

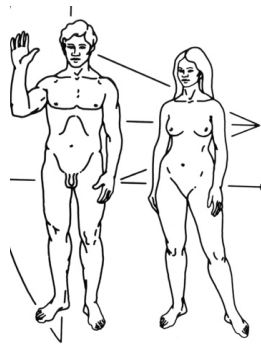
How the Body Works: Part I: Body Systems

US275 Scientific Ethics
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The human body is composed of specialized systems.

- Structures or groups of structures
 - functions of life
 - often integrated with other systems

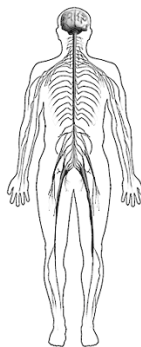


NASA Pioneer Plaque

2

The nervous system controls your body.

- Brain
 - analyzes information
- Spinal cord
 - carries information back and forth between brain and rest of body
 - local reflexes
- Peripheral nerves
 - information to and from specific regions of the body.

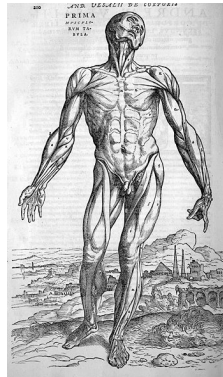


Human nervous system
http://diabetes.niddk.nih.gov/dm/pubs/complications_nerves/

3

The muscular system moves the body and materials within the body

- skeletal muscle
 - moves the body
- smooth muscle
 - movement within body organs
 - controls organ shape and size
- cardiac muscle
 - pumps blood in heart



Muscles from front
Andreas Vesalius (1514 - 1564)

4

The skeletal system supports and protects the body

- skeleton
 - made up of bones
- works with muscular system to move the body.

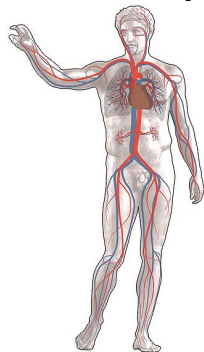


Articulated human skeleton
Buffalo Museum of Science, Buffalo, New York, USA.
Wikimedia Commons

5

The circulatory system transports materials throughout the body.

- Heart pumps blood
- Pipes
 - arteries
 - capillaries
 - veins

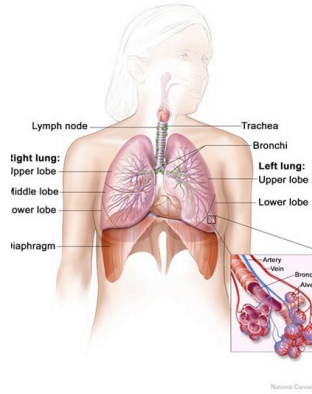


The human circulatory system.
Red indicates oxygenated blood,
blue indicates deoxygenated.
Sansculotte, 2005 (Wikimedia Commons)

6

The respiratory system exchanges oxygen and carbon dioxide with the air.

- lungs
 - oxygen brought into body
 - carbon dioxide expelled from body
- circulatory system transport blood throughout the body

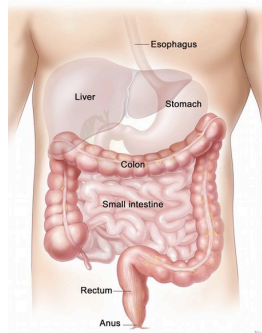


Anatomy of the respiratory System
NIH National Cancer Institute

7

The digestive system breaks down and absorbs food.

- break down food
- absorbs nutrients
 - biological molecules
 - vitamins, minerals
- eliminates undigested wastes

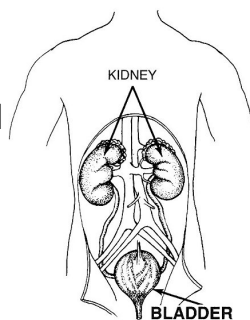


Digestive System
www.cancer.gov

8

The urinary system removes wastes from the body

- kidney filters waste materials from the blood
- conserves water

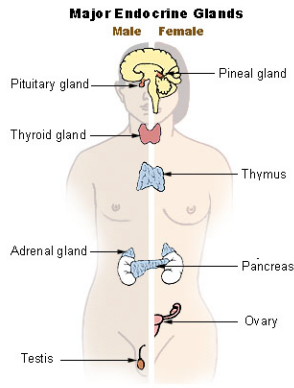


Bladder
Pearson Scott Foresman
Wikimedia Commons

9

The endocrine system produces hormones that regulate body activity.

- pancreas
 - control sugar levels
- thyroid gland
 - control metabolism
- ovaries or testes
 - produce estrogen or testosterone



Major Endocrine glands
[:http://training.seer.cancer.gov/module_anatomy/unit6_3_endo_glands.htm](http://training.seer.cancer.gov/module_anatomy/unit6_3_endo_glands.htm)

10

The reproductive system is for the production and early development of children.

- produce sperm or eggs
- fertilization
- fetal development in the uterus

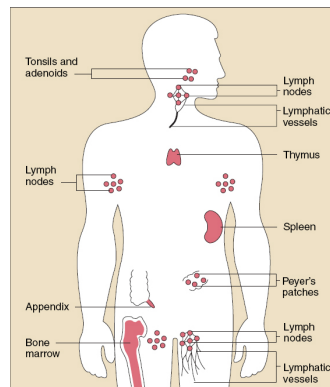


Parental Joy
 Karl (Kirill) Lemoch, 19th cent.

11

The immune system protects the body against infections and diseases.

- boundaries
 - skin, mucus
- inflammation
- immune response
 - “vaccinations”



12

Any Questions?

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<http://www.vippitbullkennels.com/images/animated-question-mark.gif>