**Topic 3 Worksheet: Nutrition**

1. Joanne is fifteen and recently broke a bone in her leg. Which nutrient is thus very important for her at this stage in her life?

A) Carbohydrate

B) Protein

C) Lipid

D) Water

1. The chart below matches the nutrients that the body requires, with the functions they perform and the foods in which they could be found.

|  |  |  |
| --- | --- | --- |
| **Essential Nutrients** | **Functions** | **Food Source** |
| Carbohydrates | Provide energy | 1 |
| Lipids | 2 | Oil and butter |
| Proteins | Build or repair body tissue | 3 |
| Water, mineral salts, vitamins... | 4 | Fruits and vegetables |

Which of the following series correctly completes the chart?

A) 1- Meat and alternates, 2- Provide energy, 3‑ Milk products, 4- Regulates metabolism

B) 1- Breads and sweets, 2- Regulates metabolism, 3- Breads and sweets, 4- Regulates metabolism

C) 1- Milk products, 2- Provide energy, 3‑ Meat and alternates, 4- Regulates metabolism

D) 1- Breads and sweets, 2- Provide energy, 3‑ Meat and alternates, 4- Regulates metabolism

1. An average teenager needs about 10 500 kJ of energy per day. Name at least **three factors** that will increase or decrease the amount of total kJ needed per day.

sex, health, weight, level of activity, age

1. Fill in the table

|  |  |  |  |
| --- | --- | --- | --- |
| Nutrients | Functions | Broken down to | Examples of food |
| Carbohydrates | Main source of energy |  Glucose | Breads, pasta, grains |
| Fats | Secondary source of energy | Fatty acids and glycerol | Oils and butters |
| Protein | Growth and repair of tissues and third source of energy | Amino acids | Meats and alternatives |
| Vitamins, minerals,Fiber and water | Regulates metabolism |  | Fruits, vegetables, meats |

1. You are at a grocery store looking for something which will give you a quick energy fix. You read the labels of three different foods, you are able to analyze them because you have your calculator with you at all times. The table below gives you the information on the labels.

a)Find the kJ content of each food, include the total kJ

b)Give the function of each food

**Label information**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Carbohydrates (g) | Protein(g) | Fat(g) | Total kJ | Function |
| Food 1 | 24 x 17 = 40824 x 4 = 96 Cal | 2.5 x 17 = 42.52.5 x 4 = 10 Cal | 0.5 x 37= 18.50.5 x 9 = 4.5 Cal | 469110.5 Cal | First source of energy |
| Food 2 | 0 x 17 = 0 | 19 x 17 = 323 | 6 x 37= 222 | 545 | Growth and repair |
| Food 3 | 0 x 17 = 0 | 0 x 17 = 0 | 14 x 37= 518 | 518 | Source of energy |

1. a) How do you convert grams of fat, carbohydrates and protein into kJ?

 Carbohydrates = 17kJ/g multiplied by the amount of grams

 Proteins = 17kJ/g multiplied by the amount of grams

 Fats = 37kJ/g multiplied by the amount of grams

 b) Convert the following nutritional information of the cookies to kJ. What is the function of the food?

-15 g of carbohydrate - 3 g of protein -7 g of fat

15 x 17 = 255 3 x 17 = 51 7 x 37= 259

Energy since the cookies are high in carbs and fats.

c) Convert the following nutritional information of the chips to kJ. What is the function of the food?

20 g of carbohydrates 12 g of fat 2 g of protein

20 x 17 = 340 12 x 17 = 204 2 x 37= 74

Primary source of energy as the carbohydrates have the highest energy content.

d) Convert the following nutritional information of the steak to kJ. What is the function of the food?

 0 g of carbohydrates – 26 g of proteins - 6 g of fat

0 x 17 = 0 26 x 17 = 442 6 x 37= 222

Growth and repair of tissues and cells as the proteins have the highest energy content.

1. Explain why a diet that is high in **carbohydrates and fat** may likely cause a person to be overweight.

The carbohydrates will be used as the primary source of energy. If you do not burn the same amount of energy as you have ingested than it will be stored in the body. Any excess carbs or fat will be stored in the body as fat. Your energy intake should be equal to or lower than the amount of energy you use daily.

1. Bobby pulled a muscle while skateboarding. Which nutrient should he eat more of and why?

 Proteins because they are responsible for growth and repair of tissues.

1. When will consumed or stored fat start providing energy?

 Once all the carbohydrates have been used up by the body for energy, your body will then start using the fats that have been consumed or stored.

10. Nutrients are used to meet the various needs of our body.

 a) What two nutrients are our bodies’ main sources of energy?

 Carbohydrates and fats

 b) What nutrient is especially useful for building and repairing the body’s tissue, but can also be a source of energy?

 protein

 c) What three nutrients have several functions in the body, but are not used as energy sources?

 Vitamins, minerals, water, dietary fiber

1. What are the food groups and what portions does the Canadian food guide recommend?

**Follow the link and explore the Food and Nutrition section of the website.**

<https://food-guide.canada.ca/en/>

Grains: one quarter of your portion

Fruits: and veggies half your portion

Proteins: one quarter of your portion

1. Complete the following table:

|  |  |  |
| --- | --- | --- |
| **Example** | **Main Nutrient** | **Function** |
| Bread | Carbohydrate | Provides energy (short term) |
| Chicken | Protein | Growth and repairThird energy source |
| Oil | Fats | Second source of energy |
| Eggs | Protein | Growth and repairThird energy source |
| Pasta | Carbohydrates | Primary source of energy |
| Apple | CarbohydratesVitamins/Minerals/Water  | Primary source of energy and regulates metabolism |
| Tofu | Protein | Growth and repairThird energy source |
| Fish | Protein | Growth and repairThird energy source |
| Carrots | Carbohydrates/Vitamins / minerals | Primary source of energy and regulates metabolism |
| Butter | Fats | Secondary source of energy |
| Water | X | Regulates metabolism |