



Museum of Natural History & Science Gallery Guide for *All About You*

Introduce your students to human anatomy as they explore the *All About You* exhibit. Whether pretending to be a dentist, learning about digestion or exploring their senses, students will be fascinated with this hands-on exhibit. Also, students may have the opportunity to stop at the *All About You* window and visit Stuffee, two portions of the exhibit that allow your students further exploration into human anatomy and function.

Concepts: articular system, circulatory system, dentition, digestive system, dominant trait, genetics, muscular system, nervous system, recessive trait, reproductive system, respiratory system, skeletal system

Background Information:

When most students think of the human body, they may think only of the skeleton itself, but the human body is a working mystery that has fascinated philosophers and scientists for millennia. Many of the questions concerning the human body are addressed in this exhibit. From the senses to neurological function, students can explore and learn about the human body.

Often taught at the elementary level, the five senses are a great way to facilitate initial learning of the human body. Sight, taste—including **dentition**, hearing, touch and smell seem quite simple, but upon further study of their function and the actual physical responses and anatomy behind each of the senses, it is easy to see that more study is required to fully understand the senses. For example, each of the senses stimulates a different portion of the brain, as neurological responses occur in different areas dependent upon the stimulation itself. Direct your students to the portion of the exhibit that facilitates the senses with neurological response and ask them to investigate which portions of the brain are used with each sense. Exploration into this facet of the senses could lend toward further study of the anatomy behind each of the senses as well as how scientists discovered their areas of function. Study of the senses and can easily be adapted for a systems approach, covering the **articular, circulatory, digestive, muscular, nervous, reproductive, respiratory** and **skeletal systems**.

Aside from the senses, **genetics** also plays a major role in the study of human anatomy. Genes hold the clues to our bodies as they contain DNA, or deoxyribonucleic acid, which determines how we are going to be unique individuals. No two people, not even twins, share the same genetic code, so it is impossible for any of us to not be unique. Perhaps one of the most interesting aspects of genetics is the difference between **dominant** and **recessive** genes. It is always interesting to see if the phenotypes, or physical trait, that one has are dominant or recessive. There are many examples on the wall for students to study their own genes, via exploration of their phenotypes. The Genome Project is attempting to determine function and phenotype of each DNA

code within the human body. Students can easily access information about this project as well as the current research and debate of cloning upon return to the classroom

Vocabulary:

Articular system – comprised of the joints, both moveable and fixed

Circulatory system – comprised of the heart, arteries, capillaries and veins all working together to transport oxygen-rich blood

Dentition – teeth

Digestive system – organs that are responsible for getting food in and out of the body and making use of food throughout the body in order to keep you healthy

Dominant trait – show their effect even if there is only one copy of that gene in the pair

Genetics – the study of our genetic code, or DNA

Muscular system – all of the muscles in the body and how they work collectively

Nervous system – the entire integrated system of nerve tissue in the body

Recessive trait – will lose to a dominant trait, unless both genes are recessive

Reproductive system – the system of organs and parts that function in reproduction; organs differ in males and females

Respiratory system – a system of organs functioning in respiration

Skeletal system – the system of bones that provide support of our frames and protection to our organs

Focus Questions:

1. If your students had to choose one of the five senses to lose, which would it be and why? Discuss what the implications would be for that individual.
2. Using the skeleton, lead students into a discussion of the skeletal system, including bone structure and joint function. Upon returning to the classroom, have students research and discuss types of bone injury, for example fractures and bone disease.
3. The study of genetics is in the limelight in the scientific community. Discuss the difference between dominant and recessive traits and perhaps expand upon probability of traits through implementing a Punnett square diagram. For further classroom discussion and possibly debate, delve into the issue of human cloning.