twelfth thoracis vertebra.
- Lower end is conus medullaris, extending from the caudal in lower lumbar and sacral regions are spinal nerves called cauda equina.
- anchored to walls of vertebral canal by extensions of the pia matter called DENTICULAR LIGAMENTS and the coccy inferiorly by the FILUM TERMINALE.

- Internal environment:
  - core of gray matter (shaped like butterfly)
  - surrounded by white matter
  - gray matter consists of cell bodies ad neurons and white is myelinated axons
  - gray matter is subdivided into regions called horns
    a) anterior (ventral) gray horns (voluntary motion)
    b) posterior (dorsal) gray horns is sensory
    c) lateral gray horns (autonomic motor) only in thoracic, upper lumbar and sacral segments of the spinal cord.
  - white matter is subdivided into regions called columns (funiculi)
    a) anterior white
    b) posterior white
    c) lateral white
    - each of these columns contain bunches of nerve fibers called tracts (fasciculi)
      a) ascending is sensory
      b) descending is motor
- Spinal cord functions:
  - white matter transmits nerve impulses between brain and peripheral, gray matter transmits incoming and outgoing info
  - Reflexes: somatic involve contraction of skeletal muscles, visceral (autonomic) involve responses of smooth, cardiac and glands
  - spinal nerve attached to spinal segment by two roots: a) posterior dorsal (Sensory root): sensory nerve fibres from periphery to spinal cord; b) anterior or ventral (motor) root: motor neurons axons transmit impulses from spinal cord to periphery
  - cell bodies of somatic motor in anterior gray horns
  - cell bodies of autonomic motor in lateral gray horns.
  - Reflex pathway includes: receptor, sensory neuron, integrating center, motor neuron, effector

- Spinal Nerves: 31 pairs
  - 8 cervical, 12 thoracic, 5 lumbar, 5 sacral, 1 coccygeal
  - nerve is formed by merger of dorsal root and anterior root.
  - plexuses= bundles of nerves: Cervical plexuses, brachial plexuses, lumbar plexuses, sacral plexuses
  - Dermatomes: skin over entire body is supplied by spinal nerves that carry