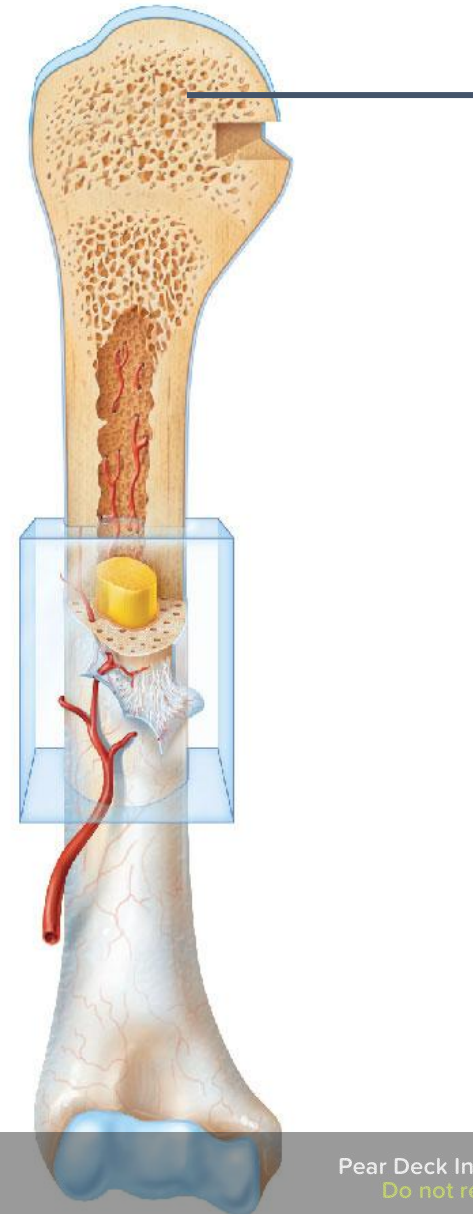


Review: Gross Anatomy of Long Bone

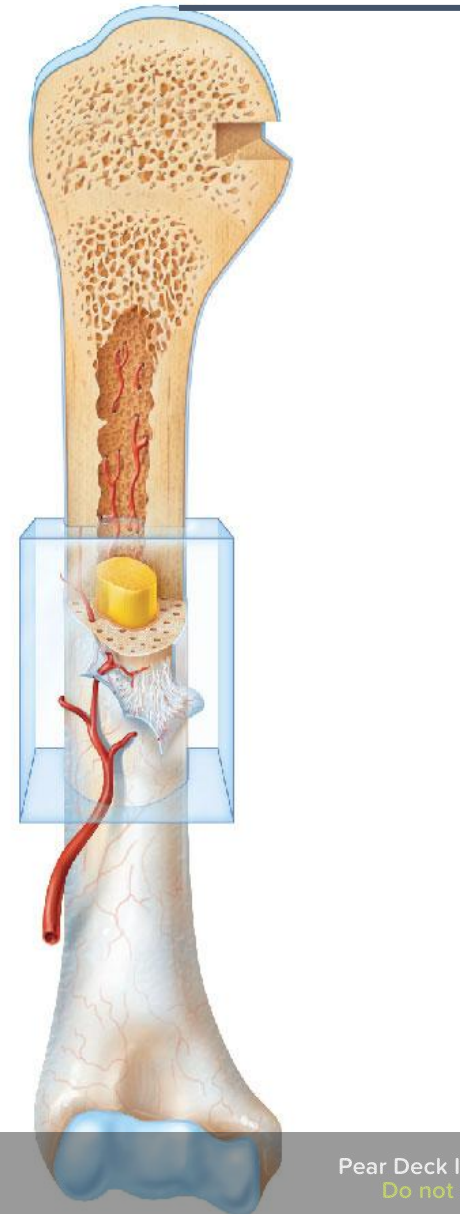
- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

Review: Gross Anatomy of Long Bone

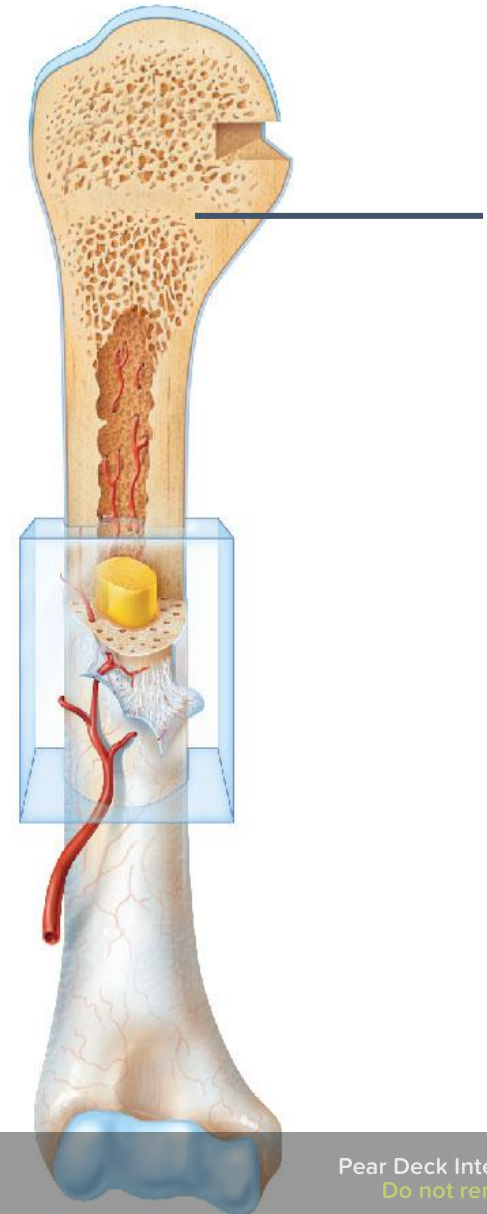
- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

Review: Gross Anatomy of Long Bone

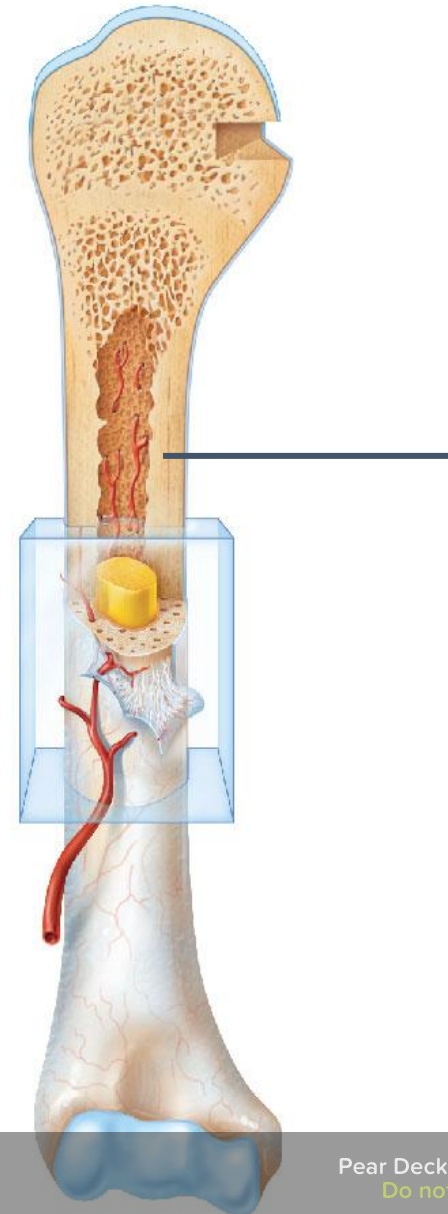
- Identify the structure marked by the leader lines



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Review: Gross Anatomy of Long Bone

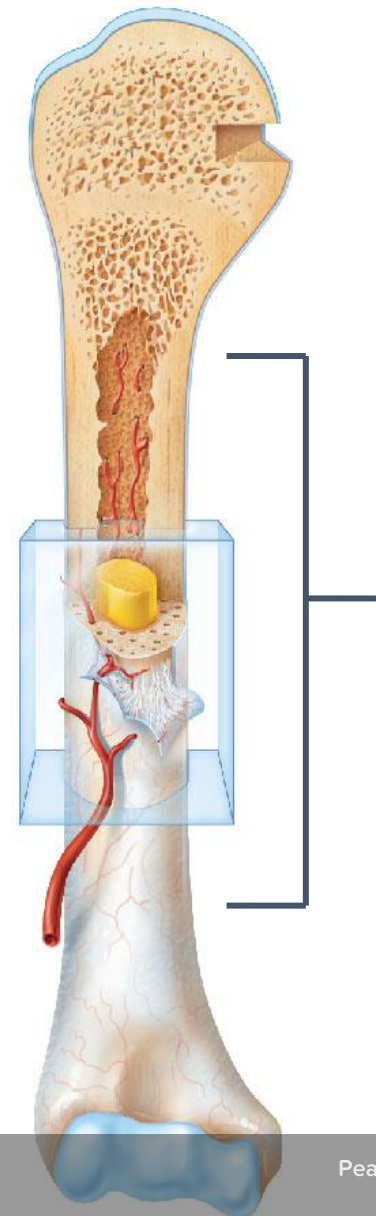
- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

Review: Gross Anatomy of Long Bone

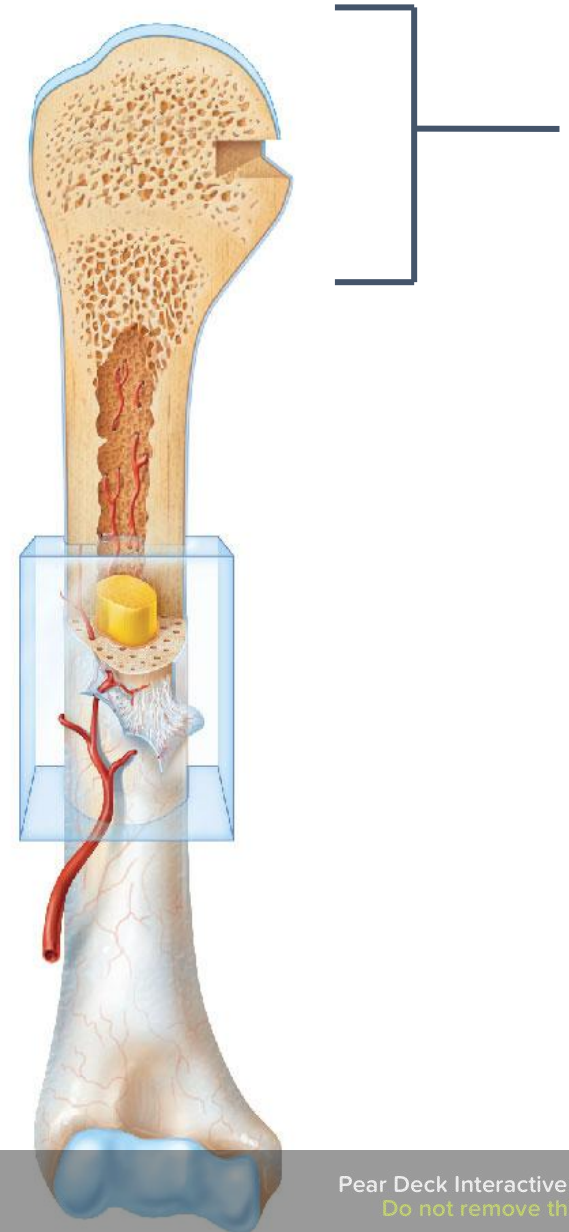
- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

Review: Gross Anatomy of Long Bone

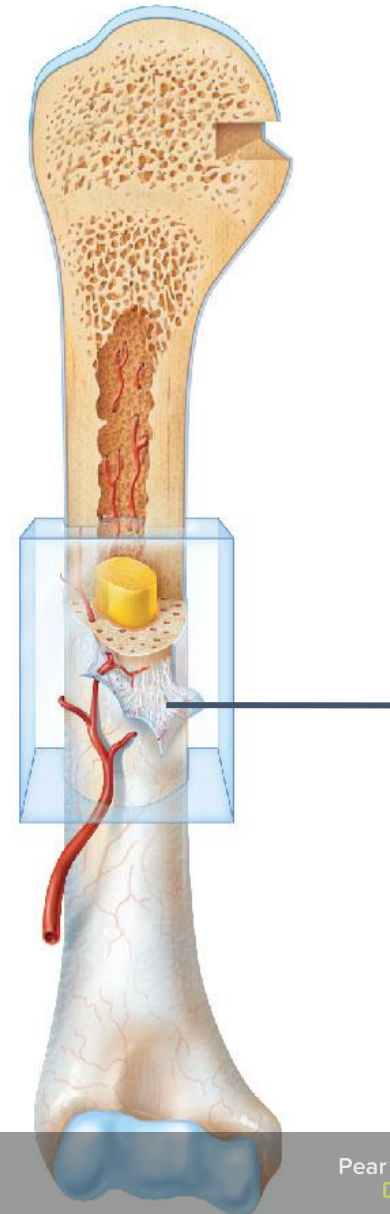
- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

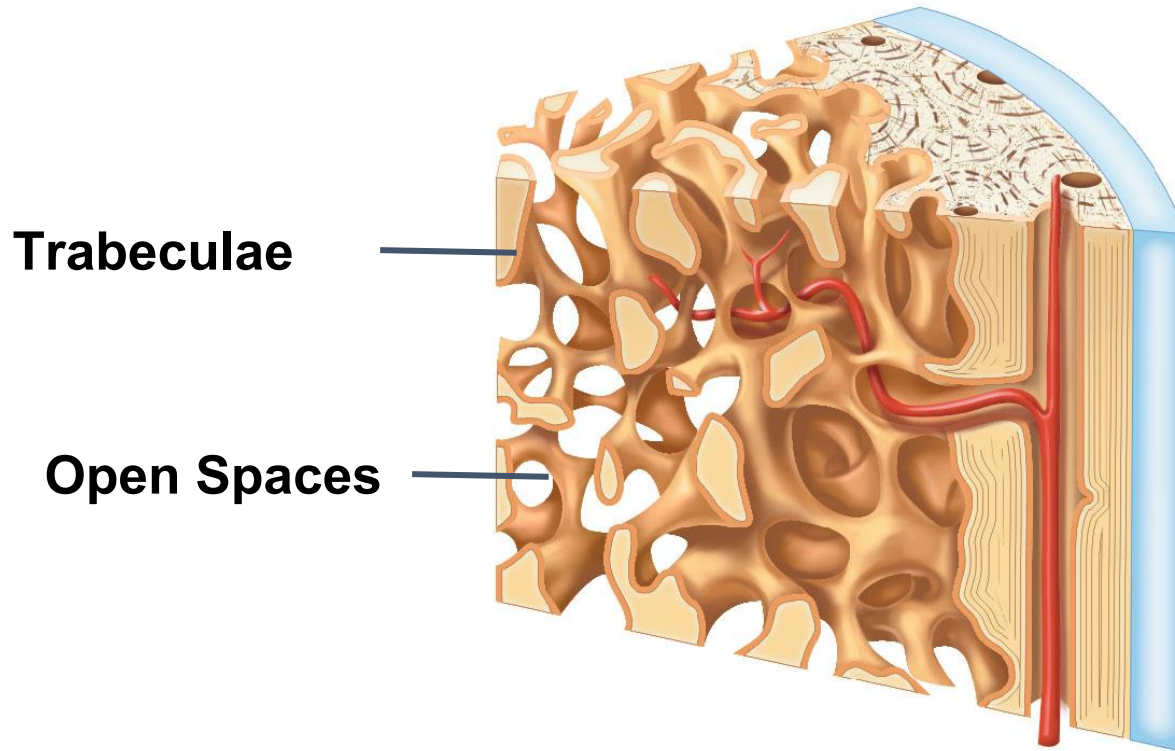
Review: Gross Anatomy of Long Bone

- Identify the structure marked by the leader lines



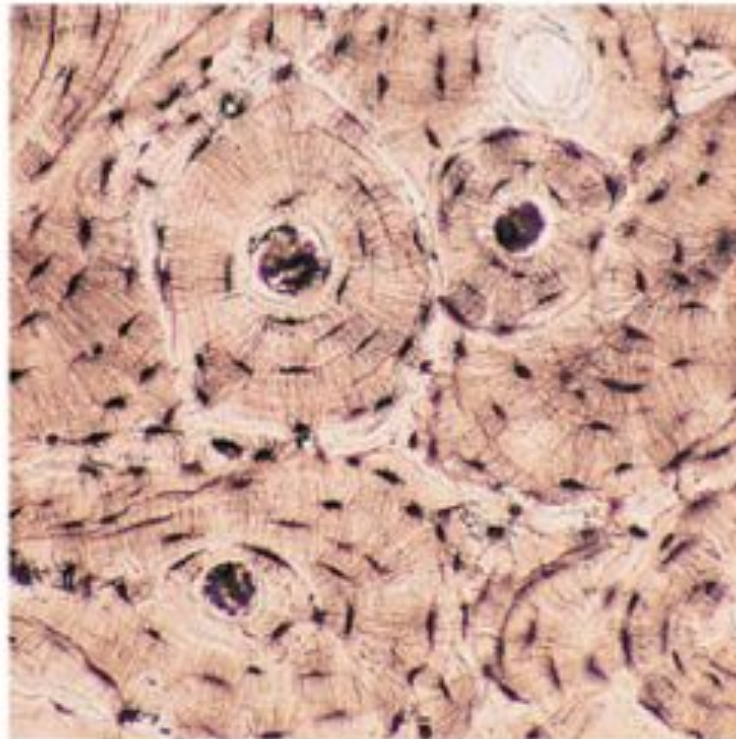
Students, draw anywhere on this slide!

Microscopic Anatomy of Spongy Bone



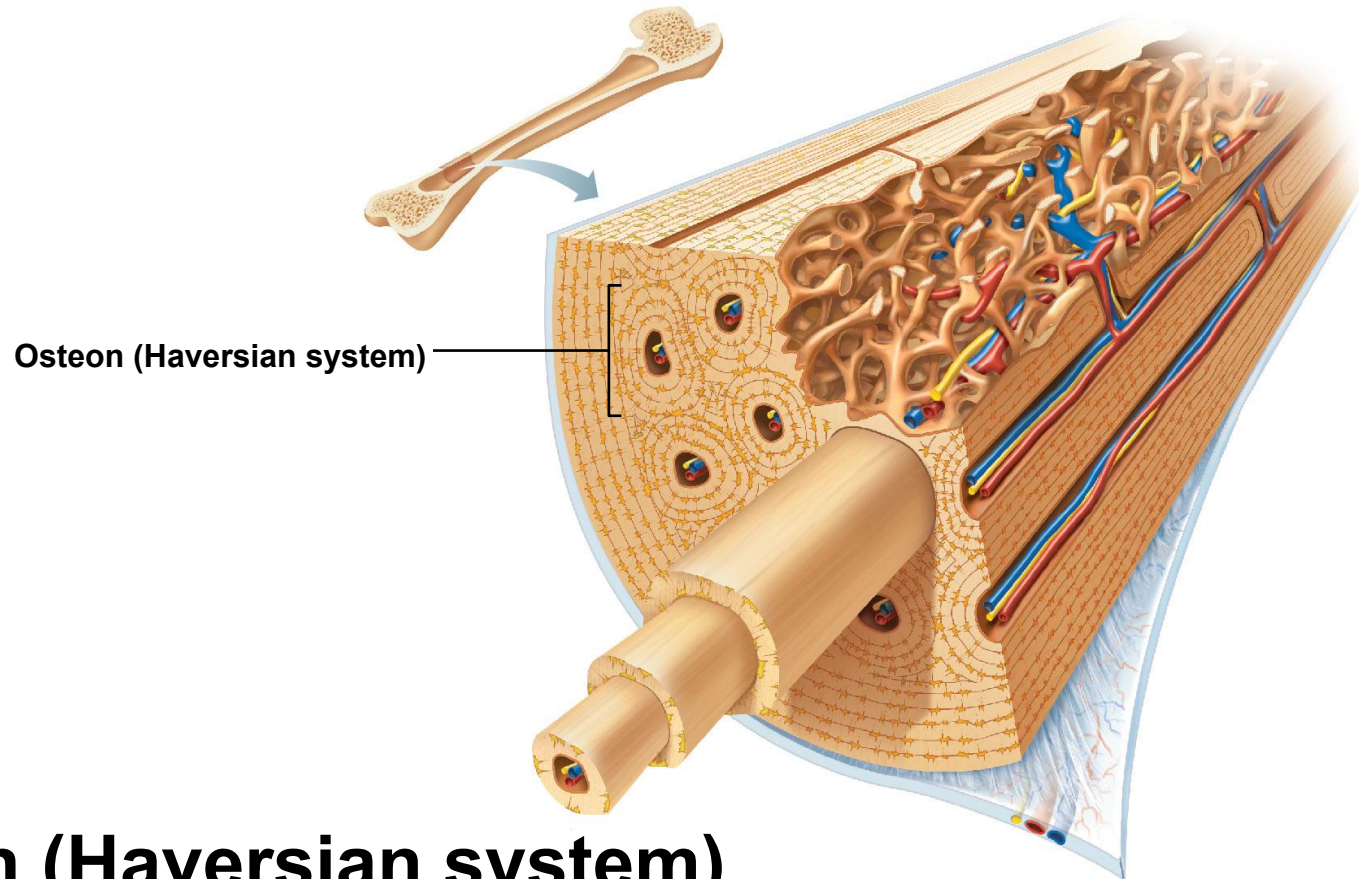
- **Trabeculae**
 - Small, needlelike pieces of bone
- **Open spaces**
 - Filled by marrow, blood vessels, and nerves

Make some observations about the following micrograph of compact bone.



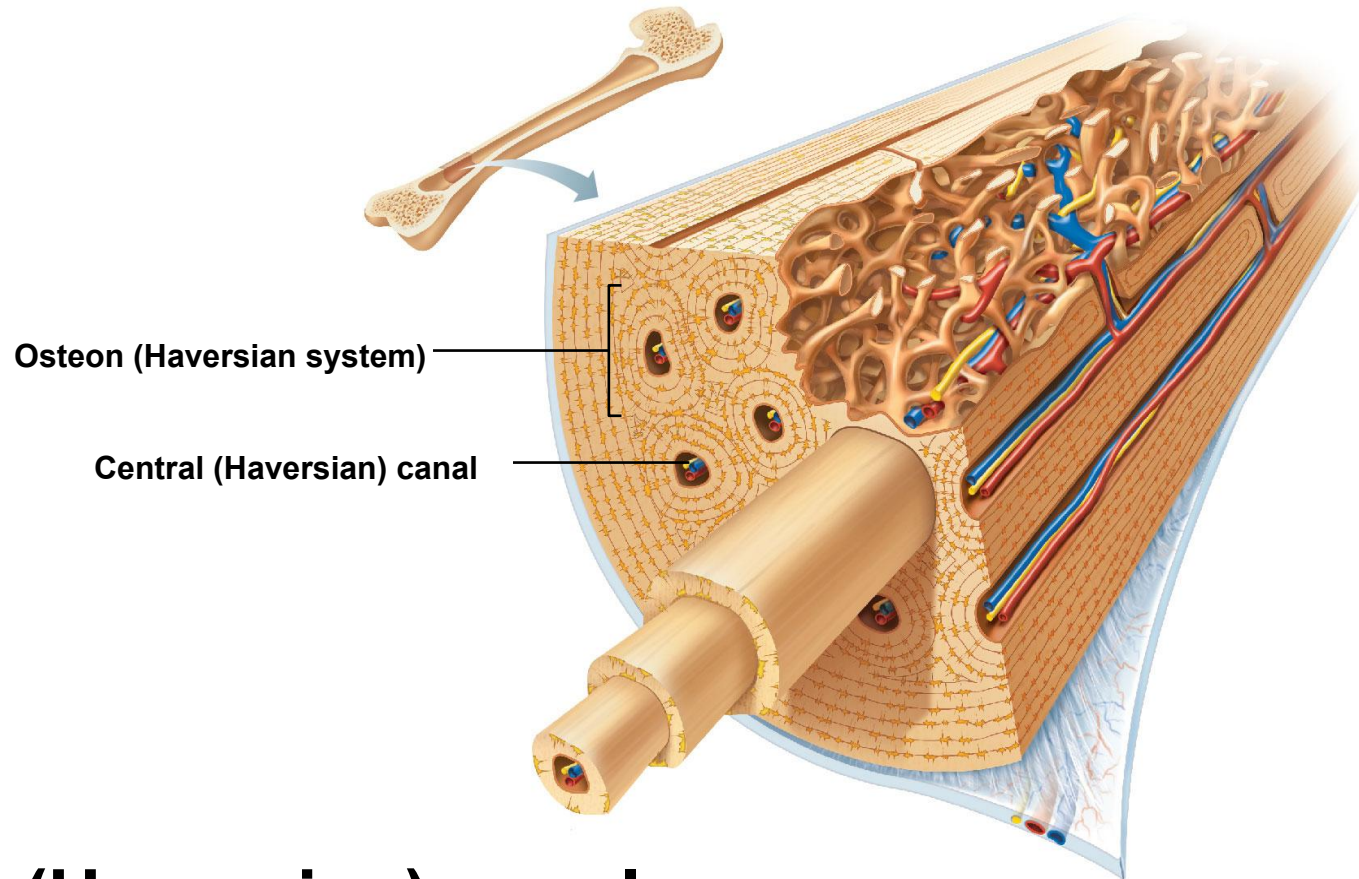
Students, write your response!

Microscopic Anatomy of Compact Bone



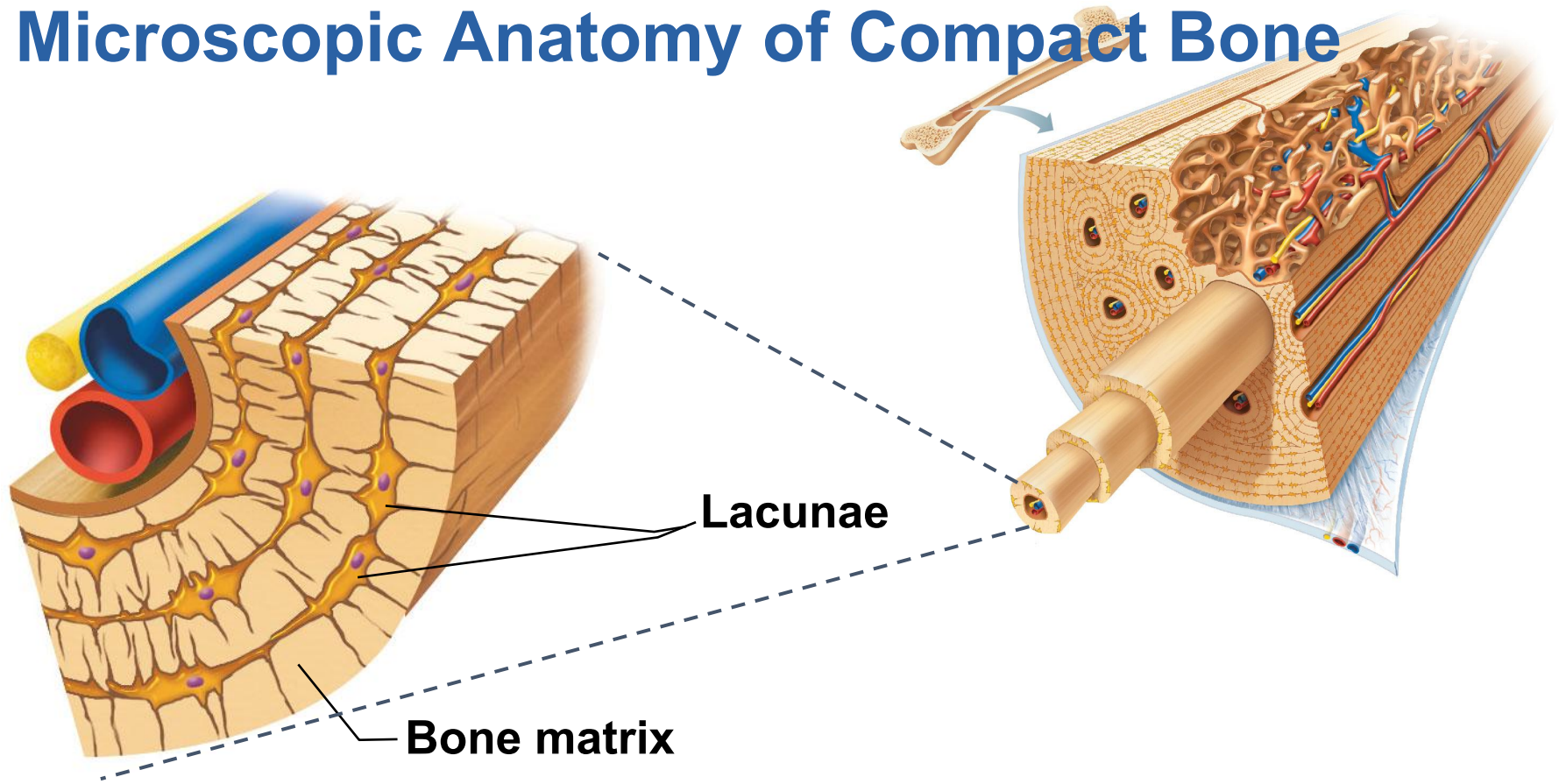
- **Osteon (Haversian system)**
 - **Structural and functional unit of compact bone**
 - **A unit of bone containing central canal and matrix rings**

Microscopic Anatomy of Compact Bone



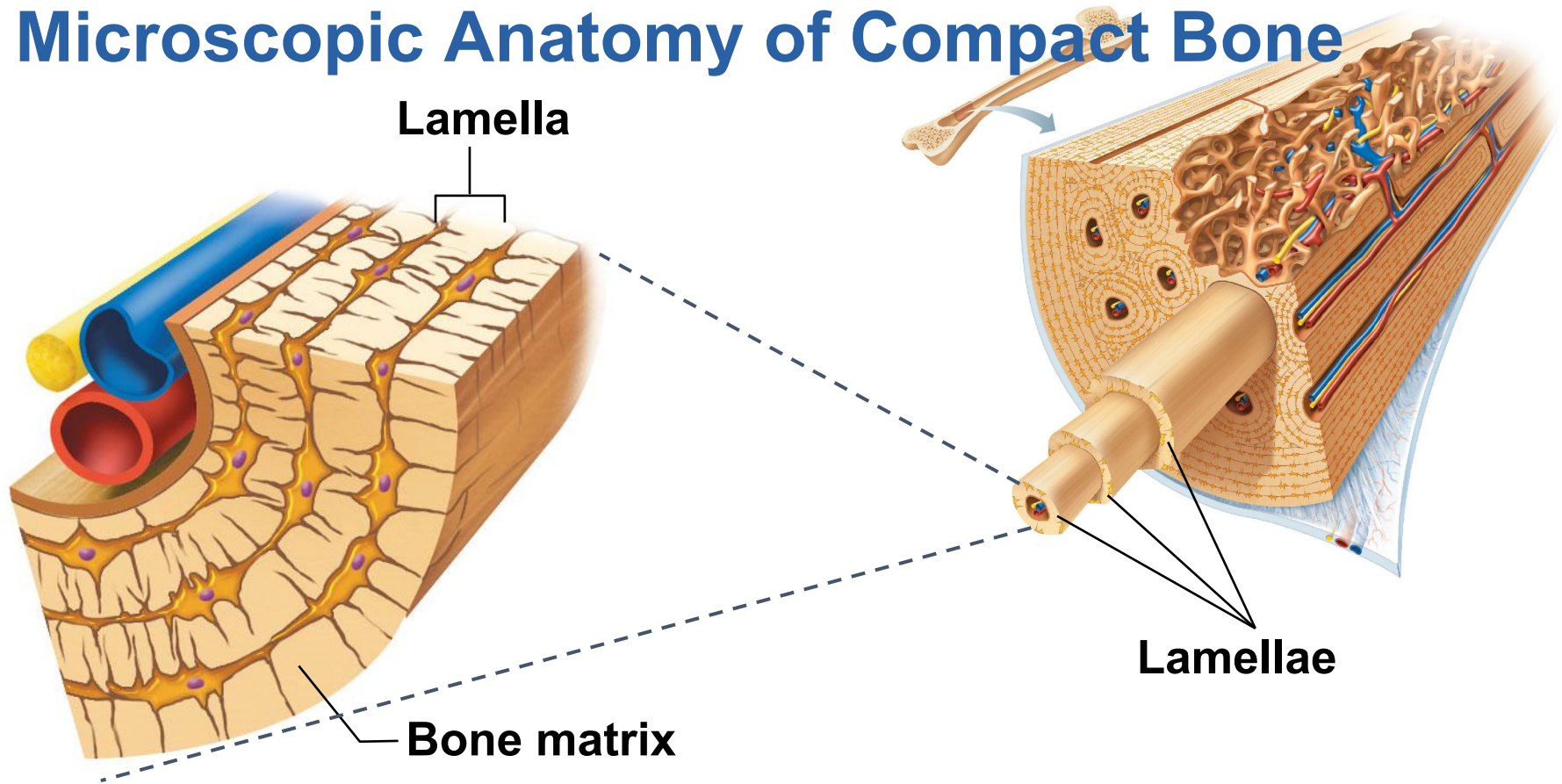
- **Central (Haversian) canal**
 - Opening in the center of an osteon
 - Runs lengthwise through bone
 - Carries blood vessels and nerves

Microscopic Anatomy of Compact Bone



- **Lacunae**
 - Cavities in bone matrix

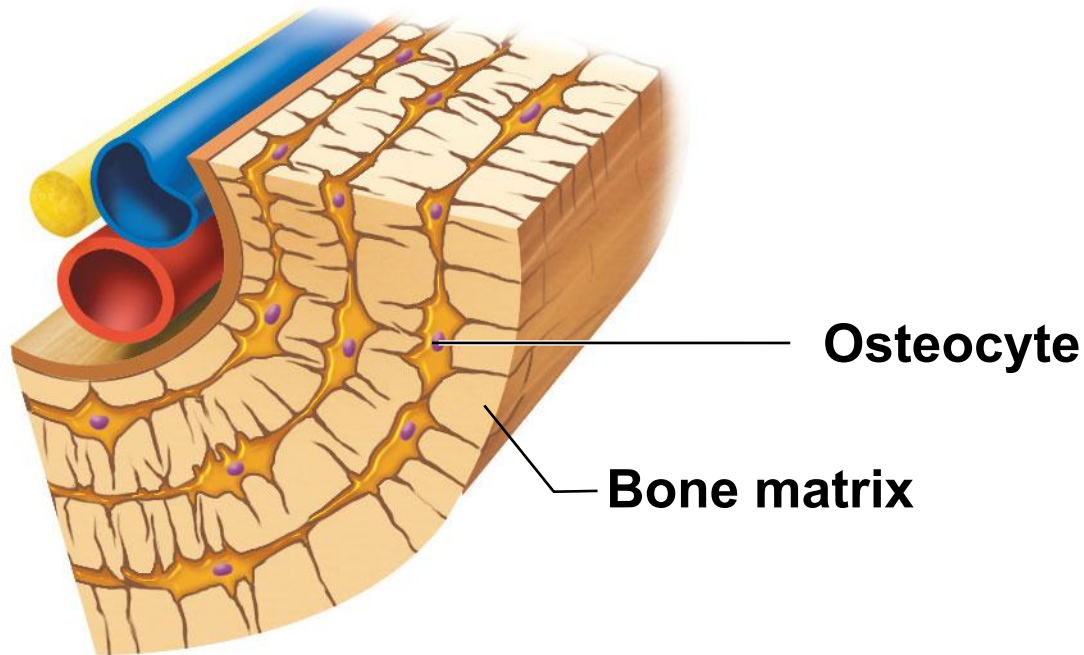
Microscopic Anatomy of Compact Bone



■ Lamellae

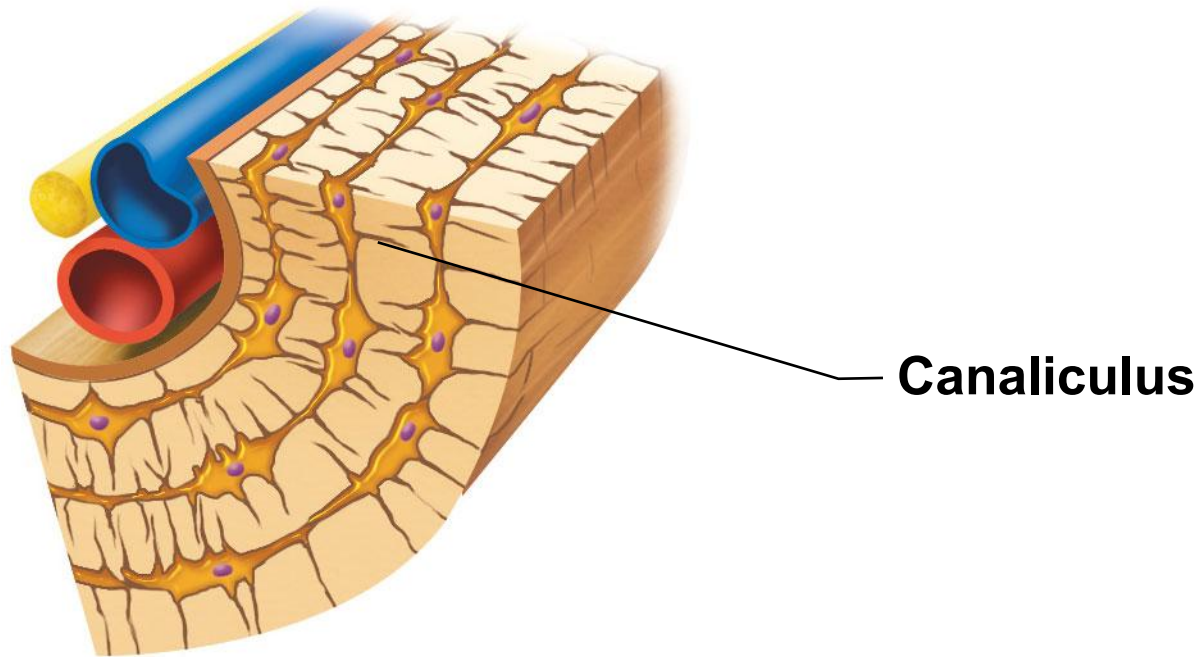
- Concentric circles of lacunae situated around the central (Haversian) canal

Microscopic Anatomy of Compact Bone



- **Osteocytes**
 - Mature bone cells residing in the lacunae

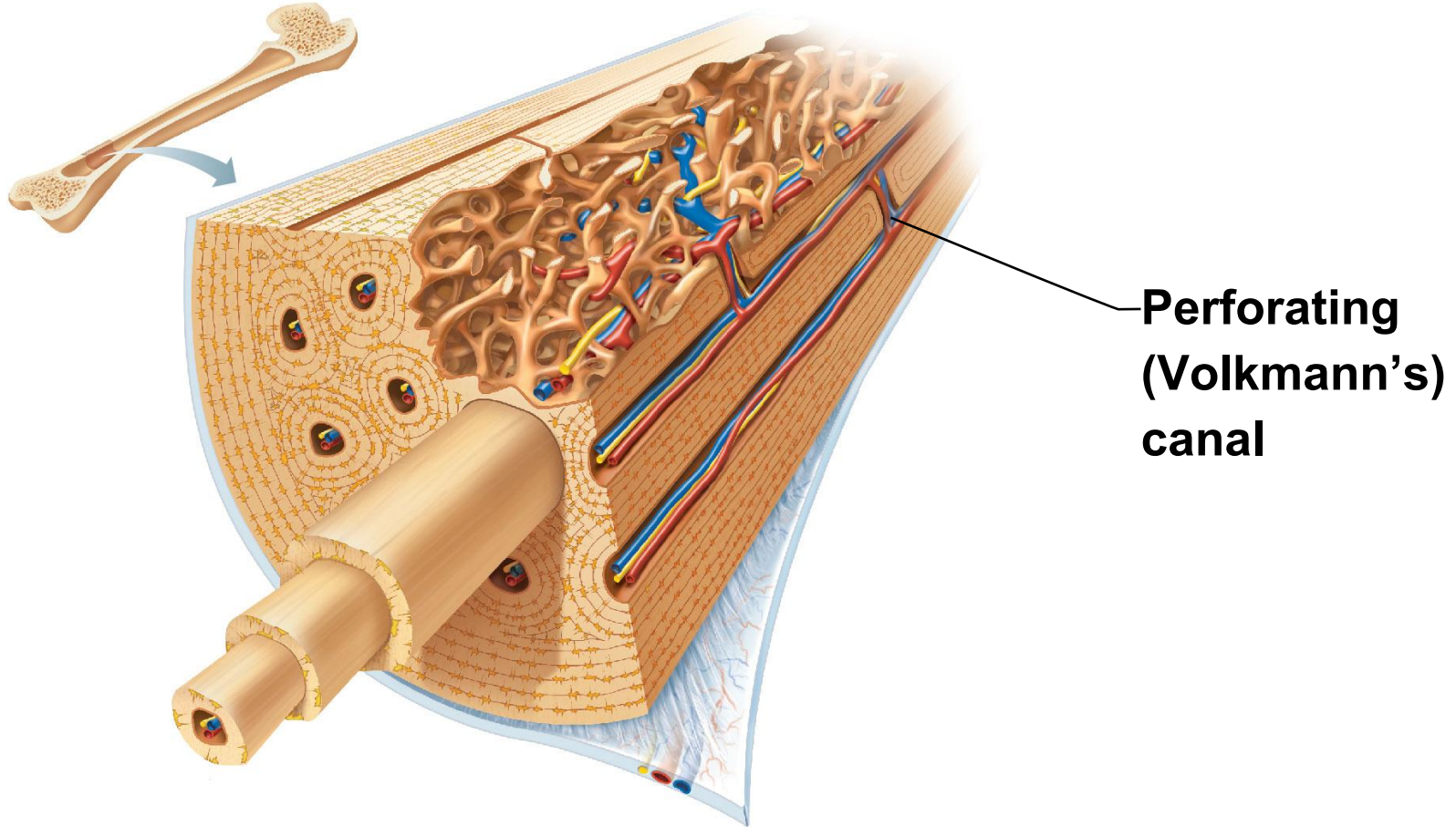
Microscopic Anatomy of Compact Bone



■ Canaliculi

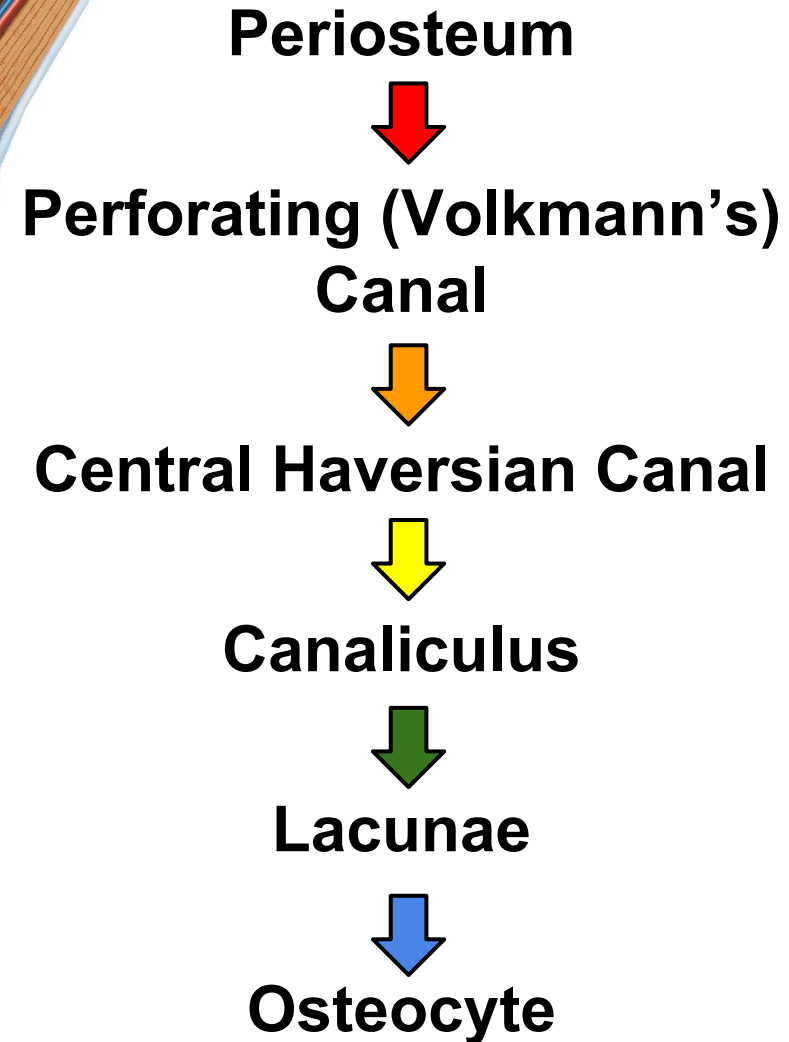
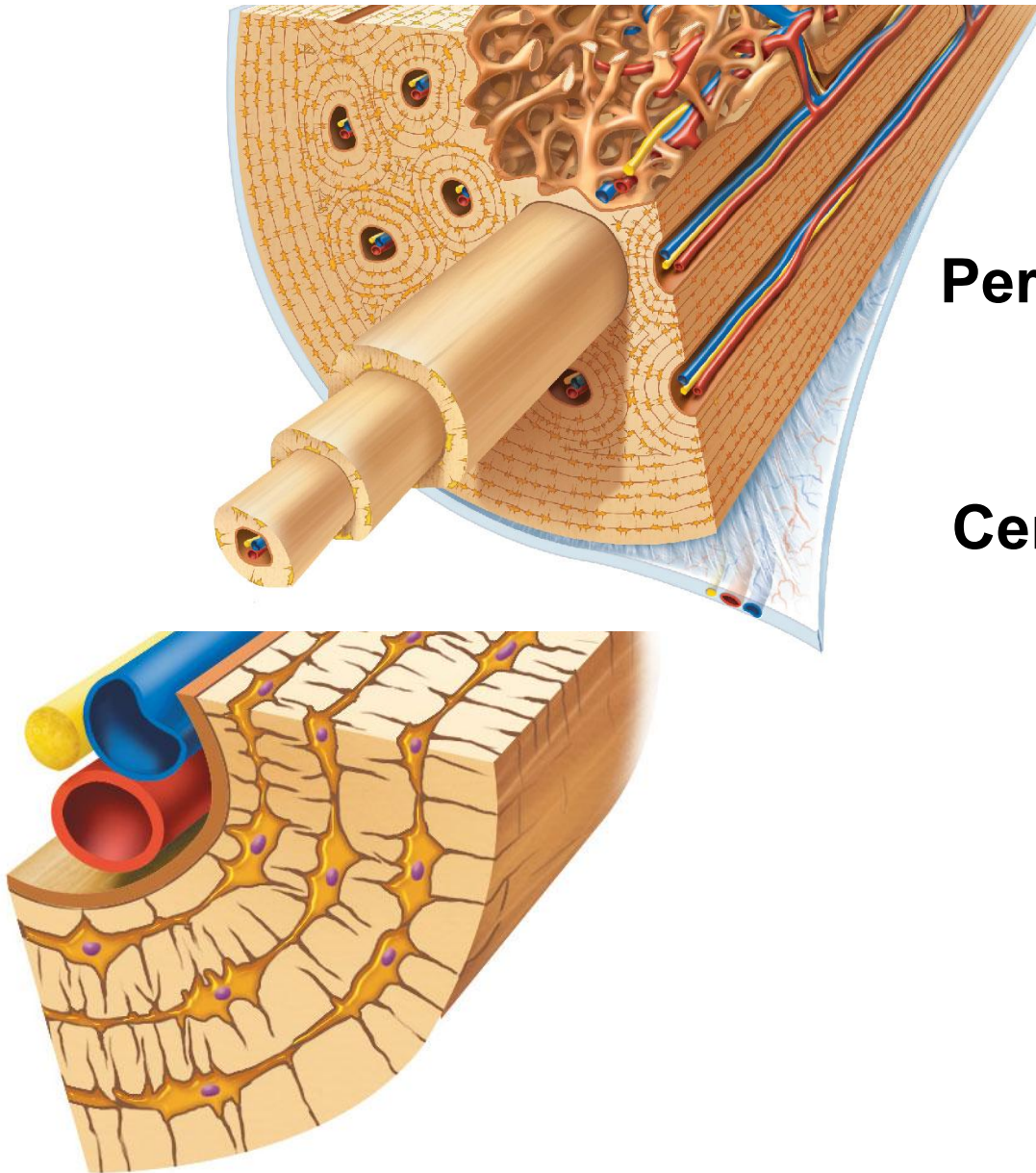
- Tiny canals
- Radiate from the central canal to lacunae
- Form a transport system connecting all bone cells to a nutrient supply

Microscopic Anatomy of Compact Bone



- **Perforating (Volkmann's) canal**
 - Canal perpendicular to the central canal
 - Carries blood vessels and nerves from periosteum to Haversian canals

Route of Nutrients Through Bone

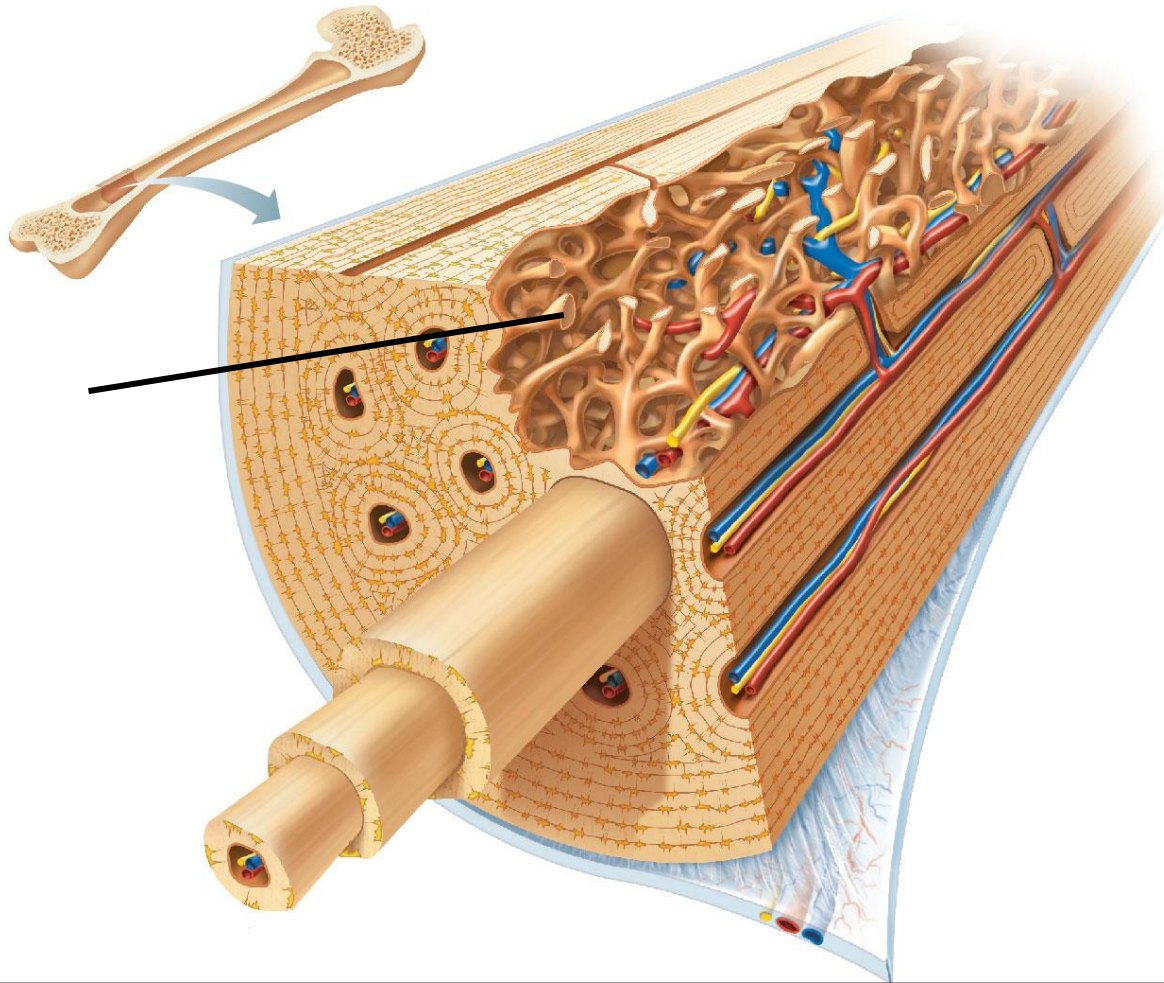


Chemical Composition of Bone

- Bone is relatively **lightweight** and **resists compression and tension**
 - **Inorganic parts (calcium salts)** deposited in the bone make bone **hard** and able to **resist compression**
 - **Organic parts (collagen fibers)** of the bone make bone **flexible** and have **great tensile strength**

Review: Microscopic Anatomy of Bone

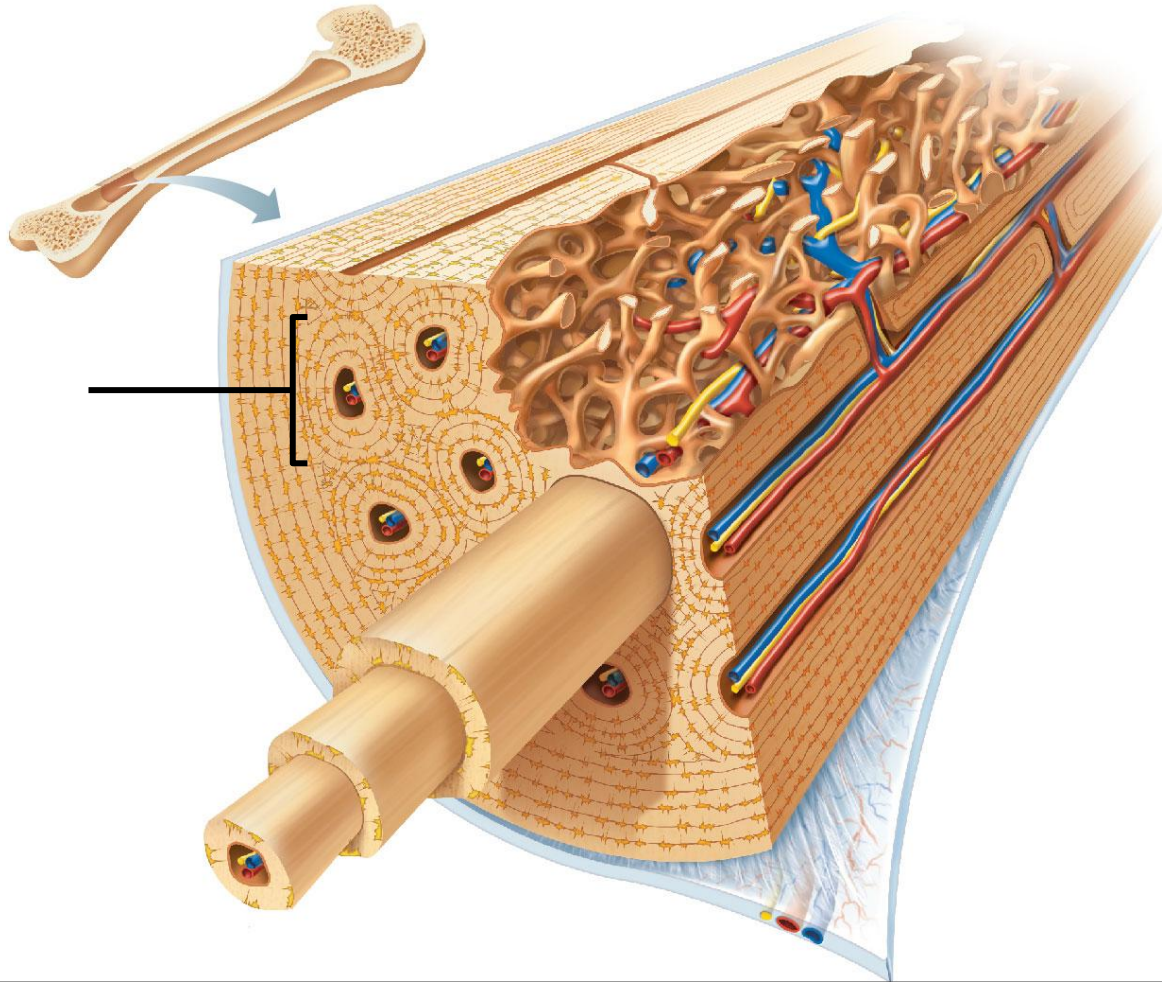
- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

Review: Microscopic Anatomy of Bone

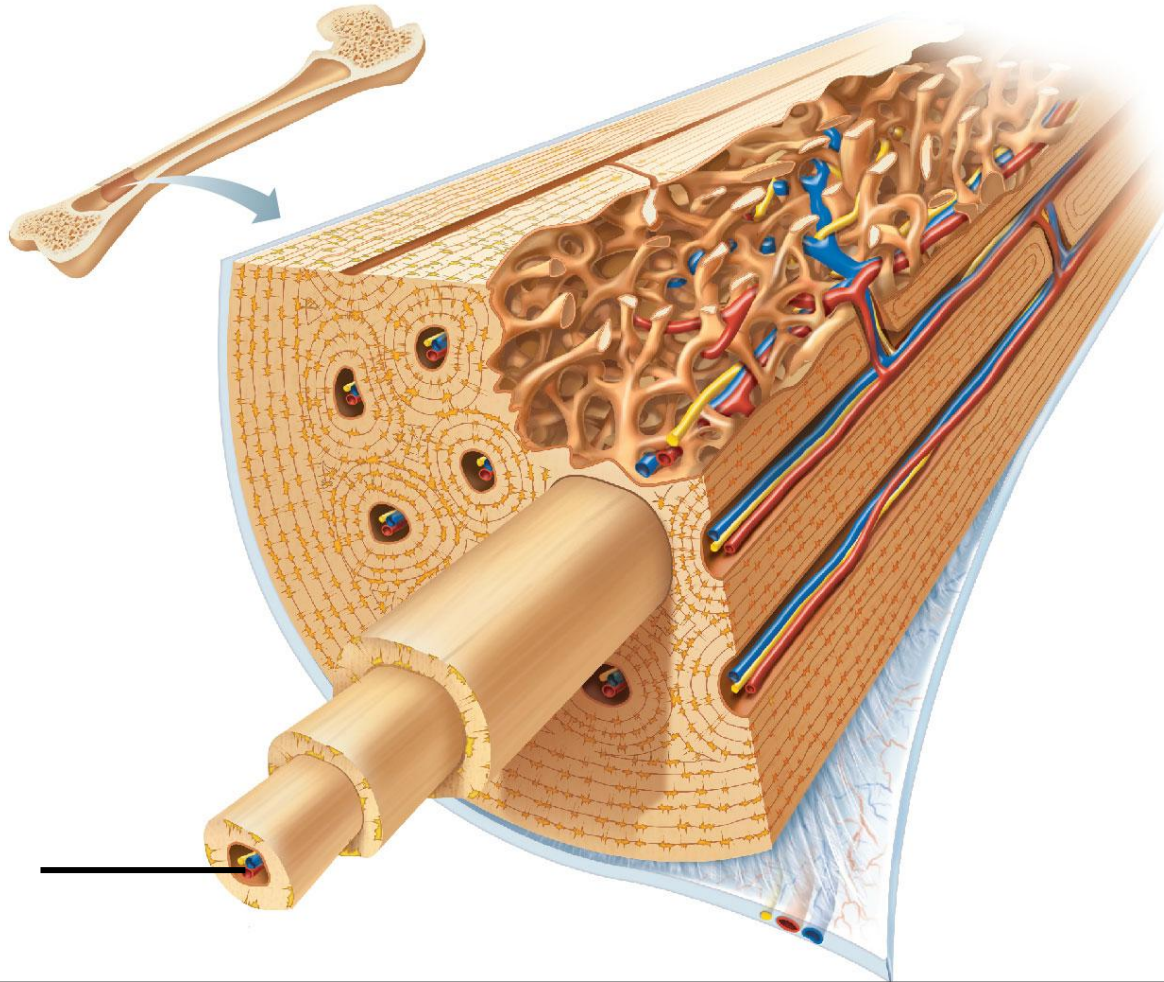
- Identify the structure marked by the leader lines



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Review: Microscopic Anatomy of Bone

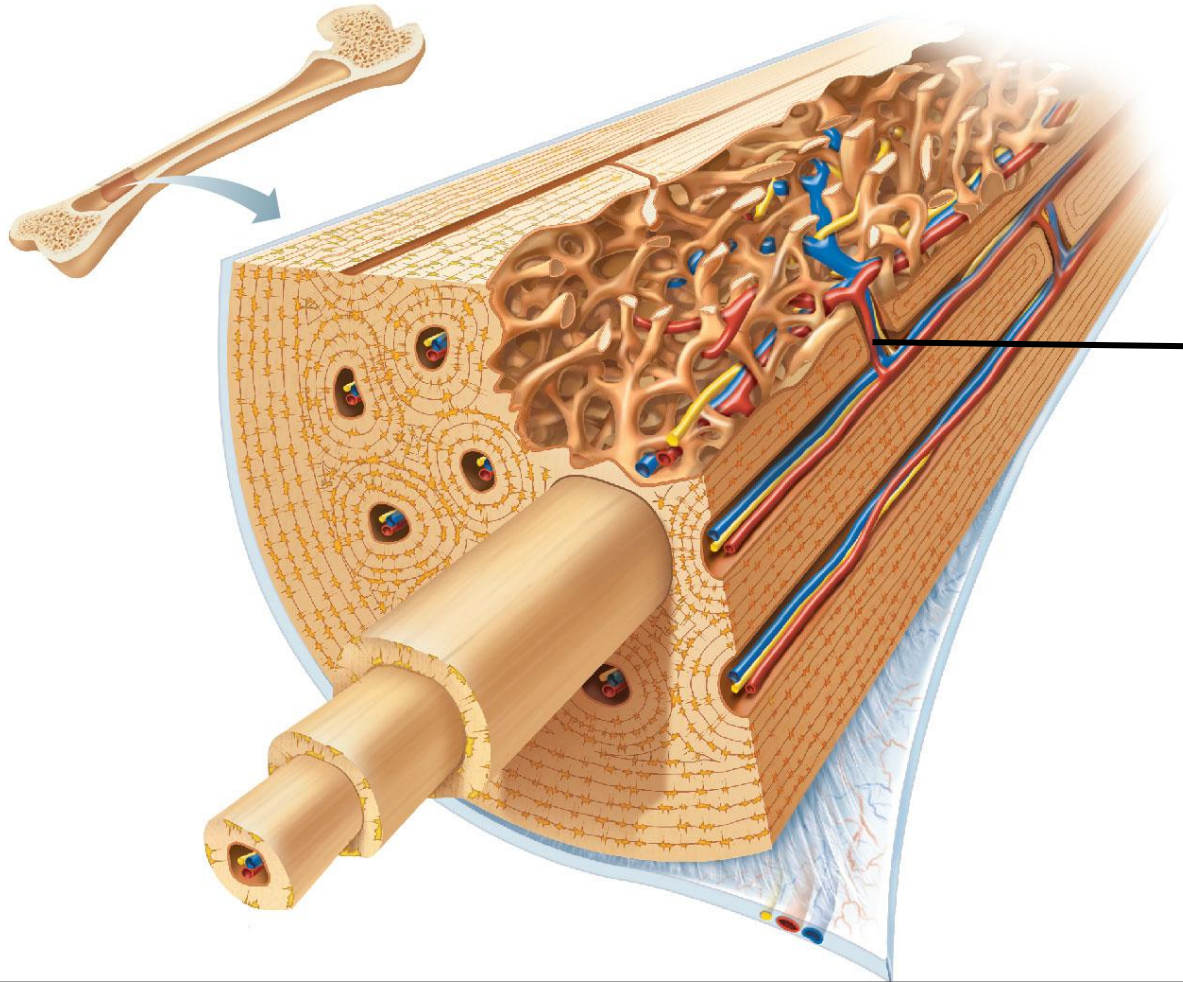
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Review: Microscopic Anatomy of Bone

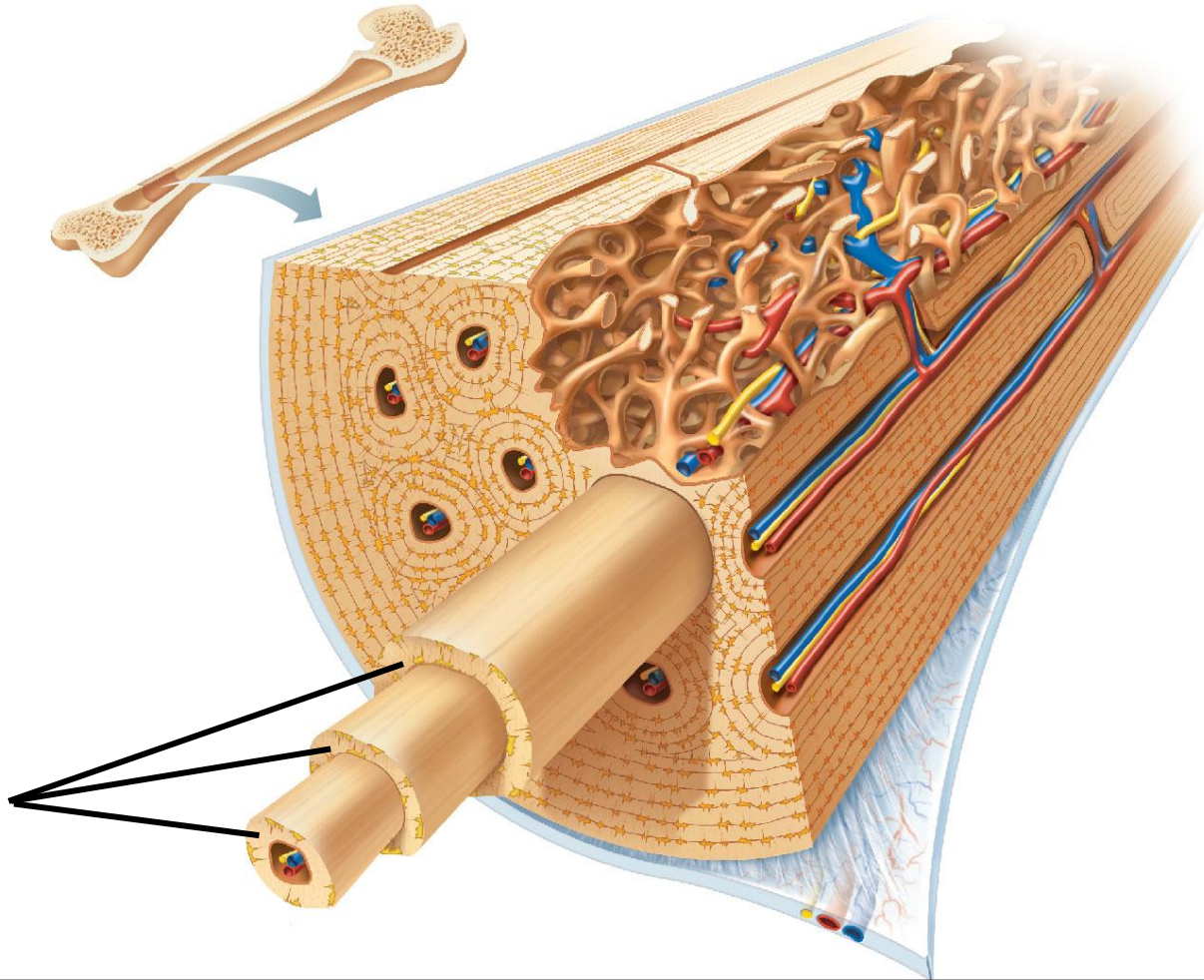
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Review: Microscopic Anatomy of Bone

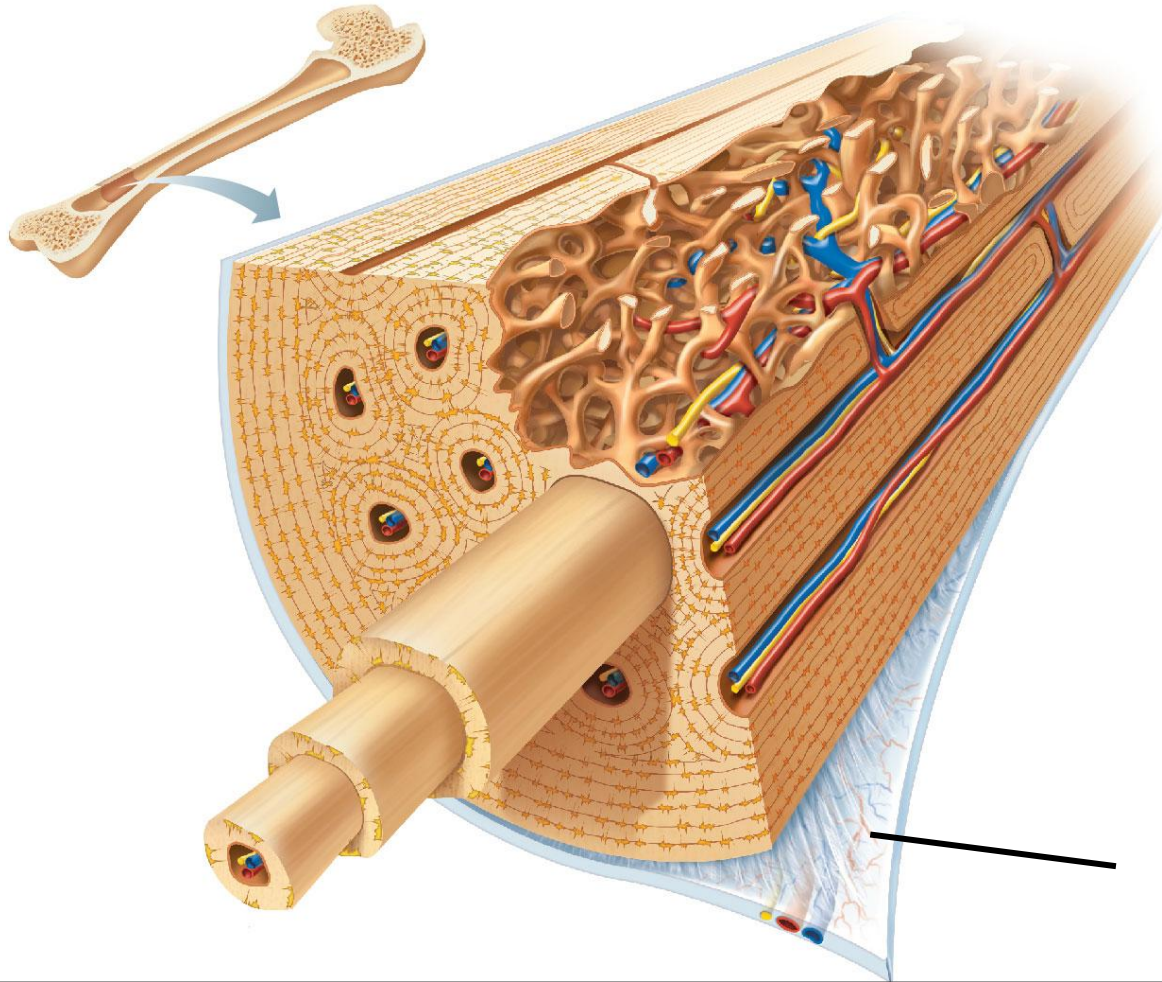
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Review: Microscopic Anatomy of Bone

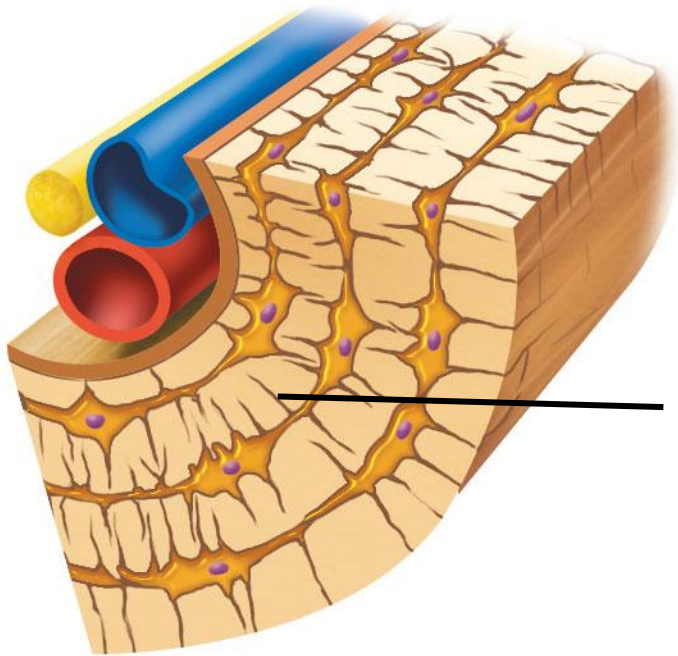
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Review: Microscopic Anatomy of Bone

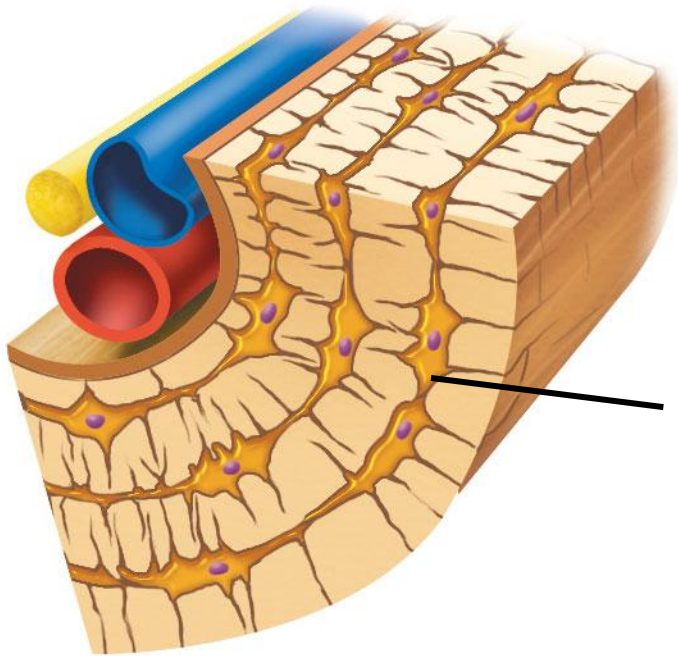
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Review: Microscopic Anatomy of Bone

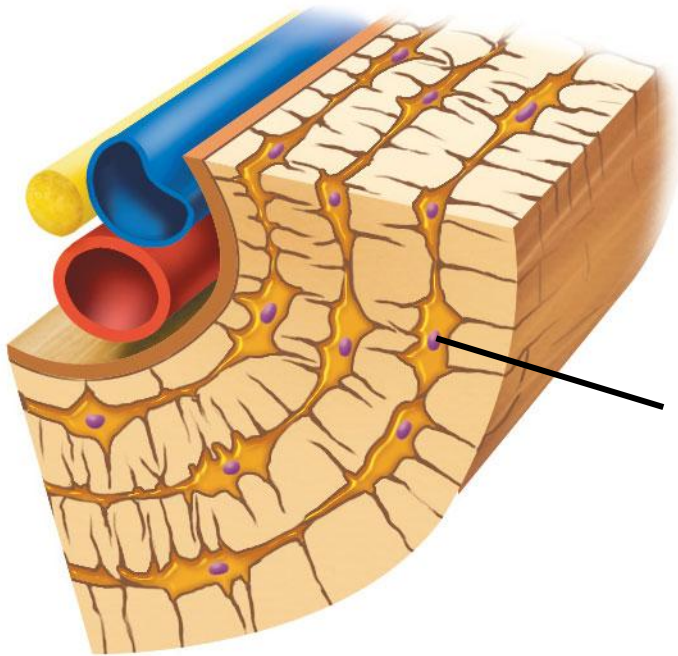
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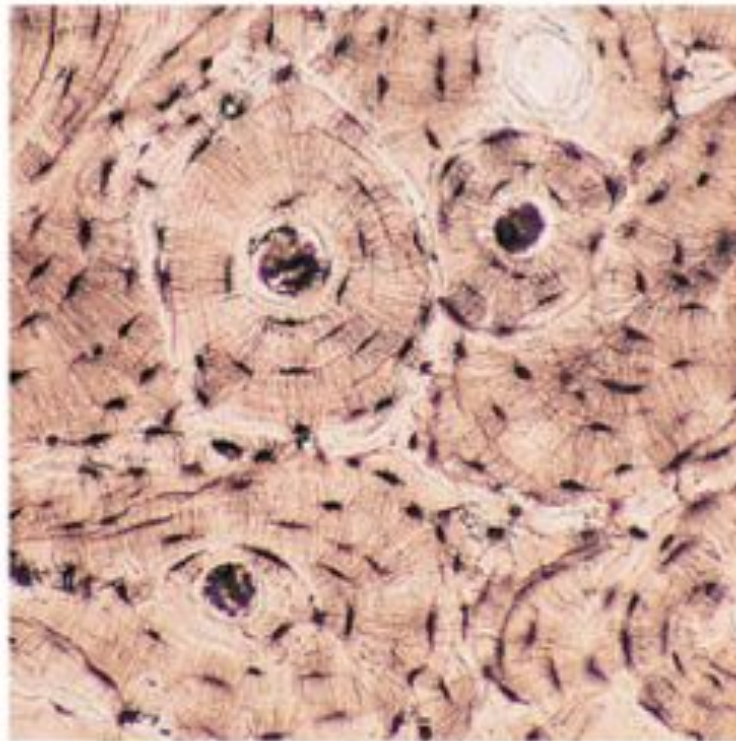
Review: Microscopic Anatomy of Bone

- Identify the structure marked by the leader lines



Students, draw anywhere on this slide!

Identify as many of the structures as possible on the following micrograph of compact bone.



Students, draw anywhere on this slide!