Student Name _____ Teacher _____ Period ___

Highland Oaks Middle Winter Break Packet (8th Grade Science) 62

All 8th grade and Physical Science students are required to complete this package, over the winter break. They are to be returned to their Science Teacher on Monday, January 8, 2018. This packet is composed of 26 questions which amounts to less than 2 questions, per day. It is for a grade and covers topics that students will be tested on for the year end 8th grade science test. We hope parents will sit down with their son or daughter and share a little time discussing our universe.

Happy Holidays from the Science Department

Earth and Space Science

1. Jason thinks that global climate change is not happening because a city in Northern Florida
received snow one day in January. Which statement explains what is wrong with Jason's reasoning? SC.6.E.7.4

A. Northern Florida would need to get snow for at least a week for this to be true.
B. Jason has confused the weather for one day with the climate of a region.
C. Jason does not realize that Southern Florida would also need to receive snow to make this true.
D. The climate of Northern Florida would be unaffected since it's already warm in Florida.

2. When a warm air mass and cold air mass come together, like a warm front and cold front, a
typical outcome is rain. What explains why rain forms in this situation? SC.6.E. 7.4

A. The cold air causes the moisture in the warm air to condense and precipitate as rain.
B. The cold air is moving faster than the warm1 air, which causes rain.
C. Because the cold air is denser, it causes rain.
D. The two air masses neutralize each other, which results in clouds that produce rain.

3. Convection currents in the atmosphere influence many weather patterns. What property of the air has the most influence on convection currents? SC.6.E.7.4

A. the direction of the wind
B. the velocity of the wind
C. the temperature of the air
D. the mass of the air

4. If you visit the beach on a hot summer day you will probably feel a sea breeze coming off the water onto the land. Which of the following causes this sea breeze? SC.6.E.7.5

A. During the day, solar radiation warms the land more than the water.
B. The water is warmer than the land during the day.
C. Earth is tilted toward the Sun, causing air to move inland from the water.
D. Hurricanes that form in the oceans blow air into the shore.

5. If you walk barefoot on hot asphalt, energy is transferred by which process? SC.6.E.7.5

A. convection
B. radiation
C. conduction
D. reflection

6. Both Ocala, Florida, and Lexington, Kentucky, are good places to raise racehorses, in part because of the limestone near the surface in both places. Calcium from the limestone helps make a horse's leg bones stronger and better able to withstand the pounding stress of running. Knowing that the Bluegrass Region around Lexington also sits on top of limestone, what other land features are also likely to be found there? SC.7.E.6.2

A. sand dunes, lakes, and springs
B. prairies, swamps, and marshes
C. sinkholes, caves, and aquifers
D. shallow rivers, flat land, and quartz sand

7. What must happen in order for a metamorphic rock to be transformed into an igneous rock?SC. 7.E.6.2

A. It must be compressed by high temperatures and pressure within Earth's crust.
B. It must be soaked in water until it dissolves and reforms in a different shape.
C. It must be pulled under Earth's crust, melted, and forced out above the crust to cool.
D. It must be weathered into sand grains and compressed into multiple layers.

8. Water evaporates and falls back to Earth as rain or snow. What is the primary energy source that drives this cycle? SC.6.E.7.5

A. The wind
B. The Sun
C. Air pressure
D. Ocean currents

9. Which of the following is true about wind and water changing the size of mountains over many millions of years? SC.7.E.6.2

A. The continuous movement of wind and water changes the size of mountains over many millions of years
B. Nothing can change the size of mountains over many millions of years, not even the continuous movement of wind and water.
C. The continuous movement of wind and water changes the size of some mountains, but not all mountains.
D. Even though mountains change in size over many millions of years, the changes are not due to the continuous movement of wind and water.

10. The diagram below shows the collision of two tectonic plates in Asia. What is a result of this collision? SC.7.E.6.5

A. Volcanoes erupt periodically.
B. The Tibetan Plateau slowly sinks.
C. The Himalayas increase in height each year.
D. Glaciers on the Tibetan Plateau melt.

11. Which of the following is TRUE about how environmental conditions have changed since the time life began on earth? SC.7.E.6.4

A. Conditions have remained about the same everywhere on earth, with only minor changes from year to year.
B. Conditions have remained the same in the oceans but have changed on land.
C. Conditions have remained the same except for a few sudden changes in certain locations due to disasters, such as a meteorite striking the earth.
D. Conditions have changed in significant ways everywhere on earth, with some of these changes happening suddenly and others more gradually.

12. An unusual type of fossil clam is found in rock layers high in the Swiss Alps. The same type of fossil clam is also found in the Rocky Mountains of North America. From this, scientists conclude that SC.7.E.6.4

A. glaciers carried the fossils up the mountains
B. the Rocky Mountains and the Swiss Alps are both volcanic in origin
C. clams once lived in mountains, but have since evolved into sea-dwelling creatures
D. the layers of rocks in which the fossils were found are from the same geologic age

13. Thomasine has a sample of materials and needs to determine its age. She can determine its relative-age by comparing the rock layer the sample came from to another rock layer. Why is it sometimes difficult to determine the age of materials in this way? SC. 7.E.6.4

A. The oldest layers of rock are too close to the Earth's liquid mantle.
B. The youngest layers of rocks do not contain enough materials to evaluate.
C. The sequence of rock layers can be disturbed by erosion and earthquakes.
D. The rock layers have too many different types of rocks to determine their age.

14. Scientists hypothesize that 66 million years ago an enormous asteroid hit Earth, sending out a cloud of dust into the Earth's atmosphere. Which of the following would be evidence to support this hypothesis? SC. 7.E.6.4

A. Fossils show that all plant and animal life became extinct.
B. The fossils of ancient trees show very little growth during this time.
C. A large portion of the asteroid is still embedded in the Earth's crust.
D. An identical layer of sediment can be seen in different parts of the world.

15. All of the following are examples of erosion EXCEPT SC.6.E.6.1:

A. The wind in the desert blows sand against a rock.
B. A glacier picks up boulders as it moves.
C. A flood washes over a riverbank, and the water carries small soil particles downstream.
D. An icy winter causes the pavement in a road to crack.

16. Which layer of Earth is divided into plates? SC.7.E.6.1

A. Mantle
B. Crust
C. Inner core
D. Outer core

17. Convection currents occur in which of Earth's layers? SC.7.E.6.5

A. crust
B. lithosphere
C. mantle
D. solid core

18. What causes the phases of the Moon? SC.8.E.5.9

A. the tilt of Earth on its axis
B. Earth's shadow being cast on the Moon
C. the relative positions of the Sun, Moon, and Earth
D. the elliptical orbit that Earth travels around the Sun

19. Earth revolves around the Sun, and the Moon revolves around Earth. The Moon's orbital path is sometimes above and sometimes below the plane of Earth's orbit, as shown in the diagram below. What would happen if Earth's orbit and the Moon's orbit were in the same plane? SC.8.E.5.9

A. Eclipses would occur every month.
B. The Moon would not have phases.
C. All sides of the Moon would be visible from Earth.
D. The same side of the Moon would always face the Sun.

20. Which statement is true regarding measuring distances in space? SC.8.E.5.3

A. An astronomical unit (AU) is larger than a light year.
B. The time taken for light to travel through our Solar System is longer than that for light to travel through the Milky Way.
C. The Earth is one astronomical unit (AU) from the Sun.
D. All of the terrestrial planets are more than one astronomical unit (AU) from the Sun.

21. Jill is creating a scale model of the Solar System. She uses a basketball to represent the Sun. Which of the following should she use to most accurately represent the size of Earth? SC.8.E.5.3

A. tennis ball
B. ping pong ball
C. marble
D. grain of sand

22. The Sun's energy and composition is provided by which of the following? SC.8.E.5.5

A. the burning of fossil fuels within the Sun
B. solar power that produces electricity in the Sun
C. the Sun's magnetic field
D. the fusion of hydrogen into helium

23. Which of the following is the most violent of all solar disturbances? SC.8.E.5.5

A. solar winds
B. sunspots
C. prominences
D. solar flares

24. There are many objects that are part of our Solar System including planets, moons, asteroids, and the Sun. Which of those objects has the greatest gravitational force? C.8.E.5.7

A. asteroids
B. the Sun
C. moons
D. planets

25. Saturn is 9.5 astronomical units (AU) from the Sun and Mars is only 1.5 AU from the Sun. Saturn is also much larger than Mars. Based on this information, how does the average surface temperature on Mars compare to the average surface temperature on Saturn? SC.8.E.5.7

A. Since Mars is closer to the Sun than Saturn, it has a higher average surface temperature.
B. Saturn is larger than Mars and absorbs more light, so it has a higher average surface temperature.
C. Since both planets are more than 1 AU from the Sun, their average surface temperatures are equal.
D. Even though Saturn is further away, Saturn's rings cause it to have a lower average surface temperature.

26. The current model of our Solar System is called the heliocentric model, which means the Sun is at the center. Before scientists developed the current model, which is best supported by the evidence, what was believed to be the center of our solar system? SC.8.E.5.7

A. The Solar System had no center because all the planets' orbits were random.
B. A star other than the Sun was the center of the Solar System.
C. A black hole was the center of the Solar System.
D. Earth was the center of the Solar System.