

Chapter 1

General Clinical Anatomy

**Each of the following sections will challenge you to organize the information in a unique way. The goal is that following the completion of Chapter 1 you will have identified which organization system works best for your learning style. Can you meet my challenge with imagination and creativity?*

For each of these sections, you will find useful information in Moore's Text, Thieme's Atlas and the APR software (don't miss APR's animations). Getting to know your resources and how to use them is extremely valuable, therefore, I will not assign pages numbers. Instead, I highly encourage you to take time at the beginning of the term to become familiar with the layout of your resources, and how you can best utilize their information.

1. Planes and movements: **Using mostly images**, describe the planes the body is divided into, and which movements occur in each plane.

Include the following information:

- Anatomical position.
- Sagittal, coronal/frontal, and transverse planes of reference.
- General joint movements (describe and give some examples of joints that can perform each movement):
 - Flexion/extension
 - Adduction/abduction
 - Internal/external rotation (or medial/lateral rotation)
 - Circumduction
- Special joint movements:
 - Foot: plantar flexion/dorsi flexion, inversion/eversion,
 - Hand: opposition
 - Forearm: supination/pronation
 - Scapula: protraction/retraction, elevation/depression, rotation
 - Trunk: lateral flexion or side bending
 - Shoulder: Horizontal adduction/abduction

2. Spatial relationships: **Using mostly words in a table format**, incorporate anatomical terminology to describe relationships between structures of the body.

Include the following spatial relationships:

- Medial/lateral
- Superior/inferior

- Superficial/deep
- Anterior/ posterior
- Proximal/distal
- Dorsal/palmar or plantar
- Bilateral/unilateral
- Ipsilateral/contralateral

3. **Bone:** Write a short story or narrative that incorporates all the following information (the more creative, or ridiculous, the better for your memory).

- The functions provided by the skeleton (protection, support, basis for movement, calcium storage, blood cell production).
- The terms *axial* and *appendicular* in reference to the skeleton.
- The following types of bone: long, short, irregular, flat, sesamoid and accessory.
- The basics of long bone growth, from the original cartilaginous model to the cessation of growth, using the key terminology such as cartilagenous model, primary ossification center, secondary ossification center, cartilagenous calcification and ossification, epiphyseal plate, and epiphyseal line.
- The following parts of a long bone: proximal and distal epiphysis, diaphysis, metaphysis, spongy (trabecular) bone, compact (cortical) bone, medullary cavity, epiphyseal line and periosteum.

4. **Joints or Articulations:**

- **Using mostly images and specific examples**, differentiate between synovial, fibrous and cartilaginous articulations.
- **Using some type of systematic approach that involves a table** discuss the movements (flexion/extension etc.) that are typically possible in each of the following types of synovial joints and provide an example of each in the body:
 - Ball and socket
 - Hinge
 - Saddle
 - Condylloid
 - Pivot
 - Plane/gliding

5. Muscles:

- **Write a song to a familiar tune (whoa, that's a hard one)** that helps you to remember how skeletal, cardiac and smooth muscles are different in regard to their location in the body and their method of stimulation (conscious vs. voluntary).
- **Create a mnemonic** that incorporates the names of the following types of skeletal muscle. Be sure to also include descriptions and examples of each in some creative way:
 - Flat
 - Unipennate
 - Bipennate
 - Multipennate
 - Circular
 - Quadrangle
 - Fusiform

6. Plumbing Basics:

- **Create a concept map or schematic** that describes the primary function of capillaries, and the basic purpose and characteristic of arteries and veins in terms of:
 - Direction of blood flow relative to the heart
 - Presence of smooth muscle in vessel walls
 - Mechanisms used to propel blood
- **Using words and images** describe the relative size of an aorta, artery, arteriole, capillary, venule, vein and vena cava.

7. Wiring Basics:

Don't miss APR's Animation titled "Typical Spinal Nerve"

- **Write a children's story starring an imaginary character that can travel inside a nerve fiber**, and use the following terminology in a way that will help you to understand their location and function:
 - Motor nerve
 - Sensory nerve
 - Efferent
 - Afferent
 - Ventral root
 - Ventral rami (ramus)
 - Dorsal root
 - Dorsal rami (ramus)
 - Spinal nerve
 - Dorsal horn of the spinal cord
 - Ventral horn of the spinal cord