your test booklet are multiple-choice questions for Session 1 of the Grade 11 *Nebraska State Accountability–Science (NeSA–S)*.

Each question will ask you to select an answer from among four choices. These questions will be found in your test booklet.

For all questions:

- Read each question carefully and choose the best answer.
- You may use scratch paper to solve the problems.
- You may not use a calculator on this test.
- Be sure to answer ALL the questions on your answer sheet.
- Only one of the answers provided is the correct response.

When you come to the word STOP at the end of Session 1, you have finished Session 1 of the Grade 11 Science Test. You may review Session 1 only to check your answers. Make sure you have marked all of your answers clearly and that you have completely erased any marks you do not want. When you are finished, put your answer sheet inside your test booklet and close your test booklet.

1. Use the table below to answer the question.

Periodic Table of the Elements

	IA																VIIIA	
1	H	IIA															He	
2	Li	Be										B	C	N	O	F	Ne	
3	Na	Mg	IIIB	IVB	VB	VIB	VIIIB	VIII			IB	IIB	Al	Si	P	S	Cl	Ar
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
6	Cs	Ba	*La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
7	Fr	Ra	**Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg							

* Lanthanide Series

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu

** Actinide Series

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

What is the trend of valence electrons, from left to right, across a row of the periodic table?

- A. They increase across the period.
- B. They are all equal across the period.
- C. They are equal to an atomic number.
- D. They are equal to the number of the period.

SCIENCE PRACTICE TEST

2. Which object is smallest?

- A. galaxy
- B. planet
- C. star
- D. universe

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3. An advertisement claims patients can defeat the common cold in 48 hours by taking vitamin C tablets with a mineral supplement. Which is the dependent (responding) variable to test the claim?

- A. the chemical formula for vitamin C
- B. the severity of patients' cold symptoms
- C. the chemical formula for the mineral supplement
- D. the amount of time before patients' cold symptoms improve

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4. Which process moves particles from areas of low concentration to areas of high concentration in a cell?

- A. active transport
- B. diffusion
- C. facilitated diffusion
- D. osmosis

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5. What is the displacement of a car moving with a uniform velocity of 20 meters per second for 40 seconds?
- A. 200 meters
 - B. 400 meters
 - C. 600 meters
 - D. 800 meters

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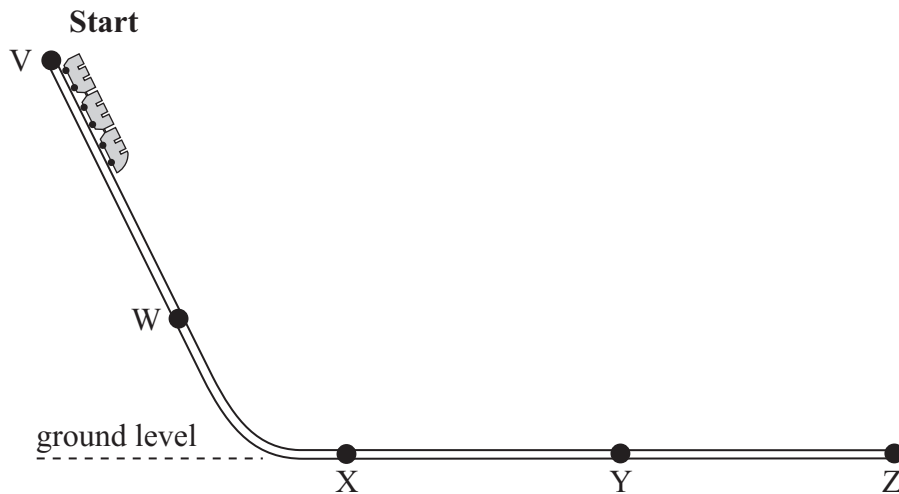
6. What is the source of energy that moves tectonic plates?
- A. nuclear fission
 - B. nuclear fusion
 - C. radioactive decay
 - D. solar energy

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7. Which molecules make up DNA?
- A. amino acids
 - B. fatty acids
 - C. nucleotides
 - D. polypeptides

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8. Use the diagram below to answer the question.



How does the rollercoaster's total energy at location W compare to the total energy at location V and location X?

- A. The total energy at location W is less than the total energy at location V and location X.
- B. The total energy at location W is equal to the total energy at location V and at location X.
- C. The total energy at location W is greater than the total energy at location V and location X.
- D. The total energy at location W is greater than the total energy at location V and less than the total energy at location X.

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9. Use the table below to answer the question.

Heating Experiment Data

Metal	Heat Added (J)	Mass of Metal (g)	Change in Temperature ($^{\circ}\text{C}$)
copper	3,000	100	77
iron	3,000	100	64
lead	3,000	100	231
silver	3,000	100	130

Which conclusion is supported by the data?

- A. A given mass of silver requires less heat to change its temperature 1°C than an equal mass of iron.
- B. A given mass of copper requires less heat to change its temperature 1°C than an equal mass of lead.
- C. A given mass of silver requires less heat to change its temperature 1°C than an equal mass of lead.
- D. A given mass of copper requires less heat to change its temperature 1°C than an equal mass of silver.

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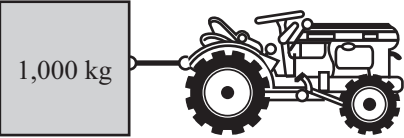
10. Which process transfers solar energy to Earth?

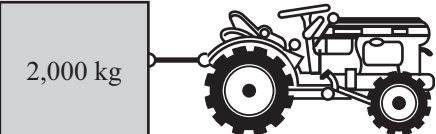
- A. conduction
- B. convection
- C. induction
- D. radiation

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SCIENCE PRACTICE TEST

11. When is a tractor exerting the greatest amount of force pulling a weight?

A.  mass of tractor: 3,000 kg
acceleration: 5 m/s^2

B.  mass of tractor: 4,000 kg
acceleration: 4 m/s^2

C.  mass of tractor: 2,000 kg
acceleration: 6 m/s^2

D.  mass of tractor: 5,000 kg
acceleration: 3 m/s^2

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12. A fossil contains 12.5% of the original amount of a radioactive isotope. The half-life of the isotope is 8,000 years. About how old is the fossil?
- A. 16,000 years
 - B. 24,000 years
 - C. 32,000 years
 - D. 40,000 years

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13. A student is injured by inhaling gases released during a laboratory experiment. Which piece of equipment could have prevented this accident?
- A. eyewash
 - B. fire blanket
 - C. goggles
 - D. fume hood

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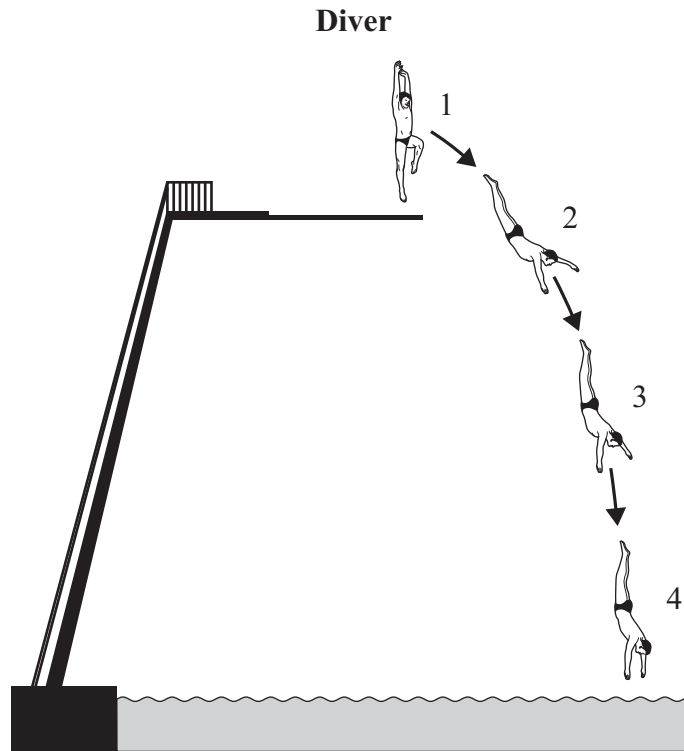
14. Which type of adaptation is exhibited by sandhill cranes flying north for the summer?
- A. behavioral
 - B. morphological
 - C. physiological
 - D. structural

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15. Which resource is renewable?
- A. coal
 - B. natural gas
 - C. solar
 - D. uranium

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16. Use the picture below to answer the question.



At which location does the diver have the most kinetic energy?

- A. 1
- B. 2
- C. 3
- D. 4

17. Use the table below to answer the question.

Diffusion of Substances X and Y

Time (min)	Distance Color Has Spread for Substance (cm)	
	X	Y
0	0.00	0.00
5	0.38	0.20
10	0.75	0.37
15	1.11	0.55
20	1.45	0.70
25	1.79	0.83

A class performs an experiment to study diffusion. Substance X has a molecular mass of 158 atomic mass units (amu). Substance Y has a molecular mass of 320 amu. The students place a single crystal of each substance in a separate Petri dish containing a gel-like substance. The students then measure how far the color spreads. The experiment is repeated with Substance Z which has a molecular mass of 100 amu. Which BEST predicts how far Substance Z will diffuse in five minutes?

- A. 0.20 cm
- B. 0.38 cm
- C. 0.54 cm
- D. 0.96 cm

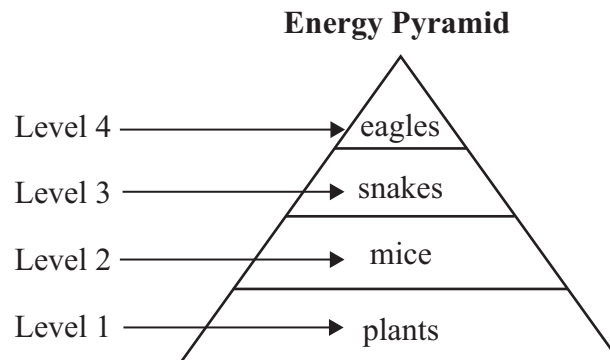
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18. What are the building blocks of lipids?

- A. amino acids
- B. fatty acids
- C. monosaccharides
- D. nucleotides

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19. Use the diagram below to answer the question.



How much energy is available to the organisms in level 3?

- A. a small percentage of the energy in level 2
- B. a large percentage of the energy in level 2
- C. all of the energy in level 1 plus all the energy in level 2
- D. a large percentage of the energy in level 1 plus the energy in level 2

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20. How does one isotope of an element differ from another isotope of the same element?

- A. increase or decrease in the charge
- B. increase or decrease in the number of protons
- C. increase or decrease in the number of neutrons
- D. increase or decrease in the number of electrons

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Science
Grade 11 Practice Test
Answer Key

1	A
2	B
3	D
4	A
5	D
6	C
7	C
8	B
9	A
10	D
11	C
12	B
13	D
14	A
15	C
16	D
17	C
18	B
19	A
20	C