

NJSLA–S Practice Test Answer and Alignment Document

Science: Grade 5 – Unit 1

Items 1-2

Domain: Physical Science

Phenomenon: An electric current can produce motion.

Item 1

UIN: 518039_01¹

Item Type: Technology Enhanced

Standards alignment: DCI: PS3.B; SEP: CEDS; CCC: E&M

Screen Reader (SR)/Assistive Technology (AT)/Paper Key: D

Key: A correct response will look like this:

	Battery	Wire Coil	Magnet
Supplies electric current	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carries electric current	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Causes the coil to spin	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Rationale:

The battery produces electrical energy.

The wire coil transmits the electric current.

The magnet causes the wire coil to spin and converts electrical energy to motion energy.

Item 2

UIN: 518039_02

Item Type: Multiple Choice

Standards alignment: DCI: PS3.B; SEP: CEDS; CCC: E&M

Key: B

Rationale:

A toy car converts electrical energy to motion energy, while the three other foils all convert electrical energy into either sound or light energy.

¹ The UIN (Unique Identification Number) can be used to find an item in the New Jersey Digital Item Library (<https://nj.digitalitemlibrary.com/>)

Items 3–4

Domain: Physical Science

Phenomenon: Two of the same type of ball are thrown at a wall, but one ball bounces back farther away from the wall than the other.

Item 3

UIN: 518022_01

Item Type: Multiple Choice

Standards alignment: DCI: PS3.A; SEP: CEDS; CCC: E&M

Key: A

Rationale:

More energy will cause the ball to bounce farther away from the wall, which would cause the ball to land closer to Student 1, as shown in the figure.

Answer B is invalid based on the diagram.

Answers C and D are invalid based on the diagram; both students hit the ball against the wall at the same height.

Item 4

UIN: 518022_03

Item Type: Technology Enhanced

Standards alignment: DCI: PS3.A; SEP: EAE; CCC: E&M

SR/AT/Paper Key: Box Y: B; Box Z: B

Key: A correct response will look like this:

When the soccer ball hits the wall, of the soccer

ball's energy is transferred to the air in the form of

Rationale:

Only some of the ball's energy is transferred to the air as sound. Light is not produced at all. If all of the energy were transferred, the ball would not have enough energy to bounce back away from the wall; and if none were transferred, a sound would not be produced.

Items 5–6

Domain: Earth and Space Science

Phenomenon: A student on the way to school in January observes that some icy roads had been treated with sand and others with salt.

Item 5

UIN: 518047_01

Item Type: Multiple Choice

Standards alignment: DCI: ESS3.B; SEP: EAE; CCC: C and E

Key: D

Rationale:

The table shows that tires skid less because sand helps the tires grip the road, and sand is also less expensive than salt. The table also states that sand does not melt ice and has some environmental impacts, making answers A, B, and C invalid.

Item 6

UIN: 518047_02

Item Type: Technology Enhanced

Standards alignment: DCI: ESS3.B; SEP: CEDS; CCC: C and E

SR/AT/Paper Key: B; A; B

Key: A correct response will look like this:

<p>Snow-covered roads with air temperature of 0°F</p> <p>Sand</p>	<p>Icy roads with air temperature of 20°F</p> <p>Salt</p>	<p>Icy roads with air temperature of 5°F</p> <p>Sand</p>
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Rationale:

The table shows:

Snow-covered roads: Sand helps the tires grip the road and salt does not help melt snow-covered roads when the air temperature is below 10°F.

Icy roads with air temperature of 20°F: Salt works when the temperature is above 10°F.

Icy roads with air temperature of 5°F: Sand would be better, since the temperature is below 10°F, and salt only works when the temperature is above 10°F. Sand helps the tires grip the road.

Item 7–9

Domain: Earth and Space Science

Phenomenon: At night, a street light appears bigger and brighter than other street lights on the same street, just like some stars in the sky.

Item 7

UIN: 518019_05

Item Type: Multiple Choice

Standards alignment: DCI: ESS1.A; SEP: AID; CCC: S, P, and Q

Key: B

Rationale:

Table 1 shows street light X is closest to the student (1 km), and it appears the brightest (medium). Answer A is the opposite, therefore invalid.

Table 2 shows similar information as Table 1 for the relative distance and brightness of stars. The farther away the star is, the less bright it appears. Answers C and D are opposite of the information in the table, and therefore invalid.

Item 8

UIN: 518019_06

Item Type: Technology Enhanced

Standards alignment: DCI: ESS1.A; SEP: AID; CCC: S,P, and Q

SR/AT/Paper Key: Box Y: C; Box Z: B

Key: A correct response will look like this:

Based on Tables 1 and 2, street light has the same brightness as Arcturus. If the student moves away from Arcturus, the brightness of this star would appear to

Rationale:

Tables 1 and 2 show street light Z’s brightness is “very low,” which is the same level of brightness as Arcturus. The farther away the star, the less bright it appears. The Sun is the closest star and its brightness is very high.

Item 9

UIN: 518019_07

Item Type: Multiple Choice

Standards alignment: DCI: ESS1.A; SEP: EAE; CCC: S,P, and Q

Key: B

Rationale:

Table 2 shows that the Sun appears larger because it is the closest star to Earth and it is the brightest.

Item 12

UIN: 518037_04

Item Type: Technology Enhanced

Standards alignment: DCI: ESS2.B; SEP: AID; CCC: PAT

SR/AT/Paper Key: A and D

Key: 1 and 4. A correct response will look like this:

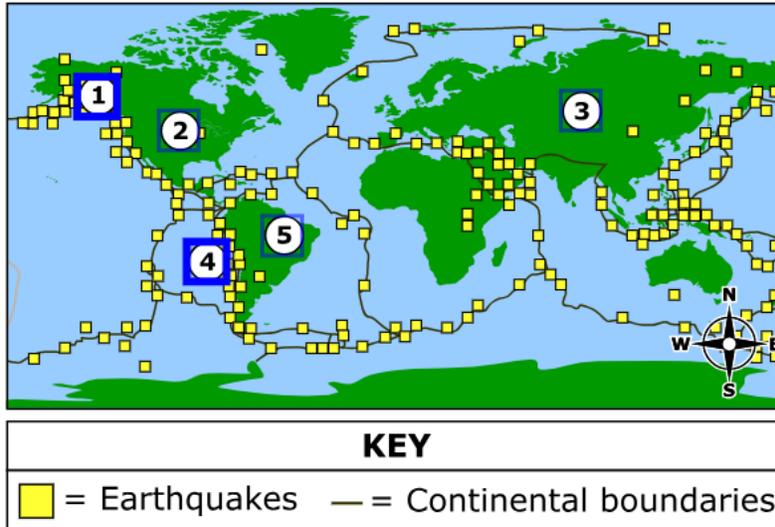


Figure 2. Map of Major Earthquakes since 1900

Rationale:

Locations 1 and 4 show areas where earthquakes most likely will occur. As shown on the map, both areas have experienced numerous major earthquakes since 1900. Also, locations 1 and 4 are along continental boundaries where two tectonic plates are colliding, making earthquakes occur. Locations 2, 3, and 5 are not located on or directly next to a continental plate boundary, and do not fit either of these descriptions.

Items 13–17

Domain: Life Science

Phenomenon: Scientists observe that some male deer in a habitat have large antlers while others have small antlers.

Item 13

UIN: 1905B007_01

Item Type: Technology Enhanced

Standards alignment: DCI: LS3.A; SEP: AID; CCC: SC

Key: D and E

Rationale:

Table 1 shows that deer of all ages that eat more food and have a more varied diet, have heavier antlers (age 2: 425 grams vs. 250 grams; age 3: 700 grams vs. 600 grams; and age 4: 700 grams vs. 200 grams), and weigh more (age 2: 64 kilograms vs. 54 kilograms; age 3: 79 kilograms vs. 68 kilograms and age 4: 77 kilograms vs. 54 kilograms) than deer that eat less food and have a less-varied diet. Therefore, answers A, B, and C are invalid.

Item 14

UIN: 1905B007_03

Item Type: Technology Enhanced

Standards alignment: DCI: LS3.A; SEP: UMCT; CCC: S, P, and Q

SR/AT/Paper Key: C

Key: A correct response will look like this:

Age (years)	Difference in Antler Mass, Forest A and Forest B (grams)
3	100
4	500

Rationale:

Table 1 shows that deer at age 3 in Forest A have an antler mass of 700 grams and in Forest B have an antler mass of 600 grams; therefore, the difference is 100 grams. At age 4, in Forest A, deer have an antler mass of 700 grams, and in Forest B they have an antler mass of 200 grams; therefore, the difference is 500 grams.

Item 15

UIN: 1905B007_05

Item Type: Technology Enhanced**Standards alignment:** DCI: LS3.A; SEP: AID; CCC: SC**SR/AT/Paper Key:** Box Y: D; Box Z: B**Key:** A correct response will look like this:

Deer with large-antlered fathers have antlers that weigh more than deer with small-antlered fathers at . At 4 years old, deer with large-antlered fathers have antlers that are the antlers of deer with small-antlered fathers.

Rationale:

Table 2 shows that deer at all ages that have large-antlered fathers have antlers that weigh more than the antlers of deer that have small-antlered fathers (age 2: 625 grams vs. 400 grams; age 3: 1,150 grams vs. 600 grams; age 4: 1,300 grams vs. 650 grams).

Item 16

UIN: 1905B007_08

Item Type: Constructed Response**Standards alignment:** DCI: LS3.A; SEP: EAE; CCC: PAT**Sample student response:**

Based on table 1, I can make a claim about how diet affects the size of a deer's antlers. Diet does affect the size of a deer's antlers. In table 1, Forest A, where plenty of food is provided, the deer's antlers weighed more. In Forest B, where less food was provided, the deer's antlers weighed less. This shows how the diet of a deer can affect the size and weight of their antlers.

By examining table 2, I can make a claim that the age of an offspring deer does affect the size of its antlers. I know that the age of the offspring can affect the size of its antlers because in table 2, when the deer was two, their antlers size was less than when they were three. When they were three, the antler size was less than when they were four. This explains to me that the age of an offspring deer does affect the size of their antlers.

Key: (4pts)

- 1 point for making a valid claim about whether diet affects the size of a deer's antlers.
- 1 point for supporting the claim using data from Table 1.
- 1 point for making a valid claim about whether the age of the offspring deer affects the size of its antlers.
- 1 point for supporting the claim using data from Table 2.

Rationale:

The student claims that diet affects antler size and supports the claim using data from Table 1. Table 1 shows that in Forest A, where plenty of food is available, the average mass of antlers in years 2, 3, and 4 is greater than the average mass of antlers in Forest B, where less food is available.

The student makes a second claim that the age of the offspring affects the size of its antlers and supports the claim using Table 2. Table 2 shows that the average mass of the offspring's antlers increases each year as the deer mature.

Item 17

UIN: 1905B007_10

Item Type: Technology Enhanced

Standards alignment: DCI: LS1.C ; SEP: CEDS; CCC: S&SM

SR/AT/Paper Key: Box Y: B; Box Z: B

Key: A correct response will look like this:

If the variety and amount of food in Forest A decreases, the mass of the deer should and the mass of the antlers should .

Rationale:

Table 1 shows that deer of all ages living in Forest A have more food, have a more varied diet, have greater body mass, and greater antler mass than deer that live in Forest B. If the variety and amount of food that the deer that live in Forest A had access to decreased, it would likely cause the deer to have lower body masses and the mass of their antlers would decrease.