**Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Day 1 - Warm-Up**

**Directions: Answer the multiple choice questions AND explain WHY that answer is the best fit!**

1. Cracks in rocks widen as water in them freezes and thaws. How does this affect the surface of the Earth?

A It reduces the rates of soil formation.

B It changes the chemical composition of the rocks.

C It exposes rocks to increased rates of erosion and weathering.

D It limits the exposure of rocks to acid precipitation.

**Explanation:**

1. How can urbanization affect a local area?

A It can increase the number of invasive species in an area.

B It can decrease the risk of water pollution in an area.

C It can increase the risk of flooding in an area.

D It can decrease the need for natural resources in an area.

**Explanation:**

1. Which is a farming technique that could improve the soil and the environment?

A using fueled machines that will turn the soil continuously

B creating undisturbed layers of mulch in the soil

C placing inorganic chemical fertilizers in the soil

D irrigating the soil with salty water

**Explanation:**

**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Day 1 - Warm-Up**

**Directions: Answer the multiple choice questions AND explain WHY that answer is the best fit!**

1 Cracks in rocks widen as water in them freezes and thaws. How does this affect the surface of the Earth?

A It reduces the rates of soil formation.

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C It exposes rocks to increased rates of erosion and weathering.

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**Explanation:**

2 How can urbanization affect a local area?

A It can increase the number of invasive species in an area.

B It can decrease the risk of water pollution in an area.

C It can increase the risk of flooding in an area.

D It can decrease the need for natural resources in an area.

**Explanation:**

3 Which is a farming technique that could improve the soil and the environment?

A using fueled machines that will turn the soil continuously

B creating undisturbed layers of mulch in the soil

C placing inorganic chemical fertilizers in the soil

D irrigating the soil with salty water

**Explanation:**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Day 2 - Warm-Up**

**Directions: Answer the multiple choice questions AND explain WHY that answer is the best fit!**

1. Subsurface ocean currents continually circulate from the warm waters near the equator to the colder waters in other parts of the world. What is the main cause of these currents?

A differences in the topography along the ocean floor

B differences in density of ocean water

C the rotation of Earth on its axis

D movement of the jet stream

**Explanation:**

1. What is ***most*** responsible for the presence of groundwater in an area?

A the movement of water from a confined aquifer into surface water

B the movement of surface water and precipitation through soil and rock

C the movement of water from streams and rivers to watersheds

D the movement of surface water through impermeable rock

**Explanation:**

1. Which is the ***most*** common contamination source for freshwater resources?
2. runoff
3. digging wells
4. melting of glaciers
5. lightning

**Explanation:**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Day 2 - Warm-Up**

**Directions: Answer the multiple choice questions AND explain WHY that answer is the best fit!**

4 Subsurface ocean currents continually circulate from the warm waters near the equator to the colder waters in other parts of the world. What is the main cause of these currents?

A differences in the topography along the ocean floor

B differences in density of ocean water

C the rotation of Earth on its axis

D movement of the jet stream

**Explanation:**

5 What is ***most*** responsible for the presence of groundwater in an area?

A the movement of water from a confined aquifer into surface water

B the movement of surface water and precipitation through soil and rock

C the movement of water from streams and rivers to watersheds

D the movement of surface water through impermeable rock

**Explanation:**

6 Which is the ***most*** common contamination source for freshwater resources?

A runoff

B digging wells

C melting of glaciers

D lightning

**Explanation:**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Day 3 - Warm-Up**

**Directions: Answer the multiple choice questions AND explain WHY that answer is the best fit!**

1. A community decides to upgrade its water purification and management systems. What lasting impact could this have on available freshwater?

A It could cause a decrease in water demand.

B It could cause a decrease in the water levels.

C It could cause an increase in waterborne diseases.

D It could cause an increase in the freshwater supply.

**Explanation:**

1. Which storm ***most likely*** develops as air masses interact with the warm water in the northwest Pacific Ocean?
2. typhoon
3. tornado
4. blizzard
5. monsoon

**Explanation:**

1. Which is associated with an increase of chlorofluorocarbons in the environment?

A an increase in health risks associated with UV radiation

B an increase in levels of methane gas in the atmosphere

C an increase in ozone levels in the upper atmosphere

D an increase in acid precipitation

**Explanation:**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Day 3 - Warm-Up**

**Directions: Answer the multiple choice questions AND explain WHY that answer is the best fit!**

7 A community decides to upgrade its water purification and management systems. What lasting impact could this have on available freshwater?

A It could cause a decrease in water demand.

B It could cause a decrease in the water levels.

C It could cause an increase in waterborne diseases.

D It could cause an increase in the freshwater supply.

**Explanation:**

8 Which storm ***most likely*** develops as air masses interact with the warm water in the northwest Pacific Ocean?

A typhoon

B tornado

C blizzard

D monsoon

**Explanation:**

9 Which is associated with an increase of chlorofluorocarbons in the environment?

A an increase in health risks associated with UV radiation

B an increase in levels of methane gas in the atmosphere

C an increase in ozone levels in the upper atmosphere

D an increase in acid precipitation

**Explanation:**

1. Which is the ***best*** way to conserve worldwide freshwater resources? A build more roads and highways for cars and trucks

B increase the amount of land used to raise cattle C develop more modern coal-powered plants

Duse more efficient irrigation techniques

1. Which statement ***best*** describes the ozone layer of Earth?

AIt helps reduce the amount of ultraviolet radiation reaching the surface of Earth.

B It prevents the formation of severe storms in the stratosphere of Earth. C It increases the amount of nitrogen in the troposphere of Earth.

DIt forms a magnetic field in the mesosphere of Earth.

8 Go to the next page.



**E A R T H / E N V I R O N M E N T A L S C I E N C E — R E L E A S E D I T E M S**

1. Which is a biotic factor that could affect an ecosystem? A dust storms moving through an ecosystem

Bbacteria harming the health of organisms in an ecosystem

C large amounts of acid rain precipitation seeping into the soil in an ecosystem D high levels of carbon dioxide entering the atmosphere within an ecosystem

1. How do weathering and erosion affect Earth’s surface?

A Both force tectonic plates to move across the ocean floor. B Both cause sedimentary rocks to form igneous rocks.

CBoth cause mountain ranges to become taller. D Both break down rocks and create new soil.

1. How can oil and natural gas be extracted from the earth? A by digging in areas of volcanoes

B by drilling deep beneath the ground C by strip-mining in mountainous areas

Dby removing limestone deposits from the ground



9

**EARTH / EN VIRON MENT AL SC IENC E — RELE ASE D ITEMS**

**Earth/Environmental Science**

**RELEASED Items1**

**2016–2017**

**Answer Key**



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Question Number** |  | **Question Type2** | **Correct Answer** | **Percent Correct3** |  | **Objective** |  |
|  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | 1 |  | MC | C | 75% |  | EEn.2.1.3 |  |
|  |  |  |  |  |  |  |  |  |
|  | 2 |  | MC | C | 31% |  | EEn.2.2.1 |  |
|  |  |  |  |  |  |  |  |  |
|  | 3 |  | RELEASED |  | EEn.2.2.1 |  |
|  |  | MC | B | 61% |  |  |
|  |  |  |  |  |  |  |  |  |
|  | 4 |  | MC | B | 37% |  | EEn.2.3.1 |  |
|  |  |  |  |  |  |  |  |  |
|  | 5 |  | MC | B | 58% |  | EEn.2.3.2 |  |
|  |  |  |  |  |  |  |  |  |
|  | 6 |  | MC |  | 68% |  | EEn.2.4.1 |  |
|  |  |  |  |  |  |  |  |  |
|  | 7 |  | MC | D | 66% |  | EEn.2.4.1 |  |
|  |  |  |  |  |  |  |  |  |
|  | 8 |  | MC | A | 53% |  | EEn.2.5.3 |  |
|  |  |  |  |  |  |  |  |  |
|  | 9 |  | MC | A | 32% |  | EEn.2.5.5 |  |
|  |  |  |  |  |  |  |  |  |
|  | 10 |  | MC | D | 52% |  | EEn.1.1.2 |  |
|  |  |  |  |  |  |  |  |  |
|  | 11 |  | MC |  | 76% |  | EEn.2.6.3 |  |
|  |  |  |  |  |  |  |  |  |
|  | 12 |  | MC | B | 74% |  | EEn.2.6.3 |  |
|  |  |  |  |  |  |  |  |  |
|  | 13 |  | MC | C | 79% |  | EEn.2.7.2 |  |
|  |  |  |  |  |  |  |  |  |
|  | 14 |  | MC | A | 81% |  | EEn.1.1.2 |  |
|  |  |  |  |  |  |  |  |  |
|  | 15 |  | MC | C | 68% |  | EEn.2.7.3 |  |
|  |  |  |  |  |  |  |  |  |
|  | 16 |  | MC | C | 46% |  | EEn.2.8.2 |  |
|  |  |  |  |  |  |  |  |  |



1

**EARTH / EN VIRON MENT AL SC IENC E — RELE ASE D ITEMS**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question Number** | **Question Type2** | **Correct Answer** | **Percent Correct3** | **Objective** |
|  |  |  |  |  |
| 17 | MC | B | 63% | EEn.2.8.3 |
|  |  |  |  |  |
| 18 | MC | B | 58% | EEn.1.1.4 |
|  |  |  |  |  |
| 19 | MC | C | 50% | EEn.2.1.1 |
|  |  |  |  |  |
| 20 | MC | B | 66% | EEn.2.1.1 |
|  |  |  |  |  |
| 21 | RELEASED | EEn.2.3.2 |
| MC | C | 71% |
|  |  |  |  |  |
| 22 | MC | D | 84% | EEn.2.4.1 |
|  |  |  |  |  |
| 23 | MC | A | 84% | EEn.2.5.1 |
|  |  |  |  |  |
| 24 | MC | B | 72% | EEn.2.7.1 |
|  |  |  |  |  |
| 25 | MC |  | 81% | EEn.2.1.3 |
|  |  |  |  |  |
| 26 | MC | B | 79% | EEn.2.2.2 |
|  |  |  |  |  |

**1**These released items were administered to students during a previous test administration. This sample set of released items may not reflect the breadth of the standards assessed and/or the range of item difficulty found on the NC Final Exam. Additional information about the NC Final Exam is available in the *Assessment Specification* for each exam located at http://www.ncpublicschools.org/accountability/common-exams/specifications/.

**2**This NC Final Exam contains only multiple-choice (MC) items.

**3**Percent correct is the percentage of students who answered the item correctly during a previous administration.



2

**EARTH / EN VIRON MENT AL SC IENC E — RELE ASE D ITEMS**

**Clarifying Objectives Descriptions**

Only clarifying objective descriptions addressed by the released items in this document are listed below. A complete list of North Carolina *Essential Standards* for Science may be reviewed at [http://www.ncpublicschools.org/curriculum/science/scos/support](http://www.ncpublicschools.org/curriculum/science/scos/)-tools/#standards.

**EEn.1.1.2**

Explain how the Earth’s rotation and revolution about the Sun affect its shape and is related to seasons and tides.

**EEn.1.1.4**

Explain how incoming solar energy makes life possible on Earth.

**EEn.2.1.1**

Explain how the rock cycle, plate tectonics, volcanoes, and earthquakes impact the lithosphere.

**EEn.2.1.3**

Explain how natural actions such as weathering, erosion (wind, water and gravity), and soil formation affect Earth’s surface.

**EEn.2.2.1**

Explain the consequences of human activities on the lithosphere (such as mining, deforestation, agriculture, overgrazing, urbanization, and land use) past and present.

**EEn.2.2.2**

Compare the various methods humans use to acquire traditional energy sources (such as peat, coal, oil, natural gas, nuclear fission, and wood).

**EEn.2.3.1**

Explain water as an energy agent (currents and heat transfer).

**EEn.2.3.2**

Explain how ground water and surface water interact.

**EEn.2.4.1**

Evaluate human influences on freshwater availability.

**EEn.2.5.1**

Summarize the structure and composition of our atmosphere.

**EEn.2.5.3**

Explain how cyclonic storms form based on the interaction of air masses.

**EEn.2.5.5**

Explain how human activities affect air quality.

**EEn.2.6.3**

Analyze the impacts that human activities have on global climate change (such as burning hydrocarbons, greenhouse effect, and deforestation).



3

**EARTH / EN VIRON MENT AL SC IENC E — RELE ASE D ITEMS**

**EEn.2.7.1**

Explain how abiotic and biotic factors interact to create the various biomes in North Carolina

**EEn.2.7.2**

Explain why biodiversity is important to the biosphere.

**EEn.2.7.3**

Explain how human activities impact the biosphere.

**EEn.2.8.2**

Critique conventional and sustainable agriculture and aquaculture practices in terms of their environmental impacts.

**EEn.2.8.3**

Explain the effects of uncontrolled population growth on the Earth’s resources.



4