

True or False: If False, rewrite the statement and make it true and informative.

- 1 . Minerals must be formed by synthetic processes.
- 2 . Minerals can be organic in origin
- 3 . Minerals have an amorphous structure
- 4 . Minerals from the triclinic system are equal in size along the 3 principal dimensions.
- 5 . Minerals from the monoclinic system exhibit only one right angle where crystal surfaces meet.
- 6 . Magma is hot, melted plastic.
- 7 . 100% of the crust is made up of 8 elements.
- 8 . Talc has a hardness value of 72 on Moh's Scale.
- 9 . Corundum has a hardness value of 900 on Moh's Scale.
- 10 . For a streak plate to be useful, it must be glazed porcelain.
- 11 . Explain Specific Gravity.
- 12 . Contrast Cleavage and Fracture.
- 13 . What elements are contained in Silicates?
- 14 . List 3 reasons gems are highly-prized.
- 15 . Two famous, large diamonds are the Cullinan diamonds and the Hope diamond, which one is in the Smithsonian Museum
- 16 . List two ores that contain Iron.
- 17 . List the ore that commonly contains aluminum.

Chapter 10

- 1 . The German meteorologist who proposed the hypothesis of continental drift was named Alfred _____.
- 2 . Wegener suggested that all continents once were connected as one large landmass. He called this landmass _____.
- 3 . _____ means "all land."
- 4 . One bit of evidence that supports Wegener's hypothesis is the presence of the same fresh-water fossils on land areas separated today by large bodies of _____ water.
- 5 . Another bit of evidence that supports Wegener's hypothesis is the presence of warm-weather plant fossils found in _____ regions.
- 6 . Another bit of evidence that supports Wegener's hypothesis is the presence of glacial deposits in _____ regions.
- 7 . The ocean floors were mapped using _____ waves during the 1940s and 1950s.
- 8 . Using sound waves, researchers discovered an underwater system of _____ or mountains and valleys like those found on the continents.
- 9 . In the early 1960s Henry _____ suggested an explanation for the mid-ocean ridges--the theory is now known as sea-floor spreading.
- 10 . The youngest rocks on the seafloor are found at the _____
- 11 . Earth's magnetic field has a north and south _____ that has reversed itself many times in the past. These reversals are recorded in rocks forming along mid-ocean ridges.
- 12 . List the two types of crustal plates.
- 13 . List the three types of plate interactions.
- 14 . Describe the three types of convergent interactions.

Chapter 11

- 1 . The fracture that occurs when rocks change their shape by breaking is called a _____.
- 2 . When rocks are pulled apart, a _____ fault may form.
- 3 . When rocks are compressed, a _____ fault may form.
- 4 . When rocks are sheared, a _____ fault may form.
- 5 . Earthquake waves are called _____ waves.
- 6 . _____ energy is potential energy that builds up in rock when it is bent.

- 7 . When the potential energy of strain is released it moves _____ from the fault in seismic waves.
- 8 . The point in Earth where an earthquake's movement first occurs and energy is released is called the _____ .
- 9 . The point on Earth's surface located directly above the focus is called the _____ .
- 10 . After being produced at the _____ , seismic waves travel in all directions.
- 11 . _____ waves cause more damage than the interior waves during an earthquake.
- 12 . _____ waves travel the fastest through rock materials
- 13 . Primary waves are also called " _____ ".
- 14 . P-Waves cause the particles in rock to move _____ and forth, or vibrate.
- 15 . _____ waves are also called "S-Waves".
- 16 . S-Waves move through rock material by causing particles in the rock to vibrate at _____ angles to the direction the waves are moving.
- 17 . Secondary waves are also called " _____ ".
- 18 . _____ are scientists who study earthquakes and seismic waves.
- 19 . A _____ is an instrument used to obtain a record of seismic waves from all over the world.
- 20 . The energy released by an earthquake is also known as its _____ .
- 21 . Magnitude of earthquakes can be measured on the _____ Scale.
- 22 . The _____ intensity scale measures the intensity of an earthquake using Roman numerals I through XII.
- 23 . Earthquakes on the ocean floor can produce powerful water waves known as _____ .
- 24 . An eruption of magma, solids, and gas form a cone-shaped mountain called a _____ .
- 25 . As magma flows onto Earth's surface it is called _____ .
- 26 . _____ flows are massive avalanches of hot, glowing rock flowing on a cushion of intensely hot gases.
- 27 . Some lava is high in _____ which is a combination of silicon and oxygen.
- 28 . Basaltic lava is high in iron and magnesium and low in silica; it forms a broad volcano with gently sloping sides called a _____ volcano.
- 29 . Cinder cone volcanoes are formed from a tephra of solidified lava, ash, and _____ .
- 30 . _____ volcanoes are steep-sided mountains composed of alternating layers of lava and tephra.
- 31 . _____ eruptions result from cracks or fissures that allow magma with low viscosity to erupt.
- 32 . Rifts at _____ plate boundaries contain fractures that allow for fissure eruptions.
- 33 . Fissure eruptions form lava that solidifies into _____ , the most abundant type of rock on Earth.
- 34 . Convergent plate boundaries are often the site of _____ .
- 35 . The belt of volcanoes surrounding the Pacific Ocean is called the Pacific _____ .
- 36 . Scientists theorize that Hawaii is on a large, rising body of magma called a _____ .
- 37 . Volcanoes on Earth usually form along rift zones, subduction zones, or over _____ .
- 38 . _____ waves have allowed scientists to figure out the structure and composition of Earth's layers.
- 39 . The inner two layers of Earth are the inner and outer cores--made mostly of _____ .
- 40 . A popular hypothesis explaining the energy used to power plate tectonics says that _____ in the mantle is the source.

Chapter 22 Review Questions

- 1 . Describe the Greek observation that the Earth is spherical circa 350 B.C.
- 2 . Describe two observations that led early sailors to hypothesize a spherical Earth.
- 3 . Describe how the Earth is not a perfect sphere.
- 4 . Explain the cause of day and night on the Earth.
- 5 . Describe Earth's magnetic field.
- 6 . Describe the creation and location of Earth's seasons
- 7 . Explain the Winter Solstice.
- 8 . Explain the Summer Solstice.
- 9 . Explain the Spring and Fall Equinoxes.
- 10 . Explain which side of the Moon faces the Earth at different times in its rotation, and why.
- 11 . Explain why the Moon seems to shine.
- 12 . Draw a model that includes the Sun, Earth, and Moon in its different phases.
- 13 . Explain why the Moon takes 29.5 days to complete its cycle of phases, but only 27.3 days to revolve around the Earth.
- 14 . Describe the causes of an Eclipse.
- 15 . Contrast the Umbra with the Penumbra of an eclipse.
- 16 . Explain the impact theory of Moon creation.
- 17 . Describe the significance of the Apollo 11 NASA mission.
- 18 . Why would the South Pole-Aitken Basin be a good place to establish a moon colony?
- 19 . How does the evidence that the Moon has a small iron core lend support to the theory

that the moon was created as described by the impact theory?

Chapter 23 Review

- 1 . Many early Greeks thought that the celestial bodies rotated around the Earth.
What is the name for this model of the Solar System?
- 2 . Which planets were included in the early Greek models of the Solar System?
- 3 . In 1543, a Polish astronomer published his view of the Solar System as Sun-Centered. What is his name?
- 4 . Italian astronomer, Galileo Galilei came to the conclusion that the Solar System was Sun-centered as well. Which planet was he observing that led him to this hypothesis?
- 5 . 99.86 of the mass of the Solar System is contained in which celestial body?
- 6 . Scientists theorize that the Solar System began as a nebula of gas, dust, and ice. How many years ago approximately?
- 7 . The Sun was birthed as a new star when nuclear fusion began. At what approximate temperature?
- 8 . Why do planets nearest the sun have fewer light elements?
- 9 . Nicholas Copernicus envisioned planetary orbits as what shape?
- 10 . Johannes Kepler calculated the planetary orbits as what shape (in the early 1600s)?
- 11 . Identify the planet that is only larger than Pluto, and has no atmosphere.
- 12 . Identify the planet known as Earth's Twin.
- 13 . Venus has abundant Carbon Dioxide in its atmosphere. What effect does this cause?
- 14 . Earth is 150 million km away from the Sun on average. What unit of measurement is equal to this distance?
- 15 . What protects Earth against most meteors and radiation from the Sun.
- 16 . What gives Mars a red appearance?
- 17 . Where is the largest volcano in the Solar System?
- 18 . What is the name of the largest volcano in the Solar System?
- 19 . What is the most volcanically active object in the Solar System?
- 20 . What is the largest moon in the Solar System?
- 21 . Which planet has a density that would allow it to float in water?
- 22 . Which planet has an axis of rotation nearly parallel to its plane of orbit?
- 23 . What gas gives Uranus and Neptune a blue-green hue?
- 24 . How long does it take Pluto to orbit the Sun?
- 25 . Where do scientists think that comets originate?
- 26 . What happens to the ice in comets as they orbit the Sun several times?
- 27 . What is the scientific name for meteoroids that burn up in Earth's atmosphere?
- 28 . What is the vernacular for meteoroids that burn up in Earth's atmosphere?
- 29 . What is the scientific name for meteoroids that are large enough to avoid burning up in Earth's atmosphere?
- 30 . The Near Earth Asteroid Rendezvous (NEAR) spacecraft was the first spacecraft to do what to an asteroid?

Chapter 24 Review

- 1 . Patterns of stars in the sky are known as what vocabulary term?
- 2 . As Earth rotates, some constellations rotate around Polaris. What is this group of constellations classified as?
- 3 . The measure of light a star gives off is known _____ magnitude.
- 4 . A measure of the light received on Earth from a certain star is a measure of the star's _____ magnitude.
- 5 . The apparent shift in the position of an object when viewed from two different positions is called _____.
- 6 . **What unit of measurement is used for distances in space inside the solar system.
- 7 . **What unit of measurement would be appropriate for measuring the distance to the closest solar system to our own?
- 8 . **What unit of measurement would be appropriate for measuring distances to galaxies far away from our own Milky Way?
- 9 . Which unit of measurement represents the distance light will travel in a year.
- 10 . What does the color of a star indicate?
- 11 . Which colors are the hottest stars?

- 12 . Which colors are relatively cool stars?
- 13 . Which color are stars that have the same temperature as the sun?
- 14 . Scientists study the light from stars through a spectroscope. What component of a star's make-up is evident as a result of this data?
- 15 . What element is the major fuel source for our Sun?
- 16 . What process is responsible for the energy produced by the Sun?
- 17 . Areas of the Sun that appear dark because they are cooler than surrounding areas are called _____.
- 18 . Sunspot maximums occur over a cycle of every _____ to _____ years.
- 19 . What on Earth can be disrupted as a result of Coronal Mass Ejections (CMEs).
- 20 . What term do scientists use for systems in which two stars orbit each other?
- 21 . Hertzsprung and Russell noticed that stars with higher temperatures also have brighter absolute _____.
- 22 . Who developed the theory that mass could be converted into energy according to the formula of $E=mc^2$?
- 23 . What does the "E" mean in the equation $E=mc^2$?
- 24 . What does the "m" mean in the equation $E=mc^2$?
- 25 . What does the "c" mean in the equation $E=mc^2$?
- 26 . What characteristic of stars makes fusion possible?
- 27 . Approximately how much of the Sun's main sequence life-span is left?
- 28 . Stars begin as a large cloud of gas and dust called a _____.
- 29 . At what temperature in the core of a nebula does fusion begin (and a star get "born")?
- 30 . What force (in a main sequence star) prevents the star from collapsing due to the pull of gravity?
- 31 . Stars that are more than 10 times more massive than the Sun often suffer an ending as a _____.
- 32 . If the collapsed core of a supernova is about twice as massive as the Sun it may become a _____ star.
- 33 . If the dense core of a supernova is more than 3 times more massive than the Sun, it will most likely become a _____.
- 34 . A large group of stars, gas, and dust held together by gravity is called a _____.
- 35 . List one common shape of galaxies.
- 36 . Identify the name for the galaxy we inhabit.
- 37 . One theory of the origin of the Universe says that it has always been as it is now. List the name for that theory.
- 38 . Name the theory of the origin of the Universe that says that the Universe goes through periods of expansion and contraction.
- 39 . What observable phenomena in Stars lends credence to an expanding model of the Universe?
- 40 . Identify the theory based upon an explanation of the Universe as constantly expanding.

Chapter 16

- 1 . _____ is the state of the atmosphere at a specific time and place.
- 2 . _____ is air moving in as specific direction.
- 3 . _____ can be measured using a wind vane.
- 4 . _____ can be measured using an anemometer.
- 5 . _____ is the amount of water vapor in the air.
- 6 . _____ is a measure of the average motion of molecules.
- 7 . Draw a model of a wind vane with wind direction indicated by an arrow!!
- 8 . Draw a model of a wind sock with wind direction indicated by an arrow!!
- 9 . Describe the function and purpose of an anemometer!!!!
- 10 . Explain the relationship between temperature, pressure, and wind.
- 12 . Warm air holds _____ water than cold air.
- 13 . _____ is the amount of water vapor in air compared to amount needed for saturation.
- 14 . The temperature at which air is saturated and condensation forms is called the _____.
- 15 . Sketch and label the 3 main cloud shapes.
- 17 . Identify the Latin root that means " lock of hair."
- 18 . Identify the Latin root that means " heap."

- 19 . Identify the Latin root that means “ layer.”
- 20 . Identify the Latin root that means “ rain-bearing.”
- 21 . Water falling from clouds is called _____.
- 22 . List the 4 major types of precipitation and describe how each is formed.
- 23 . A _____ is a tool used to measure atmosphere pressure.
- 24 . A boundary between 2 air masses of different densities is called a _____.
- 25 . Describe the creation of lightning.
- 26 . Describe how thunder is created by lightning.
- 27 . _____ is the phenomena of wind at different heights blowing at different speeds and directions.
- 28 . Identify the scale that rates the severity of tornadoes.
- 29 . What are the most severe tornadoes rate as?
- 30 . Over which ocean do hurricanes form?
- 31 . Over which ocean do typhoons form?
- 32 . Over which ocean do cyclones form?
- 33 . A _____ is a person who studies weather.
- 34 . A line that connects points of equal temperature is called an _____.
- 35 . A line that connects points of equal pressure is called an _____.

Chapter 17

- 1 . _____ is the pattern of weather that occurs in an area over many years
- 2 . _____ is a measure of distance north or south of the equator.
- 3 . The _____ regions are the regions between $23\frac{1}{2}^{\circ}$ N and $23\frac{1}{2}^{\circ}$ S latitude.
- 4 . The _____ zones extend from $66\frac{1}{2}^{\circ}$ to the poles, both North and South.
- 5 . Between the tropics and the polar zones are the _____ zones.
- 6 . Large bodies of water can affect the _____ of coastal areas by absorbing or giving off heat.
- 7 . Many coastal regions are _____ in the winter than inland areas at similar latitude.
- 8 . Many coastal regions are _____ in the summer than inland areas at similar latitude.
- 9 . Warm currents begin near the _____ and flow toward higher latitudes.
- 10 . Winds blowing from the sea are often _____ than those blowing from land.
- 11 . On the _____ side of a mountain range, air rises, cools, and drops its .
- 12 . Deserts are common behind _____.
- 13 . Air pollution traps _____ creating a heat-island effect.
- 14 . _____ are people who study climates
- 15 . The type of climate that exists in an area determines the _____ found there.
- 16 . An _____ is any structure or behavior that helps an organism survive in its environment in other climates
- 17 . Some organisms have _____ structures that help them survive in certain climates called structural adaptations
- 18 . _____ is a period of greatly reduced activity in winter
- 19 . Hibernation is an example of a _____ adaptation
- 20 . Lungfish enter an inactive state called _____ .
- 21 . _____ are short periods of climatic change caused by changes in the amount of solar radiation an area receives
- 22 . Because Earth is _____, different areas of Earth receive changing amounts of solar radiation throughout the year
- 23 . The middle latitudes are also known as _____ zones
- 24 . The _____ latitudes are near the poles
- 25 . During _____ years, ocean temperatures increase by 1 to 7 degrees Celsius off the coast of Peru
- 26 . The opposite of El Nino is _____
- 27 . Warm-weather fossils found in polar regions indicate that at times in Earth’s past, worldwide climate was much _____ than at present
- 28 . Times when the Earth's climate has been much colder than today are called _____ Ages.

- 29 . Climate change may be caused by _____ collisions.
- 30 . Climate change may be caused by _____ eruptions.
- 31 . Climate changes may be caused by short or long-term changes in _____ output.
- 32 . Climate change may be caused by changes in Earth's _____ around the Sun.
- 33 . Climate change may be caused by movements of Earth's crustal _____ .