

CASE

*Curriculum for Agricultural
Science Education*

Principles of Agricultural Science – Animal

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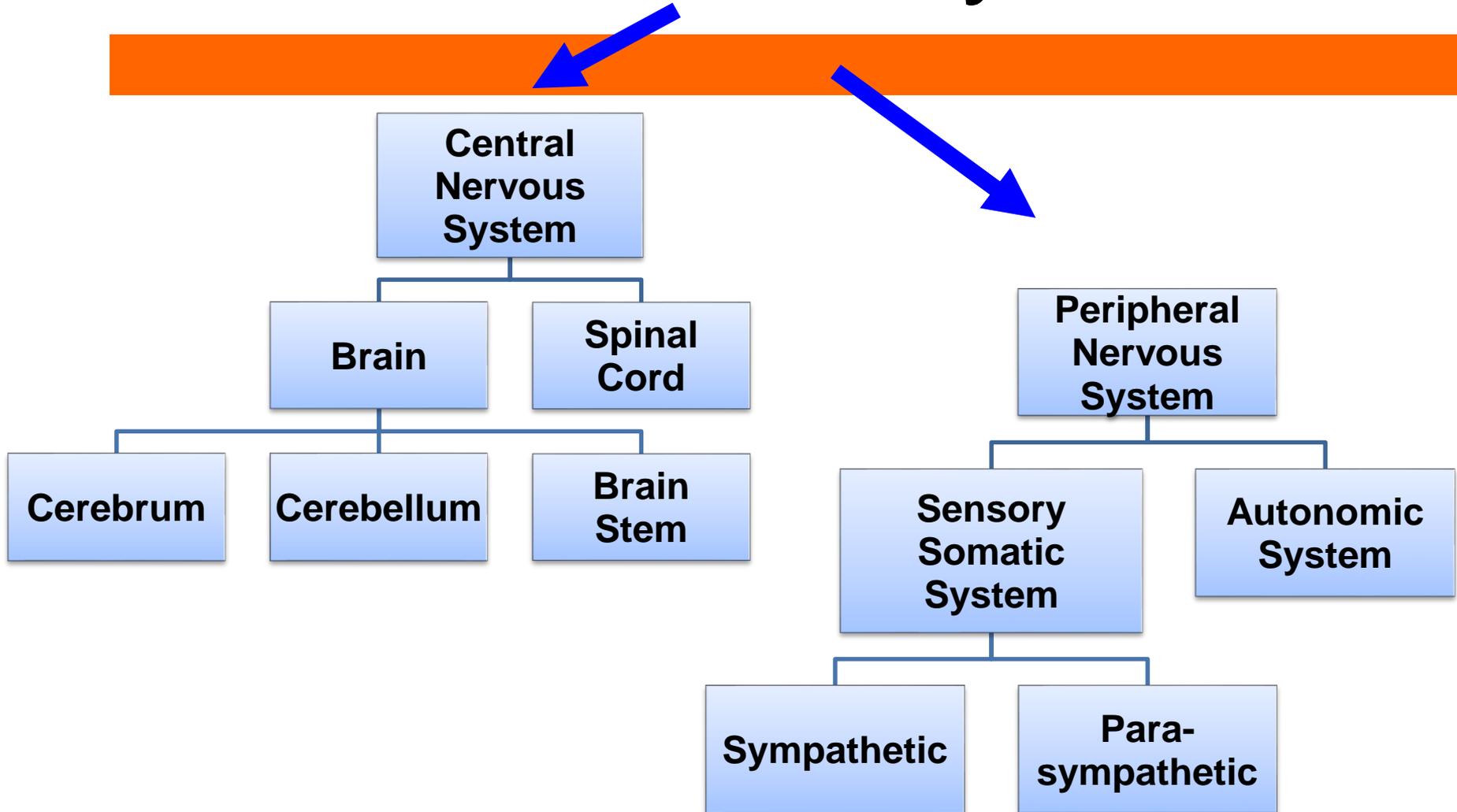
Nerves, Hormones, and Kidneys

Unit 4 – Lesson 4.3 Breathing, Beating, and Body Controls

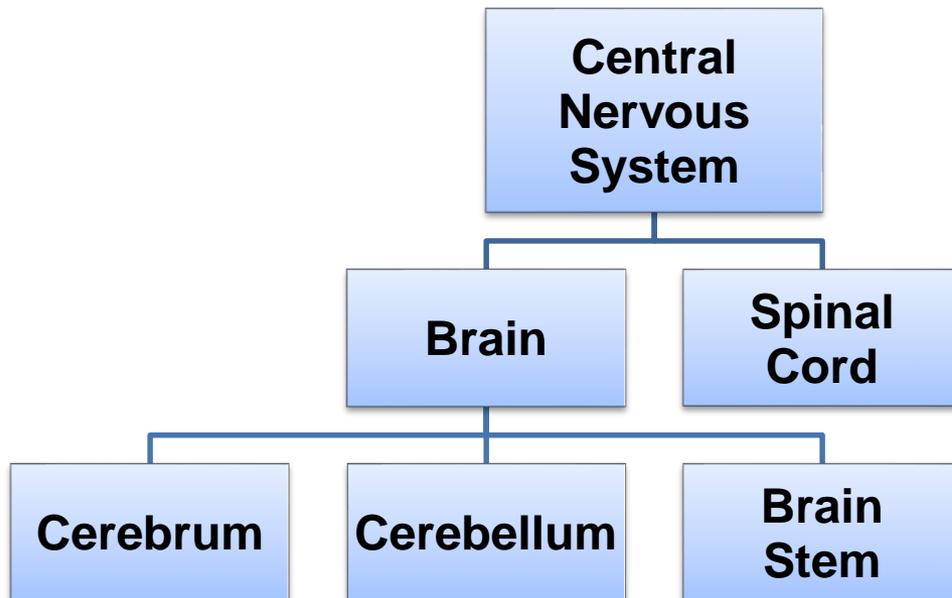
The Nervous System

- Functions
 - Coordinates and controls all body activity
 - Detects and processes external and internal information and controls responses
- Neurons
 - Nerve cells that transmit information

The Nervous System



Central Nervous System



Central Nervous System

- Receives signals
- Coordinates activity

Spinal Cord

- Link between the CNS and PNS
- Overall coordination

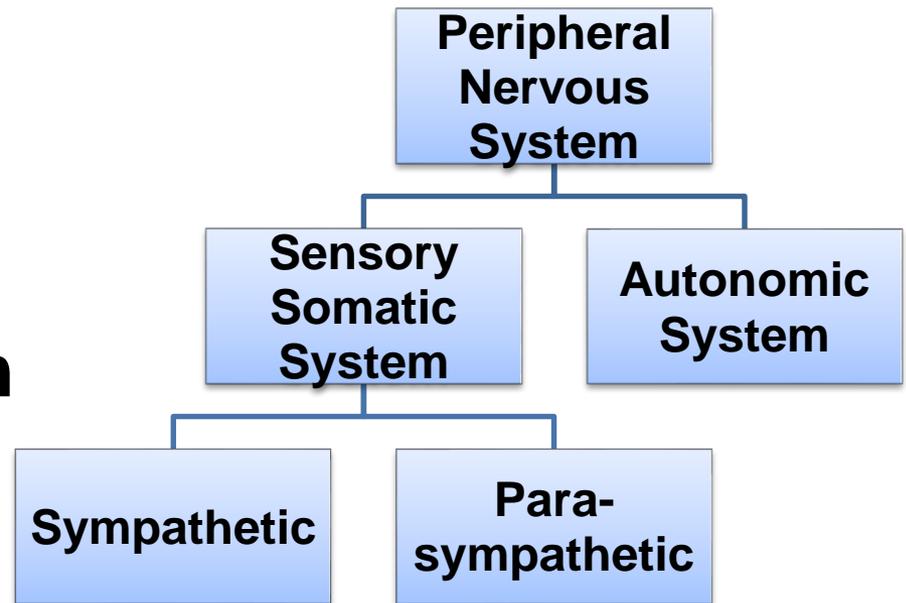
Peripheral Nervous System

Peripheral Nervous System

- All nerves and neurons outside the brain and spinal cord

Sensory Somatic System

- Operates motor activity
- Nerves for sight, sound, and sound



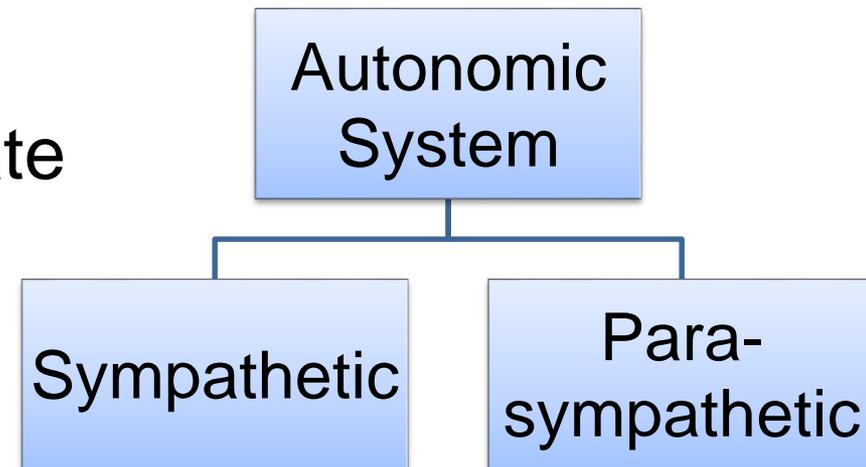
Peripheral Nervous System

Sympathetic system

- Stimulates organs for fight or flight
- Increases BP and heart rate
- Directs blood to muscles, brain, and heart

Parasympathetic system

- Maintains normal body function
- Opposite actions of sympathetic system



The Endocrine System

- Functions
 - Maintain homeostasis in the body
 - Release of hormones to target organs
 - Regulate growth, sexual development, and metabolism
- Mostly regulated by a negative feedback system
 - Hormones are secreted in response to a change in the body

Glands Producing Hormones



- **Pituitary**

- Master gland
- Secretes hormones that control other endocrine glands

- **Adrenal**

- Produces epinephrine and norepinephrine which control the fight or flight system

The Renal System

- **Functions**

- Filters wastes from blood
- Secretes waste from the body
- Regulates sodium, chloride, & potassium in blood
- Controls the pH of blood
- Produces adrenal hormones
- Regulates water balance in the body
- Maintains homeostasis

References



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Introduction to veterinary science. Clifton Park, NY: Delmar.

Romich, J.A. (2006). *An illustrated guide to veterinary medical terminology* (2nd ed.).

Clifton Park, NY: Thompson Delmar Learning.