	Option B is incorrect	Table B incorrectly describes divergent plate boundaries as moving toward each other and having no volcanic activity and convergent plate boundaries as moving away from each other.
	Option C is incorrect	Table C incorrectly identifies divergent plate boundaries as forming

2	Option D is correct	} Œ] v P š } Eirs Ál š v} v [obje reTT0 1 Tf11.04 0 0 11.04 361

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4	Option C is correct	The Northern Hemisphere is tilted toward the sun, which indicates summer in Texas.
	Option A is incorrect	The Northern Hemisphere is tilted away from the sun, which indicates winter in Texas.
	Option B is incorrect	This diagram indicates fall in Texas.
	Option D is incorrect	This diagram indicates spring in Texas.

6	Option D is correct	Ocean temperatures are higher in the Gulf of Mexico in August than in January. Warm ocean waters provide energy to storm systems such as hurricanes.
	Option A is incorrect	Ocean temperature is the determining factor for hurricane formation, not wind speed.
	Option B is incorrect	Wave height varies each month. Large waves may occur during hurricanes, but they do not contribute to their formation.
	Option C is incorrect	While it is true that, in Texas, there is less rainfall in August than in January, hurricane formation is more dependent on ocean temperature than on the amount of rainfall.

7	Option D is correct	Eroded soil will collect at Area Z because it is a depression at the bottom of a hill.
	Option A is incorrect	Area W is on a slope, so soil will continue to move downward and will not collect at this location.
	Option B is incorrect	Area X is 10 meters above the bottom of the hill, so soil can continue to move downhill without collecting at this location.
	Option C is incorrect	Area Y is at the top of the hill, so
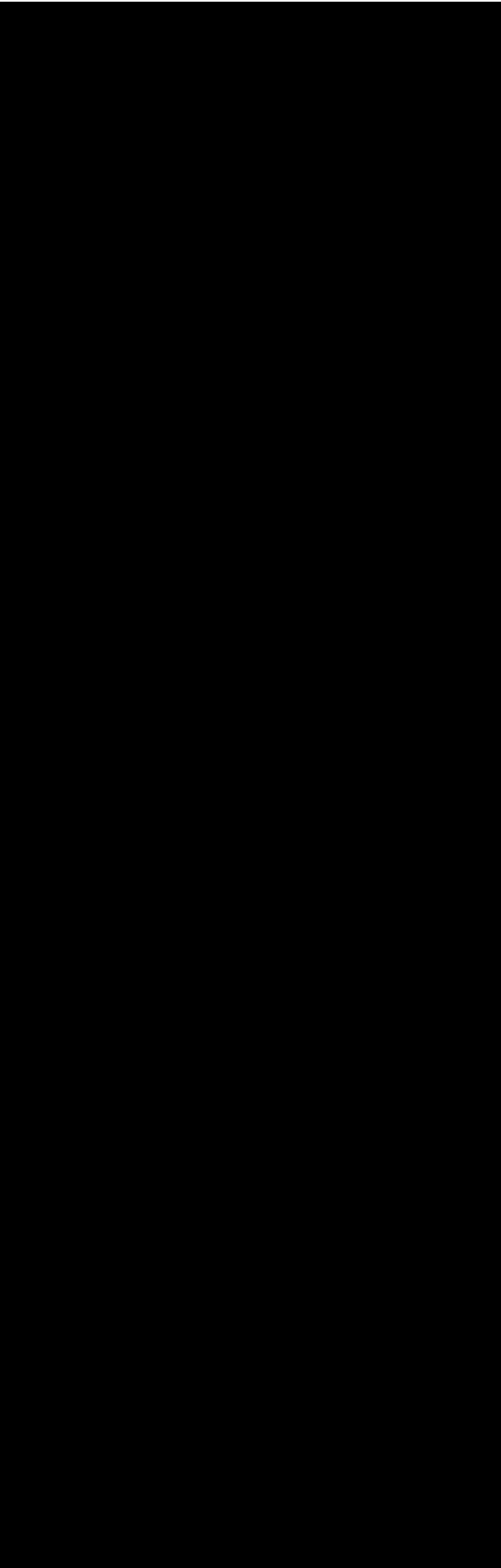
9	Option D is correct	The mass of a proton is approximately 1 amu. The mass of an electron is so little that it is often ignored and represented as 0 amu.
	Option A is incorrect	The mass of a proton is approximately 1 amu, while the mass of an electron is roughly 0 amu.
	Option B is incorrect	The mass of a neutron is approximately 1 amu, while the mass of an electron is roughly 0 amu.
	Option C is incorrect	Protons and neutrons both have a mass of approximately 1 amu.

11	Option B is correct	The constant slope on the initial distance-time graph indicates that the velocity of the cart is constant. On a velocity-time graph, a constant velocity is shown as a straight line with a slope of zero, which is represented in Graph B.
	Option A is incorrect	Graph A shows the velocity increasing and then leveling off; this does not reflect the data from the initial graph.
	Option C is incorrect	Graph C shows the velocity increasing at a constant rate; this does not reflect the data from the initial graph.
	Option D is incorrect	Graph D shows the velocity increasing; this does not reflect the data from the initial graph.

12	Option B is correct	The texture of peas is determined by genes found within chromosomes in the nucleus of each cell.
	Option A is incorrect	Genetic information is not located in the plasma membrane.
	Option C is incorrect	Genetic information that determines traits is not found in proteins in the cytoplasm.
	Option D is incorrect	The mitochondria provide energy for cells, they do not determine the traits of peas.

13	Top Left **t** Hot, bright Top Right **t** Cool, bright Bottom Left **t** Hot, dim Bottom Right **t** Cool, dim	On the H-R diagram, temperature decreases from left to right. This means that stars on the left side are hotter than stars on the right side. The luminosity increases from the bottom to the top. This means that stars near the bottom are dimmer than stars near the top.

16	metals, valence electrons	All the elements in Group 2 of the periodic table are classified as _____ . Each element in Group 2 has fewer _____ than any of the elements in Group 17.

18	Option C is correct	Insects that hav744 689 1 Tf32q0 t (a)

19	4.0 and any equivalent values are correct.	Solution: 32 N/8.0 kg = 4.0 m/s every second This is an efficient way to solve the problem; however, other methods could be used to solve the problem correctly.

20	Option B is correct	The law of conservation of mass can be used to determine that the total mass of the reactants is equal to the total mass of the products. Therefore, 74 g + 98 g = 136 g + 36 g; 172 g of reactants = 172 g of products.
	Option A is incorrect	This violates the law of conservation of mass; 74 g + 62 g does not equal 172 g.
	Option C is incorrect	This violates the law of conservation of mass; 74 g + 36 g does not equal 172 g.
	Option D is incorrect	This violates the law of conservation of mass; 74 g + 100 g does not equal 172 g.

22	Option B is correct	Offspring produced through sexual reproduction are genetically different from either parent, and offspring produced through

24	Sample 1 is a metalloid. Sample 2 is a nonmetal. Sample 3 is a metal. Sample 4 is a metal. Sample 5 is a metal.	Sample 1: Metalloids are shiny and brittle and can conduct electricity under certain conditions. Sample 2: Nonmetals are dull, are poor conductors of heat and electricity, and shatter when hit with a hammer. Sample 3: Metals are shiny, are good-to-excellent conductors of heat and electricity, can be stretched into wires, and will bend when hit with a hammer. Sample 4: Metals are shiny, are good-to-excellent conductors of heat and electricity, can be stretched into wires, and will bend when hit with a hammer. Sample 5: Metals are shiny, are good-to-excellent conductors of heat and electricity, can be stretched into wires, and will bend when hit with a hammer.

26	Option C is correct	The sun is located on an arm of the spiral-shaped Milky Way galaxy.
	Option A is incorrect	The sun is not in the center of the Milky Way galaxy . A black hole is located at the center of the galaxy .
	Option B is incorrect	The Milky Way galaxy is a spiral -shaped galaxy , not an elliptical -shaped galaxy .
	Option D is incorrect	The Milky Way galaxy is a spiral -shaped galaxy, not an elliptical -shaped galaxy.

28	Option C is correct	The snowboarder has the most gravitational potential energy when highest above the ground. As the snowboarder moves down the hill, the potential energy decreases and the kinetic energy increases until they are equal at Position 2. Position 3 is the lowest point, and most of the potential energy has been converted into kinetic energy.
	Option A is incorrect	The snowboarder at Position 1 has more potential energy than kinetic energy. At Position 3 the snowboarder has more kinetic energy than potential energy.
	Option B is incorrect	The snowboarder has the most potential energy 0 (o)52.76 re W* n BT /TT1

BT /TT1 1 Tf 7 08(P)]TJ ET Qbn BT /TT1 1 Tf 99 310.01 65.m Q g 228.6/TT1 1 Tf 9 08()]TJ ET Q re W* n BT /TT1 1 TT1 3

30	Option C is correct

31	Option B is correct	Waning gibbous is the moon phase between a full moon and third quarter moon.
	Option A is incorrect	The waning -crescent phase occurs after the third quarter moon phase, not before it.
	Option C is incorrect	The new moon phase does not occur 4 days after a full moon.
	Option D is incorrect	The first quarter moon occurs before the waxing -gibbous phase and after the waxing -crescent phase.

32	2 pts.	The student GHVFULEHVWKHWWXKGHSXWVQGULFWDWLRWQKH IRUFHV DIIWKHOQFRFWLRQRUHOH The student also identifies th DWKHVH IRUIHHWKHOFDFHOHURWLRKDO in velocity).
	1 pt.	The student answers half of the question correctly.
	0 pts.	The response is incorrect or irrelevant.

36	Option A is correct	The number of protons is unique for each element and determines the identity of the atom.
	Option B is incorrect	If the number of neutrons changed, the mass of the atom would change, not the element.
	Option C is incorrect	The number of energy levels within an atom can change without changing the element. Many different elements have the same number of energy levels.
	Option D is incorrect	The number of valence electrons within an atom can change when the atom reacts with other atoms; however, this does not change the identity of the element.

37	Option A is correct	Speed is the ratio of distance and time. Object 1 has an average speed of 20 m/s, while Object 2 has an average speed of 5 m/s.
	Option B is incorrect	Speed is a calculated variable that is dependent on both distance and time.
	Option C is incorrect	Object 1 has a greater average speed because speed is a calculated variable that is dependent on both distance and time.
	Option D is incorrect	Object 1 has a greater average speed since traveling a shorter distance per unit time would mean the speed of the object was slower.

38	Option B is correct	Snakes prey on frogs ; therefore, if the snake population increase s, the frog population is likely to decrease .