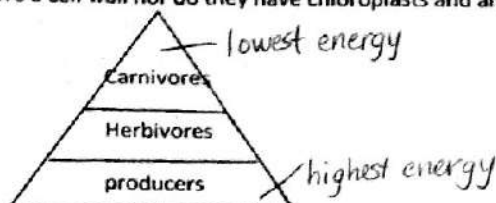


Final Exam Review Answer Key

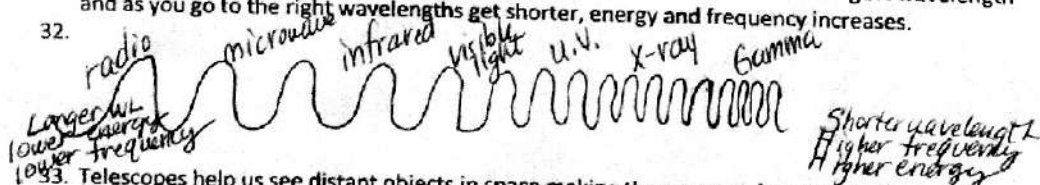
1. Global warming is due to enhanced greenhouse effect. The trapping of carbon dioxide that is "warming" the Earth. If global temperatures continue to increase, many things could happen: more storms, sea level rise, etc. but remember that a whole other group still claims global warming is a "natural trend" that our Earth is going through. Record snowfalls and other incidences help to support this natural trend.
2. The greenhouse effect is a natural process that traps carbon dioxide in our atmosphere that warms our Earth. The problem is now due to the burning of fossil fuels, too much carbon dioxide is being trapped and causing global temperatures to rise.
3. Carpool, turn lights off when leaving a room, reduce, reuse, recycle, insulate homes all would help reduce the use of fossil fuels.
4. Fossil fuels are coal, oil, and natural gas. The burning of fossil fuels causes CO_2 to be emitted or given off. Too much CO_2 has caused global warming.
5. Biofuels can be used to power automobiles as a replacement for gasoline. They are made from living materials, typically plants, but could even be made using bacteria. Both are renewable which is not limited like fossil fuels are. Also biofuels do not release CO_2 like using fossil fuels would.
6. Newton's first law of motion states that an object at rest or in motion will remain that way until an outside force is applied. Seatbelts are a perfect example.
Newton's second law is $F=MA$. This means that an object will accelerate in the direction that a force is applied. The more force added, the more an object will accelerate. A more massive object will require more force to accelerate that object. For example, it requires more force to push a bowling ball versus a tennis ball.
Newton's third law says for every action there is an equal but opposite reaction. A rocket being launched is a great example.
7. $\text{Speed}=\text{distance}/\text{time}$ (Distance is measured in meters or km and time could be measured in sec, minutes, or hr)
8. Be sure and look at both axes.
9. An adaptation is any behavior or structure that helps an organism (plant or animal) to survive or even thrive in an environment. Camouflage allows animals to blend in with their surroundings. Toothed leaves might prevent a predator from eating a plant just like quills on a porcupine may keep it from being eaten. Webbed feet would help a bird in an aquatic environment.
10. Native species are native or original to a particular area. An introduced species has been brought here from another area and although it may thrive here, it can easily cause problems by spreading new diseases among native crops.
11. Physical changes are changes that a substance may undergo such as a change in phase, color, taste, size, etc. that doesn't change the substance. For example, if you cut or fold a piece of paper, it is still paper.
However, a chemical change is a change that a substance undergoes that actually results in a new substance being formed. Like with paper that is burned. The paper is not paper anymore but ashes and smoke. A bicycle left outside will rust. A chemical change occurs between the metal and oxygen that it is exposed to and a new substance, rust, is formed. So burning, smoke, rust, bubbles being produced, gases given off all would represent a chemical change.
12. Salt= NaCl
Sugar= $\text{C}_6\text{H}_{12}\text{O}_6$
Carbon dioxide= CO_2
Water= H_2O
How would you write a formula for a substance that has 1 atom of Carbon and 2 atoms of oxygen? CO_2
13. Seismic waves are earthquake waves. Primary or P waves are the fastest. They are the first waves received at a seismograph location. Secondary or S waves are slower and arrive after the P waves. Surface or L waves are the most damaging
14. The focus of an earthquake is found underground (far down) where the earthquake originates. The epicenter is the point on the earth's surface where the energy from the earthquake is the greatest.
15. To help show that seasons have nothing to do with proximity to the sun remember that the sun is actually at its maximum altitude during the summer solstice for the Northern Hemisphere. Seasons are caused by the tilt of the Earth and where we are in our revolution around the Sun. During an equinox, the sun is directly overhead at the equator and length of days will be equal in both hemispheres.
16. The solstices are summer and winter occurring June 21 and Dec. 21 respectively. The summer solstice, June 21, is said to be the longest day of the year meaning we get more daylight hours on that day than any other day of the year. The winter solstice, Dec. 21, is said to be the shortest day of the year due to there being more dark hours than daylight.

The equinoxes are spring and fall occurring March 21 and September 21 respectively. The Both days of the year are said to have "equal" amounts of daylight and darkness. The sun is directly over the equator at these times.

17. The layers of the Earth are the crust, mantle, outer core, and inner core. The crust is the thinnest layer while the mantle is the largest layer. The inner and outer core is made mostly of iron and nickel. The inner core is solid while the outer core is liquid.
18. The lithosphere is described as being "hard and rigid" while the asthenosphere is described as being "plastic-like". The lithosphere sits on top of the asthenosphere.
19. Muscle tissue is the only tissue that can contract and relax and is responsible for movement. Nerve tissue carries impulses back and forth to the brain. Connective tissue joins all parts of the body like blood, cartilage, bones. Epithelial tissue covers the body (skin) and acts as the first line of defense.
20. Animal cells do not have a cell wall nor do they have chloroplasts and an animal cell has a smaller vacuole.
21. Energy pyramid



22. Decomposers decompose. They are responsible for putting nutrients back into the soil. Fungi and bacteria can be classified as decomposers.
23. Herbivore eats plants which are also called autotrophs. Autotrophs are "automatic" meaning they are producers producing their own food. Carnivores eat other animals and Omnivores eat both plants and animals. Decomposers decompose breaking down plant and animal matter and add nutrients back to the soil.
24. Hurricanes typically originate in the trade winds off the coast of Africa. As long as it is in the trade winds, it will travel east to west. Remember that hurricanes intensify over warm water but lose their strength over cooler waters. Pacific waters are cooler waters than water in the Atlantic.
25. Video; Due to the Coriolis effect winds are deflected to the right in the Northern hemisphere and to the left in the Southern hemisphere. At the equator, you will find the doldrums.
26. A drop in barometric pressure typically means rain or possible storm is approaching.
27. In a series circuit, there is only one path for the electric current to follow. So if Christmas lights are wired in a series circuit if one light is out, all the lights go out. In a parallel circuit, there is more than one path for the electric current to follow. So if Christmas lights are wired in a parallel circuit, one light can go out and the others will still burn or stay lit.
28. Bacterial infections are treated with antibiotics prescribed by a doctor. Viruses are treated with simple bed rest and drink plenty of fluids. We can treat the symptoms but not the virus.
29. We receive vaccinations to trigger our body to make antibodies against a particular disease or illness. Vaccinations help prevent the spread of a virus.
30. Reflection is when light waves reflect or bounce off a surface. Refraction is the bending of light waves traveling from one material to another.
31. ROY G. BIV represents the colors of the rainbow. Red is the color with the longest wavelength and as you go to the right wavelengths get shorter, energy and frequency increases.
- 32.



33. Telescopes help us see distant objects in space making them appear larger and closer. Space probes can go where it is too dangerous for an astronaut to travel and actually collect samples from distant objects. Telescopes that detect the longest wavelength are radio telescopes while telescopes that detect the shortest wavelength are gamma telescopes.
34. To produce energy, plant and animal cells go through cellular respiration which is going from food \rightarrow energy. The equation is $C_6H_{12}O_6 + O_2 \rightarrow CO_2 + H_2O + \text{energy}$. To produce food, plants go through the process of photosynthesis which is using energy \rightarrow food. The equation is reversed now: $CO_2 + H_2O + \text{sunlight} \rightarrow C_6H_{12}O_6 + O_2$.
35. Heterozygous would be different alleles making up a genotype like Tt or Bb. Homozygous would be the same alleles like TT or tt or BB or bb.
36. Both parents would have to be heterozygous. Tt x Tt
37. Genotype is the genes or "letters" that determine traits like TT, Tt, or tt. Phenotype is what the organism will express like tall, tall, short.