

ESL Medical Terminology Curriculum

Developed by

NORTH SEATTLE COMMUNITY COLLEGE
for the ESL Healthcare Bridge Program

Funded by the Seattle Community-Based Health Care Partnership Project



Seattle CENTRAL Community College
NORTH Seattle Community College
SOUTH Seattle Community College
SVI Seattle Vocational Institute

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Course Syllabus
Medical Terminology for ESL 059/069, 4 Credits
North Seattle Community College
Spring 2006



Instructor: Margaret Johnston, RN-C, M. Ed. TESOL
Office: IB 2423C, Suite 10
Office Hours: Wed 2:00-2:45 and by appointment
Email address: mjohnston@seccollege.edu
Telephone: Voicemail only: 206-527-3754

Classroom volunteer: Diane Adam, ARNP

Class Time: 12:00-1:50, Monday/ Wednesday
Classroom: IB 3330

Course Description: Study of word elements (prefixes, suffixes and roots), terms in anatomy and physiology, selected diseases, symptoms, procedures, commonly used x-ray and laboratory tests, and commonly used abbreviations. Emphasis will be placed on pronunciation, meaning of terms and word elements, and spelling. Practice will be provided in reading and listening to medical terminology, understanding its meaning, correct pronunciation of terms, and appropriate writing and use of medical vocabulary.

Required Text: *Medical Terminology; a Short Course*, 4th ed. Davi-Ellen Chabner. Saunders, 2005 **price:** new \$28.60 used \$21.45

Recommended: Purchase a 3-ring binder, a package of divider tabs, and a packet of index cards
Access to a medical dictionary (*Taber's Cyclopedic Medical Dictionary*)

Calendar: No class on Monday, May 29 (Memorial Day holiday)
Last day of class will be Mon. June 12, 2006

Course Requirements:

- **Class participation:** working in small groups and pairs, asking/answering questions, listening and cooperating with your classmates.
- **Homework:** you will have daily assignments and will also have weekly quizzes, a midterm and final exam. You will also need to research your topic for your **oral presentation**. You are encouraged to use the **CD-ROM** that accompanies the text; it will also be available in the Loft, as well as a **pronunciation tape** which is available in the Media Center.

Attendance: All students should attend **all** sessions and arrive **on time**. Many learning activities are planned for each class. Therefore, attendance is important in order to pass the quizzes and exams successfully. If you know that you will be absent on a specific day, please tell me **in advance** and give the reason for your absence. Call and **leave a message** on my voice mail or email me. If you are absent, it is your responsibility to find out which assignments will be due.

Please write the names and phone numbers of two classmates so that you can call them and find out the homework assignments that you missed.

Name: _____ Phone number: _____

Name: _____ Phone number: _____

Grading: The final grade for all students is based on the following:

- 10% average of homework assignments, class participation and attendance
- 35% average of quizzes
- 35% average of midterm and final exams
- 20% Oral Presentation

You may drop one quiz score from all the quizzes for the quarter from your grade. If you miss a quiz, that is the one that will be dropped. Other missed quizzes will be counted as "0". There will be **no make-ups** for the midterm and final exams, unless you have discussed this with me first. Remember, you will need **75% to pass this class**.

Other: Copying another person's work on a quiz or an exam, or other forms of cheating, will lead to an automatic grade of 0.0 for that assignment, quiz or exam. This may also result in possible disciplinary action by the college and could even result in being expelled from the college.

- Cell phones must be turned off in the classroom.
- Please avoid wearing strong fragrances in class (some people are sensitive to these chemicals)
- Bringing children to class is not allowed.

Welcome to class! I hope you will work hard, enjoy this class and learn a great deal about medical terminology! We will be happy to help you, so please ask questions and ask for extra help, if necessary.



Course Schedule

**Medical Terminology for ESL
059/069**

ESL 059/069 Medical Terminology
COURSE SCHEDULE: SPRING 2006

Week	Topics Covered	Student Responsibilities
#1 April 3-5	Chapter 1: Basic Word Structure	Read Ch 1, Do Exercises A,B,C,D, E,F,G pg.19-22
#2 April 10-12	Chapter 2: Organization of the Body	Read Chapter 2 Do Exercises A,B,C, D,E,F,G pg.58-62
#3 April 17-19	Chapter 3: Suffixes Library research for oral presentation	Read Ch. 3 Do Exercises A,B, C, D,E, F, I, J
#4 April 24-26	Chapter 4: Prefixes	Read Ch 4 Do Exercises A, B, C, D,E,F,G
#5 May 1-3	BODY SYSTEMS Cardiovascular System pg. 196-198 Respiratory System pg. 252-259	Begin Oral Presentations
#6 May 8-10	Lymphatic System pg. 224-227 Endocrine System pg. 212-217	
#7 May 15-17	Female Reproductive System p. 218-223 Male Reproductive System p. 228-233	
#8 May 22-24	Musculoskeletal System pg. 234-245 Urinary System pg. 268-273	
#9 May 29-31	Nervous System pg. 246-251 Skin and Sense Organs pg. 260-267	
#10 June 5-7	Digestive System pg. 204-211 Review for Final Exam	
#11 June 12-14	Final Exam on 6/12 Last day of class!	

This schedule is tentative and subject to changes, according to class progress.

**Medical Terminology
Spring 2006**

Week 1	M 4/3	W 4/5
Week 2	M 4/10	W 4/12
Week 3	M 4/17	W 4/19
Week 4	M 4/24	W 4/26
Week 5	M 5/1	W 5/3

Week 6	M 5/8	W 5/10
Week 7	M 5/15	W 5/17
Week 8	M 5/22	W 5/24
Week 9	M 5/29	W 5/31
Week 10	M 6/5	W 6/7
Week 11	M 6/12	W 6/14

Study Guide

Medical Terminology for ESL 059/069

ESL 059 Medical Terminology
STUDY GUIDE

TOPICS COVERED AND WHAT TO STUDY		Quiz or Test Dates
<p>Week 1 4/3-4/5</p>	<p><u>Chapter 1</u> Read pages 2-4; know Yellow Table pg. 4 Know all medical terms and combining forms on pages 5-19 You do not need to study Tables 1-1 (pg.11) or 1-2 (pg.15)</p>	<p>Quiz 4/10</p>
<p>Week 2 4/10-4/12</p>	<p><u>Chapter 2</u> Know all the terms in bold print on pg.44-46, 49-53 Know all medical terms and combining forms on pg.54-58 Label the drawings on pg.45, 49, 50, 51</p>	<p>Quiz 4/19</p>
<p>Week 3 4/17-4/19</p>	<p><u>Chapter 3</u> Know all terms and combining forms in the chapter. You do not need to study Tables 3-1, 3-2 (pg 83) or 3-3, 3-4 (pg 84) <u>Abbreviations</u> Know the meanings of the following abbreviations: Pt, pt – patient WNL – within normal limits Dx – diagnosis Tx, Rx – treatment, prescription R/O, r/o – rule out DC, D/C -- discharge, discontinue</p> <p style="text-align: right;"> C, w/ - with S, w/o - without TPR – temperature, pulse, respiration VSS – vital signs stable Bid – twice a day Tid – three times a day </p>	<p>Quiz 4/24</p>

ESL 059 Medical Terminology
STUDY GUIDE

<p>Week 5 5/1 - 5/3</p>	<p><u>Respiratory System</u> pages 252-259 Label the drawings on pg.252; Know the following terms: Pneumothorax –air in the pleural cavity Sputum-material coughed up from the lungs Know all the terms and combining forms on pages 253-255 EXCEPT Phren/o, phrenic Pneumomonious Sputum test Computed tomography Magnetic resonance imaging Pulmonary angiography Pulmonary function tests Tuberculin test</p>	<p>Midterm Exam 5/8</p>
<p>Week 6 5/8 -5/10</p>	<p><u>Lymphatic System</u> pages 196-199 Label the drawings on pg 224 Know all the medical terms and combining forms on pages 225-226 EXCEPT Sarcoidosis Western Blot Test Computed Tomography ELISA</p>	<p>Quiz 5/15</p>
<p>Week 6 5/8 -5/10</p>	<p><u>Endocrine System</u> pages 212-214 Label the drawing on page 212 Know all the medical terms and combining forms on page 213 Know <u>Pathology</u> terms page 214 <u>Laboratory Tests and Diagnostic Procedures</u> on page 214 Only know: CT scan Fasting blood sugar (glucose)test MRI</p>	<p>Quiz 5/15</p>

**ESL 059 Medical Terminology
STUDY GUIDE**

<p>Week 7 5/15 - 5/17</p>	<p><u>Female Reproductive System</u> pages 218-220</p> <p>Label the drawing on page 218 Know all combining forms and pathology terms on page 219 Know all tests and procedures on page 220 EXCEPT Aspiration Hysterosalpingography Conization</p>	<p>Quiz #5 5/15</p>
<p>Week 7 5/15-5/17</p>	<p><u>Male Reproductive System</u> pages 228-230</p> <p>Label the drawing on page 228 Know all combining forms on page 229 Know only the following pathology terms, laboratory tests and procedures on pages 229-230 Benign prostatic hyperplasia Testicular carcinoma Semen analysis TURP Hydrocele Vasectomy</p>	

**ESL 059 Medical Terminology
STUDY GUIDE**

<p>Week 8 5/22 - 5/24</p>	<p>Musculoskeletal System pages 234-245</p> <p>Label the drawings on handouts Label the drawings on pg. 234; know the assigned muscle groups (see handout) Know all the medical terms on page 237-239 EXCEPT: Ankylosing spondylitis Microscopic diskectomy Antinuclear antibody test (ANA) Erythrocyte sedimentation rate (ESR) Chemoneucleosis</p> <p>Know the following additional terms:</p> <ul style="list-style-type: none"> • Fracture – broken bone • Simple fracture – broken bone with skin intact • Compound fracture – broken bone with laceration (open skin) • Osteoarthritis – inflammation of bone and joint with cartilage degeneration • Scoliosis – lateral curve of the spine • Sprain – injury to a joint that causes pain and disability with injury to the ligaments • Dislocation – temporary displacement of a bone from it's normal positioning a joint • Flexion – bending; moving one part of the body toward another part • Extension – moving one part of the body away from the another part; making two parts of the body straight 	<p>Quiz #6 5/22</p>
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ESL 059 Medical Terminology
STUDY GUIDE

<p>Week 8 5/22-5/24</p>	<p><u>Urinary System</u> pages 268-273 Label the drawing on page 268 Know all the combining forms and pathology on page 269 Know all tests and procedures on page 270 EXCEPT Retrograde pyelogram Voiding cystourethrogram ESWL</p>	<p>Quiz # 6 5/22</p>
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ESL 059 Medical Terminology
STUDY GUIDE

Week 9 5/29-5/31	<u>Nervous System</u>	Quiz # 7 5/31
Week 9 5/29-5/31	<u>Skin and Sensory</u>	

**ESL 059 Medical Terminology
STUDY GUIDE**

<p>Week 10 6/5-6/7</p>	<p><u>Digestive System</u> pages 204-211 Label the drawing pg. 204 Know all the combining forms pg. 205 Know all the pathology, laboratory tests, and diagnostic procedures pg 206, EXCEPT: Colonic polypsis Cholangiography Hemacult test Liver function tests</p>	<p>Quiz #8 6/7 FINAL EXAM 6/12</p>

Handouts and Overhead Transparencies

**Medical Terminology for ESL
059/069**

How to Study

1. Listen to the terms in class
2. Make flash cards
3. Do the exercises in book - answers given
4. Review with a partner (quiz each other)
5. Pronounce them aloud at home
6. Write the names repeatedly; drawing or tracing diagrams, labeling parts in a drawing
7. Take notes in class; review at home
8. Use the medical abbreviations whenever possible
9. Use the CD-ROM for review

3 Objectives for Studying Medical Terminology

1. Analyze words by dividing them into parts.

Medical words are made up of small pieces - used in different combinations to make up different words and meanings; like a puzzle

Hemat / o / logy

Root combining suffix
 vowel

Do not simply memorize words – memorize the parts

2. Relate the structure and function of the medical term to the human body.

Explain terms in relation to how the body works in health and disease.

Ex. **Hepatitis** means inflammation (-itis) of the liver (hepat)

This will be better understood when you know where the liver is and how it works.

3. Be aware of spelling and pronunciation problems.

Some medical terms are pronounced alike but spelled differently with different meanings.

Ex. ilium (part of the hipbone)
ileum (part of the small intestine)

urethra (u RE thrah) - tube leading from the bladder to the outside of the body

ureter (UR e ter) - one of two tubes from the kidney into the bladder

Start with the suffix

logy = study of
hemat = blood

hemat/o/logy

gram = record
electr = electricity
cardi = heart

electr/o/cardi/o/gram

itis = inflammation of
gastr = stomach
enter = intestines

gastr/o/enter/itis

Prefixes

sub = below

sub/gastr/ic
refers to below the stomach

trans = across

trans/gastr/ic
refers to across the stomach

retro = behind

retro/gastr/ic
refers to behind the stomach

Suffixes

Divided into 2 groups:

1. Diagnostic Suffixes - describe conditions or their symptoms
2. Procedural Suffixes - describe procedures used in patient care

Diagnostic Suffixes

-algia	pain
-emia	blood condition
-ia	condition, disease
-itis	inflammation
-megaly	enlargement
-oma	tumor, mass
-osis	condition, abnormal
-pathy	disease condition
-rrhea	flow, discharge
-rrhage	blood bursting
-rrhagia	forth
-sclerosis	hardening
-uria	condition of urine

Adjective suffixes

-al, -eal

pertaining to, refer to

-ar

-ary

-ic

Procedural Suffixes

-centesis	surgical puncture to remove fluid
-ectomy	removal, resection, excision
-gram	record
-graphy	process of recording
-lysis	separation, breakdown, destruction
-plasty	surgical repair or correction
-scopy	process of visual examination
-stomy	opening
-therapy	treatment
-tomy	incision, to cut into

Review of Med Term Basics

- **Prefix** - beginning of word
- **Root or Combining Form**- main part of word
- **Suffix** - end of word

Peri / nephr / itis

Surrounding kidney inflammation
Around

Read the meaning of the medical word from the suffix to the beginning of the word and then across.

Perinephritis = inflammation surrounding the kidney

NOT
Surrounding the kidney inflammation

Combining vowel - usu. the letter "O"

- used betw. a root word and a suffix, if suffix doesn't start with a vowel

gastr/o/ tomy

- used betw. word roots

gastr/o/enteritis oste/o/arthritis

Combining Form - root and a vowel (usually an "O")

Gastr/o =combining form for **gastr** (stomach)

The **o** makes it easier to say

gastrotomy

an/o	anus (opening of the digestive tract to the outside of the body)
bi/o	life
carp/o	carpals (wrist bones)
cis/o	to cut
cost/o	ribs
cutane/o	skin
dur/o	dura mater (outer meningeal membrane surrounding the brain and spinal cord)
gen/o	to produce, to begin
glyc/o	sugar
nat/i	birth
norm/o	rule, order
scapul/o	scapula (shoulder blade)
son/o	sound
top/o	to put, place, position
troph/o	development, nourishment
uter/o	uterus
vertebr/o	vertebra (backbone)

Abbreviations

Pt, pt	patient
WNL	within normal limits
Dx	diagnosis
Tx, Rx	treatment
DC	discharge, discontinue
	decrease
	increase
	resulting in, leading to
c, w/	with
s, w/o	without
c/o	complains of, complaints of
r/o	rule out, ruled out
Ca, ca	cancer, carcinoma
VSS	vitals signs stable
y/o	year old
BP	blood pressure
TPR	temperature, pulse, respiration

Chapter 2: Organization of the Body

Objectives:

- To name the body systems and their functions
- To identify body cavities and specific organs within them
- To list the divisions of the back
- To identify three planes of the body
- To analyze, pronounce, and spell new terms related to organs and tissues in the body
- Identify the meanings for new word elements and use them to understand new medical terms
- Define terms that apply to the structural organization of the body

Body Systems

Molecules - building blocks of cells



Cells - individual units (muscle, nerve, skin, bone)



Tissue - similar cells grouped together
(epithelial, connective, muscle, nervous)



Organs - different tissues working together
(muscle, epithelial, nerve), which help it
function



Systems - groups of organs working together
(digestive: mouth, throat, esophagus, stomach,
intestine)

Body Systems

Circulatory (Cardiovascular)

- Heart, blood, vessels (arteries, veins, capillaries)
- Transports blood through the body

Lymphatic

- Lymph vessels and nodes carry lymph fluid
- Lymph has lymphocytes (WBC)
 - fights disease
 - helps to develop immunity

Digestive

- Brings food to the body and breaks it down, goes to bloodstream
- Food not broken down, removed from body at end of system as waste

Endocrine

- Composed of glands
- Sends chemical messages called *hormones* into the blood to act on other glands and organs

Reproductive

- Produce cells that join to form *embryo*
- Male (testis) sex organs produce hormones
- Female (ovary)

Musculoskeletal

- Consists of muscles, bones, joints, connective tissue
- Supports the body and allows it to move

Nervous

- Carries electrical messages to and from the brain through the spinal cord to the rest of the body

Respiratory

- Controls breathing, a process in which air enters and leaves the body

Skin and Sense organs

- Includes skin, eyes and ears
- Receives messages from the environment
- Sends messages to the brain

Urinary

- Purifies the blood to remove waste as urine
- Produces urine; sends it out of the body through the kidneys, ureters, bladder and urethra

Body Cavities

Cranial cavity

- Located in the head
- Surrounded by the skull (crani/o = skull)
- Contains the brain, pituitary gland (endocrine gland below the brain)

Thoracic cavity

- Chest cavity (thorac/o = chest)
- Surrounded by breastbone and ribs
- Contains lungs, heart, windpipe (trachea), bronchial tubes (from trachea to lungs) and other organs
 - Pleura - double membrane surrounding each lung
 - Pleural cavity - space betw. pleura, surrounds each lung
 - Mediastinum - large space betw. Lungs contains heart, esophagus (food tube), trachea and bronchial tubes

Abdominal cavity

- Space below the thoracic cavity
- Diaphragm - muscle that separates abd. and thoracic cavities
- Contains stomach, liver, gallbladder, sm. and lg. intestines
- Peritonium - attaches the abd. organs to the abd. muscles; holds all organs in place

Pelvic cavity

- Space below the abd. cavity
- Surrounded by the pelvis (hip bones)
- Contains urinary bladder, ureters, urethra, rectum, anus

Spinal cavity

- Space surrounded by the spinal column
- Contains the spinal cord - nervous tissue within the spinal cavity
- Nerves enter and leave the spinal cord carrying messages to and from the body

Divisions of the Back

1. **Cervical (neck) region** C1 - C7
2. **Thoracic (chest) region** T1 - T12
3. **Lumbar (waist) region** L1 - L5
4. **Sacral (sacrum or lower back)** S1 - S5
5. **Coccygeal (coccyx or tailbone)**

Planes of the Body

Frontal (coronal) plane

- Divides the body into anterior (front) and posterior (back)

Sagittal (lateral) plane

- Divides the body into right and left sides

Transverse (axial) plane

- Divides the body into upper and lower portions, or cross-sections

Chapter 2: Combining Forms

abdomin/o

abdomen

anter/o

front

bronch/o

tubes leading from
windpipe to lungs

cervic/o

neck of the body or
of the uterus

chondr/o

cartilage

coccyg/o

tailbone, 4 fused
bones, coccyx

crani/o

skull

epitheli/o

skin,
surface tissue

esophag/o

tube from throat to
stomach

hepat/o

liver

lapar/o

abdomen

laryng/o

voice box

later/o

side

lumb/o

waist

lymph/o

clear fluid in tissue
space and lymph vessels

mediastin/o

space between
lungs

pelv/o

bones of the hip

peritone/o

membrane surrounding the
abdomen

pharyng/o

throat

pleur/o	membrane surrounding the lungs
poster/o	back, behind
sacr/o	sacrum (5 fused bones in lower back)
spin/o	backbone, spine
thorac/o	chest
trache/o	windpipe
vertebr/o	backbone, vertebra

Combining Forms: Ch 1-3

aden/o	gland
amin/o	sac of fluid surrounding the embryo
angi/o	vessel (usu. a blood vessel)
arteri/o	artery
arthr/o	joint
arther/o	plaque (yellow fatty material)
axill/o	armpit
bronch/o	bronchial tube
carcin/o	cancerous
cardi/o	heart
chem/o	drug (or chemical)

cholecyst/o

gallbladder

chron/o

time

col/o

colon (lg intestine)

crani/o

skull

cry/o

cold

cyst/o

urinary bladder;
sac of fluid or cyst

electr/o

electricity

encephal/o

brain

erythr/o

red

esophag/o

esophagus (tube leading
from throat to the stomach)

hem/o

blood

hemat/o

blood

hepat/o

liver

hyster/o

uterus

inguin/o

groin

isch/o

to hold back

lapar/o

abdomen

laryng/o

voice box (larynx)

leuk/o

white

mamm/o

breast

mast/o

men/o

menses (menstruation)

month

mening/o	meninges (membrane around the brain/spinal cord)
my/o	muscle
necr/o	death
oophor/o	ovary
oste/o	bone
ot/o	ear
pelv/o	hip bone
peritone/o	peritoneum (membrane around organs in abd. cavity)
pulmon/o	lung
pneumon/o	
phleb/o	vein
radi/o	x-rays

ren/o	kidney
rhin/o	nose
salping/o	fallopian (uterine) tube
sarc/o	flesh
septic/o sept/o	pertaining to infection
thorac/o	chest
tonsill/o	tonsil
trache/o	windpipe (trachea)
ur/o	urine, urea (waste material)
vascul/o	blood vessel

Abbreviations

Pt, pt	patient
WNL	within normal limits
Dx	diagnosis
Tx, Rx	treatment
DC	discharge, discontinue
	decrease
	increase
	resulting in, leading to
c, w/	with
s, w/o	without
c/o	complains of, complaints of
r/o	rule out, ruled out
Ca, ca	cancer, carcinoma
VSS	vitals signs stable
y/o	year old
BP	blood pressure
TPR	temperature, pulse, respiration

ESL 059/069

Week 3: Assessment

Are you able to keep up with the pace of the class? Yes no

Please explain: _____

Would you prefer that we go slower and not finish all the material this term? (In that case, there would have to be a second part to this class offered during a different term). _____

Time spent in class:

Pronunciation: How much time would you like to spend in class with pronunciation? *More time less time OK the way it is*

Definitions of terms: How much time would you like to spend in class on definitions? *More time less time OK the way it is*

Review sessions: are they helpful? Yes no

Using overhead projector: Is it helpful? Yes no

Handouts: are they helpful? Yes no

Small groups with Margaret and Diane: Are they helpful? Yes no

Do you have any other suggestions that would help you learn the new material in class? _____

Homework: does it help you learn the new material? Yes no

Do you use the CD- ROM for study purposes? Yes no

If yes, what sections are most helpful? _____

If no, why aren't you using it? _____

Other suggestions or comments: _____

Introduction to Body Systems

Cardiovascular System

Overview

Cardi = heart

vascul = little blood vessels

Composed of heart and blood vessels

Heart - pumps blood through the blood vessels

Blood vessels - includes arteries, veins and capillaries

- Arteries - carry oxygenated blood from the heart to body parts
- Veins - carry deoxygenated blood back to the heart
- Capillaries
 - microscopic vessels between arteries and veins
 - allow the passage of nutrients, oxygen and carbon dioxide between the blood and the body cells

Arterioles - *little arteries* (as arteries go further from the heart, they branch out into smaller vessels, called arterioles)

Venules - *little veins* (as they get closer to the heart, they form into larger vessels, or veins)

The **heart** pumps blood through 2 different systems:

1. Pulmonary circuit

- carries blood to and from the lungs
- brings oxygen to the blood and gets rid of carbon dioxide (a waste product)

2. Systemic circuit

- carries blood to and from the rest of the body

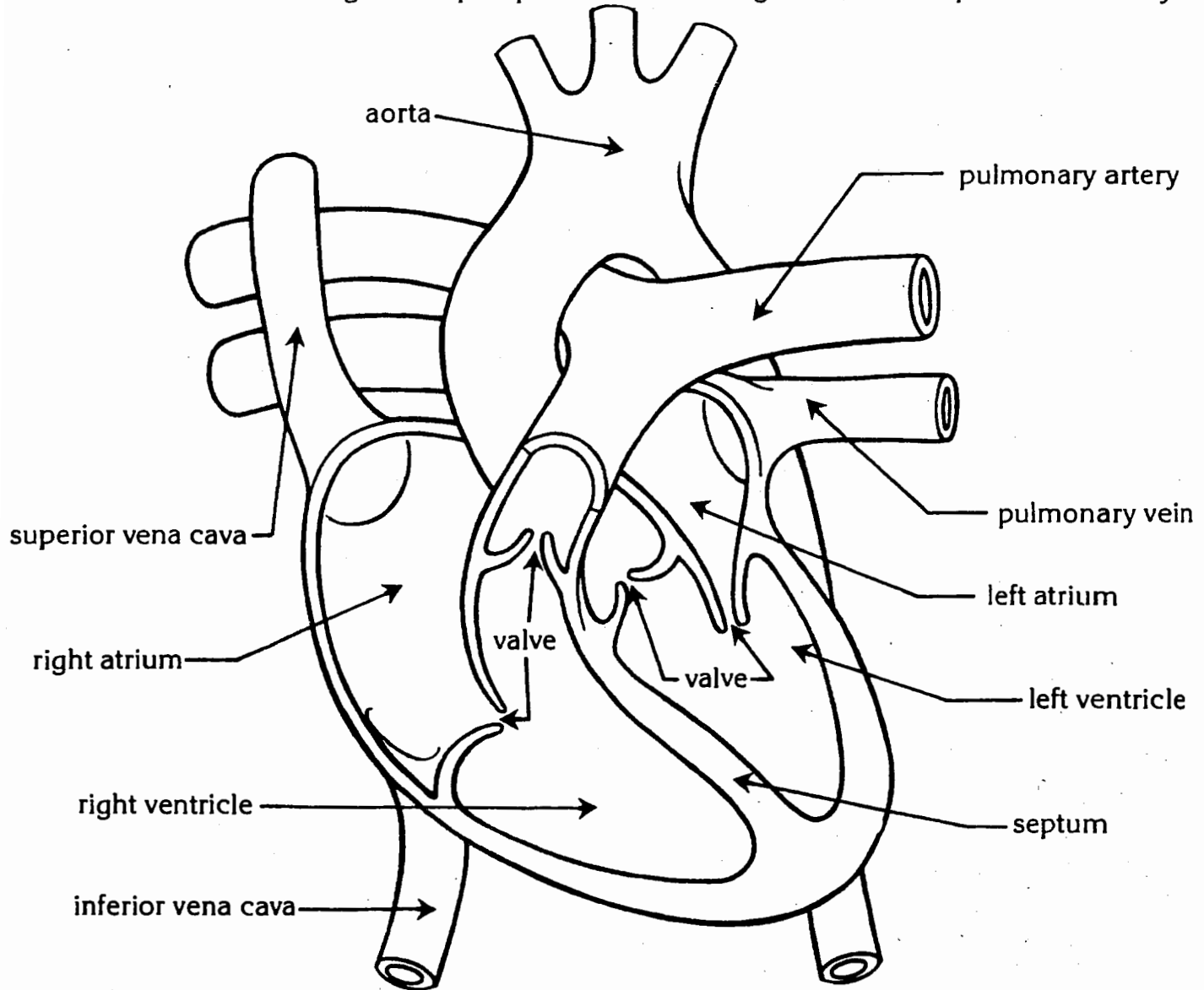
Heart - consists of 4 chambers (compartments)

Right side = right atrium, right ventricle
Pumps blood through the
pulmonary circuit

Left side = left atrium, left ventricle
Pumps blood throughout the
systemic circuit

The Heart

The heart is a muscular organ that pumps blood to the lungs and to other parts of the body.



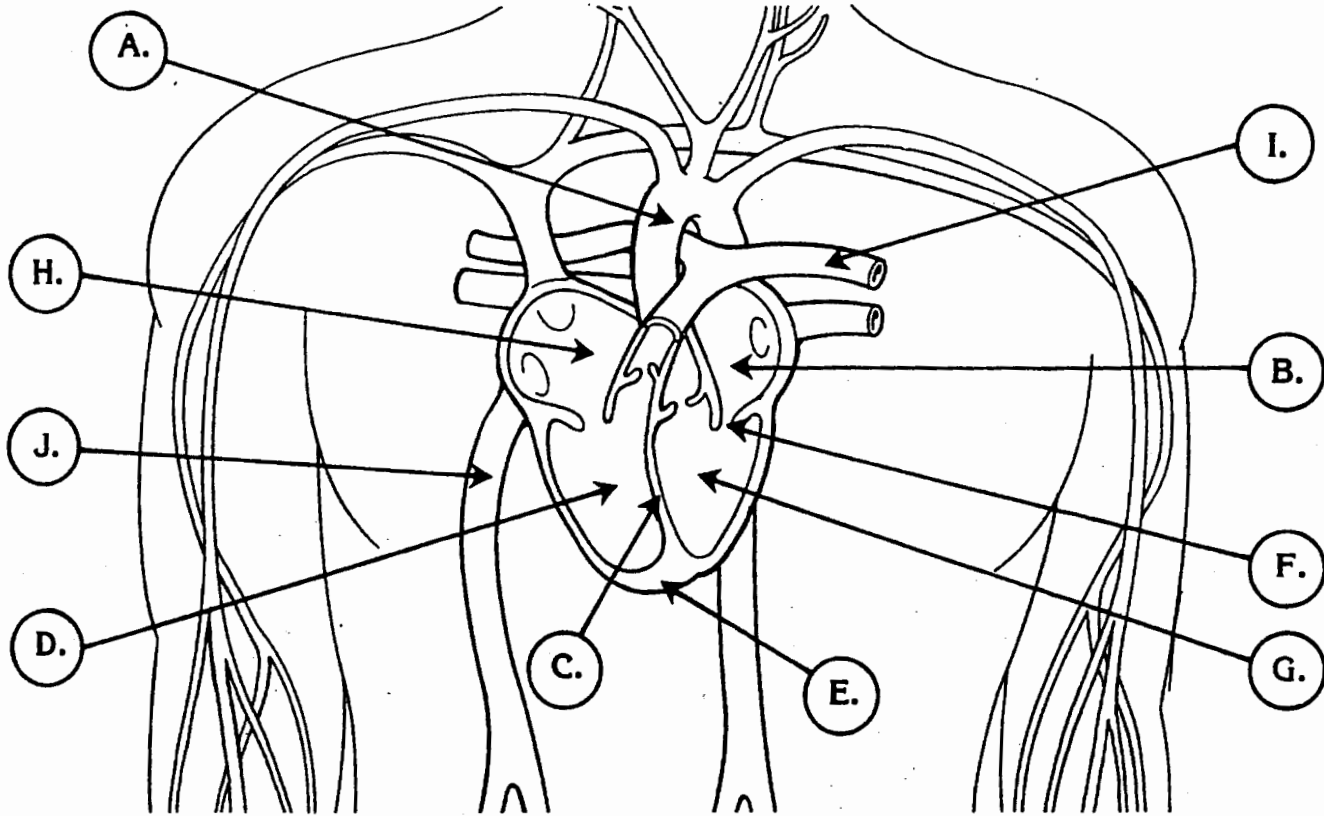
1. Which is the largest and the main artery of the circulatory system? _____
2. Name the blood vessels that carry blood from the upper and lower parts of the body.

3. What separates the left and right side of the heart? _____
4. Name the blood vessels that carry blood to and from the lungs.
_____ and _____
5. Name the four chambers of the heart. _____

6. What keeps blood from flowing back into a chamber of the heart? _____
7. In the diagram of the heart at the top of this page, draw arrows showing the flow of blood through the heart.

The Circulatory System

The circulatory system provides the force and channels for the distribution of the blood, which carries the food and oxygen to the cells and removes wastes.



Identify the part indicated by each letter.

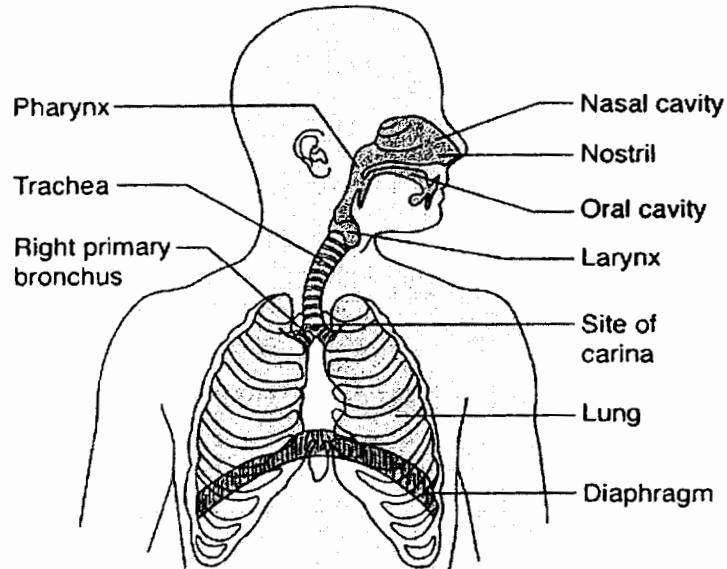
- A. _____
- B. _____
- C. _____
- D. _____
- E. _____

- F. _____
- G. _____
- H. _____
- I. _____
- J. _____

Complete each sentence with a word or words that will make the sentence a true statement.

1. Veins carry blood _____ the heart; arteries carry blood _____ the heart.
2. Tiny blood vessels are called _____.
3. The main organ of the circulatory system is the _____.
4. The fluid part of the circulatory system is called _____.
5. In your own words, tell how blood flows through the heart and to other parts of the body.

Respiratory System



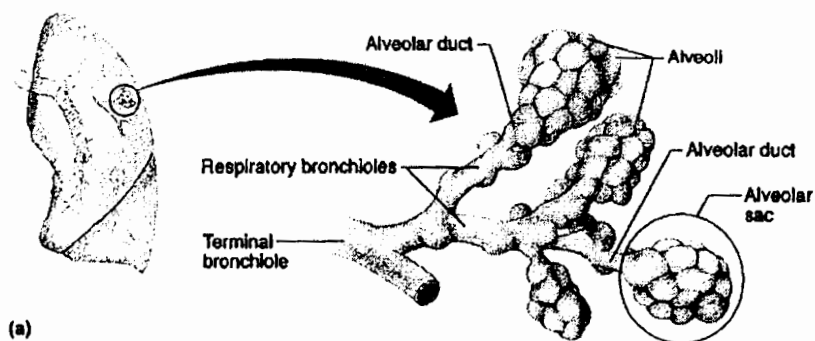
The Path of Air

- Nasal cavity—in nose
- Pharynx—throat
- Larynx—voice production
- Trachea—"Windpipe"
- Bronchus—branches of trachea
- Bronchioles—branches of bronchus
- Alveolus—looks like "grape" in cluster

Bronchi vs. Bronchioles

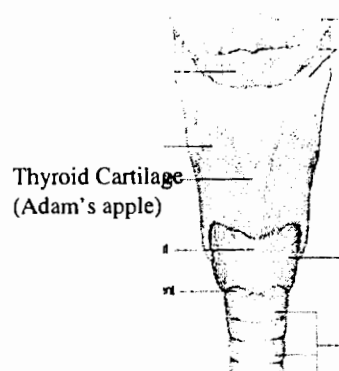
- Bronchus = singular; bronchi = plural.
- **Bronchi** are partially surrounded by cartilage (rigid) and do not change size.
- **Bronchioles** do not have cartilage, but have smooth muscle that allows them to change diameter.
 - Bronchoconstriction—diameter gets smaller
 - Bronchodilation—diameter gets larger

The Bronchioles

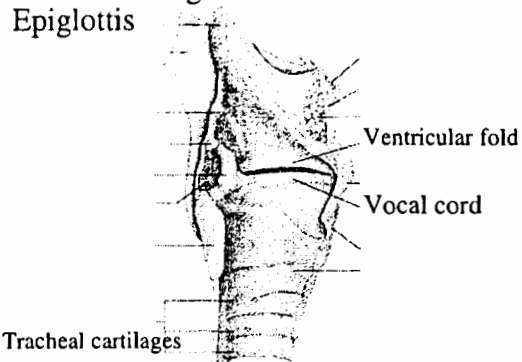


The Larynx

Frontal View:

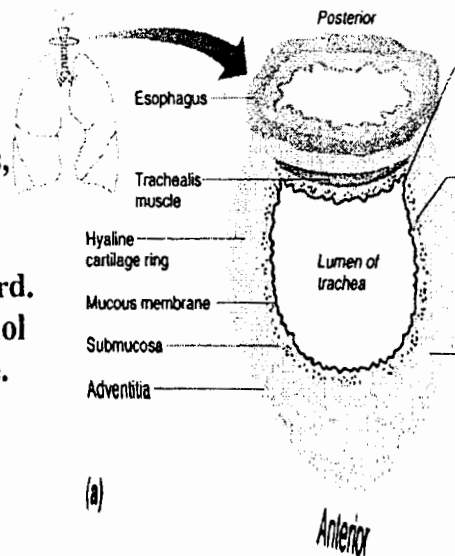


Sagittal view:



The Trachea

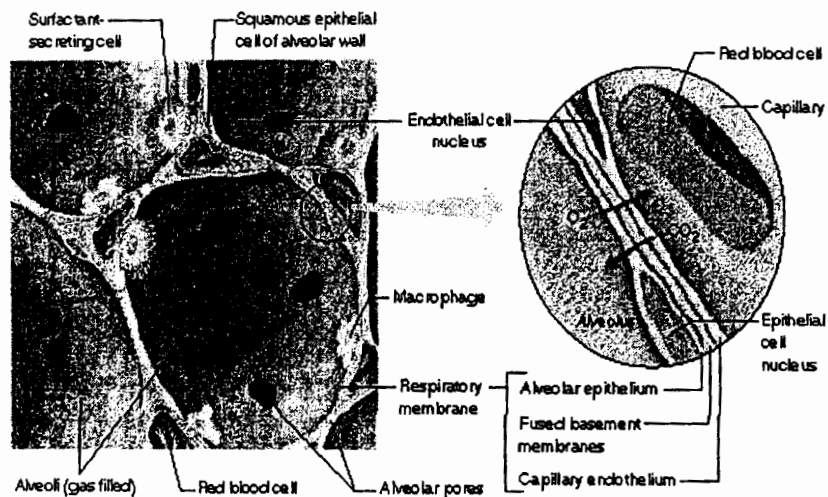
- Trachea is lined with:
 - Mucus:
 - Sticky
 - Traps dust, viruses, & bacteria.
 - Cilia:
 - Move debris upward.
 - Paralyzed by alcohol and cigarette smoke.



Gas Exchange Occurs in Alveoli

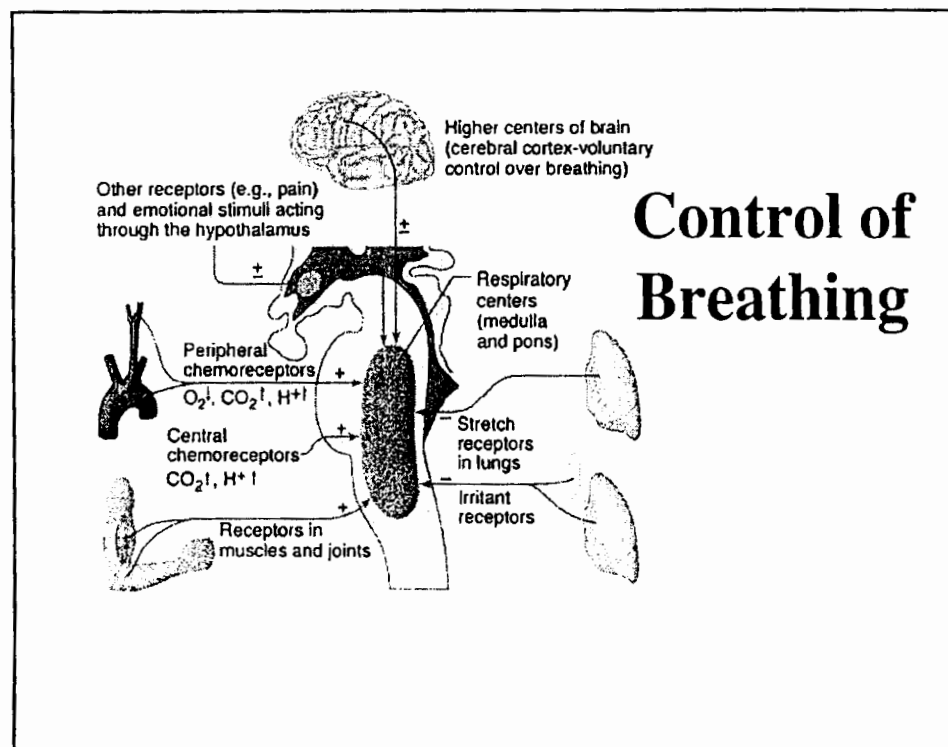
- Oxygen moves into capillary.
- Carbon dioxide moves out of capillary, into alveolus.
- Alveoli lined with:
 - Macrophages (“dust cells”) that eat “germs.”
 - Surfactant that keeps alveoli from collapsing.

Inside an Alveolus—Gas Exchange!



Control of Breathing

- Involuntary:
 - The brain sends messages to diaphragm and intercostal muscles to contract.
 - Sensors in brain check for carbon dioxide (and acid) in blood. If too much, then signal sent to increase rate and depth of breathing.
- Voluntary: we can decide to breathe more deeply. These messages are sent through conscious control pathways.



Respiratory Disorders

- **Respiratory Distress Syndrome:**
 - No surfactant made (e.g., premature baby)
 - Alveoli collapse
 - Gas exchange does not occur
 - Treatment:
 - Respirator to keep alveoli open
 - Spray artificial surfactant into lungs

Respiratory Disorders

- **Influenza and Colds:**
 - Caused by viruses
 - Influenza caused by influenza virus
 - Colds caused by rhinovirus or adenovirus
 - Transmitted by droplets: cough, sneeze, hands
 - Prevention & Treatment:
 - Influenza vaccine for prevention of influenza
 - Anti-viral drugs
 - Treat signs/symptoms (cough suppressant, decongestant)

Respiratory Disorders

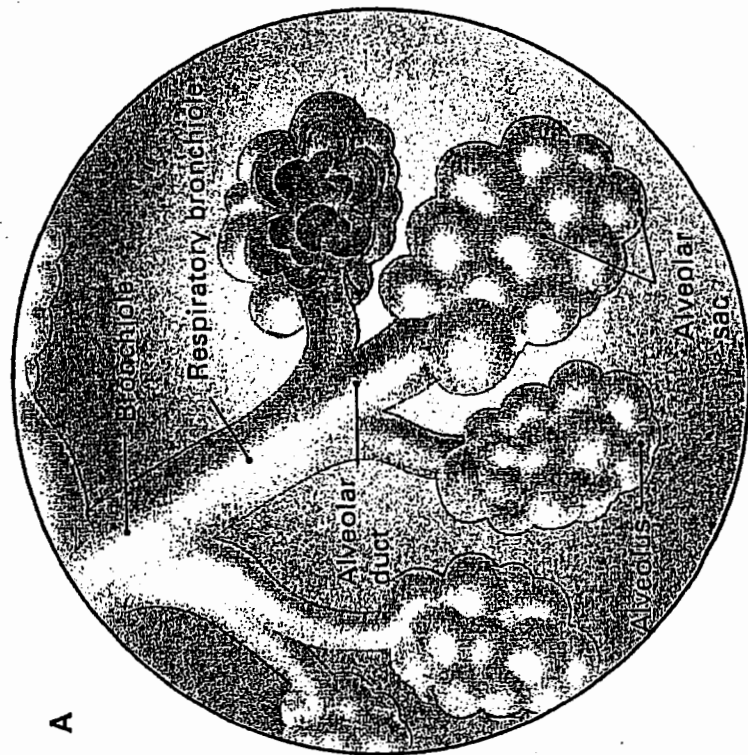
- **Bronchitis:**
 - Inflammation of bronchi and bronchioles.
 - Causes: bacteria and viruses, chemicals
 - Mucus accumulates, restricting flow of air.
 - Treatment:
 - Treat infection with antibiotics
 - Anti-inflammatory drugs
 - Stop smoking

Respiratory Disorders

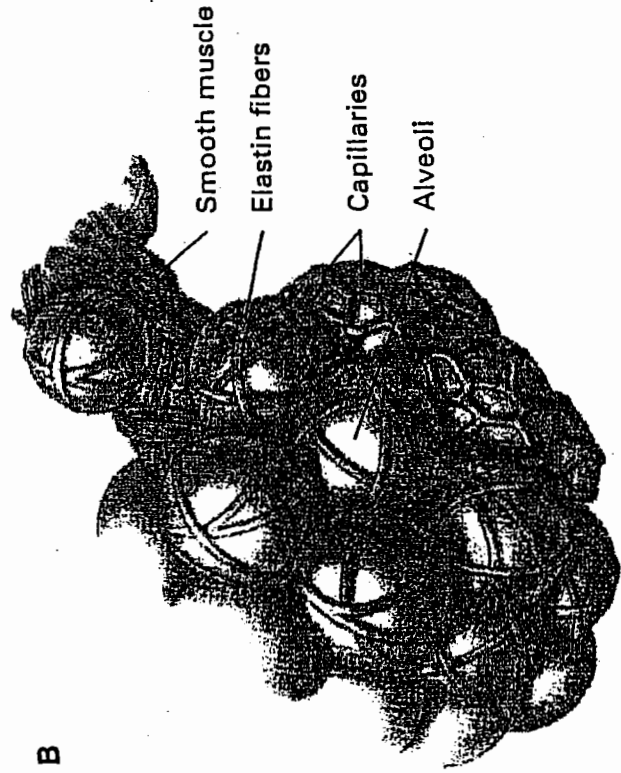
- **Asthma:**
 - Caused by allergens in air, respiratory infections
 - Bronchioles constrict, air flow reduced, wheezing
 - Treatment:
 - Avoid allergens (pollen, dust, mold, dander, smoke, chemicals)
 - Drugs that open bronchioles (e.g., epinephrine, albuterol), often as inhalers.

Respiratory Disorders

- **Emphysema:**
 - Cause: cigarette smoking
 - Elastic fibers in alveoli are destroyed and can't recoil after stretching.
 - Exhalation is difficult (takes nearly all of their energy just to breathe)—"puffing"
 - Treatment:
 - Stop smoking
 - Bronchodilator drugs
 - Breathing exercises
 - Oxygen therapy

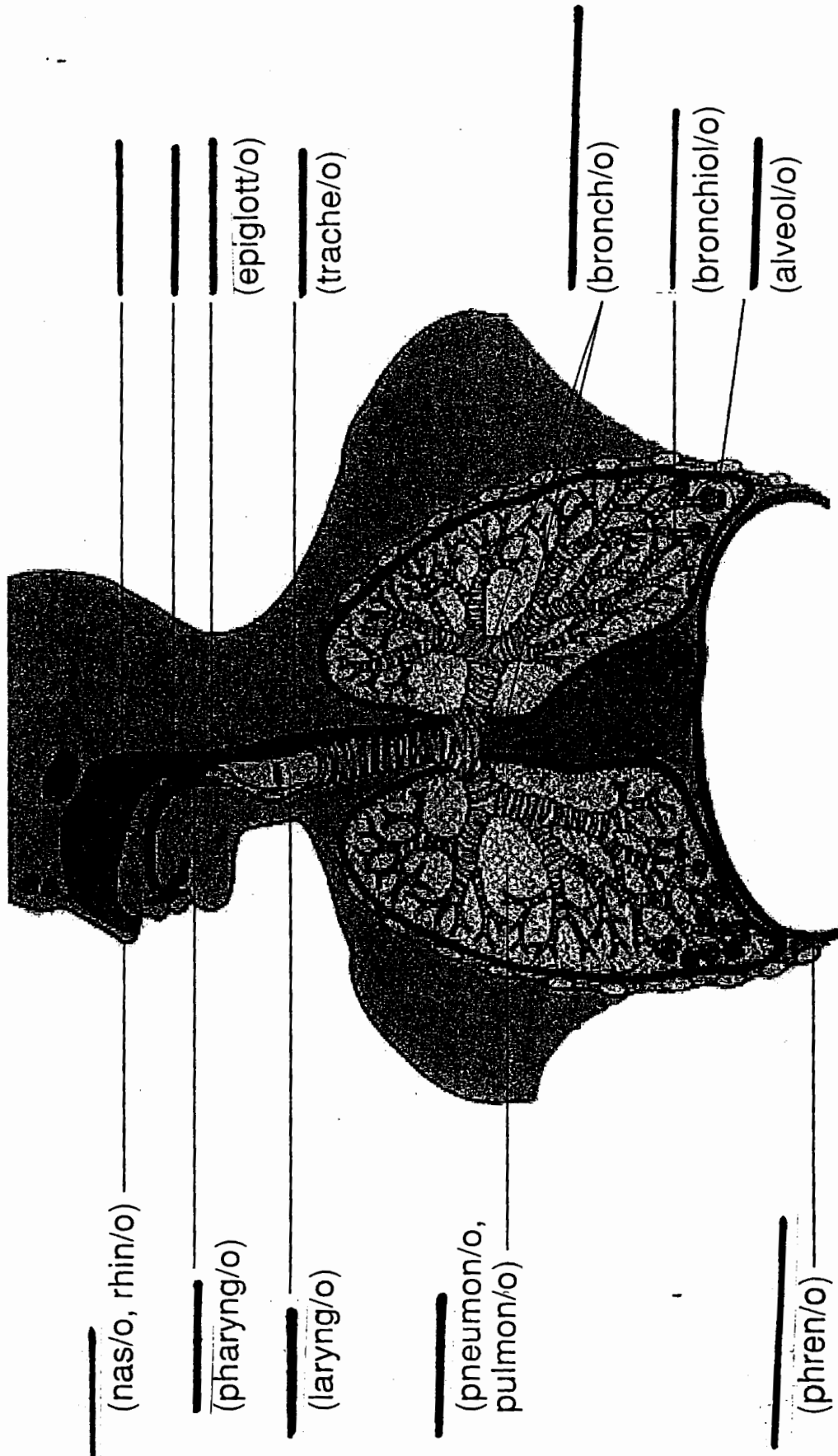


A



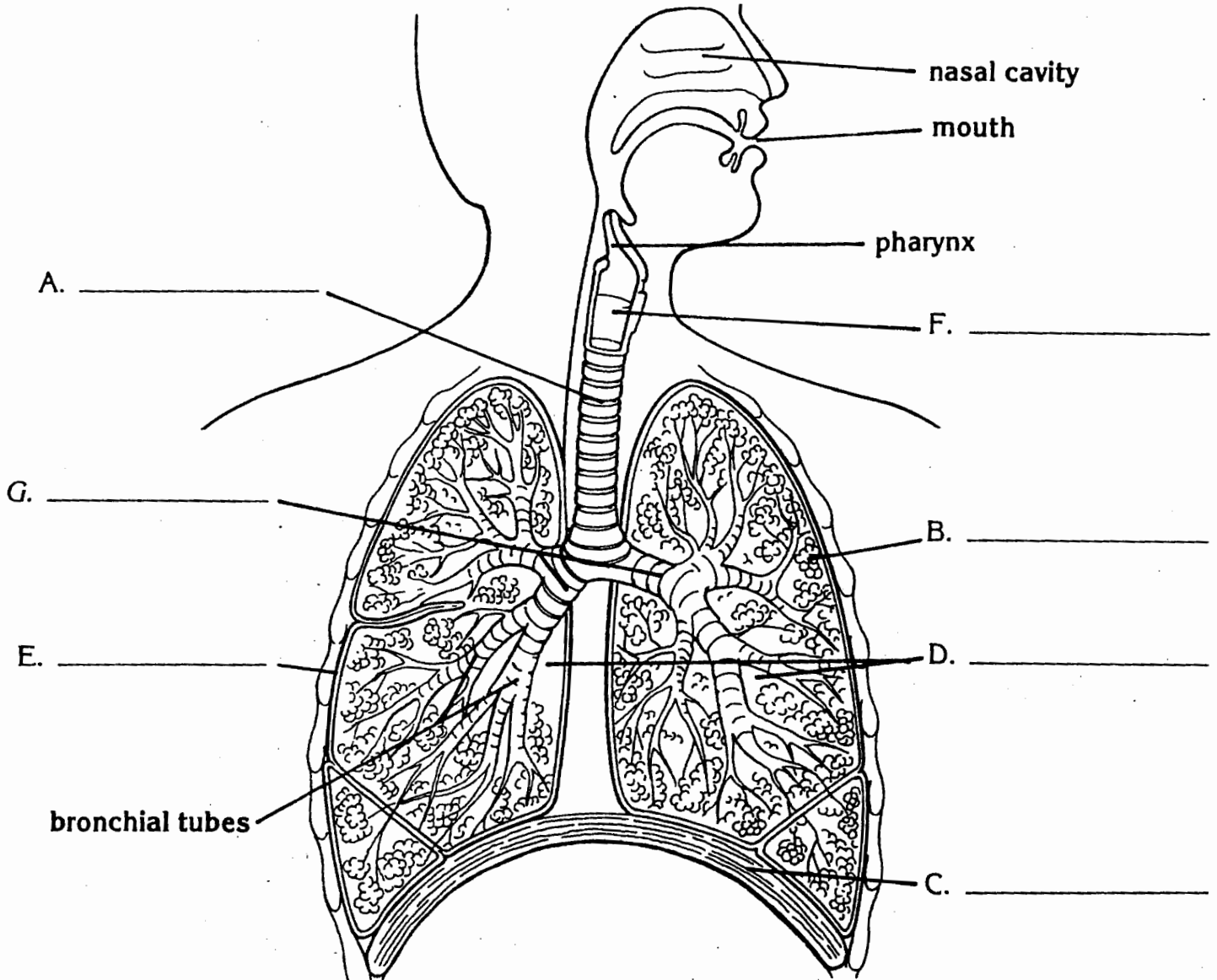
B

FIGURE 8.7
 (a) Alveolar sac; (b) alveoli.



The Respiratory System

The respiratory system brings oxygen into the body and removes carbon dioxide and other gases.



1. Study the diagram to correctly identify these parts of the respiratory system. Then use each answer to correctly label the diagram.

- A. the tube that connects the throat and the bronchial tubes _____
- B. the grape-like clusters of air sacs within the lungs _____
- C. the large band of muscle that controls the size of the chest cavity _____
- D. the two large lightweight respiratory organs of the body _____
- E. the outer membrane which covers the lungs _____
- F. the part of the respiratory system that helps us speak _____
- G. the two branches of the windpipe _____

2. Write **True** if the statement is true. Write **False** if the statement is false.

 The teeth are an important part of the respiratory system.

CONCEPT: The function of the respiratory system is to bring oxygen into the body and get rid of carbon dioxide and other gases.

BACKGROUND INFORMATION: The basic functions of the respiratory system are the delivery of oxygen to the cells and the removal of carbon dioxide from the cells. Oxygen is needed by cells to use (burn) in order to produce heat and energy. In using the oxygen, carbon dioxide is produced and the respiratory system disposes of it and other gases. The exchange of oxygen for carbon dioxide within the lungs is called respiration. The upper respiratory tract includes the following: the nose with nostrils, mouth, throat, and the larynx, plus numerous sinus cavities within the head. Inhaled air is filtered, moistened, and warmed as it passes through the nostrils of the nose, down the throat, and through the larynx or voice box containing the vocal cords. The "clean, filtered air" passes on into the lower respiratory tract, which includes the following: the trachea or windpipe, the bronchi, and the lungs, which contain bronchial tubes and alveoli, or air sacs. The pleura is a membrane which covers the lungs. Inhaled air passes through the trachea (windpipe), a 10 to 12cm semirigid tube, into the two bronchi, branches of the trachea. One bronchus goes to the left lung and one to the right lung. Within the lungs the bronchi divide into smaller branches called bronchial tubes. At the ends of these tubes there are tiny clusters of minute air sacs called alveoli. Alveoli have very thin cell walls. It is here that oxygen from inhaled air passes into the blood, and carbon dioxide passes out of the blood into the alveoli. When we breathe out air (exhale), the carbon dioxide and other gases are removed from the body. The action of inhaling and exhaling, called

breathing, is carried on by the ribs, rib muscles, and diaphragm. When the rib muscles and diaphragm contract, air rushes into the lungs; when they relax, air is forced out by the change of lung size and pressure within the lung and chest cavity.

MEDICAL HISTORY

CHIEF COMPLAINT: Dyspnea.

PRESENT ILLNESS: This was the second hospital admission for this 50-year-old white female, with a 25-year history of asthma which is getting worse. The pt. first noticed dyspnea and wheezing following smoke inhalation. She then noticed ↑ of her symptoms in spring and summer. These symptoms were not present at other times. Some flowers, mild upper respiratory infections, and emotional stress → her attacks of breathing difficulty.

For the last year, the severity and frequency of her attacks has ↑ and she has also noted ↓ ability to exercise. Her fatigue has ↑. The pt. states that she had Rx with Prednisone one year ago. She was sent to the hospital in August for evaluation of 2-week history of ↑ dyspnea. Tests showed contraction of the bronchial tubes. The patient continued treatment with Prednisone while she was in the hospital. Chest X-ray was WNL.

In the last 2 weeks, the patient has experienced ↑ wheezing, dyspnea, and in fact, these symptoms began while on Prednisone. Her dyspnea was made worse by a brief trip to the desert. There she had a fever of 101 degrees and 2 days before she was admitted to the hospital, she had increasing cough. Sputum which was coughed up was described as white and thick. The patient said she did not have any recent exposure to flowers, or exposure to smoke fumes, or increased emotional stress.

PAST MEDICAL HISTORY: The pt. has a 20-year history of allergic rhinitis. She had pneumonia 25 years ago and had esophageal contraction 6 years ago. She has a history of episodes of heart flutter, which she first noticed 6 years ago. She says her rapid heart beats do not come at the same time as asthmatic attacks or medications. Operations include repair of a broken hip, 17 years prior to admission; appendectomy and oophorectomy for ovarian adenoma 25 years ago. She had a tonsillectomy as a child. House dust and flower pollens are her only known allergies.

SOCIAL HISTORY: The pt. is a former secretary. She now works as a sales clerk in a shoe store. She has smoked one pack of cigarettes per day for 25 years. She has not smoked since September. She drinks about 2 cocktails per night.

FAMILY HISTORY: Her father died at age 32 of pneumonia. Her mother is alive and well at age 79, and has high blood pressure. The patient has a 60 year old sister who is alive and well. There is no family history of asthma or any other allergies. She is divorced, and her former husband is alive and well. She has two children, one who had bilateral nephrectomy due to kidney tumors and is now on hemodialysis.

REVIEW OF SYSTEMS: HEENT – she has occasional attacks of otalgia and laryngitis. Otorhinolaryngologist states that her ears are WNL. She complains of arthralgia in her knees—Dx of chronic arthritis ten years ago. Except for heart flutter once or twice a year, there are no other symptoms of cardiopathy. Nervous system is WNL. She has no symptoms of problems with the digestive system. Urinary and female reproductive systems are normal.

Lymphatic System

- Plays a key role in protecting the body against infection
- Consists of a big network of vessels and glands
- Works in a similar way to circulatory system, but the yellowish fluid (lymph) flows only **one way towards the heart** (not in a circulatory loop).

Lymph moves through the vessels in the lymphatic system in a similar way to blood transported in the veins.

Blood transports oxygen, nutrients, hormones, and waste products through the blood vessels. Some of the fluid that passes through the capillaries does not return to the bloodstream. This fluid goes into another series of vessels, the lymphatic vessels.

The fluid, called lymph, gets “recycled” back into the cardiovascular system (C/V).

Before it goes back into the C/V system, it passes through numerous lymphatic organs.

These lymphatic organs contain millions of WBCs, and they filter the lymph by removing bacteria and other waste products.

These WBCs are a huge part of the Immune System, which defends us against viruses, bacteria and other things that cause disease.

As lymph flows slowly through the lymphatic vessels, it goes through small pea-sized organs called lymph nodes. These nodes contain millions of WBCs to protect against infection.

Other Organs of Lymphatic System:

Spleen - lateral to the stomach in the abdominal cavity

Thymus gland - located in the mediastinum in the thoracic cavity

Tonsils - located in the throat (posterior pharynx)

Lymphatic nodules - located in the walls of the large intestine (and other parts of the body)

2 important functions of the lymphatic system:

- recycles fluid back into the bloodstream
- fights infection with the WBCs it contains

Endocrine System

Endo = within, inside

-crin = to secrete

Primary function: keep the body in a state of balance (homeostasis).

Endocrine system communicates with the body by secreting chemicals into the blood stream.

Hormones enter the bloodstream, which carries them throughout the body's circulation until they reach the area they should affect.

Hormones are very strong chemical transmitters.

Hormone contacts a cell (target cell)



begins a chemical reaction



changes the cell's metabolism (energy inside the cell)

Endocrine glands:

- Secrete hormones
- Located all over the body

Pituitary gland

- “master gland”, maintains control over many other glands
- Pea-sized, in cranial cavity, just below brain, connected to hypothalamus

Pineal gland

- Very small, located in cranial cavity
- Secretes melatonin (regulates sleep cycles)

Thyroid gland

- Wraps around larynx, butterfly shaped
- Secretes 3 important hormones (T3, T4, calcitonin)

Parathyroid glands

- Posterior sides of thyroid
- Secretes parathyroid hormone PTH (increases calcium levels in blood)

Adrenal glands

- Located on top of each kidney
- Secretes several important hormones (including epinephrine, norepinephrine: “fight or flight” response)

Pancreas

- Located in abdominal cavity
- Secretes hormone insulin and digestive enzymes

Thymus gland

- Shrinks in size after puberty
- Located above heart in mediastinum
- Secretes a hormone which helps the immune response during childhood

Gonads

- Produce sex hormones and reproductive cells
testes = male gonad ovaries = female gonads

Female Reproductive Organs

Uterus

- a pear-shaped organ that contains a thick layer of smooth muscle
- contains and nourishes the fetus

Cervix

- the neck of the uterus that opens into the vagina

Vagina (birth canal)

- tubular organ that leads to the outside of the body
- receives the sperm during intercourse

Fallopian Tubes (uterine tubes)

- extend on either side of the uterus
- have fingerlike projections (fimbriae) on the ends that move the ovum (egg cell) into the tube
- transports the ovum to the uterus

Ovaries (Ovary singular form)

- glands that are located on either side of the uterus
- produce ovum (ova, plural form)
- produce sex hormones (progesterone and estrogen)

Mammary glands

- organs that produce milk for infant nourishment
- located in the breasts, becomes enlarged during puberty and when producing milk (lactation)

Perineum

- area between the vaginal opening and the anus

Fertilization - the union of the egg and the sperm

Male Reproductive Organs

The purpose of the male reproductive system is to produce, maintain, and transport sperm, the male sex cell required for the fertilization of the female egg.

It also produces the male hormone, testosterone, which is essential for the development of sperm and male sex characteristics.

Testes (testis, singular form)

- male gonads that produce sperm cells
- secrete testosterone
- located in an external sac, the scrotum

Vas Deferens

- a narrow tube that passes through the inguinal canal into the abdominal cavity
- extends from each testis up through the scrotum
- smooth muscle with peristaltic waves that push the sperm along

Prostate Gland

- a gland that surrounds the urethra and release secretions directly into the urethra

- contributes along with other male glands, to the formation of **semen** (fluid and sperm), released during ejaculation

Urethra (also part of Urinary System)

- tube that carries urine from the bladder and carries sperm from the vas deferens to the outside of the body
- it extends from the urinary bladder through the penis to the outside of the body

Penis

- an external genital organ that contains the urethra and special erectile tissue
- enlarges and hardens during an erection

Scrotum

- skin-covered sac that contains the testes
- hangs below the pelvic cavity

Urinary System

The function of the urinary system is to remove unwanted waste materials and recycle other materials.

Kidneys (2)

- Remove metabolic wastes, toxins, excess ions and water as urine
- Recycle needed materials back into the blood
- Regulate the amount of water in our blood
- Help regulate blood pressure (BP), pH and red blood cell production in the bone marrow
- Contain 1-2 million nephrons
- Nephrons - filter huge amounts of blood and produce 1-3 liters of urine per day
- Renal pelvis - central section of the kidney

Ureters (2)

- Drain urine from the kidneys
- Extend downward to the urinary bladder

Urinary Bladder (1)

- Holds urine and releases it from the body through the urethra

Urethra (1)

- Carries urine from the bladder to the outside of the body
- Differs in size between males (20 cm) and females (3-4 cm)

Musculoskeletal System

- Organs that support the body and allow it to move, including the muscles, bones, joints and related structures, like tendons and connective tissue

Bones

- connected to muscles that move the body
- provide the framework for the body
- protect internal organs
- store calcium and other minerals
- produce blood cells within the bone marrow

Joints

- spaces between bones

Ligaments

- connective tissue
- located near the joints
- connect bones to other bones

Tendons

- connective tissue
- join muscles to bones

Muscles

- connective tissue that contracts to make movement
- contributes to posture
- produces body heat
- acts as a protective covering for the other organs

Nervous System

- Consists of the brain, spinal cord and nerves
- controls muscles, glands, organs
- controls vital functions such as heartbeat, breathing, digestion, urination
- regulates blood flow and release of chemicals in the bloodstream

Divided into:

1. Central Nervous System (CNS)

Brain and spinal cord (enclosed within three protective membranes, the meninges)

2. Peripheral Nervous System (PNS)

Nerves - carry messages to and from the brain

- Spinal nerves - carry messages to and from the spinal cord; 31 pairs come out of the spinal cord
- Cranial nerves - carry messages to and from the brain; 12 pairs come from base of skull

Central Nervous System (CNS)

Brain - consists of 4 major structures
(center for thought, emotion, reasoning)

1. Cerebrum

- largest and uppermost part of the brain
- divided into 2 hemispheres: right and left

2. Cerebellum

- posterior part of the brain
- controls unconscious actions
- coordinates the contraction of muscles and the movement of body parts to create motion

3. Interbrain (thalamus and hypothalamus)

- **Thalamus** receives all sensory input (except smell)
- **Hypothalamus** controls many automatic functions, such as appetite, temperature and blood pressure (BP)

4. Brainstem

- Connects the brain to the spinal cord
- Controls many basic body functions (heart rate, BP, breathing, swallowing, coughing, vomiting)

Spinal Cord

- Transmits sensory impulses from the body to the brain
- Transmits motor impulses from the brain to the muscles and organs of the body
- Located within the spinal cavity of the vertebral column

Peripheral Nervous System

- Consists of all nerve tissue outside of the spinal column and skull
- Nerves connecting to the spinal cord that supply the body with the ability to give and receive messages
- **Spinal nerves** - carry messages to and from the spinal cord; 31 pairs come out of the spinal cord and exit between the intervertebral spaces
- **Cranial nerves** - carry messages to and from the brain; 12 pairs come from base of skull

Skin and Sense Organs

Eye (ocul/o, ophthalm/o) - Organ that receives light waves and transmits them to the brain.

Conjunctiva - Thin protective membrane over the front of the eye and attached to the eyelid.

Cornea - Transparent layer over the front of the eyes. It bends light to focus it on sensitive cells (retina) at the back of the eye.

Lens - Structure behind the pupil of the eye. It bends light rays so that they are properly focused on the retina at the back of the eye.

Retina - Layer of sensitive cells in the back of the eye. Light is forced on the back of the retina and then is transmitted to the optic nerve, which leads to the brain.

Optic Nerve - Nerve in the back of the eye through which light enters.

Pupil - Black center of the eye through which light enters.

Iris - Colored (pigmented) portion of the eye.

Sclera - White outer coat of the eyeball.

Ear (aur/o, ot/o) - Organ that receives sound waves and transmits them to nerves leading to the brain.

Auditory canal - passageway leading into the ear from the outside of the body.

Eardrum (myring/o, typan/o) - Membrane that separates the outer and middle parts of the ear.

Auditory nerve - Nerve that carries messages from the inner ear to the brain.

Eustachian tube - Channel connecting the middle part of the ear with the throat.

Skin (dermat/o, derm/o) - Outer covering that protects the body.

Sebaceous gland - oil producing gland in the skin

Sweat gland - gland in the skin that produces a watery salt-containing substance.

Hair follicle - formed from the hair root and its covering

Epidermis - outer layer of the skin

Dermis - Fibrous middle layer of the skin

Subcutaneous - lower layer of the skin, composed of fatty tissue

DIGESTIVE SYSTEM

Mouth

Tongue

Salivary glands

Pharynx

Epiglottis

Esophagus

Gastroesophageal sphincter

Stomach

Pyloric sphincter

Small intestine

Pancreas

Gallbladder

Liver

Large intestine

Appendix

Rectum

External anal sphincter / anus

Oral Reports

Medical Terminology Oral Report Guidelines

You will need to do an oral report on a disease or a procedure that interests you. This report counts as **20% of your final grade**.

You will present your report to your classmates and instructor **on the date that you sign up for** (see sign-up sheet). You may not reschedule it unless you discuss this with me first.

- The report should be on longer than five minutes.
- You may use transparencies of any diagrams, photos, etc. or bring in any other materials that will add interest to your report. (Ask your teacher if you need help with making transparencies.)
- You will be **graded** on the following areas:
 1. Use of medical terminology that is included in the report
 2. Your pronunciation of the terminology
 3. Accuracy and completeness of the information presented
 4. Use of any extra materials

You may use the outline below as a guide for your report. You do not need to cover all the areas but please pick out a few areas that you wish to include. Please see me for **approval of your topic**. We will be having a session with a librarian in the computer lab of the library on **April 17**. She will assist you in locating appropriate sources for finding information on your topic. You may also check out books from the library or ask me about other available resources.

<u>Disease</u>	or	<u>Procedure</u>	Introduction
• Symptoms		Indication	Main body
• Anatomy		Steps of procedure	Summary
• Causes		Complications	
• Diagnosis		Recovery	
• Treatment options			
• Medications			
• Prevention			

Medical Terminology Oral Report Evaluation

Name: _____

Grade: ___ / ___ points

Topic: _____

Content and knowledge: _____

___ General description of disease or procedure

___ Use of medical terminology (try to use as many terms as possible)

Disease:

- ___ Symptoms
- ___ Anatomy
- ___ Causes
- ___ Incidence
- ___ Diagnosis
- ___ Treatment options
- ___ Medications
- ___ Prevention

Procedure:

- ___ Indication
- ___ Steps of Procedure
- ___ Complications
- ___ Recovery

Organization (introduction, main body, conclusion or summary):

___ Well-organized and stays within the five minute limit

Speaking Skills: _____

- ___ Pronunciation of medical terminology is clear and comprehensible
- ___ Uses eye contact with entire audience
- ___ Speech is at appropriate speed and volume
- ___ Appears confident and well-practiced with content

Use of Medical Terminology:

Use of Visual Aids: _____

- ___ Handouts for everyone in the audience
- ___ Photos or drawings / overhead transparencies
- ___ Information presented in interesting and informative way

Oral Report Student Evaluation Form

Speaker's Name: _____ Speaker's Topic: _____

Please check the appropriate box in the chart below.

Questions	Excellent	Good	OK	Not very
1. How interesting was the information presented by this speaker?				
2. Could you hear the speaker clearly?				
3. Could you understand the speaker's vocabulary ?				
4. Did the handout/ overhead transparencies or pictures provide useful information?				
5. Did the speaker have good eye contact with the audience?				

One additional question I have about this topic is:

My suggestions or comments about this oral report (suggestions for the speaker):

Oral Report Student Evaluation Form

Speaker's Name: _____ Speaker's Topic: _____

Please check the appropriate box in the chart below.

Questions	Excellent	Good	OK	Not very
2. How interesting was the information presented by this speaker?				
6. Could you hear the speaker clearly?				
7. Could you understand the speaker's vocabulary ?				
8. Did the handout/ overhead transparencies or pictures provide useful information?				
9. Did the speaker have good eye contact with the audience?				

One additional question I have about this topic is:

My suggestions or comments about this oral report (suggestions for the speaker):

Performance Task

North Seattle Community College

Level	ESL 059/069
Skill Areas / Topic	Medical Terminology, Pronunciation, Speaking, Listening, Research
ESL Competencies Assessed	<u>ESL Speaking and Listening 6.4</u> Use appropriate organizational pattern for intended audience to make oral presentation on a chosen topic

Context ___ X ___ Work ___ ___ Family ___ ___ Community
<p>Instructions to the student: We have been studying various diseases and diagnostic procedures while learning medical terminology. You will need to do an oral report on a disease or a procedure that interests you and present this information to your classmates and instructor. You will need to research your topic using the web sites and library information handout from your session in the library. Your report should be 5-10 minutes long and you should include any medical terminology that is appropriate and give explanations for all new terminology. You will be graded on the accuracy of your information (including the categories shown on your handout), organization of the report (see handout), your pronunciation, and use of visual aids.</p>
<p>Product or Outcome:</p> <ol style="list-style-type: none"> 1. Oral report presentation to class 2. Outline and possible handout of information 3. Visual aid to support your report
<p>Materials, Resources:</p> <ol style="list-style-type: none"> 1. Access to a computer and the Internet 2. Access to medical books in the NSCC Library 3. Visual aids: posters, pictures, diagrams, anatomical illustrations or overheads

Student Sample of Medical Terminology Report

What is High Blood Pressure (hypertension)?

High blood pressure or hypertension means high pressure (tension) in the arteries. Normal blood pressure is below 120/80, if the blood pressure becomes 140/90 or above, it is considered high blood pressure. The top number tells us the pressure in the arteries as the heart contracts and pumps blood into the arteries. And the bottom number tells us the pressure in the arteries as the heart relaxes after the contraction.

What is the cause of HBP?

Most of the time hypertension is due to increased stiffness and narrowing of the smaller (peripheral) arteries, so this results in increased resistance to the flow of blood. The reason is high cholesterol in our bodies, lack of exercise, overuse of salt, and genetics.

What are causes of high blood pressure?

The cause of high blood pressure is unknown 90% of the time.

- Genetics like in African background (1 in 3), Asia and Hispanic ethnic groups.
White Americans have less chance to get HBP
- Salt intake
- Obesity
- Kidney failure
- Diet (lifestyle)

What are the symptoms?

It can progress without symptoms for the first 10 to 20 years, and slowly damage the arteries and heart. That is why it is called the “Silent Killer”

Most of the time HBP doesn't show symptoms, but when it gets severe, HBP symptoms are:

- Stroke or heart attack.
- Coma
- Sleepiness
- Confusion
- Headache
- Irregular heartbeat

Who is at risk?

- Smoking, drinking alcohol
- Overweight people
- Women more than men
- Men over 45 years old
- Women over 55 years old
- Those with a family history of high blood pressure (especially African Americans)

Almost one in every three African American has HBP and Asian American, Native Americans and Hispanic American are more likely to get HBP than Caucasian Americans.

Untreated HBP over time

After time, HBP can cause damage to the tiny blood vessels and this may affect the function of the heart, eyes, and kidney. If it gets worse it can affect the larger arteries and will contribute to the hardening of the arteries. The hardening will eventually lead to a heart attack.

How is HBP treated?

- Change in diet and adopting a healthy lifestyle
- Losing weight if you are over weight
- Medications, such as:
 - Beta-** blockers- helps the heart beat to slow down
 - Diuretics-** help in the kidneys to make you pass urine more often and get rid of excess fluid.
 - Calcium-** channel blockers- help arteries to become less narrow.
 - ACE-** it helps in general to relax the blood vessels.