**Animal Tissues and Organ System Notes Guide**

This chapter introduces the anatomy and physiology of animals.

What is anatomy?

Anatomy is the study of an organism’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

What is physiology?

Physiology considers how an organism’s body works.

Structure fits function

In this mole, and in all organisms, anatomy and physiology are closely related. The structure of his broad front paws fits their function: digging.

The organizational hierarchy of the body

Biologists describe the animal body in terms of an organizational hierarchy.

Cells

Cells are the building blocks of animal bodies.

Tissues

Cells are organized into tissues, groups of cells that interact and provide a specific \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Organs

Different tissues interact and function as units called organs.

Organ systems

Organ systems consist of two or more organs that are physically or functionally joined.

Anatomical terminology, 1

Scientists use terms to refer to the relative position of structures within an organism.

Anterior or ventral view

Lateral or side view (human)

Lateral or side view (non-human)

Anatomical terminology, 2

Scientists use terms to refer to the relative position of structures within an organism.

Lateral: away from the midline

Medial: toward the midline

Anterior: toward the front

Posterior: toward the back

Proximal: toward the point of attachment

Distal: away from the point of attachment

Dorsal: toward the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ventral: toward the belly

Organ systems are interconnected

Organs are arranged in organ systems that have

interconnected structures and functions.

The nervous system and endocrine system are interconnected

The nervous and endocrine systems coordinate \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Communication

-Nervous system- Detects, interprets, and responds to stimuli from outside and within the body. With endocrine system, coordinates all organ functions.

-Endocrine system-Produces hormones and works with the nervous system to control many body functions, including reproduction, response to stress, and metabolism.

The skeletal system and the muscular system are interconnected

The skeletal and muscular systems support and move the body.

-Skeletal system- Provides framework for muscles to attach, making movement possible. Houses bone marrow. Protects soft organs. Stores \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

-Muscular system-Supports posture and enables body to move. Helps maintain body temperature.

The digestive, circulatory, and respiratory systems are interconnected

The digestive, circulatory, and respiratory systems work together to acquire energy.

-Digestive system- Breaks down nutrients into chemical components that are small enough to enter the blood. Eliminates undigested food.

-Circulatory system- Vessels carry blood throughout body, nourishing cells, delivering oxygen, and removing wastes.

-Respiratory system- Delivers oxygen to blood and removes carbon dioxide.

The urinary, integumentary and the lymphatic systems are interconnected

The urinary, integumentary, immune, and lymphatic systems \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the body.

-Urinary system- Excretes nitrogenous wastes and maintains volume and composition of body fluids.

-Integumentary system- Protects the body, controls temperature, and conserves water.

-Immune and lymphatic systems- Protect the body from infection, injury, and cancer.

The integumentary system regulates temperature and conserves moisture

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an organ. It consists of multiple interacting tissue types.

The male and female reproductive systems are interconnected

The reproductive system produces the next generation.

Homeostasis

Homeostasis is a state of internal constancy.

Organ system interactions promote homeostasis

Organ systems \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to maintain a stable temperature, blood pressure, and fluid composition in an animal’s body.

Organ systems interact in many ways. For example, the circulatory system exchanges substances with other organ systems to maintain homeostasis.

Interstitial fluid

Interstitial fluid bathes all body cells. Substances move through interstitial fluid as they pass between organ systems.