

# ANATOMY ACADEMY

## CURRICULUM FALL 2023

**\*NOTE: Always tie back  
to Healthy Living!**

If you have any new ideas, activities,  
or tips for future mentors, please  
copy and paste this link and add  
them.

[https://docs.google.com/document/  
d/1TTdRgS2qMxlx4ZVioXvVN54xMq6  
H9wU1-Jqk0fflGoo/edit?usp=sharing](https://docs.google.com/document/d/1TTdRgS2qMxlx4ZVioXvVN54xMq6H9wU1-Jqk0fflGoo/edit?usp=sharing)

## TIPS FOR DIFFERENT CLASS TYPES

### Elementary School

Make it FUN

Bring lots of interactive supplies

No long lectures - get them to interact  
with each other, watch videos, and MOVE!

### Special Education

Patience is key!

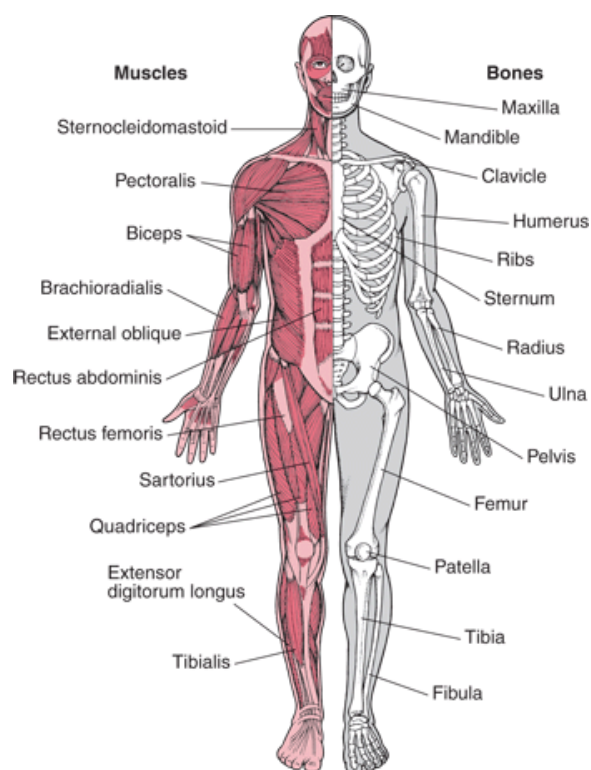
Talk to your teacher about their  
students/expectations. No student is really  
the same - prepare for different levels

Scheduled breaks

Make it FUN! Hands-on, avoid videos.

## LESSON 1

# MUSCULOSKELETAL SYSTEM



## Learning Objectives

- ❖ Know the location of major muscle groups and how to exercise them
- ❖ Know the basic parts of the skeleton
- ❖ **Understand why exercise is important**
- ❖ Understand why they should keep their bones and muscles strong
- ❖ Know how to prevent strained or torn muscles

## The Lesson

### Background Information

The human musculoskeletal system is an organ system that gives humans the ability to move using their muscular and skeletal systems. The musculoskeletal system provides form, support, stability, and movement to the body.

It is made up of the bones of the skeleton, muscles, cartilage, tendons, ligaments, joints, and other connective tissue that supports and binds tissues and organs together. The musculoskeletal system's **primary functions include supporting the body, allowing motion, and protecting vital organs.** The skeletal portion of the system serves as the main storage system for calcium and phosphorus and contains critical components of the hematopoietic system.

This system describes how bones are connected to other bones and muscle fibers via connective tissue such as tendons and ligaments. The bones provide stability to the body. Muscles keep bones in place and also play a role in the movement of bones. To allow motion, different bones are connected by joints. Cartilage prevents the bone ends from rubbing directly onto each other.

Weight bearing exercises are essential for building strong bones and slowing bone loss. Calcium is necessary for both your bones and your muscles! Eating lots of protein helps maintain and build your muscles. Foods high in calcium are dairy and leafy greens. Foods high in protein are meats, fish, dairy, eggs, and nuts!

## ACTIVITIES

- ❖ A FAVORITE: Simon Says!
- ❖ Have kids trace their bodies on butcher paper. Draw in muscles and bones and continue to add organs each week as you learn about them
- ❖ Pick some exercises to do together and have the kids decide what muscles they're using

- ❖ Talk about what their favorite activities are
- ❖ Make a relay race where they can't use certain muscles. Ex: get from A to B without using quads, dribble the basketball 5 times without using biceps, etc.
- ❖ Show real X-rays and models of bones
- ❖ Quiz them!
- ❖ Do yoga or a stretching session
- ❖ Split into 2 groups and have a contest of who can think of the longest exercise list (along with pushups and lunges, make sure you talk about soccer, walking to school, tumbling, etc. These are more practical and FUN for children)
- ❖ Show pictures of unhealthy vs healthy bones. Talk about what things can keep bones healthy! Spinach, fish, milk, EXERCISE.
- ❖ Make a simple, inexpensive meal plan full of foods that are good for muscles and bones! Challenge them to make it with their parents
- ❖ MAKE GOALS FOR THEM TO TAKE HOME AND CHECK UP EACH WEEK!!

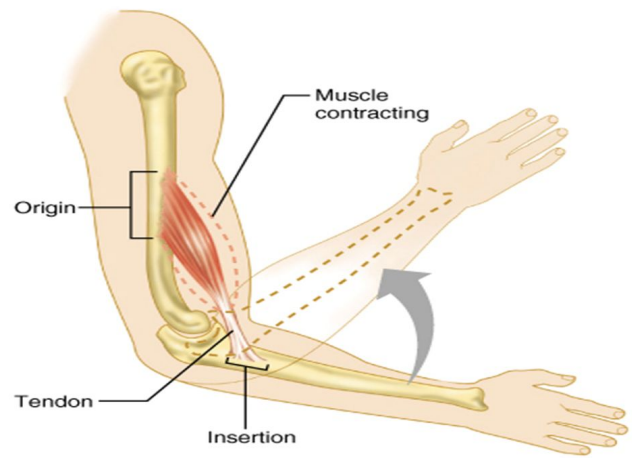
## YOUTUBE VIDEOS/APPS

- ❖ Show the bone song: The rap version  
<https://www.youtube.com/watch?v=ja18CbJU6h8>
- ❖ Anatomy Learning App
- ❖ Harry Potter scene with no bones  
<https://youtu.be/fiMDTDU7IW8>
- ❖ Video on stretching <https://youtu.be/nMZVib5U5fI>

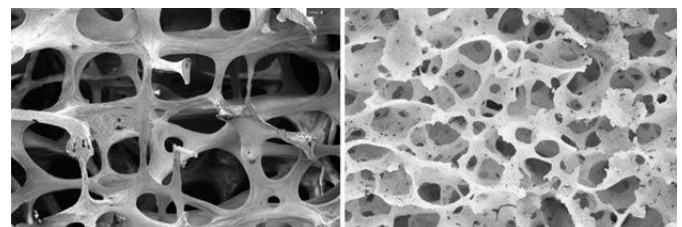
## SUPPLIES

- ❖ Butcher paper
- ❖ Markers, sharpies, chalk, pencils, colored pencils, and crayons
- ❖ Jump ropes
- ❖ Soccer balls, volleyballs, footballs, basketballs
- ❖ X-ray sheets of human bones
- ❖ 3D Skeleton models
- ❖ Exercise bands
- ❖ Human skull model

## IMAGES



Copyright © Pearson Education, Inc., publishing as Benjamin Cummings.



Osteoporotic Bone

Normal Bone

**Raw Milk** 1 cup:  
300 mg



**Broccoli** 1 ½ cup  
cooked: 93 mg



**Yogurt or Kefir**  
6 oz: 300 mg



**Okra** 1 cup: 82 mg



**Kale(cooked)**  
1 cup: 245 mg



**Almonds** 1 oz:  
76 mg



**Cheese** 1 oz:  
224 mg



**Bok Choy** 1 cup:  
74 mg



**Sardines** 2 ounces:  
217 mg

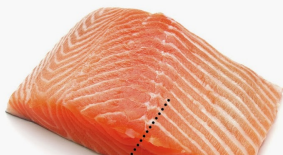


**Watercress**  
1 cup: 41 mg



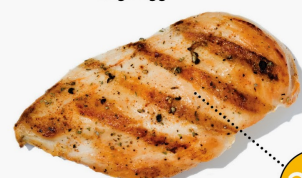
**6g**

protein per  
large egg



**22g**

protein per 100g  
grilled salmon



**28g**

protein per  
100g lean chicken

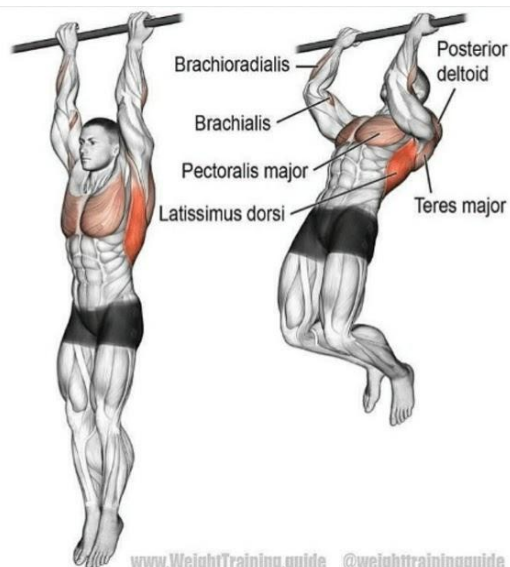
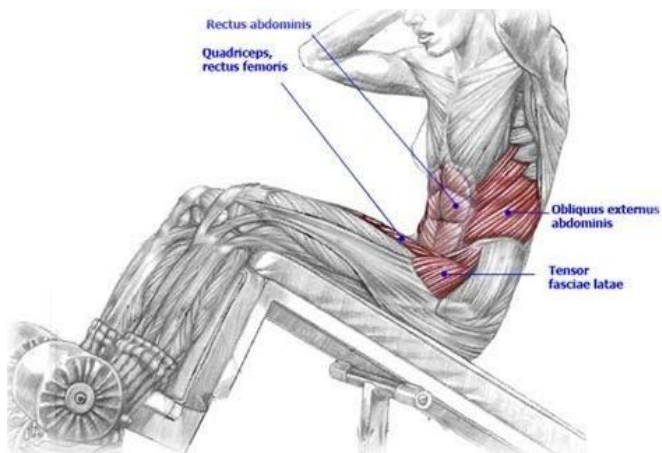
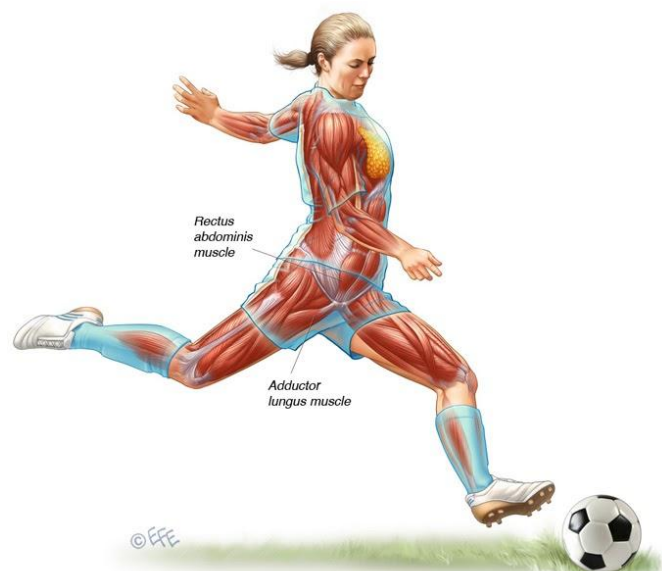
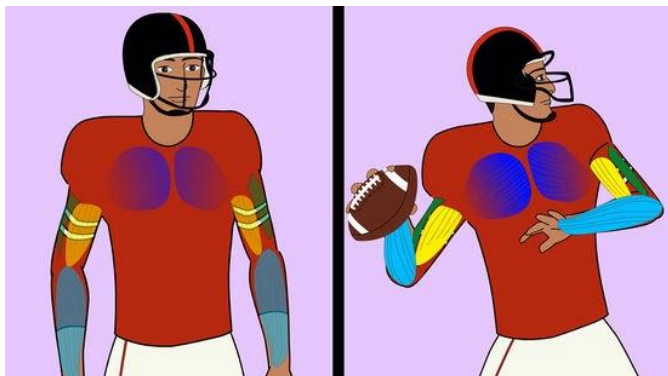


**8g**

protein per 50g  
cooked lentils

**7g**

protein per 25g cheese





## LESSON 2

# THE HEART



### Learning Objectives

- ❖ Know the anatomy of the heart
- ❖ Understand how blood circulates through the body
- ❖ Understand how the exchange of oxygen in the bloodstream occurs
- ❖ Know what kinds of exercise keep the heart healthy
- ❖ Know what happens to the heart when we don't exercise or eat excess fat

## The Lesson

### Background Information

The heart is a muscular organ in most animals, which pumps blood through the blood vessels of the circulatory system. Blood provides the body with oxygen and nutrients, as well as assisting in the removal of metabolic wastes. In humans, the heart is located between the lungs, in the middle compartment of the chest.

In humans the heart is divided into four chambers: upper left and right atria; and lower left and right ventricles. Commonly the right atrium and ventricle are referred together as the right heart and their left counterparts as the left heart. In a healthy heart blood flows one way through the heart due to heart valves, which prevent backflow. The heart is enclosed in a protective sac, the pericardium, which also contains a small amount of fluid. The wall of the heart is made up of three layers: epicardium, myocardium, and endocardium. The heart wall is a huge muscle that works involuntarily. This means we don't have to worry about making sure our heart is beating while doing other things. Our heart beat is controlled by a small portion of our brain (brainstem and Cranial Nerve X) that also works other involuntary things, like breathing, digesting, etc.

### Blood Circulation

The heart pumps blood with a rhythm determined by a group of pacemaking cells in the sinoatrial node (pacemaker). These generate a current that causes contraction of the heart. The heart receives blood flow in oxygen from the systemic circulation, which enters the right atrium from the superior and inferior venae cavae and passes to the right ventricle. From here it is pumped into the pulmonary circulation, through the lungs where it receives oxygen and gives off carbon dioxide. Oxygenated blood then returns to the left atrium, passes through the left ventricle and is pumped out through the aorta to the systemic circulation –where the oxygen is used and metabolized. The heart beats at a resting rate close to 72 beats per minute, but a good heart rate ranges from 60-100 beats per minute. Exercise temporarily increases the rate, but lowers resting heart rate in the long term, and is good for heart health. You can calculate your heart rate by finding your pulse and counting it for 30 seconds and then double it

## Heart disease

Cardiovascular diseases (CVD) are the most common cause of death globally as of 2008, accounting for 30% of deaths. Of these more than three quarters are a result of coronary artery disease and stroke. Risk factors include: smoking, being overweight, little exercise, high cholesterol, high blood pressure, and poorly controlled diabetes, among others. Diagnosis of heart disease is often done by taking a medical history, listening to the heart-sounds with a stethoscope, ECG, and ultrasound. Specialists who focus on diseases of the heart are called cardiologists, although many specialties of medicine may be involved in treatment.

### Ways to decrease risk of Cardiovascular disease include:

1. Avoid smoking and drinking alcohol
2. Choose good nutrition. A healthy diet is one of the best weapons you have to fight cardiovascular disease.
3. Avoid High blood cholesterol.
4. Lower high blood pressure.
5. Exercise and be physically active every day.
6. Aim for a healthy weight.
7. Reduce stress.
8. Avoid drugs that cause excitement (ex: caffeine)

## Heart Attack Symptoms

Heart attacks are one of the most common issues people have when something goes wrong with the heart. It can range from being mild to fatal. Heart attacks are most common in people with preexisting heart diseases and conditions, but it can also happen to anyone. When you notice the symptoms of a heart attack, call 911 right away or bring them to the hospital so they can get looked at and taken care of.

### Signs/Symptoms of Heart Attacks

1. Chest pain/discomfort (feels like something is sitting on their chest)
2. Shortness of breath (fast breathing)
3. Pain or discomfort in their left arm, side, neck, back, or shoulder
4. Feeling nauseous
5. Fatigue
6. Light headed

## ACTIVITIES

- ❖ A FAVORITE: Kahoot!
- ❖ Relay Race - one time with a heavy backpack and other without to see a difference
- ❖ Bring in stethoscopes and blood pressure cuffs
- ❖ Dissect a lamb's heart
- ❖ Count pulse before and after exercising
- ❖ Obstacle course of the blood flow of the heart
- ❖ Go outside and play games like soccer, tag, and have fun with them!
- ❖ Ask them what exercise makes their heart healthy

## SUPPLIES

- ❖ Stethoscopes
- ❖ Manual Blood pressure cuffs (How to: <https://www.youtube.com/watch?v=lpvyCGPsVDU>)
- ❖ Lamb heart
- ❖ Heart worksheet
- ❖ 3D Heart models
- ❖ Colored pencils, pens, pencils, crayons, sharpies, and markers
- ❖ Jump ropes
- ❖ Soccer balls, volleyballs, footballs, basketballs

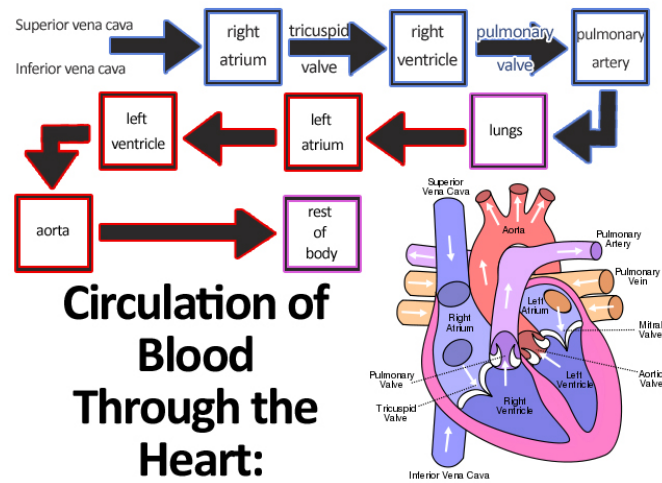
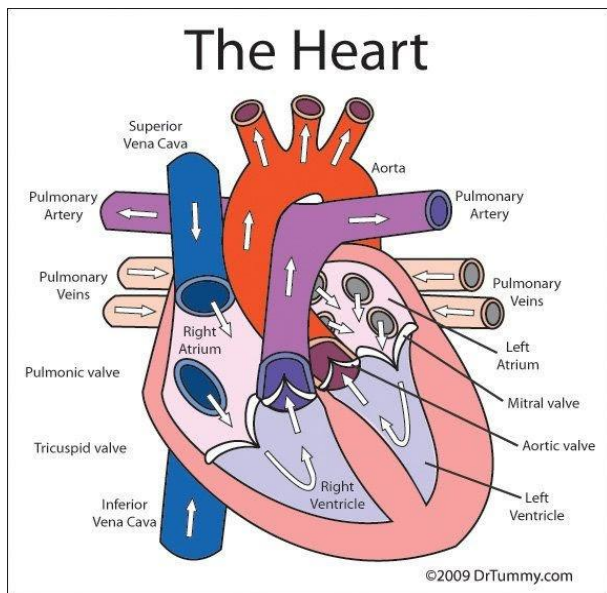
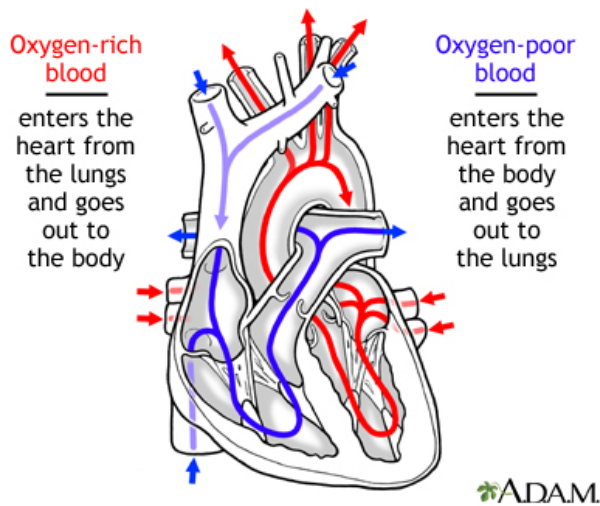
## YOUTUBE VIDEOS/APPS

- ❖ Fun heart arrhythmia video. Have the kids do it with the video!  
[https://www.youtube.com/watch?v=EqUfgffJx\\_8](https://www.youtube.com/watch?v=EqUfgffJx_8)
- ❖ [https://youtu.be/Vot7V7\\_2UoI](https://youtu.be/Vot7V7_2UoI)
- ❖ <https://www.youtube.com/watch?v=TyqcYunCHFU>
  - Only for older kids and give warning that it will be graphic/"gross" so look away!
- ❖ [https://youtu.be/3\\_PYnWVoUzM](https://youtu.be/3_PYnWVoUzM)
- ❖ <https://www.youtube.com/watch?v=bJVcgROEJAo>
- ❖ Heart Worksheet
  - Advanced:  
[https://www.biologycorner.com/worksheets/heart\\_internal.html](https://www.biologycorner.com/worksheets/heart_internal.html)

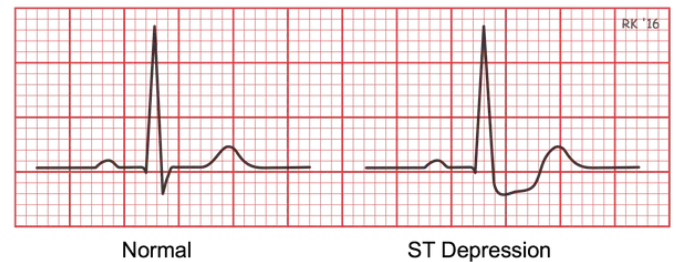
➤ Easy

[https://www.google.com/url?sa=i&url=https://www.pinterest.com/%2Fpin%2F124552745932818513%2F&psig=AOvVaw2z7IA7CVGHD1K13u8Dz\\_k0&ust=1693083677463000&source=images&cd=vfe&opi=89978449&ved=0CA8QjRxqFwoTCNjB\\_6za-IADFOAAAAAdAAAAABAJ](https://www.google.com/url?sa=i&url=https://www.pinterest.com/%2Fpin%2F124552745932818513%2F&psig=AOvVaw2z7IA7CVGHD1K13u8Dz_k0&ust=1693083677463000&source=images&cd=vfe&opi=89978449&ved=0CA8QjRxqFwoTCNjB_6za-IADFOAAAAAdAAAAABAJ)

## IMAGES

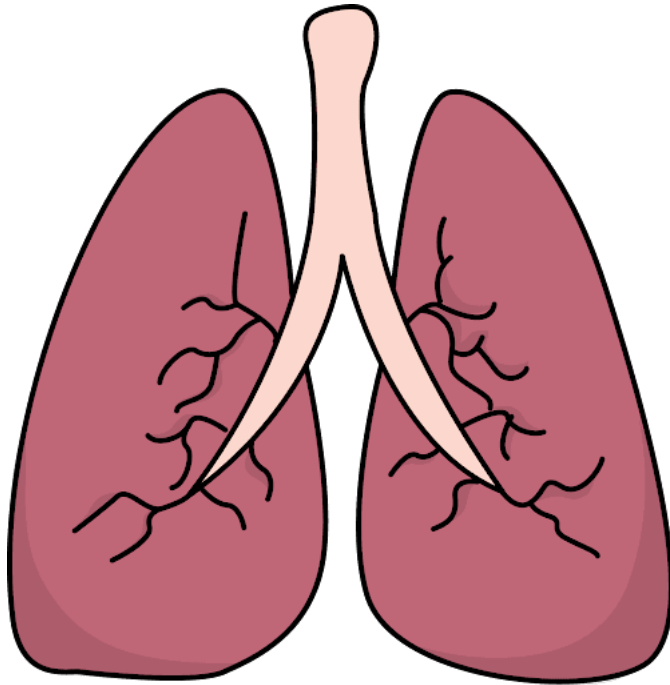


## Circulation of Blood Through the Heart:



## LESSON 3

# THE LUNGS



## Learning Objectives

- ❖ Know the anatomy of the lungs
- ❖ Understand how oxygen exchange takes place in the lungs
- ❖ Understand what happens when body tissue does not get the oxygen it needs.
- ❖ Understand how smoking damages the lungs
- ❖ Know Activities that will keep the lungs healthy
- ❖ Understand how Asthma affects the lungs.
- ❖ Understand how our vocal cords work.

## The Lesson

### Background Information

**The lungs are the primary organs of the respiratory system in humans. Their function in the respiratory system is to extract oxygen from the atmosphere and transfer it into the bloodstream, and to release carbon dioxide from the bloodstream into the atmosphere, in a process of gas exchange.** In humans, the main muscle of respiration that drives breathing is the diaphragm. The lungs also provide airflow that makes vocal sounds including human speech possible.

Humans have two lungs, a right lung and a left lung. They are situated within the thoracic cavity of the chest. The right lung is bigger than the left, which shares space in the chest with the heart. The lungs are part of the lower respiratory tract that begins at the trachea and branches into the bronchi and bronchioles, and which receive air breathed in via the conducting zone. The conducting zone ends at the terminal bronchioles. These divide into the respiratory bronchioles of the respiratory zone which divide into alveolar ducts that give rise to the microscopic alveoli, where gas exchange takes place. Each lung is enclosed within a pleural sac which allows the inner and outer walls to slide over each other whilst breathing takes place, without much friction. The right lung has three lobes and the left has two. **The lungs have a unique blood supply, receiving deoxygenated blood from the heart in the pulmonary circulation for the purposes of receiving oxygen and releasing carbon dioxide, and a separate supply of oxygenated blood to the tissue of the lungs, in the bronchial circulation.**

### Lung diseases

The tissue of the lungs can be affected by a number of diseases, including pneumonia and lung cancer. Chronic obstructive pulmonary disease includes chronic bronchitis that can be related to smoking or exposure to harmful substances such as coal dust and asbestos fibers. Diseases such as bronchitis can also affect the respiratory tract.

Asthma is a chronic condition where your airways become inflamed and narrow.



## ACTIVITIES

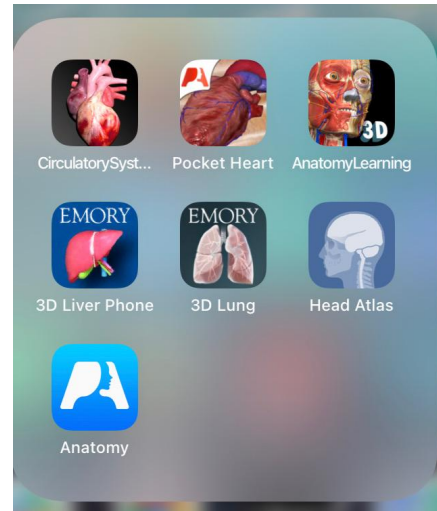
- ❖ A FAVORITE: Kahoot!
- ❖ Bring in lamb lungs
- ❖ Have kids breath through straws while running in place to show quality of lungs after smoking (do not have kids with asthma do this)
- ❖ Relay race!
- ❖ Make a model of the lungs using a balloon and soda bottle

## SUPPLIES

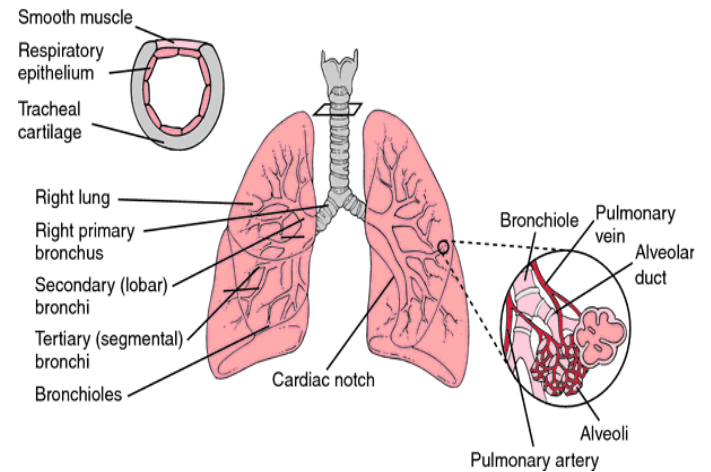
- ❖ Balloons
- ❖ Straws
- ❖ Lung activity sheets
- ❖ Sharpies, crayons, pens, markers, paper
- ❖ Colored yarn
- ❖ Jump ropes

## YOUTUBE VIDEOS/APPS

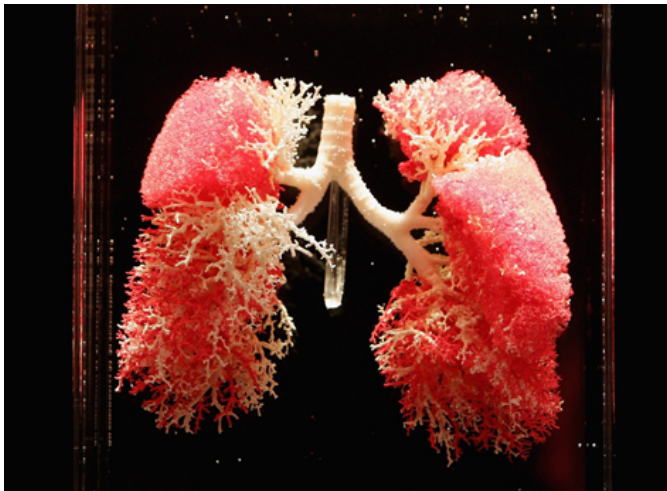
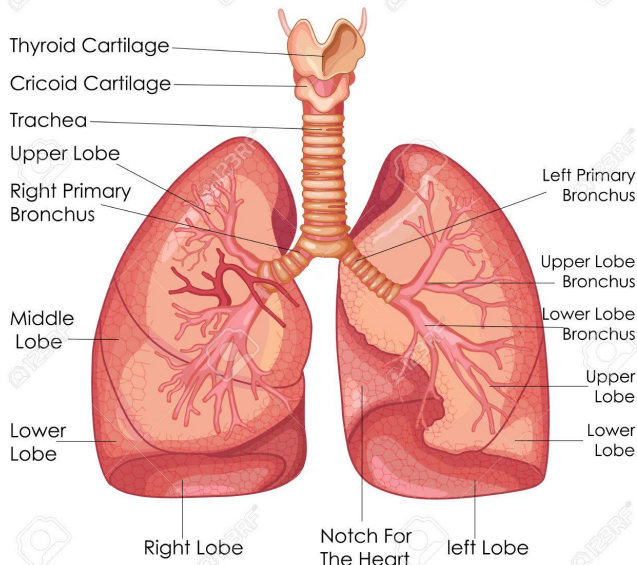
- ❖ Show them the lung song!  
<https://www.youtube.com/watch?v=-pIG8W8JZ0o>
- ❖ Watch vocal cords up close  
<https://www.youtube.com/watch?v=-XGds2GAvGQ>
- ❖ <https://kidshealth.org/CHOC/en/kids/rsmovie.html>
- ❖ <https://www.youtube.com/watch?v=LaOBcF6N7e4>  
(not for queasy kids, warn them)



## Images



## Lungs Diagram



## LESSON 4

# ORAL CAVITY



## Learning Objectives

- ❖ Know the anatomy of the oral cavity and physiology of the oral cavity to understand how food is broken down
- ❖ Learn about the structure of teeth and how to take care of them
- ❖ Learn basics of proper nutrition and why it is important (use guidelines from <https://www.choosemyplate.gov/>)
- ❖ Learn about the danger of sugar and why we get cavities
- ❖ Learn how to read and compare food labels

## The Lesson

### Background Information

In human anatomy, the mouth is the first portion of the alimentary canal that receives food and produces saliva.

**This is the first location of mechanical digestion (physical breakdown of food) and chemical digestion.**

Saliva contains an enzyme called amylase which breaks down carbohydrates.

In addition to its primary role as the beginning of the digestive system, in humans **the mouth also plays a**

**significant role in communication.** While primary aspects of the voice are produced in the throat, the tongue, lips, and jaw are also needed to produce the range of sounds included in human language.

### Cavities

Tooth decay, also known as cavities, is a breakdown of teeth due to acids made by bacteria. Symptoms may include pain and difficulty with eating. Complications may include inflammation of the tissue around the tooth, tooth loss, and infection or abscess formation.

The cause of cavities is acid from bacteria dissolving the hard tissues of the teeth (enamel, dentin and cementum). The acid is produced by the bacteria when they break down food debris or sugar on the tooth surface. **Simple sugars in food are these bacteria's primary energy source and thus a diet high in simple sugar is a risk factor.** If mineral breakdown is greater than build up from sources such as saliva, cavities result.

### Prevention of cavities

- Regular cleaning of the teeth
- Diet low in sugar
- Small amounts of fluoride
- Brushing the teeth at least twice per day (for two minutes) and flossing between the teeth once a day is recommended by many.

## ACTIVITIES

- ❖ A FAVORITE: Kahoot!
- ❖ Show how to brush your teeth and floss correctly with a large teeth model and toothbrush/floss (this is a hit!)
- ❖ Get nutrition labels from several food products and have students compare sugar content. If older, help convert grams to cups (2 tablespoons = 25 grams; ½ cup = 100 grams). Note: same concept can be used with calories (i.e. 1 mile burns 100 calories)
- ❖ Using MyPlate handout, have students plan out a well balanced meal with their favorite healthy foods. Challenge them to make that meal the coming week
- ❖ Make your own toothpaste Make your own toothpaste (look up a simple recipe or DIY video to teach you... some only require baking soda, salt, and flavoring)

- ❖ Fill bags with sugar showing how much sugar is actually in all of their favorite foods, treats, and drinks

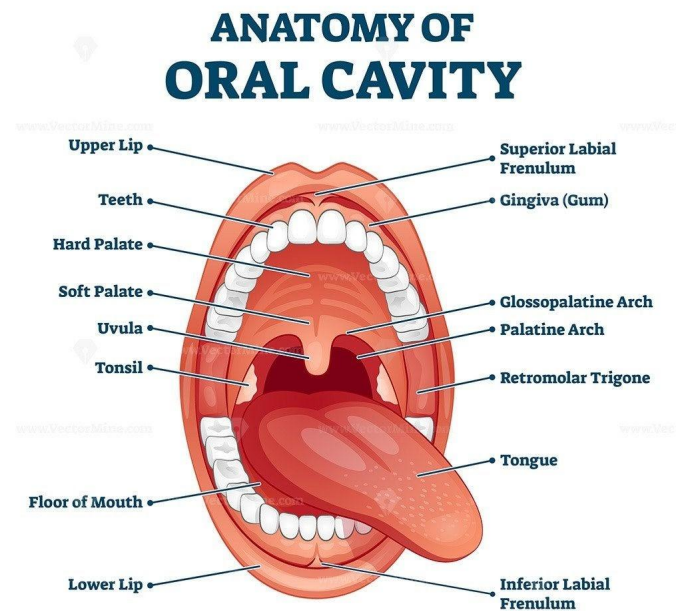
## SUPPLIES

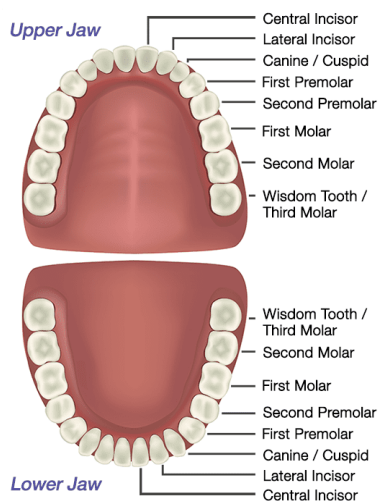
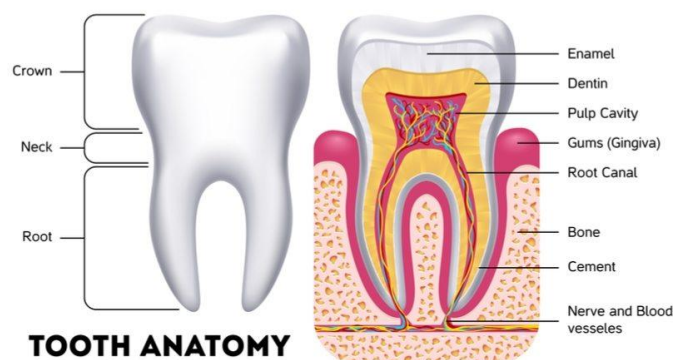
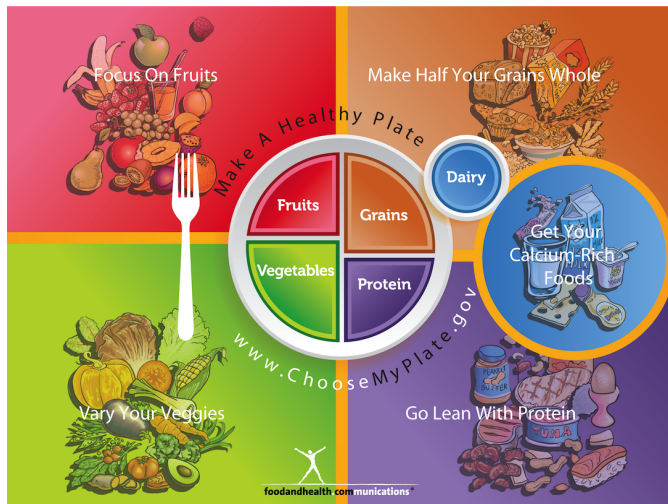
- ❖ Tooth models
- ❖ Floss/toothbrushes
- ❖ Sugar
- ❖ Sharpies, crayons, pens, markers, paper
- ❖ Measuring cups/ziploc bags
- ❖ Food products (focus on ones with sugar)

## YOUTUBE VIDEOS

- ❖ <https://youtu.be/zGoBFU1q4g0>
- ❖ Funny Mr. Bean video  
[https://youtu.be/K1FPxvdB\\_to](https://youtu.be/K1FPxvdB_to)
- ❖ <https://www.youtube.com/watch?v=3ZHYQ6f1BhU>
- ❖ We encourage more of the activities than videos!

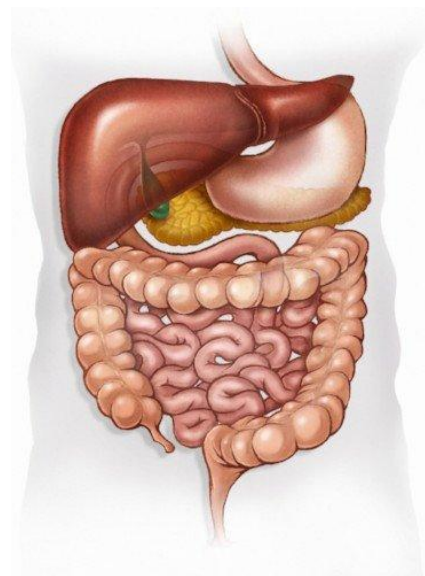
## IMAGES





## LESSON 5

# GASTROINTESTINAL SYSTEM



## Learning Objectives

- ❖ Know the purpose of the GI tract
- ❖ Understand names and major functions of GI organs
- ❖ Understand the pathway of food through the GI tract
- ❖ Know how to keep GI tract healthy
- ❖ Know what happens when your digestive system is sick and how to get better

## The Lesson



## Background Information

The primary purpose of the gastrointestinal tract is to break food down into nutrients, which can be absorbed into the body to provide energy. First food must be ingested into the mouth to be mechanically processed and moistened. Secondly, digestion occurs mainly in the stomach and small intestine where proteins, fats and carbohydrates are chemically broken down. Smaller molecules are then absorbed across the epithelium of the small intestine and subsequently enter the circulation. The large intestine plays a key role in reabsorbing excess water. Finally, undigested material and secreted waste products are excreted from the body via defecation.

### Understand the primary functions of the GI organs

-Mouth/esophagus(Hollow): Already covered mouth, The esophagus is a tube that connects the throat (pharynx) and the stomach. The esophagus is made of muscles that contract to move food to the stomach (peristalsis) according to the Cleveland Clinic

-Stomach(Hollow): The stomach secretes acid and enzymes that digest food. The stomach muscles contract periodically, churning food to enhance digestion.

-Gallbladder(Solid):The gallbladder is a small pouch that sits just under the liver. The gallbladder stores bile produced by the liver.

-Small intestine(Hollow):The small intestine or small bowel is an organ in the gastrointestinal tract where most of the end absorption of nutrients and minerals from food takes place.

-Large intestine(Hollow):The large intestine, also known as the large bowel, absorbs all of the extra water.

-Colon - moves fecal matter for us to get rid of it. Tells brain we need to go to the bathroom

-Liver(Solid): The liver's main job is to filter the blood coming from the digestive tract, before passing it to the rest of the body. The liver also detoxifies chemicals and metabolizes drugs.

-Pancreas(Solid): The pancreas is an organ located in the abdomen. It plays an essential role in converting the food we eat into fuel for the body's cells. The pancreas has two main functions: an exocrine function that helps in digestion and an endocrine function that regulates blood sugar.

## ACTIVITIES

- ❖ A FAVORITE: Kahoot!
- ❖ Smash cracker and banana in plastic bag (mechanical digestion), add water (saliva), squeeze through panty hose (intestines) to simulate GI tract
- ❖ The above principles apply to when you are sick with the stomach flu. Change the simulation at the beginning of the lesson so that you just cut a hole in the plastic bag and everything falls out (pretty gross, right?). Explain that the body can't absorb nutrients if you throw up or have diarrhea, so it is extra important to drink fluids and get nutrients when sick
- ❖ Color a labeling sheet such as [http://www.coloringnature.org/wp-content/uploads/2015/12/digestive\\_tract\\_coloring-1.pdf](http://www.coloringnature.org/wp-content/uploads/2015/12/digestive_tract_coloring-1.pdf)
- ❖ Eat a cracker while flipped upside down. This will show that peristalsis, not gravity, is doing the work to move food through the GI tract
- ❖ Measure out a string with the kids to show how long the GI tract is, after having them guess
- ❖ Listen with a stethoscope to the noises in each others' stomachs
- ❖ Do a match game with organ cutouts where the students try to put the organs in the right spots as a review

## SUPPLIES

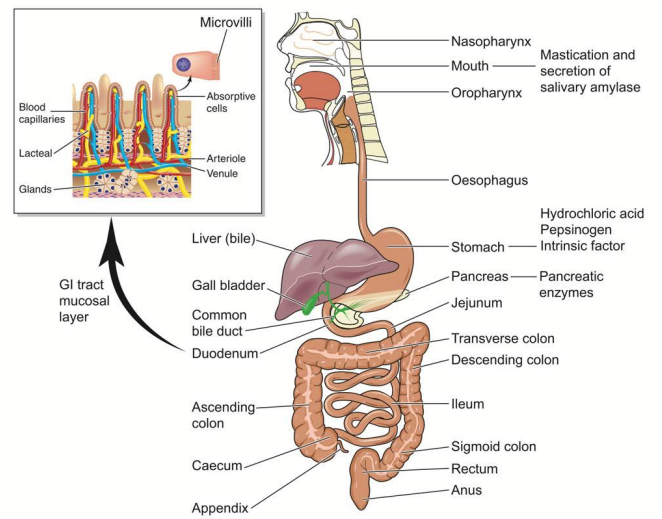
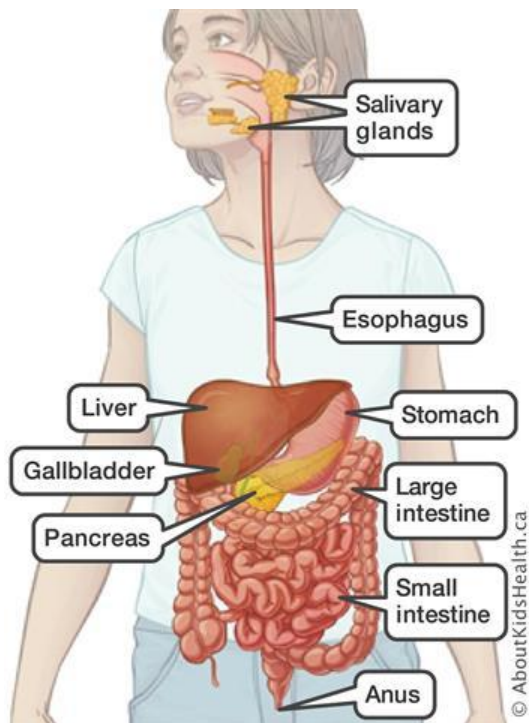
- ❖ Pantyhose
- ❖ Quart-size Plastic ziploc bags
- ❖ Saltine crackers
- ❖ Flossers
- ❖ Nutrition labels
- ❖ Red solo cups, napkins, plates
- ❖ Craft supplies

## YOUTUBE VIDEOS/APPS

- ❖ Listen to the digestive song <https://youtu.be/8sDMVgw9d-c>

- ❖ Watch a cartoon about traveling through the digestive system  
<https://kidshealth.org/en/kids/dsmovie.html#cat20580>
- ❖ <https://www.youtube.com/watch?v=9znLCDpjb1o>
- ❖ <https://www.youtube.com/watch?v=ZBZWgrfZFbU>

## IMAGES



## LESSON 6

# THE BRAIN & SENSES



## Learning Objectives

- ❖ Know the basic anatomy and function of the cerebrum, cerebellum, and brain stem
- ❖ Understand that a healthy breakfast is vital for the brain to have energy to work during the day
- ❖ Know the basic anatomy of the spinal cord and a neuron
- ❖ Know the basic anatomy of the eye and ear
- ❖ Understand why the body feels pain (nociceptors)
- ❖ Know why we can smell, hear, see, feel, and taste

## The Lesson

### Background Information

#### The Brain

The brain is composed of different parts, or lobes, that are responsible for important functions we use every day. There are many specifics within each lobe, but the main lobes include: the frontal lobe, occipital lobe, parietal lobe, and temporal lobe. The frontal lobe is responsible for your personality, emotions, decision making, and problem solving. The occipital lobe is responsible for vision! The parietal lobe is responsible for spatial and visual perception, touch, temperature and pain. The temporal lobe is responsible for speech, memory and hearing. There is also a little brain just beneath called the cerebellum. The cerebellum helps us keep our balance. Just under the cerebellum, heading toward the spinal cord is the brain stem. The brain stem consists of the pons, medulla, and midbrain and is responsible for breathing and heart rate. Put all of these responsibilities together, and you can see how we would not be able to do anything without our brain.

#### Senses

There are 5 senses : sight, sound, smell, touch, and taste. Each sense is important in making us, us!

For sight, we need our eyes. The eye is a very complex organ that takes in all of the information around you including light, color, texture, movement and more. The back of the eye is called the retina and it is composed of cells called rods and cones. Rods process light in black and white and cones process color. The lens in the front of the eye allows us to focus the light passing through the eye on the retina so we can see clearly. If your eye is a different length so that the light cannot focus properly on the retina, you may need glasses.

The ear is also a very important part of our senses! The ear is composed of parts of the inner ear and the outer ear that work together to help us hear. If the fluid within your ear is off, this can cause dizziness, or vertigo.

The spinal cord is important for us to move and touch. You will learn in the next lesson that all of these senses connect back to your brain! Thanks to brain cells, or neurons, signals are sent throughout your brain down through your spinal cord with your nerves. Review all of this anatomy, it can be tricky!

The nose has nerve endings that are directly connected to the brain, which tells us what we are smelling.

The tongue has so many taste buds that connect to neurons that connect to the brain that tell us what we are tasting.

We have so many nerve endings and neurons that are in the skin layer that help us feel different textures.

## ACTIVITIES

- ❖ A FAVORITE: Kahoot!
- ❖ Make lobes of the brain out of playdoh
- ❖ Optical illusions to trick your brain to show that what you perceive is not the same as what exists
- ❖ Setup a game of tag/obstacle course with the kids as action potentials running through axons
- ❖ Show the kids the homunculus map.
- ❖ Show healthy vs lesioned MRIs
- ❖ Print out blank anatomy fill-in worksheets and quiz them  
<https://thecraftyclassroom.com/crafts/anatomy-crafts-for-kids/brain-crafts-activities/>
- ❖ Meditate together
- ❖ Simon Says for anatomy (you can focus on your favorite out of the ear, neuron, spinal cord, and the eye - we know it's a lot to cover!)
- ❖ Bring in cow eye specimen
- ❖ Blind obstacle course
- ❖ \*\*Best to do these next activities in stations where you'll rotate the groups through these exercises\*\*
  - TOUCH: Feely box: fill it with peeled grapes, spaghetti, etc and have them guess what it is with just one touch, no sight. Talk about touch receptors and measure how far apart you can touch two pencil tips before the brain registers it as two points of touch
  - EAR: Spin with forehead on baseball bat, teach about inner ear. Show how sound waves work with placing an activated tuning fork in a cup of water
  - SIGHT: Find some beer goggles and try to have them walk in a straight line without that sense. Print out some optical illusions to show the kids.
  - SMELL: Have different candles and have them guess what they are smelling
  - TASTE: Bring sweet and sour candies and have them taste it blindfolded and guess what they're eating

- ❖ Have the kids commit to keeping their senses healthy. Follow up on their goals (exercise, eating fruits and veggies, drinking more water, manage stress) that they make when you come back next week.

## SUPPLIES

- ❖ Penlight to constrict pupils
- ❖ 3D Brain models
- ❖ Brain hats
- ❖ Playdough
- ❖ Tuning forks
- ❖ Bandana
- ❖ Optical illusion sheets
- ❖ Bubble wrap

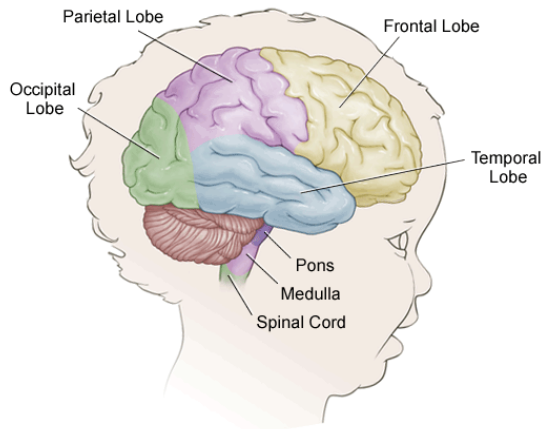
## YOUTUBE VIDEOS/APPS

- ❖ <https://www.youtube.com/watch?v=1aCYsYSM1MA>
- ❖ <https://www.youtube.com/watch?v=VYlr40D7wNw>
- ❖ <https://www.youtube.com/watch?v=lxAZC7pb-o4>
- ❖ <https://www.youtube.com/watch?v=OMqWRlxo1oQ> (Dissection - for older kids. Warn if queasy)
- ❖ <https://www.youtube.com/watch?v=XUMiPK6LZBI>
- ❖ <https://www.youtube.com/watch?v=g1xNuU7gaAQ>
- ❖ <https://www.youtube.com/watch?v=mptjFoHF2aI> The ear!
- ❖ <https://www.youtube.com/watch?v=9OS-9pG1IT0> The eye!
- ❖ <https://www.youtube.com/watch?v=1UW-kcrX1HY> spinal cord!

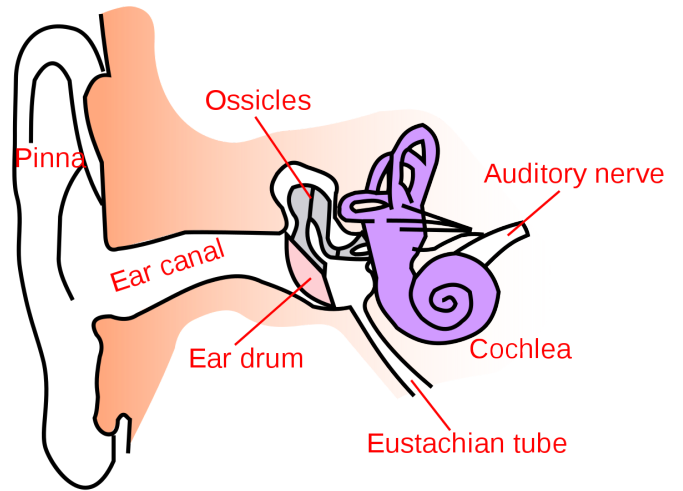
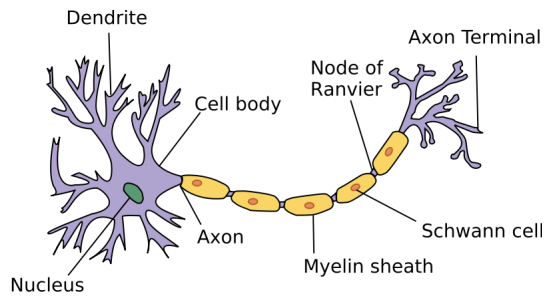
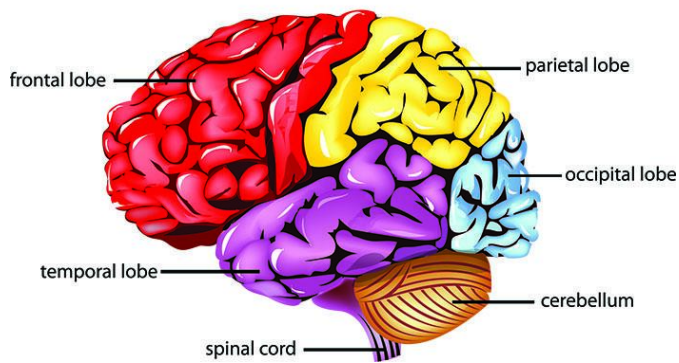
## IMAGES



### Anatomy of the Brain



### Parts of the Human Brain



### SPINAL CORD

BYJU'S  
The Learning App

