

## **COSI ON WHEELS**

### **THE INCREDIBLE HUMAN MACHINE**

#### **Program Description**



**The Incredible Human Machine** is designed to enhance students' ability to make decisions that will improve their long term well-being. The program consists of a 45 minute interactive assembly followed by exciting hands-on activities that engage the students and encourage the development of Science Process Skills.

During the assembly, the following concepts and more will be explored:

- Examining the importance of the nervous system
- Exploring how food fuels the human body
- Identifying that exercise keeps the body strong

The hands-on activities are presented in 30-45 minute sessions with each session accommodating 62 or fewer students. Hands-on activity session times are scheduled by your school's COSI On Wheels coordinator. Students will have the opportunity to take a close look at tissues and cells that make up the human body and discover that exercise is anything that gets the body moving (a.k.a. play). In the hands-on sessions students interact informally with the activities, spending as little or as much time as they like at each station. While many students will try all of the activities, some may choose to have a more in-depth experience with only a few.

To prepare you and your students for **The Incredible Human Machine**, we suggest familiarizing yourselves with the Hands-On Activities descriptions and vocabulary list provided. Also, click on 'Extension Activities' for additional exploration.

**NOTE:** *Students should be reminded to never eat or drink any of their experiments, even when experimenting with food items.*

## **THE INCREDIBLE HUMAN MACHINE HANDS-ON ACTIVITIES:**

**Body Puzzles:** Students use magnetic pieces to complete puzzles of body systems including the nervous, digestive, circulatory, and respiratory systems.

**Brain Games:** Students explore the limits of the nervous system through a series of 'brain games' designed to trick your brain.

**Build a Meal:** Students explore nutrition labels and food to build a well balanced meal.

**Let's Dance:** Students discover that exercise is anything that gets their bodies moving by combining dance with video games.

**Mr. Bones:** Students learn facts about bones while assembling a life-size puzzle of the human skeleton.

**Spot the Starch:** Students will complete a simple experiment to discover which foods possess the nutrient starch, and which food does not possess starch.

**Take A Closer Look:** Students use a 'scope on a rope' to investigate human tissues and cells.

**The Food Feud:** A trivia game where students learn about the food pyramid and the digestive system.

**What's Your Number:** Students discover how physical activity helps their hearts, and learn to take their own pulse.

**When Health Gets Hurt:** Students can observe the causes and effects of how tobacco and high fat food can harm their bodies.

## THE INCREDIBLE HUMAN MACHINE VOCABULARY

**CARBOHYDRATE:** Nutrients that range from simple sugars to complex dietary fibers; primary energy source for the body.

**CARDIOVASCULAR TRAINING:** Exercise that increases your heart rate.

**CIRCULATORY SYSTEM:** The bodily system of blood, vessels, and heart concerned with the circulation of the blood throughout the body.

**DIGESTIVE SYSTEM:** The bodily system that breaks food down to the simple nutrient forms that can be taken in and used by the body.

**FATS:** Nutrients that are a major class of energy-rich food, and helps maintain healthy body cells. Fats also, store energy for the body.

**MUSCULAR SYSTEM:** The bodily system that is composed of skeletal, smooth, and cardiac muscle tissue, which allows the movement of the body.

**NEURONS:** A specialized, impulse-conducting cell that passes messages from the brain through the nerves, and then to the rest of the body.

**NERVOUS SYSTEM:** The bodily system consisting of the brain, spinal cord, and nerves that regulates the body's responses to internal and external stimuli.

**NUTRIENTS:** The post-digestive form of food that provides nourishment to the body.

**PROTEIN:** Nutrients that help build and repair muscles and help the cells in our bodies function properly.

**RESISTANCE TRAINING:** Physical training that contracts the muscles as hard as they will contract over and over to strengthen/develop the muscles (associated with weights).

**RESPIRATORY SYSTEM:** The bodily system by which oxygen is taken into the body and an exchange of oxygen and carbon dioxide takes place.

**VITAMINS & MINERALS:** Nutrients, such as calcium, iron, vitamin A, magnesium, vitamin C, potassium, or sodium, that are essential to the functioning of the human body and are obtained from foods.

## SCIENCE PROCESS SKILLS

On the day of the program students will have the opportunity to participate in a variety of hands-on activities. The activities are intended to create a fun and stimulating environment which encourages the development of Science Process Skills. The skills include:

**OBSERVING:** Using the senses and/or appropriate tools to gather information. Observing may also include the skills of: **Measuring, Comparing, and Classifying.**

**INFERRING:** Making preliminary conclusions by assessing what is already known. Inferences are what you reason to be true, but have not observed or tested.

**QUESTIONING:** Raising questions about objects, events, or phenomena. This includes recognizing and asking *investigable* questions, often beginning with phrases like 'What causes,' 'How does' or 'What makes.'

**HYPOTHESIZING:** Offering a possible explanation or testable statement. A hypothesis can be a good reference point for further investigation.

**PREDICTING:** Using ideas or evidence to foretell the outcome of a specific future event. Often involves an action and a reaction or an if/then statement.

**PLANNING:** Designing one's own investigation using procedures to obtain reliable data. *Planning is not always formal.*

**INVESTIGATING:** Carrying out a planned experiment based on your hypothesis. Investigation uses many of the previously stated Process Skills.

**INTERPRETING:** Drawing conclusions by assessing the data. Finding patterns or other meaning in the data.

**COMMUNICATING:** Expressing observations, ideas, conclusions, or models by talking, writing, drawing, etc.

**RELATING & APPLYING:** Relating makes parallels to similar concepts, and applying uses the knowledge gained to help solve a challenge.