ALIEN X -RAY

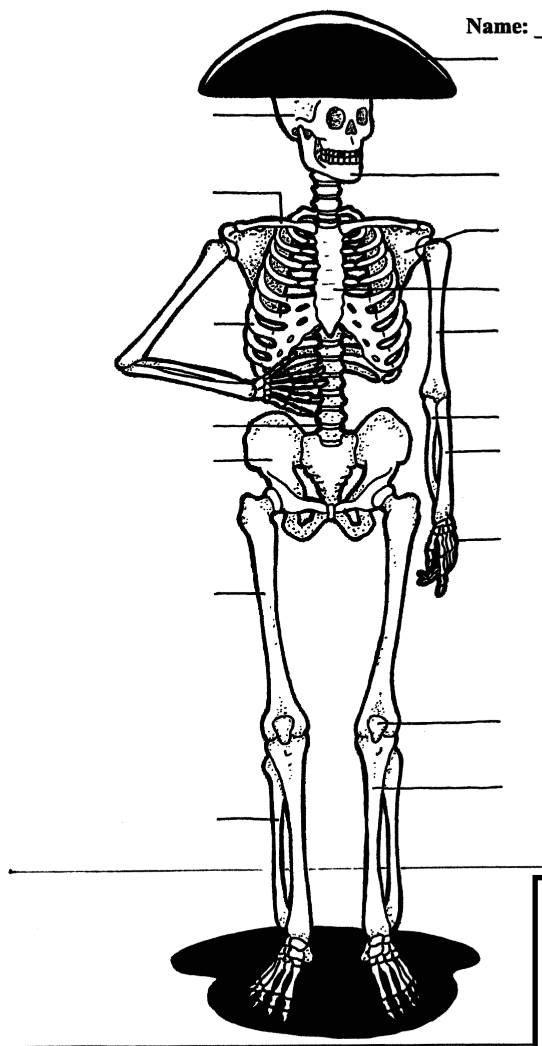
Name: ________________

Hello! I am an extra-terrestrial from the planet ____________.
My name is ______________ and my favourite foods are
______________ , ______________ and ______________.
I have ___ skulls, ___ femurs , ___ tibias, and ___ ribs.

(AN X-RAY OF MY SKELETON)

THE SKELETAL SYSTEM (Napoleon Bony-

Name: ___



HOW MUCH AIR???

Materials Required: A shallow tub
A two-liter pop bottle
A flexible tube

This experiment will help to show how much air is in a person's lungs. Set up the experiment as shown below. Let each person have a try and create a bar graph of your results.

liters: 2.0, 1.5, 1.0, 0.5, 0

Name of Person

Instructions:

TAKING YOUR PULSE

Name

1) Record your pulse rate for the following times:

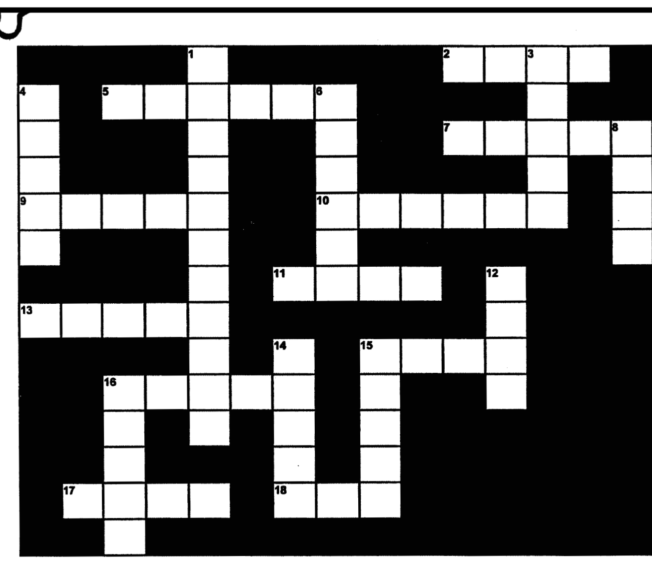
At Rest (Resting Pulse) ______ *beats per mi*
After 5 Minutes Of Exercise ______ *beats per mi*
After 2 Minutes Of Rest *beats per mi*
After 5 Minutes Of Rest ______ *beats per mi*

2) Make a bar graph of the information below:

160, 150, 140, 130, 120, 110, 100, 90, 80, 70, 60, 50

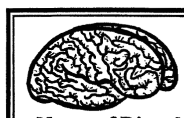
Resting Pulse | After Exercise | After 2 Min. Rest | After 5 Min Rest

3. What did you learn about your pulse rate in this activity?



Across
2. These help to protect your lungs and heart.
5. A band of strong tissue at the end of a muscle that attaches to bone.
7. A person breathes with these.
9. Bone protecting the brain.
10. One of the bones in the arm.
11. A hinge joint is located here.
13. This beats to create a pulse.
15. ________ and socket joint. (Found in the shoulder)
________ intestine. Absorbs water from ...e during digestion.
...e of blood vessel carries "depleted"

Down
1. Muscles that help with food digestion and breathing are called this. ______________.
3. A human skeleton has 206 of these.
4. A measure of how fast your heart is beating.
6. Another name for a nerve cell.
8. _______ stem. This part of the brain controls breathing and heartbeat.
12. Produced in the liver.
14. Large bone in the leg.
15. Carries food and oxygen to all parts of the body.
16. A cleaning and sorting center for the body.



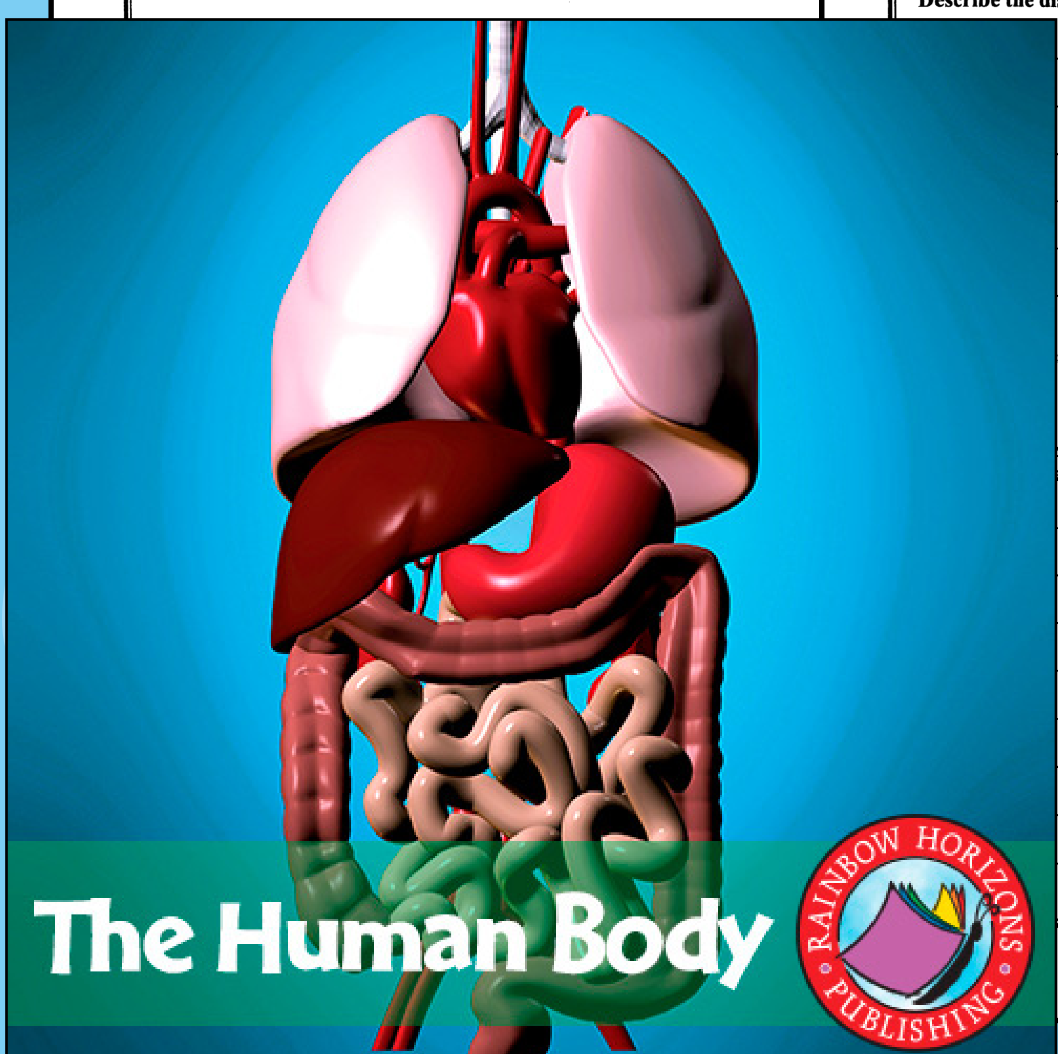
NERVOUS SYSTEM RESEARCH

Name:________

Name of Disorder: ______________________

Describe the disorder and what it does.

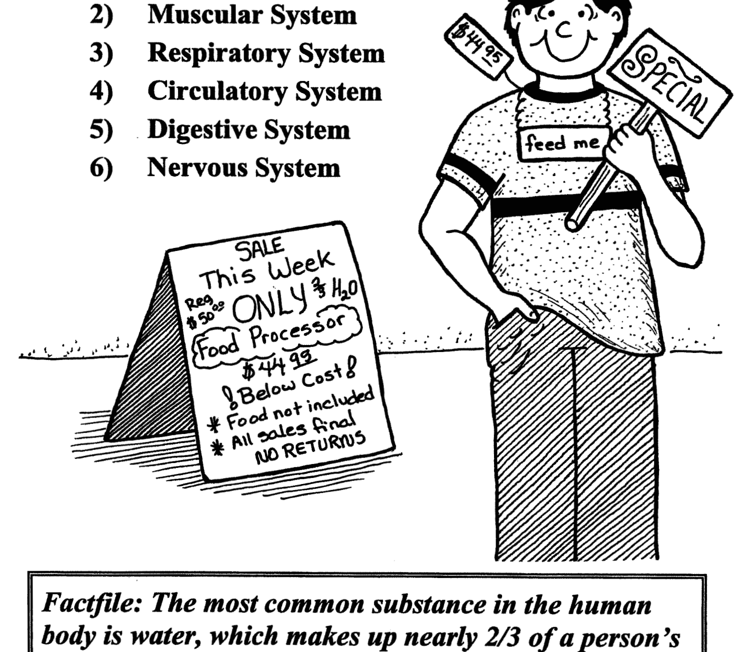
...s that you may wish to answer include:
...many people in Canada have this disorder?
...is the disorder treated? Are there cures?
...can people avoid getting this disorder?
...h people are most likely to get this condition?
...re any other interesting information that you found?



THE HUMAN BODY

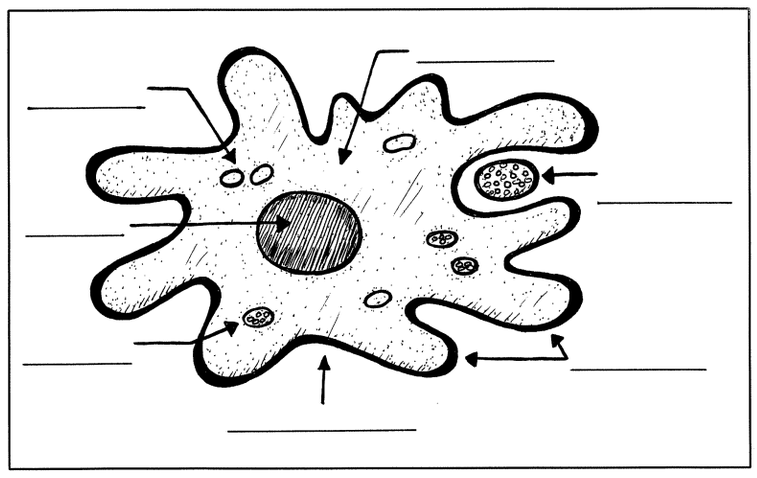
The way you look, compared to other people, can be very different on the outside. However, on the inside, our bodies all contain the same basic features. A variety of systems work together to help you live and grow. These systems are:

1) **Skeletal System**
2) **Muscular System**
3) **Respiratory System**
4) **Circulatory System**
5) **Digestive System**
6) **Nervous System**



Factfile: The most common substance in the human body is water, which makes up nearly 2/3 of a person's bodyweight. In fact, to buy all the ingredients needed to build a "complete" human being, would only cost about $180.00 - materials only!

THE AMOEBA



cell membrane - the thin layer of _____ and fat that surrounds the amoeba; it allows some substances to pass into the cell, and blocks other substances.

contractile vacuole - a cavity within the amoeba that excretes excess _____ and waste.

cytoplasm - a jelly-like material that fills most of the cell; the _____ (like the nucleus) are surrounded by cytoplasm.

food vacuole - a cavity within the amoeba in which food is _____.

food being engulfed by pseudopods - the amoeba "eats" by surrou
with _____ that form around the food.

nucleus - the major organelle of the amoeba, located centrally; it c
(contains chromosomes) and other important functions (including

pseudopods - temporary "_____" that the amoeba uses to move
food.

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MULTICELLULAR ORGANISMS WORK

Answer the following questions from the information provide
Multicellular Organisms:

1. Most plants and animals are formed by a single cell.
2. At the centre of the cell is the **nucleus**.
3. The **organelles** contain the cell's DNA - its genetic code.
4. Of the two basic cell types, the **prokaryotes** are the simpler type.
5. Four examples of organelles are _____, _____, _____, and _____.
6. Most forms of life that can be seen with the naked eye are unicellular.
7. Multicellular organisms are generally more complex than unicellular organisms.
8. In multicellular organisms, cells are organized into groups that do different things.
9. Groups of cells working together are called _____
10. Groups of tissues working together are called _____

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PLANT CELLS ACTIVITY

Answer the following questions from the Information Sheet, **"Plant Cells"**:

1. What is one obvious difference between plant and animal cells?

   _____

2. How does the cell wall limit the cell?

   _____

3a. Describe the vacuole.

   _____

   _____

3b. What is its purpose?

   _____

3c. What do some vacuoles contain that serves to protect the plant?

   _____

4a. What is the function of the plastid?

   _____

4b. What is a common type of plastid?

   _____

5. Why are the chloroplasts green?

   _____

6. What are the names of two other organelles contained in plant cells?

   _____

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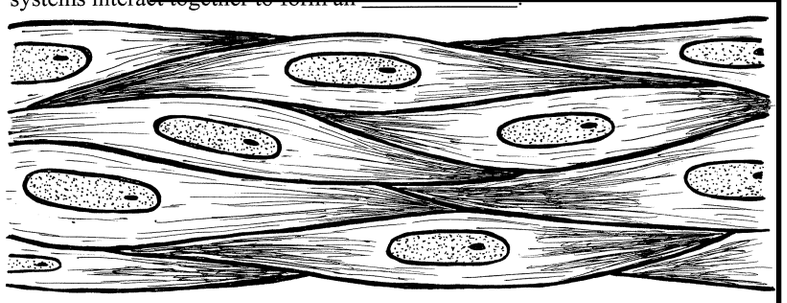
ANIMAL CELLS ACTIVIT

Match each characteristic or function with the correct cell par

a) _____thin layer surrounding cell
b) _____where microtubules are made
c) _____jelly-like material outside nucleus
d) _____packages proteins and carbohydrates
e) _____where digestion of cell nutrients takes place
f) _____converts the energy stored into ATP
g) _____organelle within nucleus
h) _____controls many cell functions and contains DNA
i) _____site of protein synthesis
j) _____fills with food being digested

The sma
performs a spe
together for a s
systems interact together to form an _____.



The four primary tissue types are _____, _____, _____, and _____. The outer layer of _____ is an example of an epithelial tissue. Muscle tissues contain the proteins _____ and _____. Nerve tissues contain two types of cells: _____ and _____ cells. Electrical signals are transmitted down the _____ cord.

ISBN: 978-1-

Time: 15 minutes for setting up, 3 to 5 days for observation

Materials: raw egg, vinegar, tape measure, jar large enough to hold an egg, water

Procedure:

1. You will need one raw hen's egg in its shell.
2. Measure the long and short circumferences of the egg (i.e. the long way around + the short way around) with a tape measure or a string and ruler. Enter your results on the data table alongside day 1.
3. Place the egg in a jar, cover with vinegar, then screw on the jar lid to prevent evaporation.
4. On day 2, observe the egg without removing it from the jar. Record your observations.
5. On day 3, carefully remove the egg from the vinegar, and rinse it with tap water. Observe how the egg looks and feels. Record your observations. Measure the long and short circumferences, and record these measurements.
6. Remove the vinegar from the jar, thoroughly rinse it out, then place the egg inside.
7. Immerse the egg in tap water, then screw on the lid to prevent evaporation.
8. On day 4, observe the egg and record your observations.
9. On day 5, remove the egg from the jar. Measure and record the long and short circumferences. Observe and record how the egg looks and feels.
10. How did the egg look and feel on day 3? Try to explain what had happened to the shell of the egg.
11. How did the measurements on day 3 compare with the measurements on day 1? Try to explain the change.
12. How did the measurements on day 5 compare with the measurements on day 3? Try to explain the change.

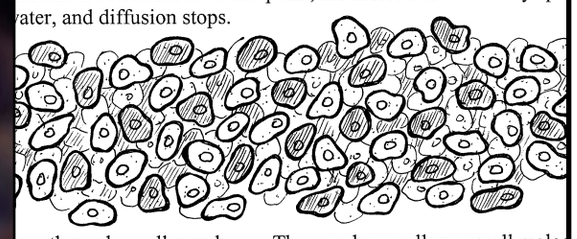
DIFFUSION AND OSMOSIS

All living things have certain requirements they must satisfy in order to remain
These include exchanging gases (usually CO_2 and O_2), eliminating wastes, and ta
water, minerals, and food. These tasks usually occur at the *cellular level*, rec
molecules to move through the **membrane** surrounding the cell.

through the membrane in two different ways: by *passive transp*
Active transport requires that the cell use energy that it has ob
e the molecules through the cell membrane. **Passive transport** d
nditure of energy, and occurs spontaneously.

eans of passive transport is **diffusion**. Diffusion is the moven
region in which they are highly concentrated to a region in whi
ated and randomly distributed throughout the system (equilibriu

iffusion is when you place a drop of ink into a glass of water. At
lecules are in a small space and are moving around randomly. M
ntinue to move away from the original center of the drop in all
ns until they find the wall of the glass. More and more molecule
lass and start moving back toward the center. Eventually, the nu
ving away from the center equals the number moving toward the
ibrium is established. At this point, the molecules are evenly spr
ater, and diffusion stops.

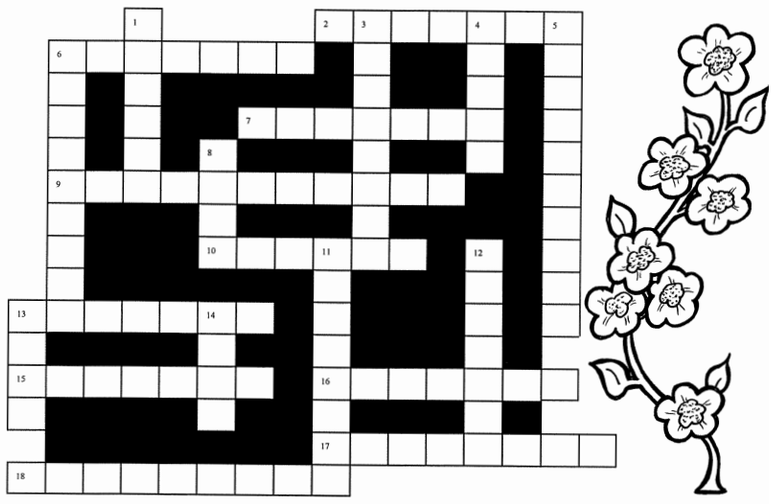


cur through a cell membrane. The membrane allows small molec
, oxygen (O_2), and carbon dioxide (CO_2) to pass through easily.
able to these molecules.

CELLS CROSSWORD

Using the words in the Wordbox, complete the following Crossword Puzzle using the clues provided:

lipids	**vesicle**	**meiosis**	**membranes**	**respiration**
acid	**eukaryotic**	**clues**	**glucose**	**bias**
exocrine	**stamen**	**asexual**	**alga**	**genetic**
molecule	**lysosome**	cytosol	**osmosis**	**organelle**



Across	Down
2. Tiny membrane sac used for transporting proteins within a cell	1. Oily substances produced by cells
6. Cell division is sexually reproducing organisms	3. ___ gland - group of cells that makes and secretes a substance via a duct
7. Simple sugar-organisms store food as ___	4. A microscope has unveiled many of the cell's _____
9. Way you breathe in oxygen	5. ____ cells are multi-cellular organisms
10. An organ of the flower	6. A thin sheet of tissue
13. A means of reproduction where a single organism produces identical copies of itself	8. Prejudiced
15. Relating to the origin of something	11. Tiny molecules of a substance
16. Jelly-like part of the cytoplasm	12. Way in which fluid and chemicals pass from one cell to another
17. Small membrane-bound structures within cells that contain powerful digestive enzymes	13. One-celled plant
18. Structure within cells that carries out a specific task	14. Ribonucleic ___ (RNA)

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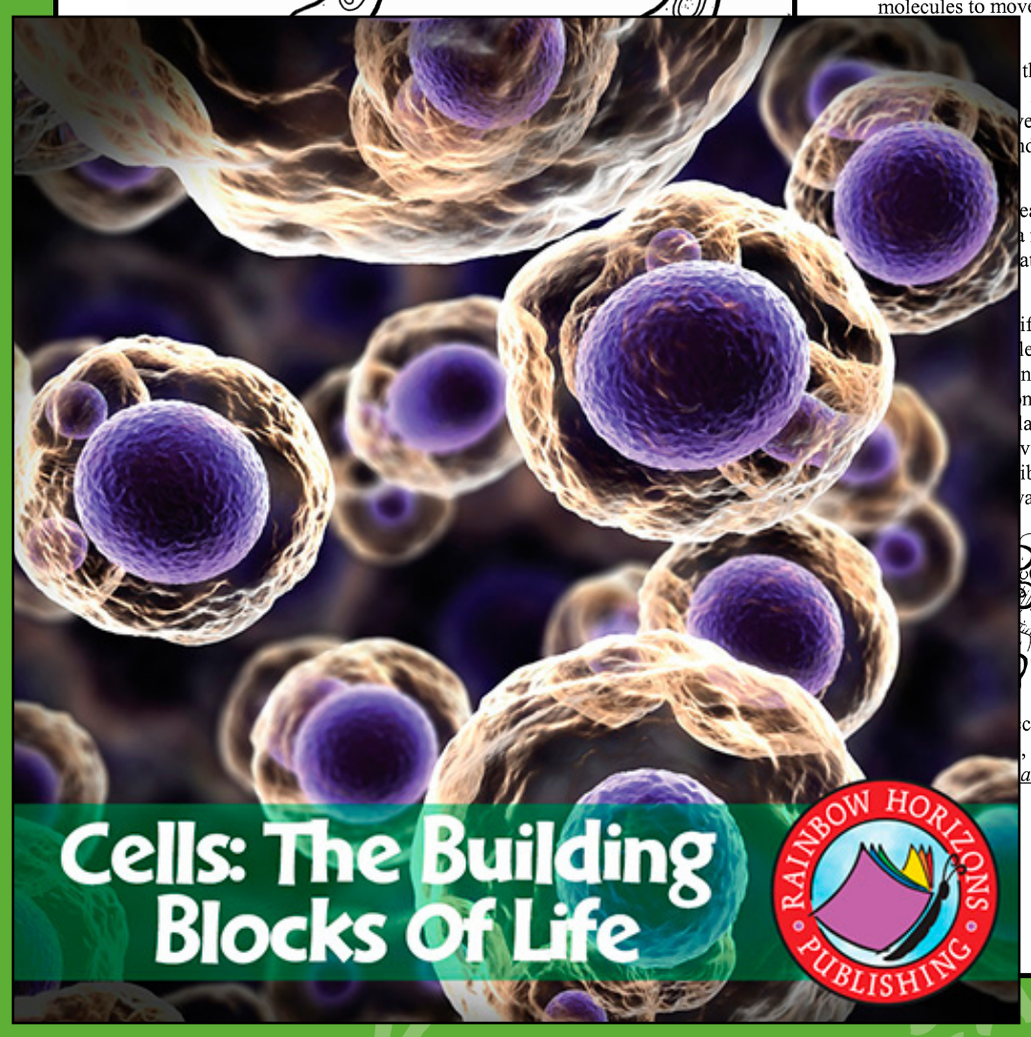


Lessons 2 & 3 Digestion

Objectives:

- Students will understand the term **energy**.
- Increase the students' knowledge of what happens to food as it moves through our body (digestion).
- Locate the various organs that assist in our body's digestion of food.
- Increase the students' knowledge of what foods do for our body.

Teaching Strategies:

1. Review the terms **nutrition** and **diet**.
2. Brainstorm the term **energy** and how it relates to nutrition. Brainstorm the word **digestion** (what digestion is and how the body works to take the nutrients from our foods). Discuss the terms: saliva, esophagus, stomach, small and large intestine, liver, pancreas, villi, and digestive juices - as these relate to digestion.
3. Students complete Activity #1: **"How Does Our Body Get Energy From Food?"** Students can work in pairs.
4. Use the overhead, photocopied notes, or write notes on the board for lessons 2 and 3. Explain/draw examples/and question students to make sure they have a clear understanding of the notes (p. 27).
5. Students will complete the lesson by answerin questions on lessons 2 and 3 (p 59).
6. For and extension of the activity, students co Vocabulary Match Activity.

Activity # 3

Did I Eat Healthy Foods Today?

On the following chart, fill in the list of foods yo over the past 24 hours. Answer the questions af completed the chart.

	Meat & Alternates	Fruits & Vegetables	Milk & Milk Products
Breakfast			
Dinner			
Supper			
Snacks			
Your # of servings			
Servings Required	2	5	3

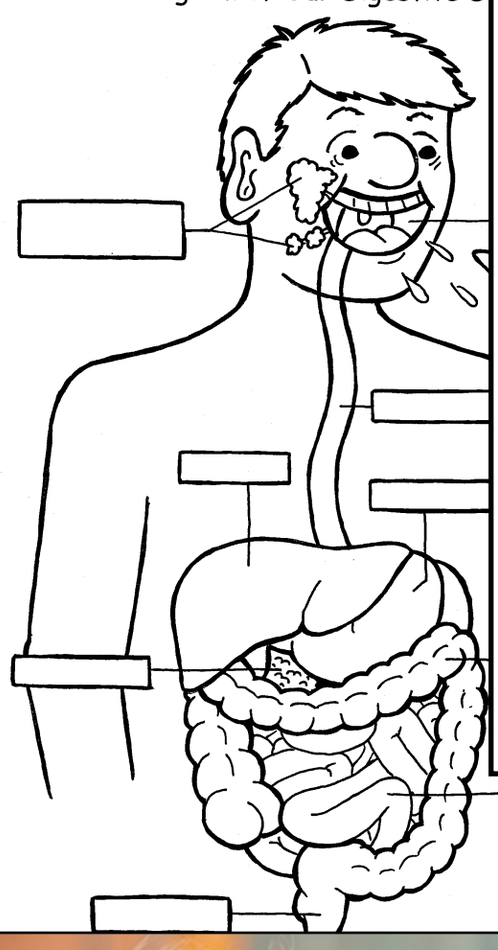
1. Were you low in any of the food groups? _____
   Which one(s)? _____
2. Were there any foods eaten that had low nut

LESSONS 2 AND 3

Digestion

- Inside each cell, the food we eat is broken down into chemical changes by **digestion**. The oxygen we breathe combines with these chemical changes. The result is **energy** being released. Energy is the ability of our body to do work.
- Different foods provide our bodies with different amounts of energy.
- **Digestion** is the process by which food is broken down or changed in our body, so that the body can use the nutrients from the food.
- Our bodies need certain daily nutrients to maintain good health. The food taken into our bodies helps our body's cells to **grow, repair,** and **reproduce**. In order for this to happen, our food needs to be digested or broken down into the nutrients. The body can then use these nutrients.
- Digestion begins in our mouth. The food is chewed and is mixed with saliva (digestive juice in your mouth). **Saliva** is produced by the salivary glands. The saliva contains chemicals that begin to change or break down our food.
- The food is then swallowed and passes down though the **esophagus tube**. This tube is made of muscle and slowly squeezes our food into our stomach.

Diagram of Our Digestive S

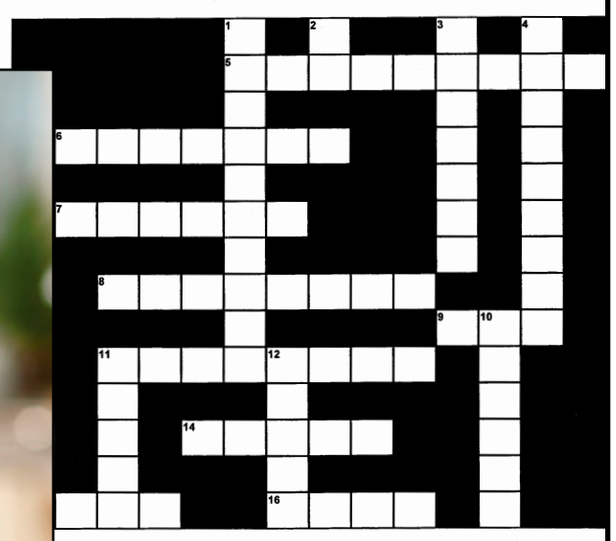


fruc	
amin	proteins
iron	a mineral that produces healthy blood cells
calorie	a unit of measurement for the energy in food
carbohydrates	a nutrient that keeps us warm and produces energy for our bodies (starches and sugars)

_____
_____

2. Why is it important to keep food cold? _____
   _____
3. Why is it necessary to thoroughly cook poultry and pork?
   _____
   _____
4. What is the value of food labels? _____
   _____
   _____
5. Name the information that food labels give to a consumer.
   a) _____
   b) _____
   c) _____
6. How are ingredients listed on food labels? _____
   _____
7. What are preservatives?_____
   _____
   _____
8. Beta-carotene is a natural additive and is _____ in colour.
9. What is a food allergy? _____
   _____

Crossword



DOWN

s swallowed, it is squeezed ____ tube.
is the control center of the
ats are derived from _____
e the _____ blocks of our
basic food groups?
is also known as the _____
egins in our _____ .
he ability of our body to do
on name for saliva is _____ .

1. We need at least 2 servings of daily.
2. Does the pancreas produce bi
3. Bugs Bunny can see very well because he eats a lot of _____
4. All foods contain certain ____ our body uses to keep healthy
10. Carbohydrates supply our bo _____ .
11. If we are eating lots of cake a cookies, we are eating lots of _
12. It takes about 24 _____ for to digest food.
13. Milk was originally produced farmer's _____ .

Nutrition Quiz

1. Complete each sentence with one of the following words.
   Note: Not all of the words will be used.

minerals	vitamins	Vitamin A	energy
sugars	cellulose	bread	carbohydrates
calcium	Vitamin D	iron	liver
fiber	Vitamin C	enriched	esophagus
thyroxin	iodine	labels	bacteria
fructose	Vitamin K	amino acids	gelatin
saturated fats	zinc	water	unsaturated fat
calorie	bacteria	milk	

a. _____ produces roughage in your diet.
b. _____ is the sunshine vitamin.
c. _____ is high in iron.
d. _____is a mineral found in milk.
e. _____are nutrients used by the body for growth.
f. _____ is a form of carbohydrate made from a grain.
g. _____ are the building block of protein.
h. _____ produces healthy teeth and gums.
i. _____ has no nutrients.
j. _____ helps improve eyesight at night.
k. _____is necessary for the production of red blood cells.