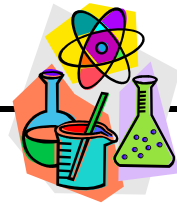


Science 10-4 Unit C: Investigating Matter and Energy in Living Systems



Digestive and Circulatory Systems

1. Access a copy of *Canada's Food Guide to Healthy Eating* (http://www.hc-sc.gc.ca/hpfb-dgpsa/onpp-bppn/food_guide_rainbow_e.html) and other resources related to human nutrition.

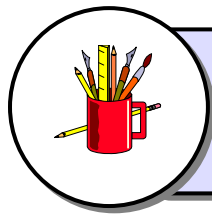


With classmates, investigate and discuss human nutritional needs. Create a graph, chart or diagram that illustrates human nutritional needs (e.g., protein, carbohydrates, fibre, vitamins, minerals, fats).

2. Choose a variety of prepared food items, read their labels and assess their nutritional values on a scale of one to ten. Fill in the chart below.

Food Item	Serving Amount	Amount in Package	Nutrition Facts
Rating:			
Rating:			
Rating:			
Rating:			

3. Investigate a popular diet (e.g., Atkin’s, South Beach, the Zone) and assess how well it meets human nutritional needs according to *Canada’s Food Guide to Healthy Eating*.
4. It is important to balance the intake of carbohydrates, fats and protein. Discuss what could happen to human bodies if the following imbalances in diet occur:
 - excess of refined sugar
 - excess of fats with “bad” cholesterol (e.g., in trans fats)
 - excess of sodium.



Use Tool [Discussion Notes](#).

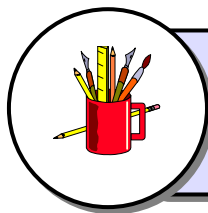
According to Health Canada:

“Canada's Food Guide is suitable for vegetarians. To ensure adequate nutrient intake, vegetarians can choose either milk or fortified soy beverages as part of the Milk and Alternatives food group; and a variety of meat alternatives such as beans, lentils, eggs, tofu, soy-based meat substitutes, nuts, nut butters and seeds from the Meat and Alternatives food group.”



Source: http://www.hc-sc.gc.ca/fn-an/food-guide-aliment/faq/index_e.html

5. Investigate and describe how vegetarians can meet their nutritional needs. What foods must they eat to replace meat, fish and eggs?
6. Discuss the impact of change of diet on Aboriginal populations and other peoples from traditional foods to diets high in starch, refined sugars and trans fats.



Use Tool [Discussion Notes](#).



Did You Know?

Blood vessels in an adult human’s circulatory system measure 97 000 km if laid out end-to-end. The distance around the Earth at the equator is about 40 000 km.

7. With a partner or by yourself, make a chart like the one below. Fill it in with the function of the systems in the human body and the organs involved in each system.

	Digestive system	Respiratory system	Circulatory system
Function of the system			
Organs of the system			

8. With a partner or in a small group, locate or draw and label a diagram of the digestive system. Be sure to include the following in your diagram:

- foods being broken down into molecules
- food molecules being absorbed into the bloodstream from the intestine
- blood sugar and mineral levels increasing in the body due to food absorption.

Post your diagrams in the classroom for reference.

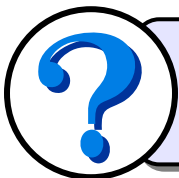
Review [Processing and Displaying Data](#) for tips on drawing a scientific diagram.

9. The food you eat is broken down into nutrients by the digestive system. Nutrients are carried throughout your body by the circulatory system.

In your own words, explain how the circulatory and digestive systems work together. Include the functions of the heart and lungs in the processing of foods by the body.



Use Tools [Paragraph Planner I](#) or [Paragraph Planner II](#).



Did You Know?

The heart of a 70-year-old person has pumped at least 174 million litres of blood in its lifetime.