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## Test Canvas: ch1

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Description

Instructions

Total Questions 66

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Select: **All** **None** Select by Type: - Question Type - ▼

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### ☐ 1. True/False: Molecular oxygen (O<sub>2</sub>) in Earth's...

Points: **1**

Question

Molecular oxygen (O<sub>2</sub>) in Earth's early atmosphere probably originated from the splitting of water vapor (H<sub>2</sub>O) into hydrogen and oxygen.

Answer

☒ True  
☐ False

### ☐ 2. True/False: Methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), a...

Points: **1**

Question

Methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and chlorofluorocarbons (CFCs) are greenhouse gases.

Answer

☒ True  
☐ False

### ☐ 3. True/False: The air pressure at the summit of Mou...

Points: **1**

Question

The air pressure at the summit of Mount Everest is higher than the air pressure at sea level.

Answer

☐ True  
☒ False

### ☐ 4. True/False: On a cloudless day, the tropopause is...


Points: **1**

Question

On a cloudless day, the tropopause is easily visible with the naked eye.

Answer

True

 False

☐ 5. True/False: Weather and climate have become so mu...

Points: 1

Question

Weather and climate have become so much a part of our lives that the first thing many of us do in the morning is listen to the local weather forecast. For this reason, many radio and television newscasts require that the weathercaster be certified by the American Meteorological Society (AMS).

Answer

 True

False

☐ 6. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

Chlorofluorocarbons (CFCs) cause destruction to ozone through the release of SULFURIC ACID | CHLORINE.

Answer

CHLORINE

☐ 7. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

A cyclonic storm system in the Northern Hemisphere has winds spinning CLOCKWISE | COUNTERCLOCKWISE about its center.

Answer

TROPICAL

☐ 8. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

The burning of coal and oil can release SULFUR | NITROGEN gases into the atmosphere that may transform into acid rain.

Answer

SULFUR

☐ 9. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

Air density is greatest in the UPPER | LOWER atmosphere.

Answer

LOWER

☐ 10. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

Sea level pressure is determined by the WEIGHT | HEIGHT of the atmosphere.

Answer

WEIGHT

☐ 11. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

Peak ozone (O<sub>3</sub>) concentrations are found in the stratosphere near 25 km altitude.  
Would you expect to find the highest molecular oxygen (O<sub>2</sub>) concentrations at  
HIGHER or LOWER altitude?

Answer

LOWER

☐ 12. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

Would you expect to find the strongest vertical air motions in the TROPOSPHERE  
or in the STRATOSPHERE?

Answer

TROPOSPHERE

☐ 13. Short Answer: Instructions: Choose one answer from ...

Points: 1

Question

**Instructions:** Choose one answer from each pair of selections.

Clear skies occur in high pressure regions where the air is RISING | SINKING.

Answer

SINKING

☐ 14. Short Answer: If the weather forecast predicts the ...

Points: 1

Question

If the weather forecast predicts the arrival of a warm front to your area for the  
weekend, should you expect RAIN or CLEAR SKIES?

Answer

RAIN

☐ 15. Short Answer: Would you expect wind speeds to DECRE...

Points: 1

Question

Would you expect wind speeds to DECREASE or INCREASE when a frontal  
system passes?

Answer INCREASE

☐ 16. Short Answer: Scientists pose hypotheses, or inform...

Points: 1

**Question** Scientists pose hypotheses, or informed predictions about how our natural world will behave, using the \_\_\_\_\_ method.

**Answer** scientific

☐ 17. Short Answer: Plant photosynthesis increased the co...

Points: 1

**Question** Plant photosynthesis increased the concentration of \_\_\_\_\_ in Earth's early atmosphere.

**Answer** oxygen

☐ 18. Short Answer: Earth's atmospheric pressure al...

Points: 1

**Question** Earth's atmospheric pressure always \_\_\_\_\_ with increasing height.

**Answer** decreases

☐ 19. Short Answer: The basis for dividing Earth's ...

Points: 1

**Question** The basis for dividing Earth's atmosphere into layers is the change of \_\_\_\_\_ with altitude.

**Answer** temperature

☐ 20. Short Answer: Meteorologists use \_\_\_\_\_...

Points: 1

**Question** Meteorologists use \_\_\_\_\_ radar to observe the winds and precipitation intensities associated with severe thunderstorms.

**Answer** Doppler

☐ 21. Multiple Choice: Earth's first atmosphere (appro...

Points: 1

**Question** Earth's first atmosphere (approximately 4.6 billion years ago) was most likely composed of \_\_\_\_.

**Answer** a. nitrogen and oxygen

☒ b. hydrogen and helium

c. carbon dioxide and nitrogen

d. oxygen and carbon dioxide

☐ 22. Multiple Choice: The primary source of water vapor and...

Points: 1

**Question** The primary source of water vapor and carbon dioxide for Earth's early atmosphere was most likely \_\_\_\_.

- Answer**
- a. photosynthesis
  - b. ozone reactions
  - ☒ c. outgassing
  - d. nitrogen chemical reactions

☐ 23. Multiple Choice: The most abundant gases in Earth...

Points: 1

**Question** The most abundant gases in Earth's present day atmosphere (by volume) are \_\_\_\_.

- Answer**
- a. carbon dioxide and nitrogen
  - b. oxygen and water vapor
  - ☒ c. nitrogen and oxygen
  - d. oxygen and helium

☐ 24. Multiple Choice: Near Earth's surface, \_\_\_\_ occu...

Points: 1

**Question** Near Earth's surface, \_\_\_\_ occupies about 78% and \_\_\_\_ about 21% of the total volume of dry air.

- Answer**
- ☒ a. nitrogen; oxygen
  - b. hydrogen; oxygen
  - c. oxygen; hydrogen
  - d. nitrogen; water vapor

☐ 25. Multiple Choice: Atmospheric concentrations of \_\_\_\_ ca...

Points: 1

**Question**

Atmospheric concentrations of \_\_\_\_ can vary significantly depending on time and location.

Answer

a. hydrogen

☒ b. water vapor

c. helium

d. argon

☐ 26. Multiple Choice: The only substance found naturally in...

Points: 1

Question

The only substance found naturally in the lower atmosphere that can exist as a solid, a liquid, and a gas is \_\_\_\_.

Answer

a. carbon dioxide

☒ b. water

c. methane

d. ozone

☐ 27. Multiple Choice: Which chemical process is an example ...

Points: 1

Question

Which chemical process is an example of condensation?

Answer

a. water vapor formation

☒ b. cloud droplet formation

c. photosynthesis

d. ice formation

☐ 28. Multiple Choice: The greenhouse effect is directly enh...

Points: 1

Question

The greenhouse effect is directly enhanced by \_\_\_\_.

Answer

a. photosynthesis

☒ b. energy absorption by atmospheric water vapor particles

c. chemical weathering

d. carbon dioxide dissolution in the oceans

☐ 29. Multiple Choice: Carbon dioxide is removed from the at...

Points: 1

**Question** Carbon dioxide is removed from the atmosphere through the process of \_\_\_\_.

**Answer** a. fuel combustion

b. respiration

c. volcanic activity

☒ d. photosynthesis

☐ 30. Multiple Choice: Average atmospheric CO<sub>2</sub> concentration...

Points: 1

**Question** Average atmospheric CO<sub>2</sub> concentrations have \_\_\_\_ over the past 100 years.

**Answer** a. slightly decreased

b. remained constant

c. significantly decreased

☒ d. increased

☐ 31. Multiple Choice: Which gas in the upper atmosphere shi...

Points: 1

**Question** Which gas in the upper atmosphere shields Earth's surface from the sun's harmful ultraviolet rays?

**Answer** a. nitrogen

b. methane

☒ c. ozone

d. chlorofluorocarbons

☐ 32. Multiple Choice: Tiny solid or liquid particles of var...

Points: 1

**Question** Tiny solid or liquid particles of various compositions that are suspended in the atmosphere are called \_\_\_\_.

- Answer**
- ☒ a. aerosols
  - b. carcinogens
  - c. greenhouse gases
  - d. chlorofluorocarbons

☐ 33. Multiple Choice: The "ozone hole" is obser...

Points: 1

**Question** The "ozone hole" is observed above \_\_\_\_.

- Answer**
- a. the equator
  - b. Australia
  - ☒ c. Antarctica
  - d. Asia

☐ 34. Multiple Choice: In sunlight, nitrogen dioxide reacts ...

Points: 1

**Question** In sunlight, nitrogen dioxide reacts with hydrocarbons and other gases to produce \_\_\_\_.

- Answer**
- a. weather elements
  - ☒ b. surface ozone
  - c. the ionosphere
  - d. pollution

☐ 35. Multiple Choice: The vertical profile of \_\_\_\_ is varia...

Points: 1

**Question** The vertical profile of \_\_\_\_ is variable in each layer of Earth's atmosphere.

- Answer**
- ☒ a. air temperature

b. air pressure

c. altitude

d. air density

☐ 36. Multiple Choice: In a temperature inversion, air tempe...

Points: 1

**Question** In a temperature inversion, air temperature \_\_\_\_.

**Answer** ☒ a. increases with increasing height

b. decreases with increasing height

c. increases with decreasing height

d. remains constant with increasing height

☐ 37. Multiple Choice: A radiosonde \_\_\_\_.

Points: 1

**Question** A radiosonde \_\_\_\_.

**Answer** ☐ a. measures particulate matter in the atmosphere

b. monitors surface weather conditions in remote areas

☒ c.  
measures the vertical distribution of atmospheric temperature, pressure, and humidity

d. uses radio waves to determine the height of the ionosphere

☐ 38. Multiple Choice: All of the weather we are familiar wi...

Points: 1

**Question** All of the weather we are familiar with on Earth occurs in the \_\_\_\_.

**Answer** ☐ a. exosphere

b. stratosphere

c. mesosphere

☒ d. troposphere

☐ 39. Multiple Choice: Jet streams are found within the \_\_\_\_.

Points: 1

Question Jet streams are found within the \_\_\_\_.

Answer a. thermosphere

☒ b. tropopause

c. stratopause

d. exosphere

☐ 40. Multiple Choice: Which gas is responsible for the temp...

Points: 1

Question Which gas is responsible for the temperature inversion in the stratosphere?

Answer a. carbon dioxide

b. nitrogen

☒ c. ozone

d. argon

☐ 41. Multiple Choice: Air density is greatest in the \_\_\_\_.

Points: 1

Question Air density is greatest in the \_\_\_\_.

Answer a. heterosphere

b. thermosphere

c. ionosphere

☒ d. homosphere

☐ 42. Multiple Choice: The thermosphere is where charged par...

Points: 1

Question

The thermosphere is where charged particles from the sun interact with air molecules to produce \_\_\_\_.

Answer

a. ozone

☒ b. auroras

c. radio waves

d. humidity

☐ 43. Multiple Choice: The exosphere is \_\_\_\_.

Points: 1

Question

The exosphere is \_\_\_\_.

Answer

a. where jet streams are found

b. the ozone layer

☒ c. the upper limit of our atmosphere

d. where air density is greatest

☐ 44. Multiple Choice: What is a region in the atmosphere wh...

Points: 1

Question

What is a region in the atmosphere where air temperature remains constant with height?

Answer

a. temperature inversion

b. jet stream

☒ c. isothermal zone

d. hypoxic zone

☐ 45. Multiple Choice: The majority of atmospheric ozone (ab...

Points: 1

Question

The majority of atmospheric ozone (about 97%) is found in the \_\_\_\_.

Answer

a. thermosphere

b. mesosphere

☒ c. stratosphere

d. exosphere

☐ 46. Multiple Choice: What is the weather element that invo...

Points: 1

**Question** What is the weather element that involves the horizontal movement of air?

**Answer**

a. air temperature

b. air pressure

☒ c. wind

d. humidity

☐ 47. Multiple Choice: The word "weather" is def...

Points: 1

**Question** The word "weather" is defined as\_\_\_\_\_.

**Answer**

a. the frequency of precipitation or other events

b. any type of falling precipitation

☒ c. the condition of the atmosphere at any particular time and place

d. the general climate of a region

☐ 48. Multiple Choice: The term "meteorology" go...

Points: 1

**Question** The term "meteorology" goes back to the Greek philosopher Aristotle, who, about 340 B.C., wrote a book called \_\_\_\_\_.

**Answer**

a. *Weather and Climate*

☒ b. *Meteorologica*

c. *Extraordinary Weather*

d. *Meteorology Today*

☐ 49. Multiple Choice: A tropical storm system with winds in...

Points: 1

**Question** A tropical storm system with winds in excess of 74 mi/hr in the eastern Pacific is called a(n) \_\_\_\_.

**Answer** a. anticyclone

b. tornado

c. extratropical cyclone

☒ d. hurricane

☐ 50. Multiple Choice: Middle-latitude cyclonic storm system...

Points: 1

**Question** Middle-latitude cyclonic storm systems are also known as \_\_\_\_.

**Answer** a. anticyclones

b. hurricanes

☒ c. extratropical cyclones

d. tornadoes

☐ 51. Multiple Choice: A towering cloud, or cluster of cloud...

Points: 1

**Question** A towering cloud, or cluster of clouds, accompanied by thunder, lightning, strong gusty winds, and heavy rain is called a(n) \_\_\_\_.

**Answer** a. hurricane

b. cyclone

☒ c. thunderstorm

d. tornado

☐ 52. Multiple Choice: In the middle latitudes of the Northe...

Points: 1

**Question** In the middle latitudes of the Northern Hemisphere, surface winds tend to blow \_\_\_\_ and \_\_\_\_ around an area of surface low pressure.

**Answer** a. clockwise; inward

b. clockwise; outward

☒ c. counterclockwise; inward

d. counterclockwise; outward

☐ 53. Multiple Choice: Many common sayings about the weather...

Points: 1

**Question** Many common sayings about the weather, such as “red sky at morning, sailor take warning; red sky at night, sailor’s delight” are rooted in \_\_\_\_.

**Answer** ☒ a. careful observations

b. forming a hypothesis

c. careful experimentation

d. posing a question

☐ 54. Multiple Choice: Areas of high atmospheric pressure ar...

Points: 1

**Question** Areas of high atmospheric pressure are also known as \_\_\_\_.

**Answer** a. hurricanes

☒ b. anticyclones

c. troughs

d. tornadoes

☐ 55. Multiple Choice: The letters H and L on a surface weat...

Points: 1

**Question** The letters H and L on a surface weather map refer to regions of high and low \_\_\_\_.

**Answer** a. temperature

b. winds

☒ c. pressure

d. latitude

☐ 56. Multiple Choice: What pattern is most likely associate...

Points: 1

**Question** What pattern is most likely associated with clear skies and fair weather?

**Answer** ☒ a. high pressure regions

b. low pressure regions

c. a cold front

d. a warm front

☐ 57. Multiple Choice: Clouds often form in \_\_\_\_.

Points: 1

**Question** Clouds often form in \_\_\_\_.

**Answer** ☒ a. rising air in the center of a low pressure area

b. rising air in the center of a high pressure area

c. sinking air in the center of a low pressure area

d. sinking air in the center of a high pressure area

☐ 58. Multiple Choice: Extratropical cyclones are found \_\_\_\_.

Points: 1

**Question** Extratropical cyclones are found \_\_\_\_.

**Answer** a. inside the tropics

☒ b. outside the tropics

c. at the equator

d. both inside and outside the tropics

☐ 59. Multiple Choice: You are facing north and the wind is ...

Points: 1

**Question** You are facing north and the wind is blowing in your face. This wind would be called a(n) \_\_\_\_\_.

**Answer** a. south wind

b. east wind

☒ c. north wind

d. southerly wind

☐ **60. Multiple Choice: Lines of latitude on a map represent&...**

Points: **1**

**Question** Lines of latitude on a map represent the distance \_\_\_\_\_ from the \_\_\_\_\_.

**Answer** a. east or west; prime meridian

☒ b. north or south; equator

c. north or south; prime meridian

d. east or west; equator

☐ **61. Matching: Match the atmospheric term wit...**

Points: **1**

**Question** Match the atmospheric term with the appropriate description.

**Answer**

Match	Question Items	Answer Items
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c. -	a. troposphere	a. The air is extremely thin and the atmospheric pressure is quite low. The percentage of nitrogen and oxygen in this layer is about the same as it is at Earth's surface, but contains far fewer oxygen molecules.
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e. -	b. stratosphere	b. In this layer, collisions between gas molecules and atoms are so infrequent that fast-moving lighter molecules can actually escape Earth's gravitational pull, and shoot off into space.
------	-----------------	---

a. -	c. mesosphere	c. This layer is well stirred and contains all of the weather that we are familiar with on Earth and where temperature decreases with height.
------	---------------	---

d. -	d. thermosphere	d. In this layer, oxygen molecules (O <sub>2</sub> ) absorb energetic solar rays making it the warmest part of the atmosphere. This is also the location where the bulk of the ionosphere lies.
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b. -	e. exosphere	e.
------	--------------	----

In this layer, air temperature begins to increase with height producing a temperature inversion, which reduces the amount of vertical motion. This is also the layer in which the ozone layer lies.

☐ 62. Essay: Explain how ozone (O<sub>3</sub>) can play both ...

Points: 1

**Question** Explain how ozone (O<sub>3</sub>) can play both a beneficial and a detrimental role in the earth's atmosphere.

**Answer** At Earth's surface, ozone (O<sub>3</sub>) is the primary ingredient of photochemical smog, which irritates the eyes and throat and damages vegetation. But the majority of atmospheric ozone (about 97 percent) is found in the upper atmosphere (stratosphere) where it is formed naturally, as oxygen atoms combine with oxygen molecules. Here, the concentration of ozone averages less than 0.002 percent by volume. This small quantity is important, however, because it shields plants, animals, and humans from the sun's harmful ultraviolet rays. It is ironic that ozone, which damages plant life in a polluted environment, provides a natural protective shield in the upper atmosphere so that plants on the surface may survive.

☐ 63. Essay: Describe how deforestation affects th...

Points: 1

**Question** Describe how deforestation affects the concentration of CO<sub>2</sub> in the earth's atmosphere.

**Answer** The removal of CO<sub>2</sub> from the atmosphere takes place during photosynthesis, as plants consume CO<sub>2</sub> to produce green matter. Deforestation increases CO<sub>2</sub> in the atmosphere as timber is cut. If forests are burned or left to rot, it then releases CO<sub>2</sub> directly into the air, perhaps accounting for about 10 percent of the observed increase.

☐ 64. Essay: Explain why oxygen-breathing equipmen...

Points: 1

**Question** Explain why oxygen-breathing equipment would be needed in mesospheric air even though it contains the same composition of gases that is found at the earth's surface.

**Answer** The air in the mesosphere is extremely thin and the atmospheric pressure is quite low. Even though the percentage of nitrogen and oxygen in the mesosphere is about the same as it is at Earth's surface, a breath of mesospheric air contains far fewer oxygen molecules than a breath of tropospheric air. At this level, without proper oxygen-breathing equipment, the brain would soon become oxygen-starved—a condition known as hypoxia—and suffocation would result.

☐ 65. Essay: What is the difference between weathe...

Points: 1

**Question** What is the difference between weather and climate?

**Answer**

Weather is the condition of the atmosphere at any particular time and place. Weather is always changing and is comprised of the elements of air temperature, air pressure, humidity, clouds, precipitation, visibility, and wind. The climate of a particular region would be its “average weather”. Climate represents the accumulation of daily and seasonal weather events over a long period of time.

66. Essay: Explain the differences in air motion...

Points: 1

Question	Explain the differences in air motion within a low pressure system and a high pressure system.
Answer	Horizontal pressure differences create a force that starts the air moving from higher pressure toward lower pressure. Because of the earth’s rotation, the winds are deflected from their path toward the right in the Northern Hemisphere. This deflection causes the winds to blow clockwise and outward from the center of the highs, and counterclockwise and inward toward the center of the lows. As the surface air spins into the low, it flows together and is forced upward, like toothpaste squeezed out of an upward-pointing tube. The rising air cools, and the water vapor in the air condenses into clouds. In regions of high pressure, skies are generally clear. As the surface air flows outward away from the center of a high, air sinking from above must replace the laterally spreading surface air. Since sinking air does not usually produce clouds, we find generally clear skies and fair weather associated with the regions of high atmospheric pressure.

Select:   Select by Type:

← OK