**8.5A (C) describe the structure of atoms, including the masses, electrical charges, and locations, of protons and neutrons in the nucleus and electrons in the electron cloud;**

|  |  |  |  |
| --- | --- | --- | --- |
| ***Subatomic Particle*** | ***Symbol*** | ***Electrical Charge*** | ***Location within the Atom*** |
| 1. |  |   |  |
| 2. |  |   |  |
| 3. |  |   |  |

4. The mass of a proton is 1 AMU. What is the mass of a neutron?\_\_\_\_\_\_\_\_\_\_\_\_ Electron?\_\_\_\_\_\_\_\_\_\_\_

5. Draw Rutherford’s atom below. Label: nucleus, protons, neutrons, electrons

6. Draw the Bohr Model for Lithium. # Protons:\_\_\_\_\_\_\_\_\_\_\_# Neutrons:\_\_\_\_\_\_\_\_\_\_\_# Electrons:\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_6A. Which particle(s) account for the most mass of an atom?

1. Protons and neutrons
2. Neutrons
3. Electrons and protons
4. Electrons

**8.5B (C) identify that protons determine an element's identity and valence electrons determine its chemical properties, including reactivity;**

7. What does “protons determine an element’s identity” mean?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. What is a valence electron?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. What do valence electrons tell us?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. An element with almost full valence electrons (like noble gases) are not very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

11. An element with an almost empty valence shell (like Hydrogen) are very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_11A. Which of the following is the most reactive?

1. Cl
2. Mg
3. Na
4. Al

\_\_\_\_\_11B. Which of the following is the least reactive?

1. H
2. Mn
3. B
4. Kr

**8.5C (C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements;**

12. The periodic table is arranged by (list as many as you can)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. What did Mendeleev do? How did he do it?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13A – Which element is most similar to Silicon – Carbon OR Phosphorus?

13B – Which element is most similar to Magnesium – Beryllium OR Sodium?

13 C – Which element is LEAST similar to Gold – Silver or Mercury?

13D – Elements that are similar are in the same\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

*List the following as* ***Metal, Nonmetal, or Metalloid – M, NM, MT***

14. Has Luster - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. Usually gases or brittle solids at room temperature- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. Malleable - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. Shares properties with metals and nonmetals - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Good conductors of heat and electricity - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. Are Ductile - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

20. The periodic table is mostly these- \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Define the following:**

21. Luster:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. Malleable:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. Ductile:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. Conductor:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.5D (C) recognize that chemical formulas are used to identify substances and determine the number of atoms of each element in chemical formulas containing subscripts;**

25. How many **atoms** are in the following formulas:

H2O H=\_\_\_\_\_, O=\_\_\_\_ 2P4O10  P=\_\_\_\_\_, O=\_\_\_\_\_ (NH3)2  N=\_\_\_\_\_\_, H=\_\_\_\_\_

26. How many **elements** are in the following formulas:

H2OCa =\_\_\_\_\_\_\_\_ 2P4O10  -\_\_\_\_\_\_\_\_\_ GaN(NH3)2  -\_\_\_\_\_\_\_\_

27. How many **molecules** are in the following?

4H2O -\_\_\_\_\_\_\_\_\_\_\_\_ 2P4O10-\_\_\_\_\_\_\_\_\_\_\_ 10(NH3)2  -\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Fill in the blanks on the equation below: ALSO *\*\*LABEL PRODUCT SIDE AND REACTANT SIDE\*\****

******

 **8.5E (C) investigate how evidence of chemical reactions indicate that new substances with different properties are formed; and**

1. What is a physical change - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. What is a chemical change - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**List the following as either P (Physical change) or C (Chemical Change).**

1. Cutting your hair -\_\_\_\_\_\_
2. A rusting pipe - \_\_\_\_\_\_
3. Water evaporating - \_\_\_\_\_\_\_
4. Melting butter for popcorn - \_\_\_\_\_\_\_
5. Corroding Metal - \_\_\_\_\_\_
6. Burning Toast - \_\_\_\_\_\_
7. Photosynthesis - \_\_\_\_\_\_
8. Digesting food - \_\_\_\_\_\_
9. Freezing juice - \_\_\_\_\_
10. Mixing water & lemonade - \_\_\_\_\_\_
11. What is some evidence of chemical changes (list as many as you can):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
**8.5F (C) recognize whether a chemical equation containing coefficients is balanced or not and how that relates to the law of conservation of mass.**

1. What is the law of conservation of mass?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. How does the law of conservation of mass relate to balancing equations?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\*KNOW HOW TO BALANCE EQUATIONS\***

**8.8(A)  describe components of the universe, including stars, nebulae, and galaxies, and use models such as the Herztsprung-Russell diagram for classification;**

43. What is a star?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

44. Define universe:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

45. What is a nebula?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

46. What is a galaxy?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

47. What is the HR diagram?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.8(B)  recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star;**

48. What is the name of our galaxy?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

49. Where are we located in our galaxy?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

50. About how big is our sun?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

51. Are there any stars in our solar system?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_if yes – how many?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

52. Are there any stars in our galaxy?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_if yes- how many?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.8(C)  explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe;**

53. List the waves from the EMS in order from longest to shortest:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

54. What is the Doppler effect?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

55. What is the red shift?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

56. What does the red shift tell us about objects in our solar system?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.8(D)  model and describe how light years are used to measure distances and sizes in the universe; and**

57. What is a light year?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

58. What is an astronomical unit?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

59. Which of the above is used to measure distances within our solar system?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

60. Which of the above is used to measure distances outside of our solar system?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.8(E)  research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe.**

61. What is the most prevalent theory for the origin of the universe?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

62. About how long ago did our universe begin?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

63. How do we know our universe is expanding?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.7(A)  model and illustrate how the tilted Earth rotates on its axis, causing day and night, and revolves around the Sun causing changes in seasons;**

64. What is a rotation?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

65. How long does one rotation of the earth take?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

66. What is a revolution?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

67. How long does one revolution of the earth around the sun take?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68. How long does one revolution of the moon around the earth take?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68A – What causes seasons?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68B – If the earth is tilted towards the sun in the northern hemisphere – what season is it?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What season would it be in the southern?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68C- What is a solstice?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68D – When is the winter solstice?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Summer solstice?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68E – What is an equinox?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

68F – When is the fall equinox?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Spring equinox?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**\*Study your eclipses\***

**8.7(B)  demonstrate and predict the sequence of events in the lunar cycle; and**

69. Draw and label the 8 moon phases below beginning with a new moon.

**8.7(C)  relate the position of the Moon and Sun to their effect on ocean tides.**

70. What causes tides?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

71. Draw a picture below of the Earth, Sun and moon in the correct positions to show the greatest tides. (moon may be in more than one place).

**8.10(A)  recognize that the Sun provides the energy that drives convection within the atmosphere and oceans, producing winds and ocean currents;**

72. Where do we get all of our energy for earth?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

73. Convection causes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_in the atmosphere.

74. We also find convection in\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

75. Heat\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and cool \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in convection.

**8.10(B)  identify how global patterns of atmospheric movement influence local weather using weather maps that show high and low pressures and fronts; and**

76. H – stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pressure and means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_type of weather

77. L – stands for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_pressure and means \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_type of weather.

78. Describe a cold front:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

79. Describe a warm front:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.10(C)  identify the role of the oceans in the formation of weather systems such as hurricanes.**

80. What is el nino?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

81. What is la nina?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

82. Which of the above would create warmer water that would cause more hurricanes?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**8.11D  recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems.**

83. How do human depend on oceans?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

84. What is runoff?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

85. What is an artificial reef?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

86. Why are artificial reefs good?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

87. Why are artificial reefs bad?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

88. How can we keep our oceans clean?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**More Questions to help you study:**





 89.What lunar phase will occur when the moon is in the position indicated in the model above?

1. Crescent
2. Full moon
3. Gibbous
4. New moon

90.How would the planet most likely be affected if Earth were not tilted on its axis?

A. Earth would become very hot on one side.

B. Earth would not experience different seasons.

C. The length of day and night would be very different.

D. The moon would not revolve around the Earth.

91.Which of the following lunar phases occurs approximately 28 days after a full moon in the lunar cycle?

1. Crescent
2. Full moon
3. Gibbous
4. New moon 9

92.When the phase of the moon is a full moon, -

A. the sunlit side of the moon is facing away from Earth

B. the sunlit side of the moon is facing the earth

C. the sun is not shining on the moon

D. the moon is in Earth’s shadow

93.You cannot see a new moon because –

A. Earth’s axis tilts away from the moon

B. The moon has absorbed all the light that hits it

C. The moon’s sunlit side is facing away from Earth

D. The sun is not shining on the moon











**More Weather Questions:**

\_\_\_\_\_1.      The atmosphere is the

a.      Layer of gases surrounding Earth.

b.      Name for the shape of the planet Earth.

c.      Smoke and air pollution over a city.

d.      Moist conditions in a rain forest.

\_\_\_\_\_2.      Sometimes weather forecasters talk about cold fronts and warm fronts when they describe how the weather is changing. A front is

a.       The beginning of a storm that brings strong winds and heavy rain.

b.      A boundary that separates air masses with different moisture content and temperatures.

c.       An imaginary line that shows the location of different convection cells

d.      The location in which two clouds collide, causing lightning.

\_\_\_\_\_3.      Which of the following is not a gas found in the atmosphere?

1. Oxygen
2. Nitrogen
3. Carbon Dioxide
4. Cesium

\_\_\_\_\_4.      Winds move from areas of

a.      High pressure to areas of low pressure

b.      Low pressure to areas of high pressure

c.      High humidity to areas of low humidity

d.      Low humidity to areas of high humidity

\_\_\_\_\_5.      Cool air is denser than warm air.  Why is that?

a.      As air cools the molecules spread out and become denser.

b.      As air cools the molecules contract and become more dense.

c.      Cool air is higher in the atmosphere so it is denser.

d.      Cool air is not denser than warm air.

\_\_\_\_\_6.      How is it that air moves sideways across Earth’s surface?

a.      The tilt of Earth

b.      Differential heating

c.      Coriolis Effect

d.      Direction of the wind

\_\_\_\_\_7.      Where does the energy come from that drives the convection currents in the atmosphere and oceans?

a.      Tilt of Earth

b.      Differential heating

c.      Coriolis Effect

d.      Sun

\_\_\_\_\_8.      What do the convection currents in the atmosphere produce?

a.      Rain

b.      Sunshine

c.      Hurricanes

d.      Winds

\_\_\_\_\_9.      Convection currents around in all of the following, except:

1. Magma underneath earth’s surface
2. Oceans
3. Inside your stomach, churning the food
4. The atmosphere

\_\_\_\_\_10.  Changes in ocean currents affect the temperature of the ocean.  If the water is warmer, it could cause

a.      fewer storms and less rain.

b.      floods in nearby rivers.

c.      more hurricanes to occur.

d.      the beginning of an ice age.

\_\_\_\_\_11.  Study the isobars in the following weather map. Which part of the United States is experiencing the lowest air pressure?

 

KEY: **A** – Coastal Oregon, **B** – N. & S. Dakota, **C** – Pennsylvania and Virginia, **D** – Washington and Montana

a.      Coastal Oregon

b.      North and South Dakota

c.      Pennsylvania and Virginia

d.      Washington and Montana

\_\_\_\_\_12.  Why do hurricanes rapidly lose energy when they reach land?

a.      There is no wave action on land to push the air around.

b.      It takes more energy for winds to move over land than over water.

c.      Sunlight reflects off land to heat up the clouds, causing them to evaporate.

d.      Warm, moist air from the ocean is needed to power these large storms.

\_\_\_\_\_13.  Weather is

a.      The changes that occur in cloud formations from day to day.

b.      The amount of rain or snow that falls in a day

c.      Earthquakes, tornadoes, and other disasters.

d.      The condition of Earth’s atmosphere at a given time and place.

\_\_\_\_\_14.  A large body of air with the same temperature and moisture content throughout is called a (an)

a.      cloud.

b.      hurricane.

c.      air mass.

d.      tornado.

\_\_\_\_\_15.  Thermal energy can move through a material by actually moving the material. This type of movement is called convection. Which of the following is an example of convection?

a. If you stand in the path of the heat in front of a fire, you can feel the heat.

b. A metal spoon is placed in a hot drink and the handle becomes warm.

c. A liquid at the bottom of a container absorbs thermal energy from a stove and moves upwards taking the heat with it.

d. The molecules of a material passing on the thermal energy through contact.

\_\_\_\_\_ 16. Evaporation occurs when the Sun’s heat is absorbed by the particles that make up water. In which of these places on Earth is evaporation the greatest?

The North and South poles

30° north and 30° south latitudes

0° latitude, the equator

60° north and 60° south latitudes

\_\_\_\_\_17. Arvid is making ice cream to surprise his sister. He has mixed cream, sugar, and fruit into a bowl and put it into an ice cream maker with ice. What will happen to the molecules in the cream as the mixture hardens and becomes frozen?

The molecules will move farther apart.

The molecules will not change.

The molecules will move closer together.

The molecules will chemically change.

Look at the picture of the water cycle. (Questions 19 & 20)

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\_\_\_\_\_19. Which process in the water cycle takes place by gaining heat energy?

1. Evaporation
2. Condensation
3. Precipitation
4. Runoff

20. In the picture on previous page, label **evaporation**, **condensation**, **transpiration**, **collection**, **precipitation**.

\_\_\_\_\_21. The Earth’s weather occurs in the-

* 1. Stratosphere
	2. Mesosphere
	3. Troposphere
	4. Ozone layer

 \_\_\_\_\_22. Which front brings several days of steady rain or snow into an area?

1. Cold front
2. Warm front
3. Stationary front
4. None of the above

\_\_\_\_\_\_23.

|  |  |
| --- | --- |
| a. | There are more air molecules at higher altitudes. |
| b. | There are less air molecules at higher altitudes. |
| c. | There are less air molecules at lower altitudes. |
| d. | The top of the atmosphere contains the most dense concentration of air molecules. |
|  |  |

\_\_\_\_\_24. In a warm front…

1. Warm air rises above the cooler air, hot & humid weather follows.
2. Cool air rises above the warmer air, hot & humid weather follows.
3. Warm air rises above the cooler air and brings thunderstorms and heavy rains.
4. Cool air rises above the warmer air and brings thunderstorms and heavy rains.

\_\_\_\_\_25. When Fort Worth gets a cold front, our air is probably coming from\_\_\_\_.

1. The southern coast of Texas.
2. The northern US and Canada.
3. The east.
4. The west.