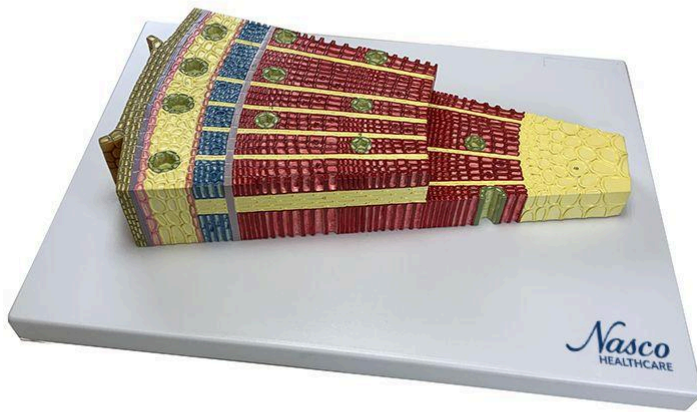




**MG6377 | GYMNOSPERM STEM CROSS
SECTION, 350 TIMES ENLARGED**











This model represents a 350x enlarged section of a three-year-old **Pinus silvestris** stem, showing in detail the basic structures of a gymnosperm stem, including the epidermis and vascular cylinder. The model is mounted on a sturdy resin base and features hand-numbered and painted structures for easy identification.

Applications:

Ideal for the study and teaching of plant anatomy, especially in botany, biology, and related courses. Suitable for classroom demonstrations, laboratories, and museums. Allows for hands-on training in the identification of plant tissues and structures.

Technical Advantages:

- * High-fidelity natural molding;
- * Manufactured from stable synthetic material and resin approved in toxicological tests;
- * Hand-numbered and painted;
- * Includes an information card with the related structures;
- * References and markings to facilitate identification.

3D Technology and Augmented Reality:

Our anatomical models offer a visual complement through information cards that activate 3D models viewable in augmented reality (AR). This interactive platform assists learning, allowing for comparative analysis of anatomical structures and offering resources for education in anatomy, physiology, and pathophysiology.

Technical Specifications:

- * Material: Synthetic resin;
- * Scale: 350x life size;
- * Includes resin base.

Main Structures:

Medullary parenchyma: Fundamental tissue located in the center of the stem, composed of parenchyma cells that act in the storage of substances and in photosynthesis.



Resin ducts: Secretory canals present in the stem of gymnosperms, responsible for the production and transport of resin, a substance with defense functions against pathogens and herbivores.

Transversal parenchyma: Fundamental tissue that forms the medullary parenchyma, contributing to the filling and storage of nutrients.

Transversal parenchyma with resin ducts: Region of the parenchyma where the resin ducts are immersed, demonstrating the integration of these secretory canals in the fundamental tissue.

Fibrotracheids large lumen: Elongated and thickened cells that make up the xylem, with a large lumen indicating a primary function of conducting water and mineral salts.

Bordered pits: Openings in the cell wall of the fibrotracheids, allowing communication between adjacent cells and lateral water transport.

Vascular cambium: Meristematic tissue responsible for the secondary growth in stem thickness, producing xylem inwards and phloem outwards.

Uniseriate medullary rays: Bands of parenchyma cells that extend radially through the xylem, playing a role in nutrient transport and communication between the cortex and the medulla.

Growth ring of III, II, I year: Concentric layers of xylem formed each year, reflecting the secondary growth in stem thickness and allowing the determination of the tree's age.

Albuminous cells: Specialized parenchyma cells found in the phloem of gymnosperms, which store nutrients.

Other structures can be verified directly on the physical piece or on the interactive 3D model.

About Anatomical Models:

They are developed with resin replication technology, meeting the demand for anatomical pieces for teaching and research. They present the main morphological characteristics with a good cost-benefit ratio, resistance, hand painting and numbering for precise identification of structures.

List of all visible structures:

- Medulla parenchyma
- Resin ducts



- Transverse parenchyma
- Transverse parenchyma with resin ducts
- Large-lumened fibrotracheids
- Bordered pits
- Vascular cambium
- Uniseriate medullary rays
- Growth ring of III, II, I year
- Albuminous cells
- Albuminous cells
- Endodermis
- Cortical parenchyma
- Resin ducts
- Phelloderm
- Phellogen
- Cork