Grade 8 Science Cheat Sheet

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Law or theory

1. Gravity is a law.
2. The strength of gravity is determined by f=m*a
3. Newton's second law is the Law of the Transfer of Energy.
4. The theory of Pangea is about how the continents were all together but moved apart over time.

Atoms and molecules

5. Atoms make up everything.
6. Atoms are made up of neutrons, protrons, and electrons.
7. Protrons and Neutrons are inside of the nucleus.
8. Electrons orbit around the nucleus at incredible speeds.
9. Molecules are made up atoms.
10. Atoms are also known as elements.
11. A compound is two or more different elements put together.

Mitosis

21. You are made of millions of cells each with a different function.
22. Your cells are constantly dying and reproducing all the time.
23. Mitosis is when a cell splits into two identical copies.

Mitosis (cont)

24. A cell spends most of it's life in Interphase.
25. The phases of mitosis are prophase, metaphase, anaphase, and telophase.
26. Nerve cells hardly reproduce.
27. If a cell has chromatin, it is in Interphase.

Biotechnology in jobs

46. Biotechnology is involved in pharmaceuticals because it helps create medicines.
47. Biotechnology is involved in farming because it can help there be less pesticide use on crops and also it helps crops last in the cold.
48. Biotechnology is involved in police because it helps in forensics finding who a person is or matching DNA found at a crime scene.
49. Biotechnology is involved in zoology because it can help preserve endangered animals.
50. Biotechnology is involved in antibioterrorism because it can create a protein that will counteract the virus used.

People in Chemistry

70. John Dalton was the the first person to devlope the theory of the atom, a postively charged sphere.
71. J.J. Thompson built on the ideas of John Dalton and said that the atom was a positively charged shere with negatively charged particle evenly distri-buted throughout.
72. Ernest Rutherford built on the ideas of J.J. Thompson and said that the in the center of the atom is the necleus filled with protrons and neutrons and surrounded by electrons.

Cells and single celled organisms vocab

28. Organelles are specialized structures in a cell.
29. Endoplasmic reticulum is the organelle that ships out proteins.
30. Ribosomes are the organelles that make proteins.
31. Amoebas are single celled organisms that uses pseudopods to move and catch food.
32. Paramecium are single celled organisms that are covered in cilia which helps them move.

Cells and single celled organisms vocab (cont)

33. Euglenas are single celled organisms that uses a flagellum to move and stun prey.
34. Volvox are single celled organisms that form colonies and use flagellum to move.

Chemistry

51. A chemical equation is balanced when both sides of the equation have the same amount of each element that went into the equation.
52. The law of conservation of mass states that mass can neither be created nor destroyed.

Meiosis

73. Meiosis is a type of cell division in which a necleus divides into four daughter nuclei each containing half the chromosome number of the parent necleus.
73. Meiosis consists of 8 phases, prophase 1, metaphase 1, anaphase 1 telophase 1, prophase 2, metaphase 2, anaphase 2, and telophase 2.
74. In prophase 1 homologous chromosomes pair up and exchange fragments.

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Meiosis (cont)

75. In metaphase 1 the chromasome pairs line up at the equator and attach to spindle fibers.
76. In anaphase 1 the spindle fibers pull the chromosome pairs apart.
77. In telophase 1 the spindle fibers pull the chromosome pairs into their own cells and form a necleus.
78. In prophase 2 both cells' homologous chromosomes pair up and exchange fragments.
79. In metaphase 2 both cells' chromosomes line up at the equator and have spindle fibers attach to them.
80. In anaphase 2 the spindle fibers in both cells pull the chromosomes apart.
81. In telophase 2 the spindle fibers have pulled the chromosomes apart and caused them to start forming their own necleus.

Elements, Molecules, and The Periodic Table

12. The periodic table has elements organized by the number of protrons each element has.
13. The number of protrons, neutrons, and electrons changes for each element.

Elements, Molecules, and The Periodic Table (cont)

14. Compounds can't be separated physically.
15. Mixtures are 2 or more compound together.

Cell processes

35. Osmosis is when a liquid moves from an area of low concentration to an area of high concentration.
36. Endocytosis is when a cell takes in matter and forms a vacuole.
37. Exocytosis is when a cell removes matter using a vacuole.
38. Photosynthesis is the process that plant cells use to make food.
39. Respiration is when a cell produces energy by taking oxygen and breaths out carbon dioxide.
40. Fission is when a cell divides into two.

Diseases

53. Leukemia is a disease that occurs when your body produces too many white blood cells.
54. Diabetes is a condition that occurs when your body can't process glucose normally.
55. Tuberculosis is a disease characterized by the growth of tubercules in the lungs.

Diseases (cont)

56. Influenza is a highly contagious viral infection of the respiratory passages that is also know as the flu.
57. Strep throat is an infection in throat that comes with a fever.
58. Dysentery is an infection of the intestine resulting in diarrhea.
59. Tetanus is a bacterial infection that causes spasms of the voluntary muscles.
60. A STD is an infectious disease that is spread from person to person by sexual contact.
61. HIV is also known as human immunodeficiency virus, a virus that weakens the body's immune system, leading to life-threatening infections; causes AIDS.
62. AIDS is also known as acquired immunodeficiency syndrome, a disease that causes lowered a immune system, leading to a higher chance of getting sick.
63. Malaria is a disease that causes a fever and invades blood cells. Carried by mosquitoes.

Periodic Table

82. There are 10 types of elements, alkali metals, alkaline earth, transition metals, basic metals, semimetals, nonmetals, halogens, noble gases, lanthanides, and actinides.
83. There are 103 elements on the periodic table.
84. There are 3 categories of elements metals, metalloids, and gases.
85. Hydrogen is the only gas on the left hand side of the periodic table.
86 You determine the atomic mass of a single atom of an element by adding up the mass of the protrons and neutrons.
87. The periodic table is arranged in periods or rows and they go from left to right. Each element in a period has the same energy levels.
88. The periodic table is also arranged in families or groups that go form top to bottom. Each element in a family has the same characteristics.
89. The characteristics of an element are also known as chemical properties which are things that allow a chemical change to occur.

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Periodic Table (cont)

90. Dmitri Mendeleev is the man that made the periodic table.

Physical and chemical changes

16. Chemical changes are also known as chemical reactions.
17. Chemical changes are different from physical changes because in a chemical change you can't get what was used in the reaction back but in a physical change, such as crumpling up a piece of paper, you can uncrumple the paper.
18. Chemical changes are characterized by the forming of a precipitate, a substance formed by a solution.
19. A solution is a liquid mixture where a solute (the substance dissolved) is distributed evenly in the solvent (the substance that dissolved the solute).
20. Physical changes involve tearing or crumpling an object but while maintaining its original traits. Chemical changes involve changing the object through the use of chemicals.

Biotechnology

41. Biotechnology is the use of natural processes to create something.
42. Biotechnology is used in making better crops.
43. Biotechnology can also be used for making medicine.
44. Two biotechnology centers in North Carolina are located in Sanford, North Carolina and Research Triangle Park, North Carolina.
45. Biotechnology is also being used in the treatment of cancer.

Chemistry Vocabulary

64. Protrons are positively charged particles in the necleus of an atom.
65. Neutrons are particles with neutral charge in the necleus of an atom.
66. Electrons are negatively charged particles in the necleus of an atom.
67. A solution is a mixture of a solute and solvent.
68. A substance is made of more thanone element that combine to form something new, made from a chemical reaction.
69. A chemical reaction is a chemical reaction and when a new substance is made, bonds break and recombine to form something new.

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