

# Science Olympiad – Division B

## Anatomy

presented  
1/12/12

Event Managers: Derek Sato [dsato@tusd.net](mailto:dsato@tusd.net)  
Wes Huffman [weshuffman@gmail.com](mailto:weshuffman@gmail.com)

Resources:

### Primary Information and Coverage

[http://soinc.org/anatomy\\_b](http://soinc.org/anatomy_b)

[2012 Training Handout](#)

[2012 Training PowerPoint](#)

Main coverage of topics will follow these guidelines at Regional Competition.

Overview of information – note: the resources recommended in the presentation may also be source information for the event.

Secondary Information and Diagrams on Tests may appear from sources listed below but not outside the coverage of the primary source above. More detailed answers may be required from these sites but no new coverage from these sites.

### GENERAL ANATOMY & PHYSIOLOGY LINKS

- [Anatomy and Physiology Links](#)
- [Anatomy and Physiology](#)
- [Anatomy Online](#)
- [Biology Book On-line](#)
- [MedlinePlus®](#)
- [On-line Biology Courses](#)
- [Gray's Anatomy On-line](#)
- [Society for Neuroscience](#)
- [Arthritis Foundation](#)
- [American Heart Association](#)
- [National Institute of Health](#)
- [WebMD](#)
- [Anatomy & Physiology 2](#)
- [Anatomy & Physiology 3](#)
- [Anatomy Atlases](#)
- [Inner Body](#)
- [Web Anatomy by University of Minnesota](#)
- [Web Anatomy by University of Minnesota 2](#)

- [Anatomy on the Web](#)
- [Anatomy & Physiology Lecture Notes 1](#)

### DIGESTIVE SYSTEM

- [The Digestive System](#)
- [Virtual Textbook - The Digestive System](#)
- [Virtual Textbook 2 - Digestion and Absorption](#)
- [Pathophysiology of the Digestive System](#)
- [Digestive System Notes from Bio 202](#)
- [Digestive System Lecture Notes from Bio 211](#)

### RESPIRATORY SYSTEM

- [Intro to the Respiratory System](#)
- [Respiratory Overview - SUNY notes](#)
- [Human Physiology - The Respiratory System - Wikibooks](#)
- [Maricopa Resources about the Respiratory System](#)
- [BioPages - Human Respiratory System](#)
- [Bio 301 - Human Physiology Respiration Notes](#)
- [Bio Quiz - Respiratory System](#)

**Test Format:** Variety of multiple choice and completion questions. Identification of pictures or microscope slides with different tissues and cell types. Diagrams of locations of different digestive and respiratory features.

Test will be in the same format as last year.

We will inform Annie of any specific study material that will be used on the test.

However, the exact diagrams used in the study guide may not be used on the testing format. Student

should be able to identify structures on any detailed anatomy illustration or diagram from the Links above.

- DESCRIPTION:** This event encompasses the anatomy (structure and function) of the **digestive** and respiratory systems and the effects of aging and diseases on them.

**A TEAM OF UP TO:** 2

**APPROXIMATE TIME:** 50 Minutes

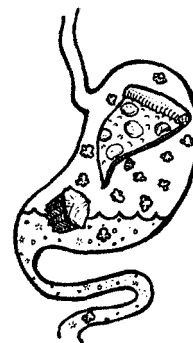
- EVENT PARAMETERS:** Each team may bring **only** one 8.5" x 11" two-sided page of notes that contain information in any form from any source and up to 2 non-programmable, non-graphing calculators.
- THE COMPETITION:** Students should know the basic anatomy of the **digestive** and respiratory systems and how aging and specific diseases affect them. Process skills expected may include data collection, making observations, inferences, predictions, calculations, analyses and conclusions. The test may include various formats (e.g., timed stations, written test, slides, etc.) for the following topics:

a. **DIGESTIVE SYSTEM - All levels should know:**

- Functions of the digestive system
- Basic anatomy of the component parts of the alimentary canal and accessory organs of digestion
- Anatomy of the four layers of the wall of the alimentary canal
- Comparison of the lining of the esophagus, stomach, small intestine and large intestine
- Compare and contrast mechanical and chemical digestion
- The effects of exercise on the digestive system
- The diseases on each level from the cell to the whole person as listed: stomach & duodenal ulcers, cancers of the digestive system, diarrhea, lactose intolerance, hepatitis, appendicitis
- Treatment and prevention of all described diseases

**National Level Only:**

- Specific functions of the liver and pancreas in the digestive system
- Additional diseases: Crohn's disease, GERD, diverticular disease

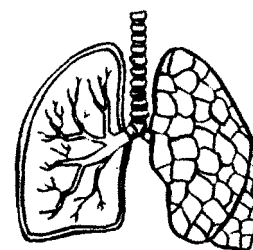


b. **RESPIRATORY SYSTEM - All levels should know:**

- Anatomy of the Respiratory System – Principal organs, their structure and function
- Functions of the Respiratory System
- Mechanisms of Pulmonary Ventilation
- Patterns of Breathing
- Measures of Pulmonary Ventilation
- How exercise and high altitude affect the respiratory system
- Understand disorders: COPD, asthma, emphysema, pneumonia, sleep apnea, **Cystic Fibrosis**

**National Level Only:**

- Additional diseases/disorders to know: tuberculosis, pulmonary edema, **bronchitis**, **lung cancer**
- Treatments and/or prevention for all conditions listed above (drugs, surgery, etc.)
- Regulation of the Respiratory System



- SCORING:** High score wins. Selected questions/quality of free-response answers will be used to break ties.

**Recommended Resources:** All reference and training resources including the **Bio/Earth CD** are available on the Official Science Olympiad Store and Website at <http://www.soinc.org>

**THIS EVENT IS SPONSORED BY THE SOCIETY FOR NEUROSCIENCE ([www.sfn.org](http://www.sfn.org))**