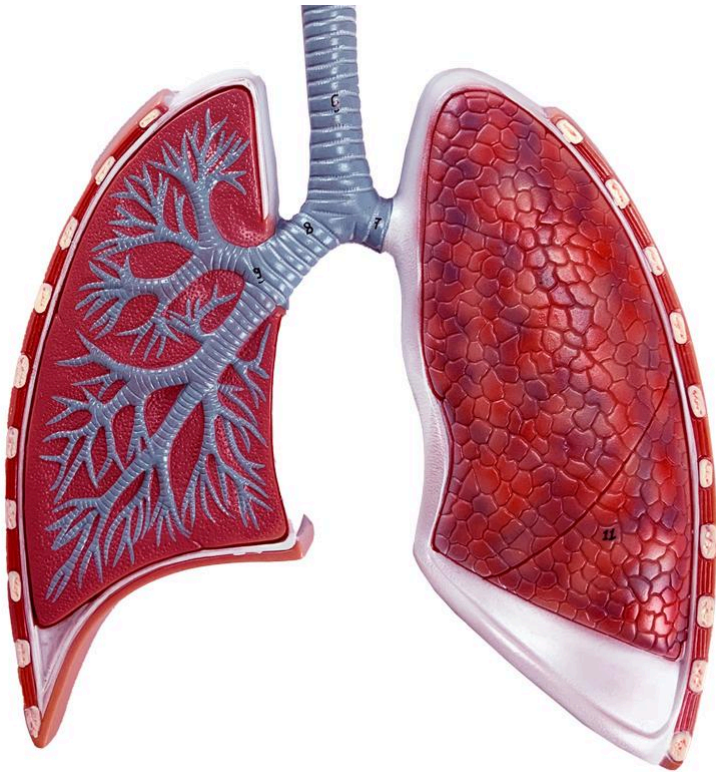
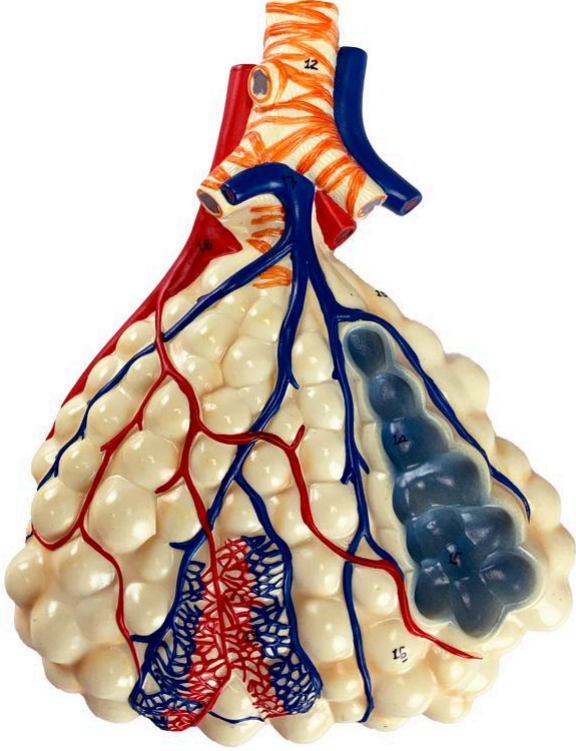
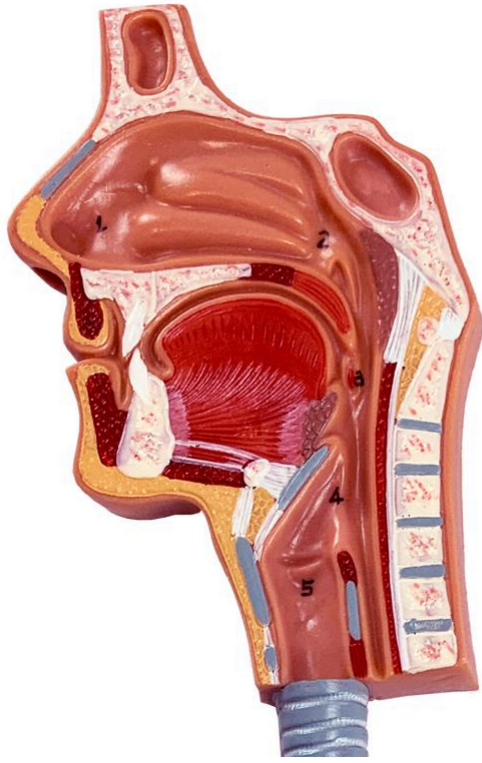


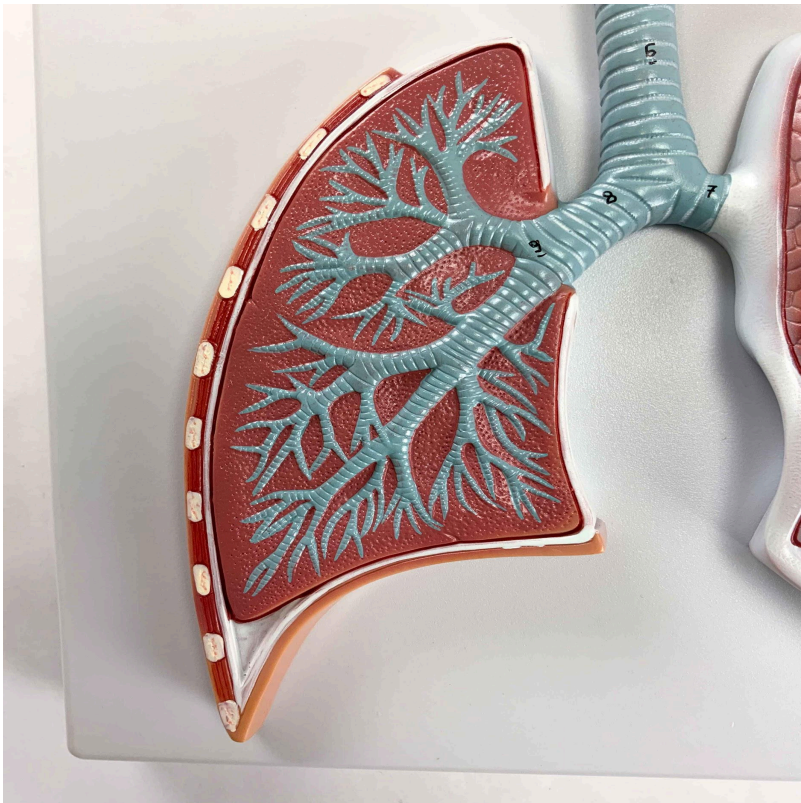
**MG31336 | RESPIRATORY SYSTEM WITH  
ALVEOLI, 150 TIMES ENLARGED**



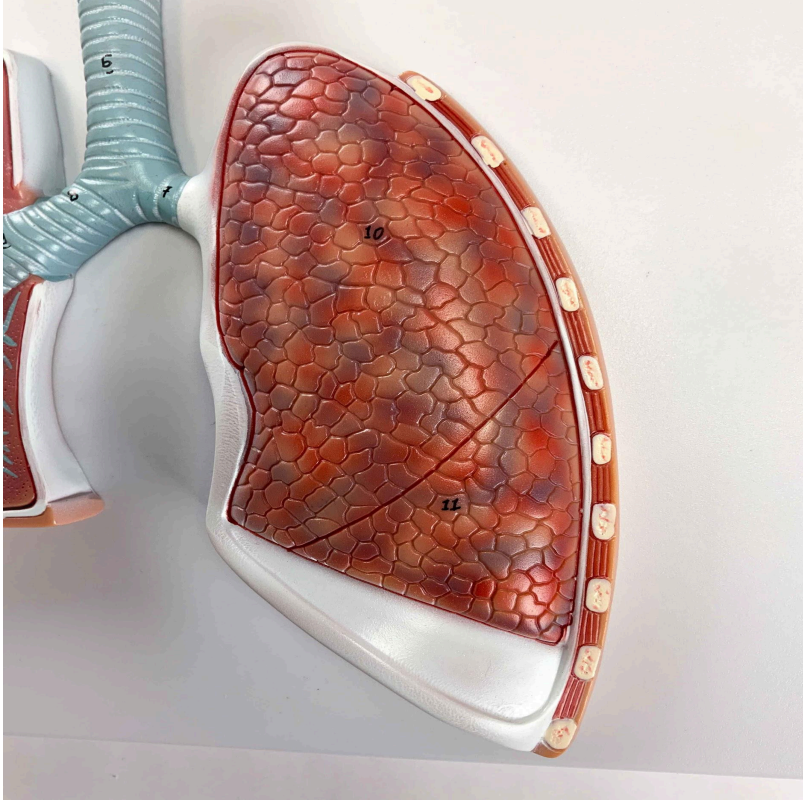
*Nasco*  
HEALTHCARE













This raised relief model of the respiratory system offers a detailed representation of the oro-nasal cavity, larynx, trachea, primary bronchi, and bronchial tree. It features the upper respiratory tract sectioned along the median sagittal plane, highlighting structures such as terminal bronchioles, respiratory bronchioles, and alveolar epithelium, magnified approximately 150 times. The model also highlights a complete lung lobe with its arterial and venous circulation, along with the bronchial branches, and includes a sectional view of the alveolar duct for enhanced and comprehensible anatomical visualization.

#### **Applications:**

Ideal for in-depth study of the anatomy and physiology of the respiratory system in educational, clinical, and training environments. Perfect for detailed demonstrations, encouraging interactive learning, and continuing education for students and healthcare professionals.

#### **Technical Differentiators:**

- \* Detailed, raised relief representation of the complete respiratory system.
- \* Approximately 150x magnification of microscopic structures, such as bronchioles and alveolar epithelium, for in-depth study.
- \* Upper respiratory tract sectioned in the median sagittal plane, allowing internal visualization.
- \* Highlight on the lung lobe with arterial and venous circulation and bronchial branches.
- \* Inclusion of a sectional view of the alveolar duct for enhanced anatomical visualization.

#### **3D Technology and Augmented Reality:**

Our anatomical models offer an innovative visual complement through informative cards that activate 3D models viewable in augmented reality (A.R.). This exclusive interactive platform stimulates learning, allowing for comparative analysis of anatomical structures and offering opportunities for continuing education in anatomy, physiology, and pathophysiology.

#### **Technical Specifications:**

- \* Scale: Approximately 150x magnification (for the microscopic section).

#### **Main Structures:**

**Nasal cavity:** The nasal cavity is the first segment of the upper respiratory tract, responsible for filtering, warming, and humidifying inhaled air, as well as containing the olfactory receptors.

**Nasopharynx:** The nasopharynx is the superior portion of the pharynx, located posteriorly to the nasal cavity and superior to the soft palate. It acts as an exclusively respiratory pathway, connecting the nasal cavity to the oropharynx and housing the pharyngeal tonsils (adenoids).



**Oropharynx:** The oropharynx is the middle portion of the pharynx, extending from the soft palate to the epiglottis. It serves as a common pathway for air and food, facilitating both breathing and swallowing.

**Laryngopharynx:** The laryngopharynx, or hypopharynx, is the inferior portion of the pharynx, extending from the epiglottis to the entrance of the esophagus. It is also a common pathway for air and food, playing a crucial role in protecting the airways during swallowing.

**Laryngeal cavity:** The laryngeal cavity is the internal space of the larynx, a cartilaginous structure that connects the pharynx to the trachea. It is essential for phonation (voice production) and for protecting the lower airways from food aspiration.

**Trachea:** The trachea is a cartilaginous and membranous tube that extends from the larynx to the main bronchi, serving as the main conduction pathway for air to the lungs. Its walls are reinforced by C-shaped cartilaginous rings, which keep the airway open.

**Right main bronchus:** The right main bronchus is one of the two large divisions of the trachea, which branches into the right lung. It is shorter, wider, and more vertical than the left, making it more prone to foreign body aspiration.

**Lobar bronchus:** The lobar bronchi are the subsequent branches of the main bronchi, which specifically target each lung lobe. In the right lung, there are three lobar bronchi (superior, middle, and inferior); in the left, two (superior and inferior).

**Left main bronchus:** The left main bronchus is the other large division of the trachea, which branches into the left lung. It is longer, narrower, and more horizontal than the right.

**Superior lobe:** The superior lobe is the upper portion of each lung. The right lung has three lobes (superior, middle, and inferior), while the left has only two (superior and inferior), due to the space occupied by the heart.

**Inferior lobe:** The inferior lobe is the basal portion of each lung, housing most of the functional lung tissue. It is responsible for much of the gas exchange due to its vast surface area.

**Terminal bronchiole:** Terminal bronchioles are the smallest conducting airways of the bronchial tree, marking the end of the conducting portion and the beginning of the respiratory portion of the respiratory system. They do not have cartilage in their walls.

**Respiratory bronchioles:** Respiratory bronchioles are the first portions of the bronchial tree that allow gas exchange, as their walls contain some alveoli. They branch from the terminal bronchioles and lead to the alveolar ducts.



**Alveolar duct:** Alveolar ducts are small passages that branch from the respiratory bronchioles and lead directly to the alveolar sacs and alveoli. Their walls are lined with alveoli, allowing gas exchange.

**Alveolar sacs:** Alveolar sacs are clusters of alveoli that resemble bunches of grapes, located at the end of the alveolar ducts. They are the main structures where gas exchange occurs between air and blood.

**Pulmonary alveoli:** Pulmonary alveoli are small, sphere-shaped air sacs with extremely thin walls rich in blood vessels. They are the primary site of oxygen and carbon dioxide exchange between inhaled air and blood.

**Capillary plexuses:** Capillary plexuses are dense networks of microscopic blood vessels that surround the pulmonary alveoli. They facilitate rapid and efficient gas exchange, transporting oxygen to the blood and carbon dioxide to the alveoli.

**Pulmonary artery:** The pulmonary artery is a large blood vessel that carries deoxygenated blood from the right ventricle of the heart to the lungs, where it will be oxygenated in the alveoli.

**Customizable Skin Tones:**

This anatomical model offers the option to choose between three skin tones to better represent human diversity and meet different educational and clinical needs. You can choose between light skin, intermediate tone, and dark skin, providing greater realism and inclusion during training and demonstrations.

**Smart Tags:**

Designed to provide comprehensive training in the healthcare field, with interactive simulations covering Lung exams. This solution assists in the development of diagnostic skills in different clinical scenarios, allowing professionals and students to explore and enhance their skills with greater safety and accuracy.

**Lung sound recognition:** Recognize 15 lung sounds and breathing pattern analysis.

- Agonal Breathing
- Asthma Wheezing
- Bronchial
- Bronchovesicular
- Crackles - Coarse
- Crackles - Fine
- Crackles - Pulmonary Edema
- Crackles - Bronchiectasis
- Death Rattle



- Inspiratory Stridor
- Pleural Rubs
- Rhonchi - Low-Pitched Wheezes
- Vesicular - Normal
- Wheeze
- Wheeze-COPD

**Virtual Patient Monitor:** Provides an immersive and realistic training environment for healthcare students. It allows instructors to customize parameters for various vital signs, empowering students to interpret signals, develop critical thinking, and enhance their clinical reasoning skills through realistic scenarios.

#### **Customizable Vital Signs**

- Blood Pressure
- SpO2
- Heart Rate

**ECG Interpretation:** Train on 18 diverse ECG scenarios, including: Atrial Fibrillation, Ventricular Tachycardia and Heart Blocks. The monitor also simulates synchronized pulses with ECG for truly realistic cardiology training.

#### **ECG Patterns**

- Sinus Rhythm
- Atrial Extrasystole
- Atrial Flutter
- Atrial Fibrillation
- Paroxysmal Supraventricular Tachycardia (PSVT)
- Ventricular Extrasystole
- Ventricular Tachycardia (VT)
- Ventricular Fibrillation (VF)
- First-Degree Atrioventricular Block (AVB)
- Second-Degree Atrioventricular Block
- Third-Degree Atrioventricular Block (Complete Block)
- Long QT Syndrome
- ST Segment Elevation
- ST Segment Depression
- T Wave Inversion
- Left Ventricular Hypertrophy (LVH)
- Right Ventricular Hypertrophy (RVH)
- Wolff-Parkinson-White Syndrome (WPW)

#### **Breathing Patterns**

- Normal
- Dyspnea



- Apnea
- Cheyne-Stokes
- Biot
- Kussmaul

**About Anatomical Models:**

They are developed with resin replication technology, addressing the scarcity of natural anatomical parts for teaching and research. They present all the essential morphological characteristics with excellent cost-benefit, resistance, manual painting, and numbering for precise identification of structures.

**List of all visible structures:**

- Nasal cavity
- Nasopharynx
- Oropharynx
- Laryngopharynx
- Laryngeal cavity
- Trachea
- Right main bronchus
- Lobar bronchus
- Left main bronchus
- Superior lobe
- Inferior lobe
- Terminal bronchiole
- Respiratory bronchioles
- Alveolar duct
- Alveolar sacs
- Pulmonary alveoli
- Capillary plexuses
- Pulmonary artery