Thank you for inviting COSI on Wheels into your school! To enhance your students' experience, we encourage you to continue to learn about the human body in your classroom or home.

Extension Activities:

- Healthy Buffet
- Create a Food Diary
- In Proportion
- Making Sense of Senses
- Runnin' on Empty

HEALTHY BUFFET

ACADEMIC STANDARDS: Life Sciences 1.2, 2.5, 5.2, Physical Sciences K.3, 1.1, 4.3, Scientific Inquiry 1.8

OBJECTIVE: To explore which foods belong to which food groups. Use MyPyramid and the food groups to create a healthy buffet.

MATERIALS:
Crayons
Paper

PROCEDURE:

1. Divide the class into 5 groups; the Fruit, Vegetable, Meat & Beans, Grain, and Dairy groups.
2. Review the idea that all of our food either comes from a plant or an animal that was raised on a farm, or grown in an orchard or field.
3. Use MyPyramid to review the importance of eating a diet that contains foods from all of the food groups.
4. Each child should draw and color her favorite food from his/her group.
5. Each group presents their drawings to the rest of the class.
6. Display the drawings in their appropriate groups to showcase your class' healthy buffet!

EXTENSION: Plan a healthy buffet party to celebrate the end of the week, success on a big test, or just to have a good time! Divide the class into groups and have them pick one item from their group that they will bring in (one apple, one carrot, one yogurt etc.). The teacher may have to help by cutting some of the items into 'finger foods'. You could also host a fruit party, or vegetable party where students only bring in foods from one specific group.

CREATE A FOOD DIARY

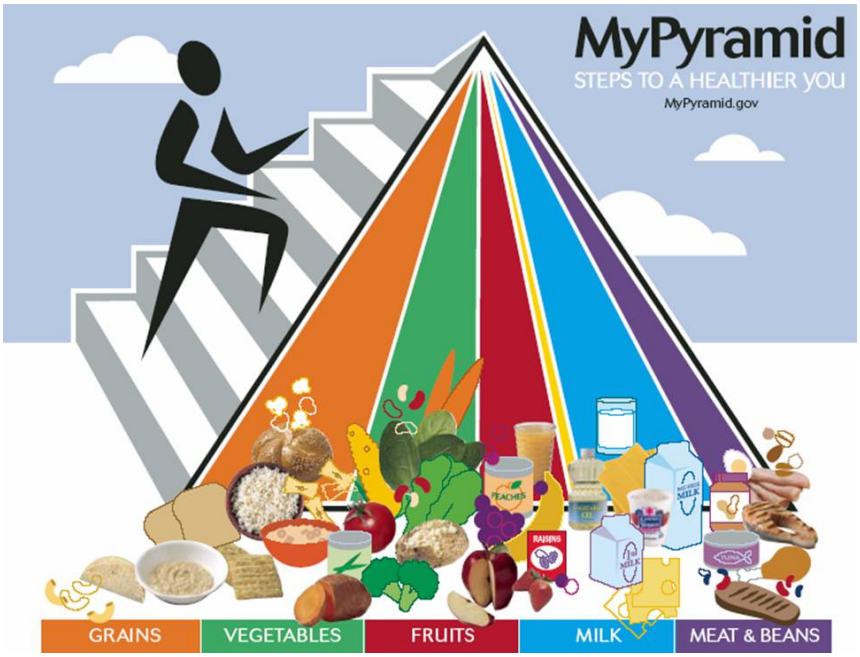
ACADEMIC STANDARDS: Life Science 1.1, 2.1, 2.5; Scientific Inquiry 3.5; Scientific Ways of Knowing 3.2, 4.2

OBJECTIVE: Use the enclosed worksheet to have your students record everything they eat for one day. Do they have a balanced diet? What food groups did they eat too little from? What food groups did they eat too much from?

MATERIALS: Worksheet

Food is the source of energy our bodies need to grow. A balanced diet gives our bodies the vitamins and nutrients we need to stay healthy. According to the Food Pyramid, created by the United States Department of Agriculture (USDA), you should try to eat:

- 6oz. from the Grains group
- 2.5 cup from the Vegetables group
- 2 cups from the Fruits group
- 3 cups from the Milk group
- 5.5 oz from the Meat and Beans group
- Sparingly from the Oils Group



For more information on healthy eating for kids visit: http://www.fns.usda.gov/tn/kids-pyramid.html or www.mypyramid.gov.

My Food Diary

		Food Group
BREAKFAST		
SNACK		
LUNCH		
SNACK		
DINNER		

IN PROPORTION

ACADEMIC STANDARDS: Doing Scientific Inquiry K.10, 1.7, 2.2, 3.2

OBJECTIVE: To have students understand how big serving sizes should be.

MATERIALS:
1 matchbook
1 tennis ball
1 deck of cards or bar of soap
1 blank compact disk
4 dice
1 computer mouse
1 ping pong ball
1 hockey puck

PROCEDURE:

1. Spread out materials on a table or desk.
2. Ask the students to guess which item is closest in size to the foods listed below:

- 3 oz. of fish or chicken = deck of cards or bar of soap
- 2 table spoons of peanut butter = a ping pong ball
- 1 oz. of meat = 1 matchbook
- 1 oz. of cheese = 4 dice
- Medium potato = a computer mouse
- Bagel = hockey puck
- ½ cup of pasta = tennis ball
- 1 cup of vegetables = a compact disk

WHAT HAPPENED: When people look at a serving size on nutritional information grids, measurements like 8 oz., ½ cup, or 2 tablespoons may not mean a lot to them. This activity shows the students a method of estimating serving size.

MAKING SENSE OF SENSES

ACADEMIC STANDARDS: Life Sciences K.5, 1.3, 2.6, 3.2, 3.3, 6.2, Science and Technology 2.3, 3.1, Scientific Inquiry K.4, 1.9

OBJECTIVE: To understand how our senses help us perform the necessary functions of living, and to draw attention to how we use our senses every day.

MATERIALS: Chalkboard/Whiteboard

PROCEDURE:

1. Have the class identify the five external senses: sight, hearing, taste, touch, and smell. Write the senses on the board.
2. Ask the students to consider how they have used each of the senses today. Write some of the answers by each sense.
3. Have the students imagine they are 'cave people' living thousands of years ago. How would a cave person use his five senses? Why would he need his senses? (Ex: he may hear a bear sneaking around his camp and be better prepared to defend himself or his food.) Would the cave person have a hard time surviving without any of his senses?
4. Now have students imagine they are 'future people' living in the year 3000. How will people use their senses in the future? Will we still need our senses to survive? (Ex: cars will be controlled by computers and magnets so we will not need to be able to see to know where we're going.)

DID YOU KNOW: Our brains are responsible for sending and receiving millions of signals, or 'messages', every second of our lives. Many of the messages received by the brain are interpreted by us as our *senses*.

Humans have developed senses that help us interpret the world and gather information we need to survive. Different animals have developed different senses based on what *they* need to survive. Here are a couple examples of amazing animal senses:

- Bats can find food (insects) up to 18 ft away and get information about the type of insect using their sense of echolocation.
- Worker honey bees have 5,500 lenses (ommatidia) in each eye.
- A butterfly has *chemoreceptors* (taste receptors) on its feet.

- A buzzard's retina has 1 million *photoreceptors* per sq. mm and can see small rodents from a height of 15,000ft.
- The eyes of the chameleon can move independently of each other. Therefore, it can see in two different directions at the same time.
- Crickets can hear using their legs; sound waves vibrate a thin membrane on the cricket's front legs.
- A dog has an olfactory membrane up to 150 sq. cm, which is far larger than 4 cm olfactory membrane of a human.
- An elephant has a hearing range between 1 and 20,000 Hz. The very low frequency sounds are in the infrasound range, which cannot be heard by humans.

For more information about amazing animal senses visit:
http://faculty.washington.edu/chudler/amaze.html

EXTENSION: What other animals can you think of that have amazing senses? Choose an animal to study and examine how its senses are different from humans. How do the senses help that animal survive? How well would the animal do if it had human senses?

EXTENSION 2:
a) Have the students write their name and address or the words to 'Happy Birthday' on a sheet of scrap paper. Then have them close their eyes and try writing it again. Why is it more difficult to write with your eyes closed? How does our sense of sight help us perform simple functions such as writing? Where do the signals come from and where are they sent when writing? (Your eye sees the paper and sends a message to your brain, which interprets that information and sends signals to control the muscles in your hand.) What other functions do we typically perform with our hands that would be challenging without the sense of sight?

b) Try watching one or two minutes of a video with the sound turned off. Have the students discuss in detail what they think is happening in the video. Why do they think so? What sense is helping them determine what's happening? Then watch the same clip again to see what is really going on. What did they get right, and what did they get wrong? What parts of the video were difficult to interpret without their sense of hearing?

Drop It![1]

Academic Standards: Scientific Inquiry 2.7, 3.3, 3.5, 4.5; Scientific Ways of Knowing: 4.2, 4.4

Objective: To discover the speed and capability of the brain by testing reaction time.

Materials: Ruler

Procedure:

1. Have one student hold a ruler by the end with the highest numbers and let it dangle about shoulder level.
2. Another student will open their thumb and forefinger a few inches apart at the bottom of the ruler. Make sure the ruler is not touching either the thumb or the forefinger.
3. The student holding the ruler will let go of it without giving any warning.
4. The other student will catch the ruler as quickly as they can.
5. Read the number of inches it took for the student to catch the ruler and check the chart below to see what their reaction time was.
6. Have the students trade jobs and do the experiment again.

Distance	Time
2 in (~5 cm)	0.10 sec (100 ms)
4 in (~10 cm)	0.14 sec (140 ms)
6 in (~15 cm)	0.17 sec (170 ms)
8 in (~20 cm)	0.20 sec (200 ms)
10 in (~25.5 cm)	0.23 sec (230 ms)
12 in (~30.5 cm)	0.25 sec (250 ms)

What Happened? This experiment shows how long it takes your brain to receive a message (the visual of the ruler falling) and then makes a command (Catch the ruler).

Extensions: Try some of these variations on the experiment: What's the best time out of ten tries? Is the reaction time better for a younger person or an older person? What is the difference in reaction time between the dominant hand and the non-dominant?

[1] http://faculty.washington.edu/chudler/chreflex.html