Science 9 Unit 1 Worksheet

Chapter 6, Part 1.

1. Read Activity 6A - *Choosing a Meal* and orally attempt the procedure and discussion on page 99.

2. Your body is made up of _____, _____, _____, _____, and many other materials. Where does all the energy and new material come from? The answer is from the _____. You are in many real ways, you are _____.

3. Your body is made of _____. The smallest particles of all matter are _____, and two or more atoms joined together are called _____. There are many kinds of atoms, ones containing only a single type of atom are called an _____.

4. The human body is made up of mostly only _____ elements. These are: _____, _____, _____, and _____ which make up about 96% of the body's total mass. Others include: _____, _____, _____, and _____. All of whom are necessary for a healthy body!

5. Most elements found in our body are not in a _____ form, but are joined together with other elements to form molecules called _____. Hydrogen and Oxygen are joined together to create _____ which is essential to our existence.

6. Some elements and compounds found in your body are used to _____ or _____ cells, while others are necessary to provide _____ to the cells of the body. Cells are tiny subunits of your tissues which make up all _____. It is inside these cells where _____ take place and keep your body alive and active. Cell reactions require _____ from _____ in order to grow and repair themselves.

7. Food contains many different elements and compounds, together these are called _____. They are any material that can taken in by cells and used by your body. In turn, these nutrients supply the _____ and _____ needed by your body to survive.

8. _____ is the study of nutrients in food and their effect on your health. If a person practises good nutrition, they eat _____ food in just the right amounts! This is especially important as a _____ because of the rapid changes in growth and development. Later, you will learn more about the _____ of body nutrients.

9. Discuss the changes experienced during *Adolescence* and the difference for males or females:

Part 2.

10. Your body needs about _____ different nutrients. These are classified in to six groups: _____ _____ and _____ supply your body with most of the energy it needs to function. Since energy is the ability to do _____, the energy obtained from food sources is called _____. Energy is measured in _____. About 55% of the energy need comes from _____. They contain _____, _____, and _____ arranged in different ways. These are divided up into _____ and _____.

11. _____ carbohydrates are made of relatively _____ and simple molecules. These are also called _____ and their names end in _____ such as _____. _____ carbohydrates are made of larger molecules, and are often combinations of sugars used as building _____ to create a more complex molecule. An example of a complex carbohydrate is _____, this is made up of many _____ molecules. Starch is found in foods like _____, _____, and _____. Another example is _____ which comes from _____ or _____ and is made up of _____ molecules.

12. Complex carbohydrates _____ immediately supply energy to cells, they must first be _____ into smaller sugar molecules. This process is called _____. Starch or glycogen is converted into _____ molecules and absorbed by your cells. All animals store glucose molecules as _____, mostly in the liver or _____. Complex carbohydrates are obtained directly from foods like _____ or _____.

13. Another source of energy comes from _____. These often come from _____, _____, _____, and _____ products. Nuts and _____ are also sources of fats. A gram of fat gives your cells _____ as much energy as a gram of carbohydrate. They too are made of carbon, hydrogen, and oxygen, but more of the hydrogen and fewer of the _____ molecules. Fat molecule contain smaller molecules: _____.

14. There are lots of different types of fatty acids which make up fat, but they can not be used by your body until they are _____. Unused energy in the form of fatty acids is carried by the _____ to be stored as body fat throughout the body.
    Body fat acts as a source of _____, _____, and even protects your organs from being damaged. A harmful source of fat are the _____ which contain as many _____ as they can. Other types have some space left for _____ atoms and are referred to as _____. These are found in _____.
    Nutritionists recommend that the food we eat should contain no more than _____ fat, and that no more than _____ of foods should be made up of _____. Scientists believe that saturated fats increase the _____ in your blood stream.

15. What is cholesterol and why can it be bad for you?

Part 3.

16. _____ form a very important nutrient group. Their job is to help cells to _____ and repair from damage. Proteins come from foods like :_____ _____They are made of tiny chains of build blocks called _____. Every _____ is made of _____, _____, _____, and _____ atoms. They are composed of different _____ of these four elements.

17. There are many different types of _____ depending on the _____ and _____ of the amino acids. Each protein has a different _____ in the body. They are used as _____ for new proteins needed by the body. You require _____ different amino acids to make all of the proteins that your body needs. 12 of these can be supplied by food, these are called the _____ amino acids. There are _____ amino acids which your body can not make enough of, or at all. These are called the _____.

18. How important are the amino acids to your good health?

19. The foods and protein that you eat which have all of the eight essential amino acids are called the _____. Some proteins miss one or more and are called _____. Complete proteins may come from _____ products, while proteins from plant products are usually _____. Refer to Figure 6.11 and try the questions there.

20. Proteins have all sorts of jobs with our bodies. Some form major parts of _____, _____, _____, and _____. Our sense organs need proteins to work properly and when you cut yourself certain proteins aid in _____. Others help fight illness, but the most important proteins are called _____. They speed up the _____ reactions and with out these we would simply die. After being broken into amino acids, proteins can be used to supply cells with _____.

21. Describe the processes your body goes through to create and manage its energy requirements?

Part 4.

22. In addition to larger quantities of carbohydrates, fats, and proteins, your body needs smaller amounts of nutrients called _____ and _____ for good health. _____ are elements that your body needs for a variety of jobs. Examples of minerals include:_____

23. The most important mineral is _____ which makes up about _____ percent of your body mass, mostly contained in your _____ and _____. A small amount of calcium can also be found in your _____, _____, and _____. The main source for calcium in Canada is _____. It is not easily absorbed on its own, but is absorbed better when combined with _____ which is often added to milk. Your body uses it for _____ and _____ of bones or _____ blood, keeping muscles healthy and especially for the _____.

24. Another important mineral is _____, it is needed by your blood cells to pick up and carry _____ to other body cells through out the body. Iron is also present in your muscles and helps to _____ oxygen for periods of exertion. Not having enough iron in your body is called _____. Since they have less oxygen available, people with iron-deficiency often feel _____ and _____.

25. Why do teenagers need to watch out for the condition of iron deficiency?

26. A long time ago, sailors often died from a disease called _____ which turned out to simply be a deficiency of _____. This was cured by eating _____. _____ are nutrients which are needed in small amounts to act as _____ to enzymes. These help speed up chemical reactions and nearly every enzyme needs a vitamin.

27. Review Figure 6.2 on page 114 of the text. Record the specific functions and sources for each.

28. Vitamins can be divided into _____ groups depending whether or not they can dissolve in _____ or _____. Vitamins C and B are water _____. The others are _____ and can not be absorbed unless you eat some fats along with these vitamins. They are found in foods such as _____.

29. Excessive amounts of fat-soluble vitamins are stored in your _____. Taking too many vitamins is not advisable since toxic amounts can cause _____, _____, _____, _____, and _____. Since vitamin B and C are water soluble, they are not stored and leave your body in your _____.

Part 5.

30. _____ is the most important nutrient for all animals even though it does not supply us with energy. It is _____ for cells and is the _____ for living things. Water carries _____ and other materials into your body cells. It also carries _____ products out of the cells and body. Water is necessary in chemical reactions in order to break down larger nutrient molecules. It is the major component of our cells and helps us maintain a certain body _____, provides _____ both our joints and our food.

31. Suggest several excellent sources for the water our body needs?

Part 6.

32. _____ is a part of many food groups, but since it can not be digested by our body it is not a nutrient. It is found in _____ and foods made with _____. Fibre can also be found in _____ and _____. Because fibre can not be broken down, it moves through the body and it is expelled in _____ as solid waste. Its ability to hold water helps to keep the feces _____ and relieves constipation.

33. Diseases of the intestine and _____ , seem to be related to not enough dietary fibre intake. Dietary fibre is a complex carbohydrate molecule but since it is not broken down is does not provide a source of energy to the body. Carbohydrates from plants contain fibre and _____.

Part 7.

34. Anything that is done to plant or animal foods before they are eaten is called _____. Processing helps _____ the food from spoiling, but may also add _____, _____, _____, or _____to the food. Some foods, such as _____, may be stored for months if they are kept cool and dry.

35. Often it is the _____ which cause food to spoil. Both _____ and _____ can cause illness and _____ or even death!

Various processes like _____, _____, _____, or _____ help to preserve food and slow down its deterioration. Milk is _____ to keep it fresh , but no matter what, the goal is to keep food from spoiling!

36. Any substance added to food during processing is called a _____. Many of these are called _____ since they help keep food from spoiling. Review Figure 6.3 on page 121 of your text book to see some common food additives and what they do. Read about the terms *Fortified* and *Enriched*, what do these terms mean?

37. Compare and contrast the advantages and disadvantages of food processing:

38. What is the purpose of food labelling in Canada?

Part 8.

39. All of the food and drink that you consume on a regular basis is called your _____. This is affected by factors such as:_____. In order to help people obtain a balanced diet, Health and Welfare Canada has developed the _____. This divides all the foods which we eat in to ___ major groups. Describe the four major food groups as outlined in the *Canada's Food Guide*:

40. What information does the *Canada's Food Guide* provide to people?

41. Read about nutrition and health from pages 126 to 128 of your text book. What is malnutrition?

Chapter 7, Part 9

42. Review Figure 7.1 concerning the organization of body structures. Record your findings below:

43. Cells in your body are similar in many ways, but there are several types of cells. Three types of cells include _____, _____, and _____ . All are specialized. Cells with similar tasks form what is called _____. There are several type of tissue. When several types of tissue are grouped together for a specific task they are called _____. Also, organs that work together to do a specific task are called a _____.

44. The _____ includes the organs such as the _____ and _____. The function of the digestive system is to _____ food substances into substances small enough to enter cells. Such systems include: _____, _____, and _____ . Digestion changes your food into cellular energy.

45. _____ is a watery fluid in your mouth which helps moisten the food so you may swallow it. _____ types of digestion take place in your mouth, one is called _____ and is the mechanical tearing apart of food into smaller pieces. The other is _____ digestion which involves breaking the chemical bonds holding food substances together.

46. This mechanical process allows only smaller pieces of food to fit into the digestive tract and it also starts the _____ breaking down carbohydrates into smaller _____ molecules. At the back of the throat there are two separate tubes. The _____ is a narrow tube which carries food to the stomach. The other tube is called the _____ and it carries _____ to the _____. A fleshy flap covers the opening of the trachea to prevent food or liquid from choking you by entering the air tube: _____

47. The walls of the esophagus are lined with _____ which move food down the tube in a wave like action called _____. Refer to Figure 7.7 to see this process.

Part 10.

48. The _____ also breaks down food in two ways, mechanically and _____. The wall of the stomach has _____ muscles that contract and squeeze food in a churning fashion. Fluids help moisten and further break down food products. This fluid is made up of _____, _____, and _____.

49. Describe the three substances which aid in the digestion of food within the stomach:

50. Heart burn and acid reflux causes a _____ pain the chest area. This is a result of stomach acid to push upwards and into the lower part of the _____. Another function of the stomach is to _____ partially digested food so that it release slowly into the digestive system. All the food is usually released from a meal about _____ hours.

Part 11.

51. Food leaves the stomach and enters the _____ which is a tube about 4 to 6 metres long and about 2.5 centimetres wide. The last section of the intestine is the _____ intestine which is wider and only about 1.5 metres long and about 6 centimetres wide.

52. The mixture in the small intestine is very _____ since it contains _____ acid. The intestine produces large amounts of _____ to coat its walls for protection. Peristalsis moves the creamy mixture along in about _____ hours. During this process, more digestion takes place in the first _____ centimetres of the small intestine.

53. Chemical digestion continues as food is broken into its basic _____ so that the resulting nutrients are ready to be absorb at the cellular level. The cells of the intestinal walls produce digestive _____, along with enzymes from the _____ which produces a substance to neutralize the _____ acid. The pancreas is a part of the digestive system even though it has other jobs besides digestion.

54. This is also true of the _____, which helps in the digestion of fats. To this end, the liver makes a green fluid called _____ which is stored in the _____. Bile is not a digestive enzyme, but is needed to digest fat or break larger fat droplets into smaller ones by creating a larger _____ exposed to the digestive enzymes.

55. The liver has other roles such as storing and releasing useful substances into the blood stream, or breaking down substances that your body _____ use so they may be removed later. If there is too much _____ in the bile, painful _____ can form in the gall bladder. This a serious and very painful complication for many people.

56. What is the difference between Type I and Type II diabetes? Why does the body need insulin?

57. _____ is the process by which nutrients and other substances enter the cells of the walls of the small intestine after approximately the first 25 centimetres. To fit the millions of the cells necessary, the lining of the walls is _____ with finger like projections. This greatly increase the _____ inside the small intestine for absorption.

58. The remains of food digestion leave the small intestine and enter the last part of the digestive system called the _____. It too is covered in _____ and contains the waste and unbroken down fibre or food. Its main function is _____. Two processes in the large intestine produce _____. First, the cells of the intestinal walls _____ about 1.5 to 1.8 litres of reused water and chemicals from waste per day. The second way it produces feces is through the work of beneficial work of _____.

59. Intestinal bacteria collect important _____ from the waste your body produces. In turn, they manufacture _____ that your absorbs. Bacterium also _____ some of the waste material reducing the amount you have to _____. Feces are about _____ water and _____ 25% solid matter. Fibre is important since it holds enough water to help the feces move along the intestine in about _____ hours. The movement is called _____ and eventually it reaches the end of the large intestine and terminates at the _____. When the rectum is _____, the nervous system signals the body to push out the waste at the _____.

Part 12.

60. People differ in how quickly or how well their digestive systems work. Signs like heartburn, cramps, and nausea may be indications of an _____. An ulcer is a _____ in the wall of the digestive system and is often caused by _____ and _____ in the stomach.

61. If the normal layer of protective _____ is weakened, the acid and pepsin attack the exposed area. This can occur in any _____ of the system. With a really bad ulcer, there may be a _____ in the wall and harmful leakage and death can occur.

62. Other problems include _____ which makes the rectum swell and causes cramps. This may be due to a lack of _____. The opposite problem is the nasty condition called _____ whereby too much water is present. This may be caused by _____ attacking the walls of the large intestine, or by _____. A serious loss of water and nutrients may cause death in _____ and young _____. However, most minor trouble can be reduced by a _____diet and by controlling a one's intake. Today, more people are conscious of the food that they consume.

63. Suggest several ways to improve your diet and take care of your digestive system: