

Released Form

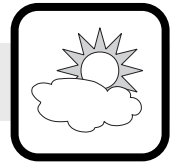
Student Name: \_\_\_\_\_

Spring 2013  
North Carolina  
Measures of Student Learning:  
NC's Common Exams  
**Grade 6 Science—Form A**



Public Schools of North Carolina  
State Board of Education  
Department of Public Instruction  
Raleigh, North Carolina 27699-6314

**Student Booklet**



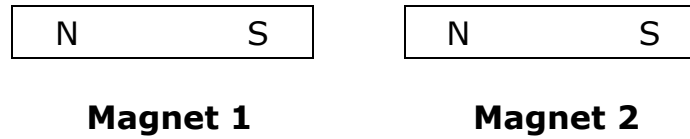
- 1 How are earthquakes, sound, and light waves alike?
- A They transmit energy.
  - B They carry matter.
  - C They travel in space.
  - D They can be seen.
- 2 What is the relationship between eyesight and light?
- A Light shines on all objects, allowing people to see them.
  - B Light shines through all objects, allowing people to see them.
  - C Light enters the eye before striking an object, allowing people to see the object.
  - D Light reflects off an object and then enters the eye, allowing people to see the object.
- 3 Which **best** explains the relationship between the electromagnetic spectrum and sight?
- A Visible light is the part of the electromagnetic spectrum that can be seen with the eye.
  - B Ultraviolet light is the part of the electromagnetic spectrum that can be seen with the eye.
  - C Visible light and infrared light are the parts of the electromagnetic spectrum that can be seen with the eye.
  - D Ultraviolet light and infrared light are the parts of the electromagnetic spectrum that can be seen with the eye.



- 4 Which **best** explains the relationship between the speed of sound and the medium through which it passes?
- A Sound travels faster in solids because of the increased distance between solid particles.
  - B Sound travels faster in air because of the decreased distance between air particles.
  - C Sound travels slower in air because of the increased distance between air particles.
  - D Sound travels slower in solids because of the decreased distance between solid particles.
- 5 Josephine adds thicker strings to her guitar. What does that do?
- A It prevents the guitar from using air particles to transfer the sound.
  - B It changes the number of strings on the guitar.
  - C It changes the vibrations made by the guitar.
  - D It prevents the guitar from making sounds.
- 6 Which is composed of matter?
- A electricity
  - B an atom
  - C light
  - D heat

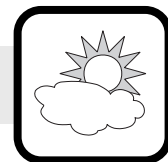


7 The diagram below shows two pure iron magnets.



Which is true about these two magnets?

- A They contain different types of atoms but the same elements.
  - B They contain the same types of atoms but different elements.
  - C They contain the same types of atoms and elements.
  - D They contain different types of atoms and elements.
- 8 How are the atoms in an object affected when the temperature of the object increases?
- A They join together.
  - B They vibrate faster.
  - C They vibrate slower.
  - D They split apart.
- 9 In which situation would the atoms in an object begin to move closer together during a phase change?
- A Heat is removed as a gas turns into a liquid.
  - B Heat is removed as a liquid turns into a gas.
  - C Heat is added as a solid turns into a gas.
  - D Heat is added as a liquid turns into a solid.



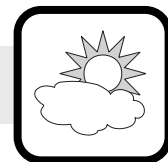
- 10 Sarah has 100 g of each element listed in the chart below, which also provides the melting point for each element.

**Melting Point for Elements**

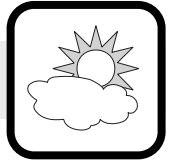
| <b>Element</b> | <b>Melting Point</b> |
|----------------|----------------------|
| copper         | 1,084°C              |
| gold           | 1,064°C              |
| lead           | 327°C                |
| silver         | 961°C                |

What would happen if she melted only 50 g of each element?

- A The melting point for each element would double because the mass was changed.
- B The melting point for each element would decrease by half because the mass was changed.
- C The melting process would occur more quickly, but the melting points would remain the same.
- D The melting process would occur more quickly, but the melting points would be decreased by half.
- 11 How does 250 mL of water compare to 500 mL of water?
- A They have the same melting point but different boiling points.
- B They have the same boiling point but different melting points.
- C They have the same volume but different densities.
- D They have the same density but different volumes.



- 12 During the day, the sand at the beach is very warm; while at night, it is cooler. Why does this occur?
- A The sand reflects the sun's energy during the day, causing it to become warmer.
  - B The sand absorbs the sun's energy during the day, causing it to become warmer.
  - C The sand scatters the sun's energy during the day, causing it to become warmer.
  - D The sand refracts the sun's energy during the day, causing it to become warmer.
- 13 A worker for an electrical company is preparing to fix a power line. Why would he put on rubber gloves before working with any power lines?
- A Rubber is a poor conductor of heat but a good conductor of electricity.
  - B Rubber is a good conductor of heat but a poor conductor of electricity.
  - C Rubber is a poor conductor of heat and electricity.
  - D Rubber is a good conductor of heat and electricity.
- 14 Why are some coffee cups composed of ceramic material?
- A Ceramic materials are conductors that limit heat transfer.
  - B Ceramic materials are insulators that limit heat transfer.
  - C Ceramic materials are conductors that aid heat transfer.
  - D Ceramic materials are insulators that aid heat transfer.



- 15 Why does Earth have different seasons?
- A because of the distance between Earth and the sun
  - B because of the speed of Earth as it rotates on its axis
  - C because of the amount of light blocked by the moon on its axis
  - D because of the tilt of Earth on its axis as it moves around the sun
- 16 Which **best** explains why the moon has phases?
- A The moon's position changes in relation to the sun and Earth.
  - B The sun's position changes in relation to the moon and Earth.
  - C The Earth casts a shadow on the moon as it rotates.
  - D The moon rotates along its axis.
- 17 Which factor makes Earth different from all the other planets in the solar system in its ability to support life?
- A The Earth is exposed to rays from the sun.
  - B The Earth has only one moon that orbits around it.
  - C The Earth rotates in an elliptical orbit around the sun.
  - D The Earth has a breathable atmosphere.



- 18 Which represents information that is gained as a result of space exploration?
- A weather and climate patterns that occur on Earth
  - B existence of the sun and the moon in the solar system
  - C how to use coal and natural gas as energy resources
  - D location of plates found upon Earth's surface
- 19 Which **best** summarizes the composition of Earth's core?
- A It contains a solid outer region surrounding a liquid iron core.
  - B It contains a liquid outer region surrounding a solid iron core.
  - C It contains a semi-liquid rock outer region surrounding a liquid core.
  - D It contains a basalt, semi-liquid outer region surrounding a solid core.
- 20 Which **best** describes Earth's crust?
- A It is stationary and unable to move.
  - B It is thicker than the mantle and the core.
  - C It is located between the outer and the inner core.
  - D It is composed of continental and oceanic plates.





- 21 Which causes the movement of tectonic plates?
- A gravitational pull between Earth and the moon
  - B convection occurring beneath the Earth's crust
  - C energy produced by earthquakes within the Earth
  - D rotation of liquid rock found within the core
- 22 Which **most likely** occurs when two continental plates are pushed into one another?
- A The plates will stop moving.
  - B The plates will form a trench.
  - C The plates will form a mountain.
  - D The plates will break into pieces.
- 23 Which environment would produce soil at a faster rate?
- A an environment located in warm, wet regions
  - B an environment that consists of many slopes
  - C an environment without any vegetation
  - D an environment with high rates of erosion

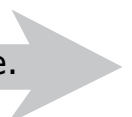


- 24 A class is conducting an experiment on how different types of soil can affect the growth of a plant. Which are the **main** factors the class should consider when designing the experiment?
- A the soil texture and the amount of water it can hold
  - B the types and amounts of sugars found in the soil
  - C the color of the container for the soil and the plant
  - D the shape and color of the seeds planted in the soil
- 25 How does the anther help with reproduction of a flowering plant?
- A It develops into a fruit after fertilization occurs.
  - B It moves pollen to the roots of the plant.
  - C It grows the seeds for the plant.
  - D It produces and stores pollen.
- 26 Which **best** summarizes the order of energy flow in a food chain?
- A sun to decomposers to producers to consumers
  - B sun to consumers to decomposers to producers
  - C sun to producers to consumers to decomposers
  - D sun to producers to decomposers to consumers



- 27 A plant begins to bend when a tall building is built near it. Why does this occur?
- A It is adjusting to changes in the temperature.
  - B It is growing away from the light source.
  - C It is adjusting to changes in the soil.
  - D It is growing toward the light source.
- 28 Why do seeds go through a period of dormancy?
- A It allows time for the right conditions to occur before the seed germinates.
  - B It allows time for dry soil to accumulate before the seed germinates.
  - C It allows time for sunlight to appear before the seed germinates.
  - D It allows time for pollination to occur before the seed germinates.

RELEASED





- 29 Scientists were completing a six-week study of the number of salmon living in a local stream. During the study, the stream was contaminated with a toxic waste. The chart below shows the weekly number of salmon living in the stream.

**Weekly Salmon Number**

| Week | Salmon Numbers |
|------|----------------|
| 1    | 88             |
| 2    | 96             |
| 3    | 74             |
| 4    | 40             |
| 5    | 27             |
| 6    | 27             |

Which **best** summarizes the situation?

- A The salmon population began to increase after week two.
  - B The contamination of toxic waste occurred after week two.
  - C The contamination of toxic waste occurred before week two.
  - D The salmon population decreased from the first week to week two.
- 30 How could acid rain affect the trees living in a forest?
- A It could strengthen the leaves of the trees in the forest.
  - B It could alter the soil quality, adding toxins that harm the trees.
  - C It could remove chemicals in the soil that harm the trees in the forest.
  - D It could change the soil quality, providing nutrients to the trees.

**This is the end of the multiple-choice portion of the test.**



**The questions you read next will require you to answer in writing.**

- 1. Write your answers on separate paper.**
- 2. Be sure to write your name on each page.**

1 Energy can be transferred from one object to another.

- How is heat energy transferred by conduction?
- Provide an example of how heat is transferred by conduction.

2 Farming uses the land and soil to grow crops.

- How can farmers maintain good, healthy soil?
- Why is it important that farmers practice good stewardship of their land?

3 Leaves perform many tasks and are important to the survival of plants.

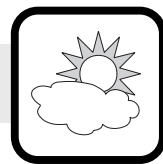
- How is transpiration controlled in the leaves of a plant?
- Explain why transpiration is important to the survival of the plant.



**This is the end of the Grade 6 Science test.**

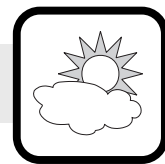
- 1. Look back over your answers.**
- 2. Put all of your papers inside your test book and close the test book.**
- 3. Stay quietly in your seat until your teacher tells you that testing is finished.**

RELEASED



**Grade 6 Science  
RELEASED Form  
Spring 2013  
Answer Key**

| <b>Item number</b> | <b>Type</b> | <b>Key</b> | <b>Unifying Concept</b>                 |
|--------------------|-------------|------------|---|
| 1                  | MC          | A          | Forces and Motion                       |
| 2                  | MC          | D          | Forces and Motion                       |
| 3                  | MC          | A          | Forces and Motion                       |
| 4                  | MC          | C          | Forces and Motion                       |
| 5                  | MC          | C          | Forces and Motion                       |
| 6                  | MC          | B          | Matter: Properties and Change           |
| 7                  | MC          | C          | Matter: Properties and Change           |
| 8                  | MC          | B          | Matter: Properties and Change           |
| 9                  | MC          | A          | Matter: Properties and Change           |
| 10                 | MC          | C          | Matter: Properties and Change           |
| 11                 | MC          | D          | Matter: Properties and Change           |
| 12                 | MC          | B          | Energy: Conservation and Transfer       |
| 13                 | MC          | C          | Energy: Conservation and Transfer       |
| 14                 | MC          | B          | Energy: Conservation and Transfer       |
| 15                 | MC          | D          | Earth in the Universe                   |
| 16                 | MC          | A          | Earth in the Universe                   |
| 17                 | MC          | D          | Earth in the Universe                   |
| 18                 | MC          | A          | Earth in the Universe                   |
| 19                 | MC          | B          | Earth Systems, Structures and Processes |
| 20                 | MC          | D          | Earth Systems, Structures and Processes |
| 21                 | MC          | B          | Earth Systems, Structures and Processes |
| 22                 | MC          | C          | Earth Systems, Structures and Processes |
| 23                 | MC          | A          | Earth Systems, Structures and Processes |



| <b>Item number</b> | <b>Type</b> | <b>Key</b> | <b>Unifying Concept</b>                      |
|--------------------|-------------|------------|--|
| 24                 | MC          | A          | Earth Systems, Structures and Processes      |
| 25                 | MC          | D          | Structures and Functions of Living Organisms |
| 26                 | MC          | C          | Ecosystems                                   |
| 27                 | MC          | D          | Ecosystems                                   |
| 28                 | MC          | A          | Ecosystems                                   |
| 29                 | MC          | B          | Ecosystems                                   |
| 30                 | MC          | B          | Ecosystems                                   |
| 31                 | CR          | Rubric     | Energy: Conservation and Transfer            |
| 32                 | CR          | Rubric     | Earth Systems, Structures and Processes      |
| 33                 | CR          | Rubric     | Structures and Functions of Living Organisms |

**Item Types:**

MC = multiple choice

CR = constructed response

RELEASED