

Student Name: _____



Physical Science

EOC Test Prep

Materials



For the complete Georgia Milestones Assessment Guide for this grade level, go to the GA DOE Website at [gadoe.org](http://www.gadoe.org) and search for the **EOG Assessment Guides** – choose your grade level. **Here's the link:** <http://www.gadoe.org/Curriculum-Instruction-and-Assessment/Assessment/Pages/Georgia-Milestones-End-of-Course-Assessment-Guides.aspx>

Georgia Milestones Physical Science EOC Assessment Guide

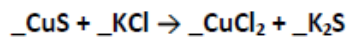
Item 1

Metals in group 1 on the periodic table most commonly form which type of ion?

- A 2- ion
- B 1- ion
- C 1+ ion
- D 2+ ion

Item 2

Use this chemical equation to answer the question.



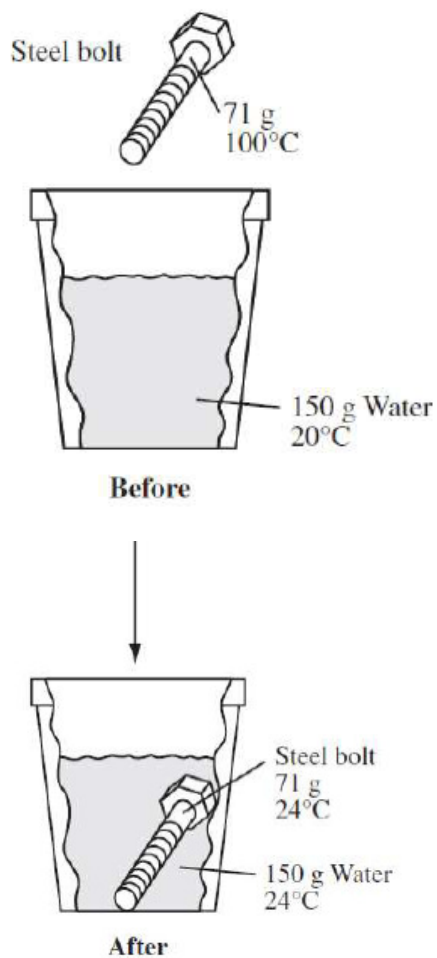
What coefficient of KCl will balance the equation?

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

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Item 3

A hot (100°C) bolt with a mass of 71 grams is placed in 150 grams of cool (20°C) water. This diagram shows the resulting temperature changes. The specific heat of water is $4.186\text{ J/g}^{\circ}\text{C}$.



Approximately how many joules of heat does the water absorb?

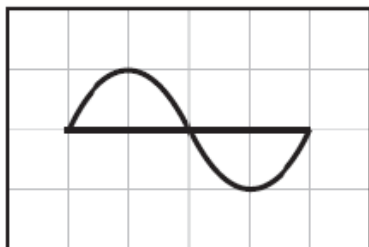
- A 2,512 J
- B 3,700 J
- C 15,070 J
- D 22,590 J

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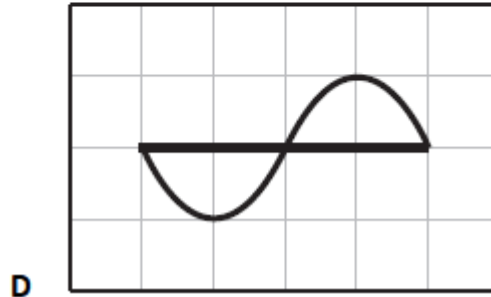
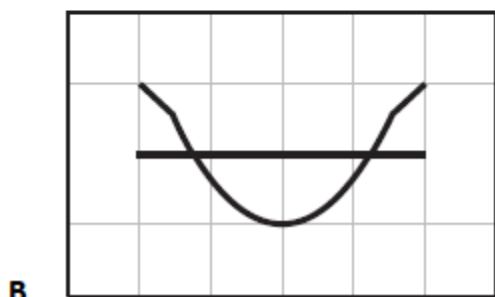
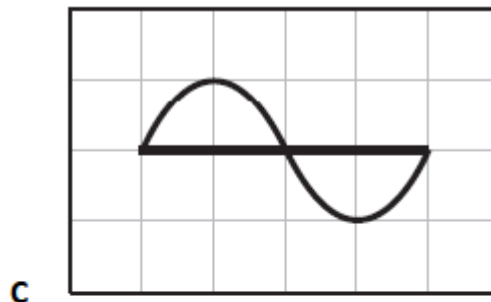
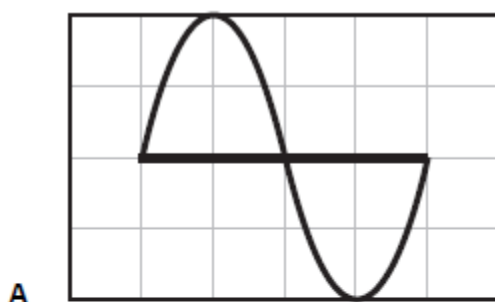
Item 4

This diagram shows the wavelength and amplitude of Wave P.

Wave P



Which diagram shows the wavelength and amplitude required to cancel Wave P through destructive interference?



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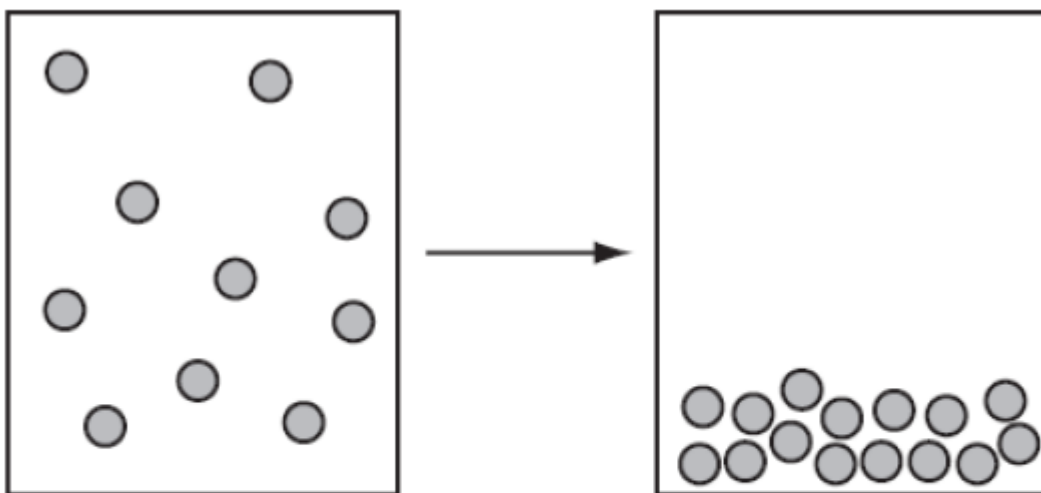
Item 5

A stable binary compound of Cl^{1-} and Mg^{2+} is sometimes prescribed by doctors to provide necessary magnesium to the human body. What is the chemical formula for this compound?

- A MgCl
- B Mg_2Cl
- C MgCl_2
- D Mg_2Cl_2

Item 6

The diagram shows matter changing state.



How did these particles move as matter changed state?

- A The particles lost energy and moved more slowly.
- B The particles lost energy and moved more quickly.
- C The particles gained energy and moved more slowly.
- D The particles gained energy and moved more quickly.

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Item 7

The force of gravity on Mars is 0.38 times the gravity on Earth. The mass of an object on Earth is 71 kg.

What are the mass and weight of that object on Mars?

- A mass: 71 kg, weight: 710 N
- B mass: 71 kg, weight: 270 N
- C mass: 27 kg, weight: 270 N
- D mass: 27 kg, weight: 103 N

Item 8

A negatively-charged ion always has more

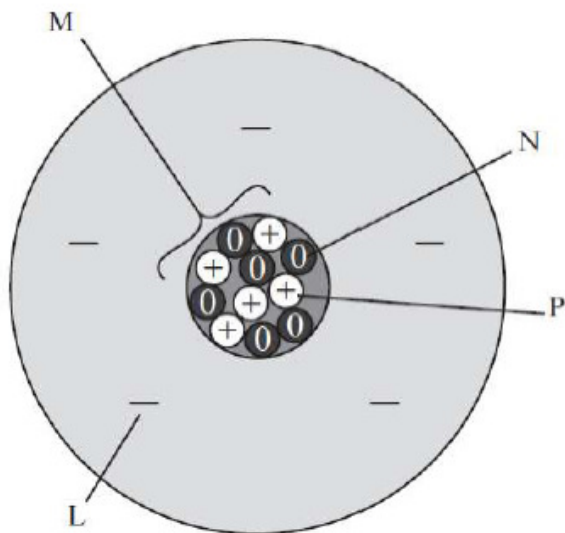
- A protons than neutrons
- B neutrons than protons
- C protons than electrons
- D electrons than protons

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Item 9

A scientist is measuring the mass of two boron (B) atoms. One atom has a mass of 10 units. The other atom has a mass of 11 units.

This is a model of a boron atom with a mass of 11 units.



Which subatomic particle needs to be removed from the model to represent a boron atom with a mass of 10 units?

- A particle L
- B particle M
- C particle N
- D particle P

Item 10

Which statement describes how the majority of the energy received by Earth is transmitted by the Sun?

- A Heated atoms emitted by the Sun move through space.
- B Electromagnetic waves carry energy from the Sun through space.
- C Heat energy from the Sun creates convection currents through space.
- D Vibrating atoms in the Sun transfer heat energy to neighboring atoms in space.

On the following pages are the answers for all the content questions. Note that the third column of the answer key provides a **DOK Level**. “**Depth of Knowledge**” (**DOK**) is the complexity or depth of understanding required to answer or explain an assessment item. Four distinct depths of knowledge levels have been identified in education.

Level 1 includes basic recall of facts, concepts, information or procedures.

Level 2 includes skills and concepts such as the use of information (graphs) or requires two or more steps with decision points along the way.

Level 3 includes strategic thinking that requires reasoning and is abstract and complex.

Level 4 includes extended thinking such as an investigation or application to real work.

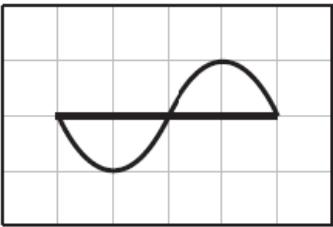
Each EOC test will have questions ranging from DOK 1 to DOK 4 and by utilizing that diversity of questioning better assesses a student’s level of understanding of the specific content.

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Additional Sample Item Keys

Item	Standard/ Element	Characteristics of Science Standard/ Element	DOK Level	Correct Answer	Explanation
1	SPS4a	n/a	1	C	The correct answer is choice (C) 1+ ion. A metal in Group 1 has one valence electron, which can easily be removed. When this happens, the resulting metal ion has one more proton than electron, giving it a 1+ charge. Choices (A) and (B) are incorrect because nonmetals typically form negatively charged ions. Choice (D) is incorrect because metals in Group 2 typically form ions with 2+ charges.
2	SPS2e	n/a	2	B	The correct answer is choice (B) 2. Two units of KCl combine with one unit of CuS to produce one unit of CuCl ₂ and one unit of K ₂ S. Choices (A) and (C) are incorrect because the products contain an even number of potassium (K) ions; therefore, the reactants cannot have an odd number of potassium ions. Choice (D) is incorrect because the equation can be simplified by dividing each coefficient in half.
3	SPS7c	SCSh5e	2	A	The correct answer is choice (A) 2,512 J. To find the heat energy, in joules, that the water absorbs, multiply the water's specific heat (4.186 J/g°C) by the water's mass (150 g) by the change in temperature (4°C). The answer is 2,511.6 J, or approximately 2,512 J. Choices (B), (C), and (D) are incorrect because this calculation does not equal 3,700 J; 15,070 J; or 22,590 J.

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Item	Standard/ Element	Characteristics of Science Standard/ Element	DOK Level	Correct Answer	Explanation
4	SPS9d	SCSh3d	2	D	<p>The correct answer is choice (D)</p>  <p>Destructive interference occurs between two waves in the same location: the crest of one wave meets the trough of the other wave. Because Wave P has the same amplitude as the wave in choice (D), the waves cancel each other out. Choices (A) and (C) are incorrect because these waves would overlap with Wave P, resulting in constructive interference. Choice (B) is incorrect because it does not show a wave with the same wavelength as Wave P; therefore, it cannot cancel Wave P through destructive interference.</p>
5	SPS2b	n/a	2	C	<p>The correct answer is choice (C) $MgCl_2$. The magnesium ion has a 2+ charge and two chloride ions, each with a charge of 1-, are required to balance the charges. Choices (A), (B), and (D) are incorrect because the charges do not balance to form a stable compound.</p>
6	SPS5a	n/a	2	A	<p>The correct answer is choice (A) The particles lost energy and moved more slowly. The diagram shows a gas, which consists of higher-energy particles moving quickly past each other, changing to a liquid, which consists of lower-energy particles moving more slowly past each other. Choices (B) and (C) are incorrect because particles that gain energy move more quickly, and particles that lose energy move more slowly. Choice (D) is incorrect because it describes how particles move when a liquid changes into a gas.</p>

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Item	Standard/ Element	Characteristics of Science Standard/ Element	DOK Level	Correct Answer	Explanation
7	SPS8b	SCSh5e	2	B	The correct answer is choice (B) mass: 71 kg, weight: 270 N. Mass is unaffected by gravity, so a 71-kg object on Earth would still be 71-kg on Mars. An object's weight equals its mass times the acceleration due to gravity (g), which on Earth is approximately 10 m/s^2 . Therefore, on Mars g equals approximately 3.8 m/s^2 , and the object would weigh 71 kg times 3.8 m/s^2 , or approximately 270 N. Choice (A) is incorrect because this calculation does not equal 270 N. Choices (C) and (D) are incorrect because the object's mass would still equal 71 kg on Mars.
8	SPS1a	n/a	1	D	The correct answer is choice (D) electrons than protons. Electrons have negative charges, and protons have positive charges; the charge of one electron cancels the charge of one proton. Therefore, an ion with a negative charge must have more electrons than protons. Choices (A) and (B) are incorrect because neutrons are unrelated to an ion's charge. Choice (C) is incorrect because an ion with more protons than electrons has a positive charge.
9	SPS1a	n/a	2	C	The correct answer is choice (C) particle N. An atom's mass approximately equals the sum of its protons and neutrons. Particle N has zero charge, so it represents a neutron. Removing a neutron from the atom's nucleus would leave 5 protons and 5 neutrons, resulting in a boron atom with a mass of 10 units. Choice (A) is incorrect because particle L represents an electron, and electrons are too small to affect an atom's mass by an entire unit. Choice (B) is incorrect because M represents the atom's nucleus, which cannot be removed from the atom. Choice (D) is incorrect because particle P represents a proton; removing a proton would change the boron atom to a beryllium atom.

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Item	Standard/ Element	Characteristics of Science Standard/ Element	DOK Level	Correct Answer	Explanation
10	SPS7b	n/a	2	B	The correct answer is choice (B) Electromagnetic waves carry energy from the Sun through space. The Sun gives off energy in the form of electromagnetic waves, which travel as radiation through the vacuum of space. Choices (C) and (D) are incorrect because space is a vacuum, and a vacuum does not contain atoms (which are required for convection). Choice (A) is incorrect because while some heated atoms are ejected by the sun, 95% of the energy comes to the earth in electromagnetic waves.

EOC Practice Test Prep Bubble Sheet Answer Key

Student Name: _____

Physical Science

- 1 (A) (B) (C) (D)
- 2 (A) (B) (C) (D)
- 3 (A) (B) (C) (D)
- 4 (A) (B) (C) (D)
- 5 (A) (B) (C) (D)

- 6 (A) (B) (C) (D)
- 7 (A) (B) (C) (D)
- 8 (A) (B) (C) (D)
- 9 (A) (B) (C) (D)
- 10 (A) (B) (C) (D)