

Assignment 4 – Equity Assessment Evaluation

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Equity Assessment Evaluation

This assessment is a summative assessment for 8th grade students appearing for Florida Comprehensive State Assessment Test (FCAT) exam. This was given toward the end of the year, few weeks before the state exam. It has 25 questions with 2 extra point questions and has one class period to complete the test. Students who wish to take extra time have the opportunity to continue working on the test until they're done.

After thoroughly reviewing the test, I found out that this assessment is partially equitable. Assessment is in Multiple Choice Question format but is well designed to test the understanding of knowledge. Depth of Knowledge (DOK) is effectively used to ensure that students are tested in all categories. It is also aligned with the standards taught in the class. Questions range from DOK level one to level four. Approximately 70% of the questions are levels 1 and 2, and rest of the questions are level 3 and 4, making it systematically and scientifically easier for students to display mastery of content. The best aspect of this assessment is that it uses examples of real life scenarios, experiments, hands-on activities, and pictorial representation of natural phenomenon. This certainly makes the assessment equitable because it gives opportunities to use students' experiences to give the correct response.

This assessment is also available to take it online and in class at student's convenience. It also has a Spanish version for my Spanish speaking students. In addition, students are also provided with a dictionary and allowed to use a translator to translate the assessment to other languages. While the standard time is a 55-minute class period, students also have the choice to take extra time to finish the test. This makes the assessment more equitable as it addresses the needs of all the students.

This assessment was designed to be taken on a computer. The program gives instant feedback to the students with detailed explanation. Students can then practice the domains they are weak at, and the program will again generate similar test for them to do it again. Students have unlimited choice with the given date to show their understanding by taking the test as many times as they want. Questions used in the assessment are also very engaging. It focuses on the activities that were done in the class during the lesson.

While all of above makes the assessment equitable, there are also some aspects that make the test less equitable. For example, very few performance-based questions are used in the test, and all the questions in the test are multiple choice questions. This test would be more equitable if it had included questions that student could answer using their own responses. Since it is a summative assessment, students should also have been given other choices such as projects, presentation, or a report through which they could display their understanding of the concept.

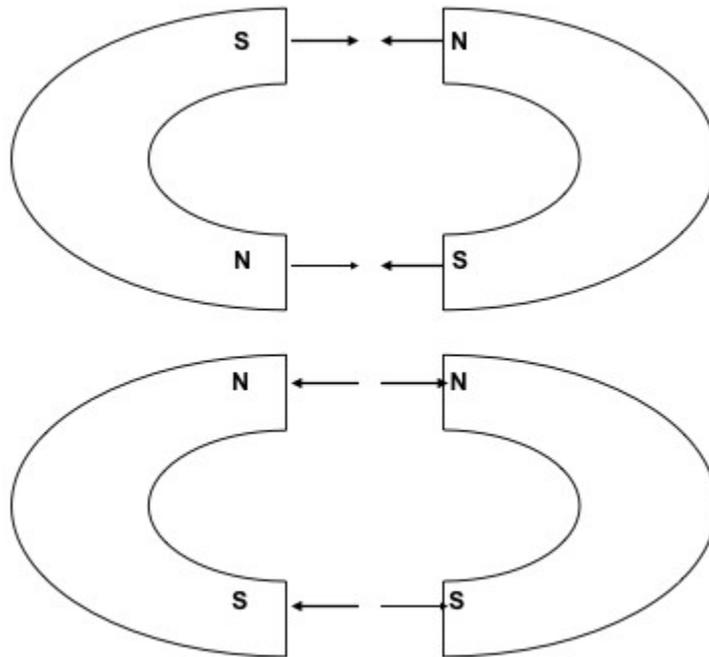
Assessment has been revised to make it more equitable by addressing above mentioned weaknesses. Five more questions have been added that focus more on the application-based questions that are linked to universal phenomenon. Student are also given a choice between a project, report, presentation, or MCQ test. Not all questions in the assessment are same points now. Level four questions are made worth more points and several opened questions have been added.

Revised Assessment

Instructions: Complete each question by choosing or typing in the best answer. To receive the highest score, be sure to leave nothing blank. When you have completed the test, click the "Grade My Test Now" button at the end of the test. If you run out of time, click the "Save for Me to Complete Later" button. Tests are automatically saved in case of internet disruption

Choose any 30 from MCQs

1)



Which property of magnets is being shown in the picture?

- A) Like poles and opposite poles repel.
- B) Like poles and opposite poles attract.
- C) Like poles repel and opposite poles attract.
- D) Like poles attract and opposite poles repel.

2)



The temperature of a place rises rapidly from 25°C to 30°C, causing warm air to rise. The temperatures in the areas around this place are stable. Which image shows what is MOST LIKELY to happen next?

(Note: In the images, the letter L denotes a low pressure area and the letter H denotes a high pressure area. A red arrow indicates the direction of movement of warm air and a blue arrow indicates the direction of movement of cold air.)

A)



B)



C)



D)



3)



As the sun begins to set, the light waves must pass through increasing amounts of atmosphere, usually containing larger quantities of suspended dust and moisture. Under these circumstances, longer wavelengths of light become scattered and other colors start to dominate the color of the sun, which ranges from yellow to orange, finally turning red just before it drops below the horizon.

The different colors of a magnificent sunset are due to the property of light called

- A) diffraction.
 - B) refraction.
 - C) reflection.
 - D) absorption.
- 4) Three different dynamic carts of different masses are rolled down a ramp. The heaviest one rolls down the ramp the fastest. Before concluding that a more massive cart will roll down a ramp faster, what experiment with these three carts might you want to do?

- A) Run an experiment with the ramp at a different angle.
- B) Find a fourth cart to add to the test, then test again
- C) Change the surface of the ramp, then test the carts again.
- D) Add masses to each car until they have the same mass, then test the carts again.

5)

Type of Fruit	Temperature (°Celsius)	Presence of Spoilage
Banana	26	Yes
Apple	27	Yes
Orange	40	Yes
Pear	10	No

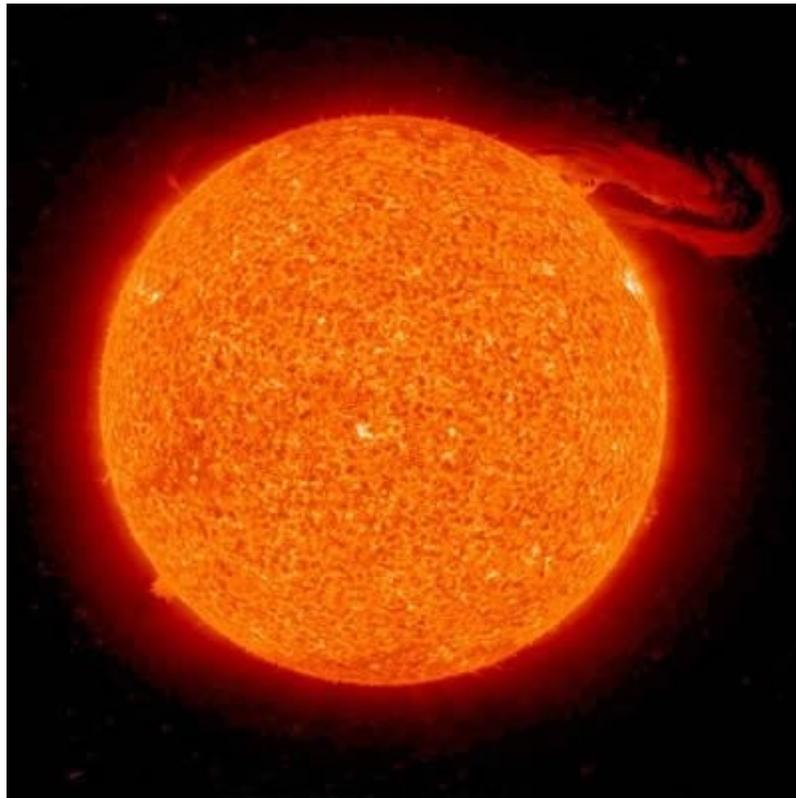
An experiment in science class was conducted to determine the time it takes different types of fruit to spoil in darkness. Each piece of fruit; an orange, an apple, a pear, and a banana were placed in different dark rooms at different temperatures. The table shows the observations collected by the students after five days.

Which best describes an error the students made in the experiment?

- A) five days is too long
 - B) too many types of fruit
 - C) only done in dark rooms
 - D) different room temperatures
- 6) Volcanic rock shows that some layers have magnetic fields that are aligned opposite to Earth's. This evidence BEST fits which hypothesis?
- A) Earth's rotation has reversed in the past.
 - B) Earth's magnetic field has reversed in the past.

- C) Earth did not have a magnetic field until recently.
- D) Earth's magnetic field has always had the same orientation.
- 7) Houses with carpet are much quieter than houses with tile or hardwood floors because of sound wave
- A) absorption.
- B) diffraction.
- C) reflection.
- D) refraction.

8)



The photo shows a bright, looping projection which extends from the surface of the sun. Some of these can last for several months. This projection is called the

- A) corona.
- B) solar wind.
- C) photosphere.
- D) solar prominence.

9) You have seen magnets sticking to the refrigerator door, or maybe in your science class room. They attract metal items, for example, paper clips.

This force of attraction that a magnet exerts _____ the further the magnet is from the paper clip.

- A) Grows
- B) Shrinks
- C) Oscillates
- D) remains constant

10)

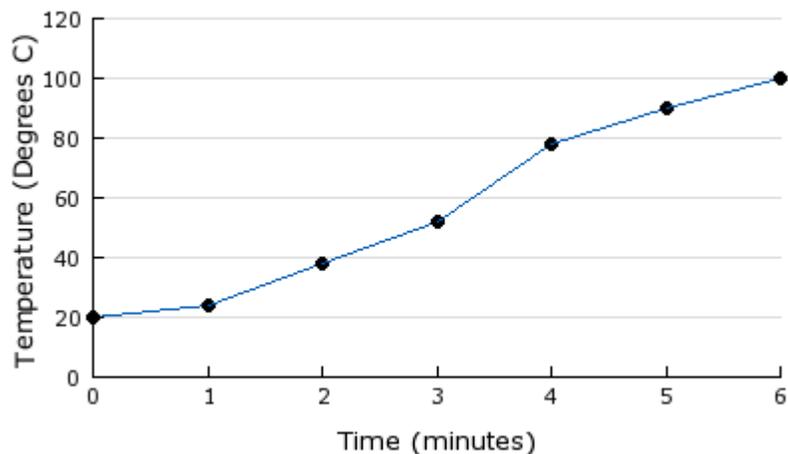


Suppose a species of nonpoisonous snake is dark-colored, and a species of poisonous snake is brightly colored. Predators recognize the bright colors of the poisonous snake and stay away from it, but they frequently feast on the nonpoisonous snake. Some nonpoisonous snakes, like the king snake look a lot like a poisonous variety. In this case, the king snake looks like the deadly coral snake. The king snake is not attacked by predators and survives.

This adaptation which allows for natural selection is called

- A) mimicry.
 - B) evolution.
 - C) camouflage.
 - D) variation.
- 11)** An example of a nonspecific defense provided by the skin is
- A) antibodies.
 - B) fever.
 - C) proteins.
 - D) sweat.
- 12)** Which planets have moons?
- A) Earth only
 - B) Gas planets only
 - C) Terrestrial only
 - D) Both Terrestrial and Gas planets

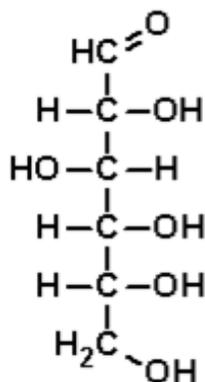
13)

Time Vs. Temperature of Heated Water

During which two minute time period is the temperature of the water changing fastest?

- A) 0-2 minutes
- B) 2-4 minutes
- C) 4-6 minutes
- D) 6-8 minutes

14)

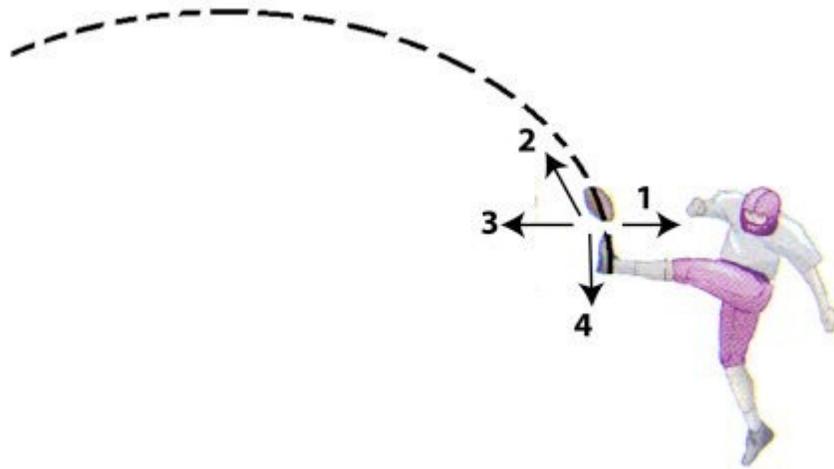


 If you add up the number of atoms for each element present, you would have the formula: $\text{C}_6\text{H}_{12}\text{O}_6$.

This formula represents which compound?

- A) carbon oxide
 - B) a simple salt
 - C) a simple sugar
 - D) carbon hydrogen oxide
- 15)** Nephridia, the excretory organs in earthworms, are equivalent to the _____ in humans and frogs.
- A) kidneys
 - B) Lungs
 - C) ovaries
 - D) Testes
- 16)** How many universes are scientifically proven to exist?
- A) 0
 - B) 1
 - C) Billions
 - D) Infinite

17)



The kicker has made contact with the football. In order for the ball to follow the path shown by the dotted line, what must be true of the forces acting on the ball?

- A) Force 1 must be the greatest.
- B) Force 2 must be the greatest.
- C) Force 3 must be the greatest.
- D) Force 4 must be the greatest.

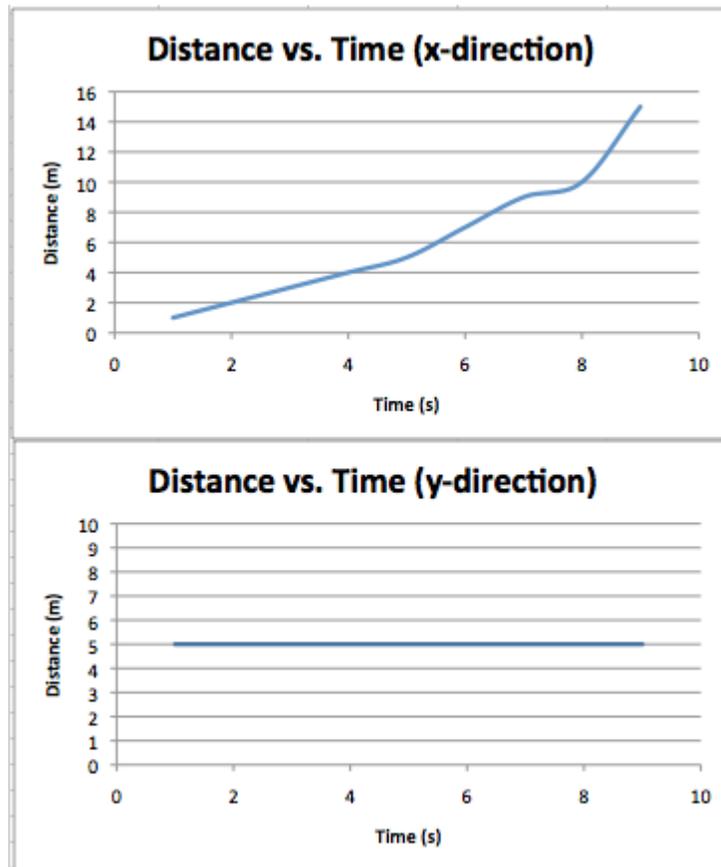
18)



The Earth is the only planet in our solar system that seems capable of supporting life as we know it. Which of these characteristics is NOT necessary if a planet were to support life?

- A) source of fresh water
 - B) extreme global warming
 - C) able to receive sunlight
 - D) small changes in temperature
- 19)** Light waves
- A) do not require a medium.
 - B) can not travel in a vacuum.
 - C) are not electromagnetic radiation.
 - D) do not travel in straight lines from the source.
- 20)** Why does the moon appear to move toward the west in the sky?
- A) The rotation of the Moon changes its position in the sky.
 - B) Earth orbits at a slower rate than the rate at which the Moon orbits Earth.
 - C) Earth rotates at a faster rate than the rate at which the Moon orbits Earth.
 - D) The orbiting of the Earth around the Sun causes a change in the position of the Moon in the sky.

21)



In which of the directions is the object moving according to the graphs?

- A) the x-direction only
- B) the y-direction only
- C) both the x and y-directions
- D) neither the x or y-directions

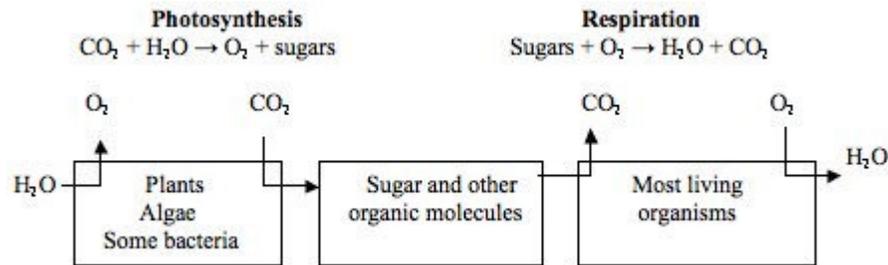
22) A _____ predicts overall natural events in general terms, while a _____ is a very specific prediction based on one circumstance.

- A) law; theory
- B) law; hypothesis

- C) theory; hypothesis
 - D) hypothesis; theory
- 23)** What statement holds true for the amount of matter in a successful food web?
- A) Amount of matter contained in the producers and consumers should be equal.
 - B) Amount of matter produced by the producers should be more than that of the consumers.
 - C) Amount of matter contained in the consumers should be more than that of the producers.
 - D) Amount of matter produced by the producers should be negligible when compared to the consumers.
- 24)** The human stomach is an organ that helps us digest food. The stomach is one of many organs involved in the process of digestion. Others include the esophagus, small intestine, pancreas, and gall bladder. What name is given to a set of organs that work together to perform a specific function?
- A) Centriole
 - B) Phylum
 - C) System
 - D) Tissue
- 25)** As the population and development in an area increases, so does the threat of air pollution. An increase in cars and factories, coupled with a decrease in vegetation lead to a drop in the quality of the air in the area.
- Which of these is a biased statement concerning this increase in air pollution?
- A) Cars are the number one cause of poor air quality.

- B) We should not tax companies more that pollute the air.
- C) A decrease in air quality leads to a greater number of asthma cases.
- D) Air pollution is a measure of the number of harmful particulates found in the air.

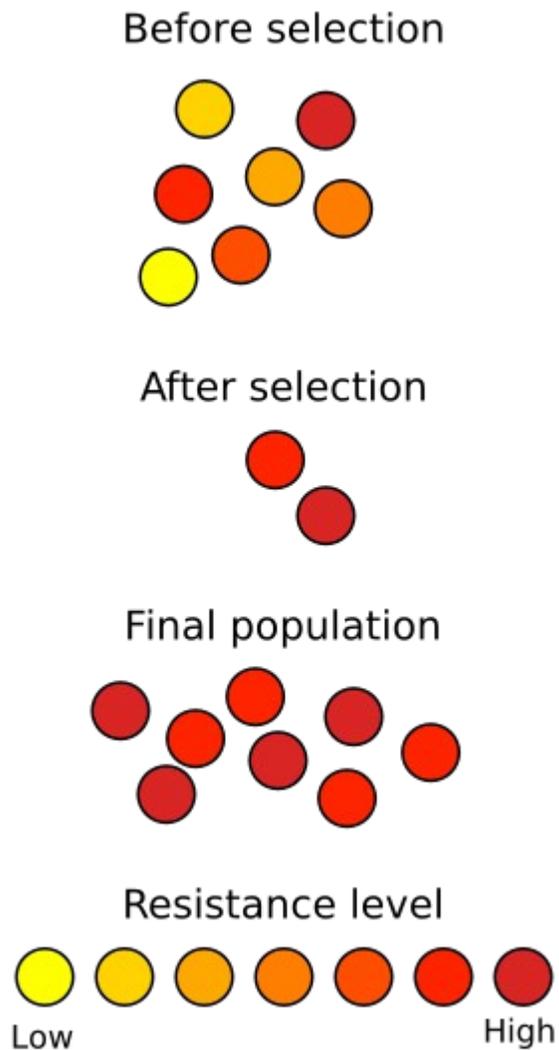
26)



Which statement correctly describes the diagram?

- A) The products of photosynthesis cannot be used by other organisms.
- B) The products of respiration can be used by plants for photosynthesis.
- C) The exchange of oxygen and carbon dioxide occurs only in respiration.
- D) The exchange of oxygen and carbon dioxide occurs only in photosynthesis.
- 27) Alpha Centauri B is a star that is about the same size as the Sun. Why does it appear much smaller and dimmer than the Sun when seen from Earth?
- A) It is cooler than the Sun.
- B) It has less energy than the Sun.
- C) It is farther away from Earth than the Sun.
- D) It travels faster around Earth than the Sun.

28)



The dots represent a bacterial infection. Sal was very sick with this bacterial infection. The infection was treated with antibiotics. Sal seemed to get well, but in a few weeks, she was sick again. How can this be explained using natural selection?

- A) The antibiotics were ineffective to this strain of bacteria.
- B) The stronger, more resistant bacteria survived the antibiotics and reproduced.
- C) The antibiotics did not kill the bacteria; it only forced them to be dormant.
- D) Antibiotics will only kill a portion of the bacteria, no matter how much medicine Sal takes.

29)

galaxy

star

star system

universe

Order the terms above from smallest to largest.

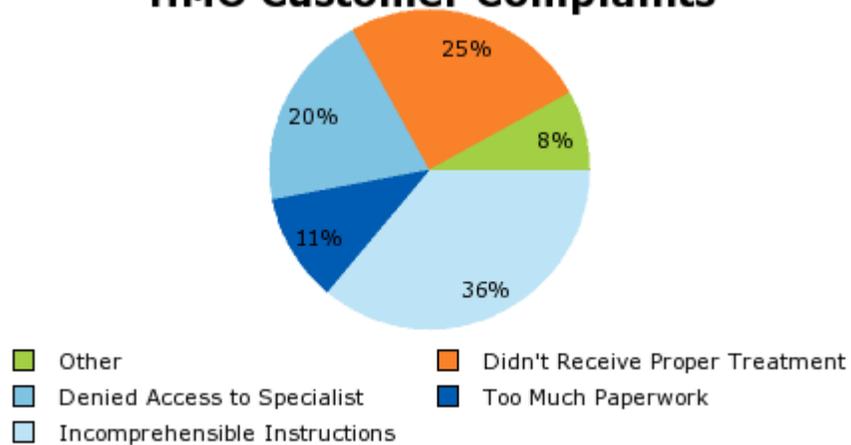
- A) star, star system, galaxy, universe
- B) galaxy, star system, star, universe
- C) star, star system, universe, galaxy
- D) star system, star, universe, galaxy

30)

A researcher is using a compound microscope with an eyepiece magnification of 10X. He is using the high power magnification (40X) to examine the mitochondria of liver cells. How many times are the liver cells magnified?

- A) 4 times
- B) 40 times
- C) 400 times
- D) 410 times

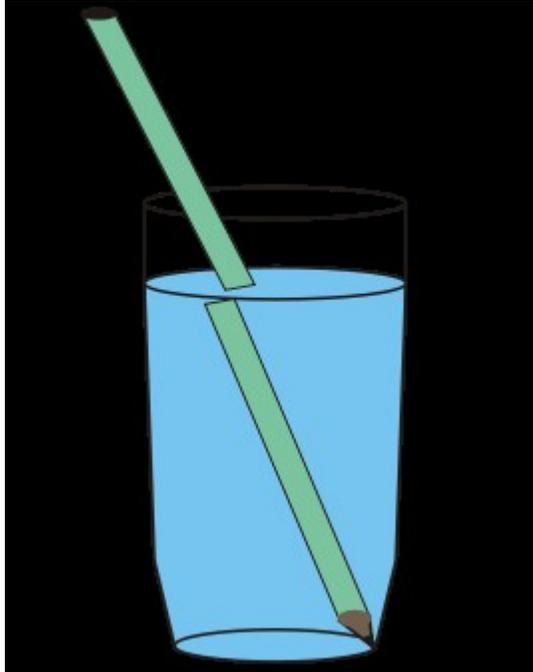
31)

HMO Customer Complaints

This pie chart displays the complaints of customers of an HMO health insurance plan. What conclusion can you draw from the data in the chart?

- A) The most common complaint was about incomprehensible instructions.
- B) Over one-third of the complaints were by people denied access to a specialist.
- C) More people complained about too much paperwork than about receiving proper treatment.
- D) More people complained about incomprehensible instructions than all other causes combined.

32)



If you put a pencil in a cup of water, it looks as if it is broken and larger in the water. This is because light waves

- A) can reflect off the surface.
- B) are absorbed instead of reflected.
- C) bend when passing from air to water.
- D) wrap around a barrier, like the pencil.

33) Although dogs exist in many different shapes, sizes, and colors, they all belong to the same _____ because they can breed naturally and produce fertile offspring.

- A) Class
- B) Genus
- C) Order

D) species

**Open-ended Question worth 5 points each
Choose any 3**

What can we infer about the millions of shiny objects we see in the sky at night?

What happens when the ecological balance is disrupted?

How can we use the scientific understanding of Universe to keep us safe?

What assumptions could be made about the expansion of universe by our understanding of formation of a star?

What are we made of? What is everything made of?

What are my strengths and weaknesses in identifying different forms of energies?