

Your Last Earth Science Work is made up of 2 pieces. Part one is a mini review of the whole year I Labeled this as your "final review notes". The second piece is what your actual final would have been. This is all based off of chapter 10. You will have chapter 10 review and chapter 10 final.

Checklist

Final Review Worksheet 1
Final Review Worksheet 2
Final Review Worksheet 3
Final Review Practice Test
Chapter 10 Practice Test
Chapter 10 Test (Final)

Final Review Notes

The layer of gases surrounding the earth is called the ATMOSPHERE. The atmosphere is made up of a combination of elements and compounds

- 78% Nitrogen
- 21% Oxygen
- 1% Argon, Carbon Dioxide, water vapor, etc....
 - Oxygen and nitrogen are the two most important elements to all life on earth.

The Oxygen Carbon Dioxide Cycle- is the process of oxygen and carbon dioxide circulating between living things maintaining life.

- When animals and people breathe in air, our bodies absorb the oxygen to create energy and carbon dioxide is released from our lungs. Plants will absorb carbon dioxide and release oxygen into the atmosphere

The Nitrogen Cycle- Nitrogen cycles from the atmosphere to living things and into the soil.

- Nitrogen is absorbed by plants, those plants are eaten by animals. When an animal dies the body decomposes and nitrogen is absorbed into the soil. Bacteria in the soil breaks down waste, releasing nitrogen back into the air.

Layers of the Atmosphere-The atmosphere consists Of 5 layers

1. **Troposphere**- the layer we live in. The bottom layer of the atmosphere, extending from the ground level up to about 16 km above the earth. This layer contains 75% of the air particles in the entire atmosphere.

- a. Air gets cooler and thinner as you go higher in the troposphere
- b. Also characterized by the up and down and side to side movements of air (wind).

Stratosphere- the layer above the stratosphere. Extends 16-50 km above the earth's surface. This layer is clear and dry. NO WEATHER OCCURS HERE

- . Temperature increases as you go higher in the stratosphere
- a. The OZONE LAYER is found in the lower half of the stratosphere.
- i. This is important because the ozone layer absorbs and protects us from the harmful rays of the sun (UVA, UVB, UVC rays).

Mesosphere-the middle layer of the atmosphere. Here temperature decreases with height. Located 50-80 km from the earth's surface

- . The coldest layer of the atmosphere

Thermosphere- 4th layer of the atmosphere. The air is thinnest here. 60-300 km from the earth's surface

. Temperature increases with height. Can reach up to 2000 degrees Celsius.

a. This layer also includes the IONOSPHERE

- . The ionosphere is the layer of the atmosphere containing ions. These are important in radio communication. Radio waves will travel from stations, bounce off the ionosphere and travel back to earth.

Exosphere-the outermost layer of the atmosphere. This is where the atmosphere ultimately thins out and merges with space

Final Review Notes

How do clouds form? → Most of the earth's surface is covered in water. The sun's heat causes the liquid to EVAPORATE (goes from a liquid to a gas). This gas is called WATER VAPOR. As the air becomes more heated it becomes less dense and begins to rise. As it rises it cools down and CONDENSES (turns from a gas to a liquid) creating tiny water droplets that stay afloat. These tiny droplets gather together to form a cloud.

Types of Clouds

- Clouds are categorized according to their SHAPE and ALTITUDE (the height above the earth's surface).
- From clouds we get this thing called PRECIPITATION. This is moisture that falls to the earth from the atmosphere.
 - Precipitation falls when the water droplets in the cloud become too heavy to stay suspended.
 - Types of precipitation include rain, snow, sleet, and hail.
- 4 types of clouds
 1. **Stratus clouds**- low, flat clouds that form in layers. Their altitude is less than 2,000 meters. These clouds are wider than they are tall, often covering the whole sky like a blanket. Stratus clouds can produce precipitation
 2. **Fog**- a stratus cloud that forms extremely close to the ground. This happens when the air close to the ground is cool enough for air to condense close to the earth.
 3. **Cumulus clouds**- puffy, white clouds occurring anywhere between 2,000-7,000 meters above the earth's surface. These clouds usually indicate fair weather.
 4. **Cirrus clouds**- thin, wispy streaks high in the sky. These are made of ice crystals. They occur at 7,000-13,000 meters high. These clouds occur during fair weather but usually indicate that rain or snow is on the way.

Final Review Notes

- The earth's atmosphere is constantly in motion. Air is moving, forming what we call wind.
- The motion of the air is caused by unequal heating of the earth's surface by the sun.
 - When air is heated it becomes lighter and less dense. This causes the hot air to rise.
 - Cold air will then fill in the space the warm air left behind. And if that air is warmed it will rise and the process repeats itself.
 - This cycle of air flow is called a WIND CELL
 - On earth, the warmest air is found near the equator. When that air rises, it moves towards the North and South Poles. As it moves it gets colder and begins to descend in altitude. As it gets closer to the earth, it moves back towards the equator.

GLOBAL WINDS

- Winds move around the earth in patterns called WIND BELTS. The two most known and understood belts are located north and south of the equator. These are called TRADE WINDS
 - Trade winds are strong reliable winds that blow from the east. These winds were called trade winds because sailors on trading ships would use them to power their sails.
- Most of the USA and southern Canada are affected by the northern wind belt of the PREVAILING EASTERLIES. These winds blow from the east to the west. Generally between 30N and 60N degrees latitude.
 - These blow opposite the trade winds
 - Also are less reliable than trade winds.
- Wind belts also blow from the poles towards warmer latitudes. Wind in these belts are named POLAR EASTERLIES.
 - These winds also blow east to west like trade winds
 - These bring cold stormy weather
 - Most of Alaska lies within this belt.

Name _____

Earth Science

Final Review Worksheet 1

1. What is the atmosphere? _____

2. What is the chemical composition of the air (list elements and percentages)

3. Explain the Nitrogen Cycle.

4. Explain the Oxygen and Carbon Dioxide Cycle. _____

5. The _____ is the layer of the atmosphere in which we live.

6. True or false: no weather occurs in the troposphere.

7. What is the ozone layer and why is it important? _____

8. Which layer is the coldest layer in the atmosphere? _____

9. Which layer is characterized by its high temperatures and contains the ionosphere?

10. What is the ionosphere important for? _____

11. What is the exosphere? _____

Name _____

1. What two criteria categorize clouds? _____

2. What is precipitation and what causes it to fall to the ground? _____

3. How do clouds form? _____

4. Name 2 kinds of precipitation _____

5. What kind of cloud is characterized by its puffy cotton ball appearance? _____

6. What kind of weather does (answer to #5) indicate? _____

7. Describe a stratus cloud. _____

8. Why are cirrus clouds made of ice crystals instead of water vapor? _____

9. What is fog and why does it create issues for travel? _____

10. Which kind of cloud indicates the stormy weather is coming? _____

Final Review Worksheet 3

1. What causes wind? _____

2. The movement of hot air rises and cold air filling its place is known as _____

3. Where is the warmest air on earth located? _____

4. Explain the movement of winds from the equator to the poles _____

5. What is the name of the winds located directly north and south of the equator? _____

6. Who named (answer to #5) and why? _____

7. What are wind belts? _____

8. Over what geological area do Prevailing Easterlies cover? _____

9. What state lies within the Polar Easterlies Belt? _____

10. What kind of wind was the most reliable? _____

11. True or false- Polar Easterlies travel west to east (the opposite direction as trade winds).

12. What kind of wind is known to bring stormy weather? _____

Name _____

Earth Science

Final Review Practice Test

DEFINE

1. Condense
2. Evaporate
3. Stratosphere
4. Trade winds
5. Ionosphere
6. Altitude
7. Polar Easterlies
8. Troposphere
9. Exosphere
10. Wind Belt
11. Wind Cell
12. Cirrus Cloud
13. Fog
14. Ozone Layer

15. Precipitation

SHORT ANSWER

11. What is precipitation and what causes it to fall to the ground? _____

12. How do clouds form? _____

13. Name 2 kinds of precipitation _____

14. What kind of cloud is characterized by its puffy cotton ball appearance? _____

15. What kind of weather does (answer to #5) indicate? _____

16. Describe a cirrus cloud. _____

17. Why are cirrus clouds made of ice crystals instead of water vapor? _____

18. What is fog and why does it create issues for travel? _____

19. Which kind of cloud indicates the stormy weather is coming? _____

20. What causes wind? _____

21. The movement of hot air rises and cold air filling its place is known as _____

22. Where is the warmest air on earth located? _____

23. Explain the movement of winds from the equator to the poles _____

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-
24. What is the name of the winds located directly north and south of the equator? _____
 25. Who named (answer to #5) and why? _____
 26. What are wind belts? _____
 27. Over what geological area do Prevailing Easterlies cover? _____
 28. What state lies within the Polar Easterlies Belt? _____
 29. What kind of wind was the most reliable? _____
 30. True or false- Polar Easterlies travel west to east (the opposite direction as trade winds).
 31. What kind of weather do Polar Easterlies bring? _____
 32. What is the atmosphere? _____
 33. What is the chemical composition of the air (list elements and percentages)

34. Explain the Oxygen and Carbon Dioxide Cycle. _____

35. In which layer of the atmosphere do we live? _____.

36. True or false: no weather occurs in the stratosphere.

37. What is the ozone layer and why is it important? _____

38. Which layer is the coldest layer in the atmosphere? _____

39. Which layer is characterized by its high temperatures and contains the ionosphere?

40. What is the ionosphere important for? _____

41. What is the exosphere? _____

NAME : _____

Earth Science
Final Exam
Study Guide #1

Complete using the following notes:

(1)- Astronomer Chart (front/back), (2)- 10.1 Intro to Solar System, (3)- 10.5 Constellations,
(4)- 2 Constellation worksheets

Define.

1. geocentric –

2. heliocentric –

3. period –

4. perihelion –

5. aphelion –

6. astronomy –

7. orbit –

8. asteroid –

9. asteroid belt –

10. Kuiper belt –

11. meteoroid –

12. meteor –

13. meteorite –

14. celestial sphere –

15. ecliptic –

16. constellation –

17. asterism –

18. Name the astronomer/mathematician according to his description.

1. _____ - formulated 3 laws of planetary motion

2. _____ - built the 1st telescope and discovered 4 moons around Jupiter

3. _____ - studied gravity; formulated law of universal gravitation

4. _____ - used mathematical data to support a geocentric view; wrote a book called *Almagest*

5. _____ - Polish astronomer who proposed a heliocentric universe

19. 3 Laws of Planetary Motion:

1. First Law: Every planet orbits the sun in an _____ with the _____ as one focus and an empty point in space as the other.

2. Second Law: As a planet moves closer to the sun it travels _____; and as it moves farther away, it _____.

3. Third Law: The farther a planet's average distance from the sun, the _____ its _____.

20. 1 AU = _____ miles = the approximate distance from the earth to the _____

21. According to the law of universal gravitation, the strength of the gravitational force between two objects depends on what two things?

1. _____

2. _____

22. _____ is the space between the planets.

23. What is a vacuum? _____

24. What is the name of the two asteroid groups that travel in the same orbit as Jupiter? _____

25. What does NEA stand for and where are they located? _____

26. Which comet takes 76 years to orbit the sun and was named for the man who predicted it would be visible again in 1758? _____

27. Name and describe the three parts of a comet.

1. _____ - _____

2. _____ - _____

3. _____ - _____

28. What is the difference between a short-period and long-period comet? _____

29. Are all the dwarf planets found in the Kuiper belt? Explain. _____

30. What is a "shooting star"? _____

31. Name the 3 biggest meteor showers.

1. _____ 2. _____

3. _____

32. What is the name of the largest known intact meteorite? _____

33. At any location on earth, why is only half of the celestial sphere visible at once? _____

34. Which is smaller – a meteoroid or an asteroid? _____

35. A location's _____ determines which stars are circumpolar and which stars are below the horizon.

36. Circumpolar stars are always above the horizon which means they never _____ or _____.

37. Not ALL constellations are _____ from all latitudes.

Use your constellation worksheets to complete this section.

38. Which star is often mistaken for the planet Mars because of its size and color? _____

39. Which asterism is found in Ursa Major? _____

40. Name the three major stars in Orion.

1. _____ 2. _____ 3. _____

41. Other than our sun, which is the brightest star in the heavens when observed from Earth? _____

42. Which constellation contains Polaris? _____

43. What is another name given to Polaris (how it is commonly known)? _____

44. Which star's name means "spike or ear of grain"? _____

45. Which constellation contains the "teapot" asterism? _____

46. Which group of bright stars forms Taurus's shoulder and is known as "7 Stars" or "7 sisters"? _____

47. Name the animal each constellation represents.

Constellation

Animal Represented

- | | |
|---------------|-------|
| 1. Leo | _____ |
| 2. Pegasus | _____ |
| 3. Scorpius | _____ |
| 4. Taurus | _____ |
| 5. Draco | _____ |
| 6. Cygnus | _____ |
| 7. Aquila | _____ |
| 8. Ursa major | _____ |

48. Label each constellation.

NAME: _____

Matching.

- | | |
|-------------------------|---------------------------------------------------------------------------------------------------------------------|
| 1. _____ geocentric | a. when a star suddenly flares up many times its original brightness |
| 2. _____ satellite | b. the amount of time a planet takes to complete its orbit |
| 3. _____ orbit | c. earth-centered |
| 4. _____ heliocentric | d. an object so massive and dense not even light can escape its gravity |
| 5. _____ period | e. circle around due to gravity |
| 6. _____ solar eclipse | f. an object that revolves around another object |
| 7. _____ lunar eclipse | g. a small group of stars used to form a picture or represent an object |
| 8. _____ ecliptic | h. when a new moon moves directly between the sun and earth & blocks part/all of the sun from view |
| 9. _____ constellations | i. sun-centered |
| 10. _____ asterism | j. small chunks of rock or metal in space |
| 11. _____ asteroid | k. the explosion of a star |
| 12. _____ black hole | l. an asteroid-size object made of rock, frozen materials and forms a tail |
| 13. _____ galaxy | m. tremendous bursts of energy caused by magnetic stress |
| 14. _____ meteoroid | n. a cloud of interstellar gas and dust |
| 15. _____ comet | o. imaginary line on the celestial sphere that marks the path of the sun |
| 16. _____ nebula | p. 88 zones astronomers divide the celestial sphere into |
| 17. _____ binary star | q. a system in which two stars are bound together by gravity |
| 18. _____ granule | r. a massive star system containing millions to billions of stars, gas & dust |
| 19. _____ super nova | s. a stony or metallic object smaller than the planets and orbits the sun |
| 20. _____ nova | t. when the full moon passes through the earth's shadow & the moon darkens because it can no longer reflect the sun |

u. a convection cell appearing as a “bubble” on the photosphere; over 600 miles across

Match the person to their description.

- | | |
|-------------------------------|---------------------------------------------------------------------------------------------|
| 21. _____ Galileo Galilei | a. studied gravity; formulated law of universal gravitational |
| 22. _____ Isaac Newton | b. Polish astronomer who proposed a heliocentric universe |
| 23. _____ Nicolaus Copernicus | c. formulated 3 laws of planetary motion |
| 24. _____ Johannes Kepler | d. built the 1 st telescope and discovered 4 moons around Jupiter |
| 25. _____ Claudis Ptolemy | e. used mathematical data to support a geocentric view; wrote a book called <i>Almagest</i> |

26-30. 3 Laws of Planetary Motion:

1. First Law: Every planet orbits the sun in an _____ with the _____ as one focus and an empty point in space as the other.

2. Second Law: As a planet moves closer to the sun it travels _____; and as it moves farther away, it _____.

3. Third Law: The farther a planet’s average distance from the sun, the longer its _____.

31-32. **1 AU** = _____ million miles = the approximate distance from the earth to the _____

33. A _____ is a space that does not contain any matter.

34-36. Name the 3 parts of a comet.

1. _____ 2. _____ 3. _____

37. Which comet takes 76 years to orbit the sun and was named for the man who predicted it would be visible again in 1758? _____

38. Because we only see one side of the moon from Earth, it has become known as the _____.

39. A meteor is often referred to as a “_____”.

40. Name one of the three main stars in the constellation Orion. _____

41-42. Explain happens in the core of the sun. (answer should cover what takes place and the result)

43. What does "photosphere" mean? _____

44. Does the Northern Hemisphere's summer occur during Earth's perihelion or aphelion? _____

45-46. List 2 facts about sunspots.

1. _____

2. _____

47. What diagram classifies stars by their temperature (color) and light produced? _____

48-50. Name the three categories stars are grouped into.

1. _____ 2. _____

3. _____

51-52. Apparent magnitude is the brightness of a star as it appears to an observer _____ whereas absolute magnitude is the brightness of a star to an observer who is _____ away from the star.

53-54. Name two of the four main shapes by which galaxies are categorized.

1. _____ 2. _____

Name the animal each constellation represents.

Constellation

Animal Represented

Pegasus	55. _____
Draco	56. _____
Leo	57. _____
Ursa Major	58. _____
Taurus	59. _____
Scorpius	60. _____
Aquila	61. _____
Cygnus	62. _____

Match the following stars to their descriptions.

- | | |
|----------------------------|--------------------------------------------------------------|
| 63. _____ Polaris | a. Its name means "spike or ear of grain" |
| 64. _____ Sirius | b. Often mistaken for Mars because of its size & color |
| 65. _____ Spica | c. Forms Taurus' shoulder; known as "7 sisters" or "7 stars" |
| 66. _____ Proxima Centauri | d. The North Star |
| 67. _____ Antares | e. After the sun, it is the next closest star to Earth |

68. _____ Pleiades

f. Other than our sun, the brightest star in the heavens when observed from Earth

Complete the chart of star color and temperature.

	<u>Star color</u>	<u>Avg. Temp.</u>
Cool	69.)	5,000 F
Warm	Yellow	70.)
Hot	71.)	20,000 F
Hottest	Blue White	72.)

Identify.

73. The two asteroid groups that travel in same orbit as Jupiter - _____

74. Largest known intact meteorite - _____

75. Belt of comets beyond Neptune – _____

76. Length of a lunar month (in days only) - _____

77. Largest galaxy in the Local Group - _____

78. The dark patches on the moon - _____

79. The galaxy we are located in - _____

True or False.

80. _____ An asteroid is smaller than a meteoroid.

81. _____ Not all constellations are visible from all latitudes.

82. _____ NEA stands for Near Earth Asteroid.

83. _____ The main source of solar winds are coronal holes.

84. _____ The core of the sun is 27,000,000 F.

85. _____ Circumpolar stars are always above the horizon which means they never rise or set.

86. _____ The lower the apparent magnitude, the dimmer the object.

87. _____ The asteroid belt is a ring of asteroids located between the planets Jupiter and Saturn.

88. _____ Sagittarius A* is believed to be a black hole in the center of the Milky Way galaxy.
89. _____ The Greek astronomer and mathematician Aristarchus developed a system to measure apparent magnitude.
90. _____ A long period comet has a period of 200 years or more.

Label the numbered phases of the moon.

BONUS!

1. Which asterism is found in the constellation Sagittarius? _____
2. What does "chromosphere" mean? _____
3. On what specific part of the moon did the first moon landing take place? _____
4. Name one of the 3 biggest meteor showers. _____