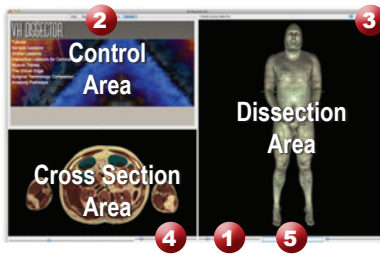


Introduction to the Respiratory System



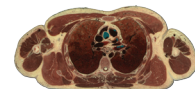
Learning Objective

After completing this exercise, you will be able to name the major organs of the respiratory system and the major components of the airway.

Use the reference on the left to locate controls and areas referred to in the text below.

1 Start by setting the cross section through the area we want to explore:

- Drag the reference plane in the dissection area by its green border to the upper chest (*the cross sections are numbered in the lower left corner; you should be at 1400*)
- Explore the anatomy of the thorax by moving your mouse over the cross section (*structures are identified in the upper left corner of the cross section area*)



2 Visualize the Respiratory System:

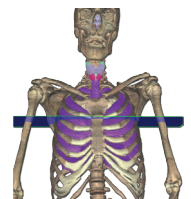
- Click the “Clear” button to clear the dissection area
- Select the “Systems” tab **2**
- Select “Skeletal system” from the list and click the “Add” button at the bottom of the control area
- Select “Respiratory system” and click “Add & Highlight”



Add, remove and highlight groups of structures with Systems, Regions and Tissues tabs

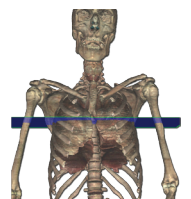
3 Take a closer look by magnifying the respiratory system in the dissection area:

- Zoom in using the magnification slider **1**
- Drag the dissection with your mouse to reposition it, centering the lungs in the dissection view



4 Reveal the lungs:

- Click on the body of the sternum in the dissection area to highlight it (*structures change color when highlighted*)
- Click on the highlighted sternum again to dissect it (*now you see the main bronchi deep to the sternum*)
- Dissect the manubrium of the sternum, xiphoid process and right and left costal cartilages

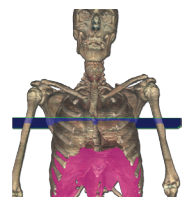


Click on a structure to highlight, Click again to dissect

5 Add other components of the respiratory system:

- Select the “Index” tab **2**
- Enter “diaphragm” into the search box
- Select “Diaphragm” from the list
- Click the “Add & Highlight” button

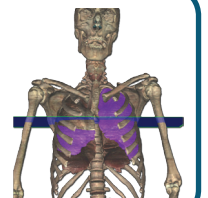
Locate specific structures with the Index



How many lobes do each of the lungs consist of?

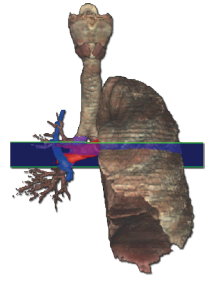
(*hint: dissect the lobes one by one*)

Left: _____ Right: _____



6 Examine the hilum of the lung:

- Click the “Clear” button to clear the dissection area **3**
- Add the respiratory system using the “Systems” tab as before
- Dissect the lobes of the right lung, leaving the right bronchi
- Highlight the right main bronchus by clicking on it
- In the cross section area, zoom in on the area between the lungs
- Locate the right pulmonary artery and vein
- Hold down the shift key and click on each of these arteries to add and highlight them in the dissection



Highlight multiple structures or de-highlight a single structure by holding the shift key when clicking

8 Examine the hilum structures by rotating the dissection:

- Rotate the dissection to 90°, examining the structures of the hilum, using the rotation wheel **5** or by pressing the left or right arrow keys while holding the command (Mac) or ctrl (PC) key to rotate increment at a time (45° Lite version, 5° Pro version)

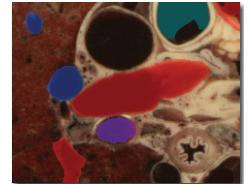


**Rotate the dissection using the left or right arrow keys while holding the command (Mac) or ctrl (PC) key
Alternately, use the rotation wheel below the dissection area**

List the structures of the right hilum in order from anterior to posterior

(Hint: examine the structures in the cross section)

1. _____
2. _____
3. _____

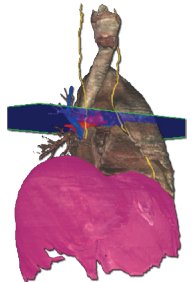


7 Isolate the nerves that serve the diaphragm:

- Using the “Index” add and highlight the diaphragm
- Also add and highlight the phrenic nerves

Fill in the blank:

The phrenic nerve passes _____ (direction) to the hilum of the lung.

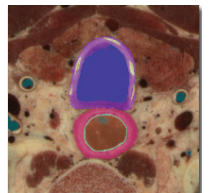
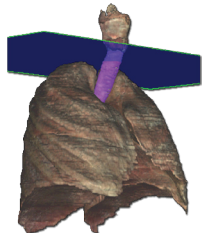


9 Examine the upper airway:

- Click the “Clear” button to clear the dissection area
- Again, add the respiratory system using the “Systems” tab
- Using the “Index”, add and highlight the trachea
- Move through the cross sections superiorly and follow the trachea toward the larynx

Move through the cross sections one at a time by holding the command (Mac) or ctrl (PC) key while pressing the up or down arrow keys

- In the cross section area, identify the esophagus just posterior to the trachea
- In the “Regions” tab expand “Neck”, and then expand “Respiratory system”
- Add and highlight “Larynx”
- In the dissection, locate and dissect the cricothyroid muscle



Name the cartilages that form the hard portion of larynx:

1. _____
2. _____

