Mary's Story: A Curriculum for Teaching Medical Terminology.


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This packet of materials for a class on medical terminology consists of a collection of stories with highlighted vocabulary, teacher's guide, and student's guide. The materials teach medical terms in a series of stories about a woman named Mary Consola. Each story begins with a list of word parts that will be learned; after the story, new word combinations are listed. A glossary is provided. The teacher's guide discusses the three components of each lesson in the core curriculum: before, during, and after reading activities. Teaching strategies are suggested, and additional review activities are described. The student's guide consists of reproducible informational sheets and activities. An introduction discusses language changes, a short history of the English language, a short history of medical language, and vocabulary building through learning word parts. Reproducible activities are then presented for 13 lessons. Pre/posttests are also provided.

(YLB)
MARY'S STORY:
A CURRICULUM FOR
TEACHING
MEDICAL TERMINOLOGY

Bernice Paradise Sheaffer
Project Coordinator

Priscilla Carman
Project Assistant

Dr. Eunice N. Askov
Project Director
Professor of Education
Director, Institute for the Study of Adult Literacy

Fiscal Year: 1991-1992

Institute for the Study of Adult Literacy
Penn State University
204 Calder Way, Suite 209
University Park, PA 16801-4756
(814) 863-3777

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Introduction

This class will help you learn to use medical terms. The terms will all be used in stories about a woman named Mary Consola. Mary’s husband, Mike, had been out of work for a long time. It was very hard for Mary, Mike, and their son Billy to make ends meet.

But Mike found a job and he, Mary, and Billy had to move to a new town. Mary’s mother lived with them. You will follow Mary to her new apartment, through school, and into a new job. Along the way you will meet new people, especially Thelma, Mary’s new neighbor.

We hope you enjoy Mary’s stories and hope they help you learn your medical terms.
1. Mary Moves In

In this story you will learn about these word parts:

arthr/o

tonsill/o

gastr/o

itis

Mary looked around her new apartment and felt better than she had in a long time. Her husband, Mike, had a job. Billy, her six-year-old son, was happy in his new school. Her mother moved with them. Mary just had to get used to life in a brand new town.

Her mother’s arthritis was bothering her, so Mary had to find a good doctor who could help her. Mike had gastritis before they moved, but it wasn’t bothering him right now.

Billy had just had tonsillitis. He had been very sick, but he was better now. But Billy needed to have a check-up by a children’s doctor.

Here are the combinations:

arthritis—(joint + inflammation) inflammation of joint

gastritis—(stomach + inflammation) inflammation of stomach

tonsillitis—(tonsils + inflammation) inflammation of tonsils
2. Meeting a New Neighbor

In this story you will learn these word parts:
andr/o
cardi/o
dent/i
dermat/o
gynec/o
hemat/o
iatr/o and ian/o
ist
logist
nephr/o
neur/o
onc/o
ophthalm/o
path/o
ped/o
psych/o

Mary finally had her apartment organized. She still had to get used to the new town. She went outside to get her mail. Along the way, Mary ran into another woman who was in a nurse's uniform.

"Hi," said Mary. "I just moved in. My name is Mary Consola."
“Hi,” the woman answered. “I’m Thelma Jones. I live in the apartment right next to you. Welcome.”

“Are you a nurse?” asked Mary.

Thelma smiled. “Yes, I’m an LPN. I just started about three months ago. The training was hard work, but worth it. I love my job.”

Mary had a great idea. “Maybe you can help me. I need to find new doctors. You probably know all the doctors in this town.”

“What kind of doctor do you need?” Thelma asked.

“I’m not sure. I don’t know the medical titles the doctors use,” Mary replied.

“Well, let’s get the telephone book and look in the Yellow Pages. I’ll help you.”

They looked in the Yellow Pages under physicians.

Mary frowned. “See, what I mean. These words are so long. I have no idea what they mean. Look at this—**cardiologist**. What’s that?”

Thelma answered, “It is really easier than it looks. Most medical words are made of word parts. If you know what the word parts mean, you can figure out what the words mean. Look at the word parts in **cardiologist**. **Cardi/o** means something to do with the heart. **Logist** really means one who studies or an expert. So a **cardiologist** is a heart expert—a doctor for the heart. Let’s look at the other specialties.”
"Here's one I know," Mary said. "A **gynecologist** is a woman's doctor. I know that **logist** means an expert. What does the first part of the word—**gynec/o**—mean?"

"You just said it," laughed Thelma. "It means woman or female. So a **gynecologist** is a doctor for women. By the way, **andr/o** means man."

"Here's one I never saw before—an **oncologist**. What's that?"

"**Onc/o** is the medical word part for a tumor or cancer. So, what do you think an **oncologist** specializes in?"

"I get it. That's a doctor who treats people with cancer," Mary said.

Thelma told Mary that even a simple word like **dentist** is made up of word parts. **Dent/i** means tooth and **ist** means specialist. A **dentist** is a tooth specialist.

Mary and Thelma looked at the rest of the listings. Here is what they saw:

**Dermatologist**: Thelma said **dermat/o** means skin. So a **dermatologist** is a doctor who specializes in diseases of the skin.

**Hemat/o** is the word part for blood. A **hematologist** is a physician specializing in diseases of the blood.

Thelma told Mary that a **neurologist** is a specialist in problems of the nerves or nervous system. So **neur/o** has to do with the nervous system. **Neurologists** do not work with people who are "nervous." They treat people who have
something wrong with their nervous system—including the brain, the spinal cord and the nerves.

A **psychologist** is a mind specialist. *Psych/o* is the word part for mind.

The word part **path/o** means disease. A **pathologist** is a specialist who studies diseases in the body.

Mary and Thelma found a doctor who was a **nephrologist**. Thelma said that the word part *nephr/o* has to do with the kidneys. So a **nephrologist** is a kidney specialist.

If Mary needed an eye exam, Thelma said she could go to an **ophthalmologist**. The word part *ophthalm/o* means eyes.

"Here's one that's different," said Mary. "I know what kind of doctor this is, though. It is a **pediatrician**—a children's doctor. I take Billy to a **pediatrician**. But that doesn't have **ologist** in it."

"No, it doesn't, Mary," Thelma said. "**iatr/o** means a physician. *Ped/o* refers to children. So you are right. A **pediatrician** is a doctor for children."

Just then Billy came home from school. Thelma said, "Is it time for the kids to be home from school already? My son, Gregg, is probably wondering where I am. I have to go."

"Goodbye, Thelma. Thanks for being so helpful. I hope I see you again."

"Don't worry, you will," laughed Thelma as she went out the door.
New word combinations:

**androgynous**—(man + woman) without sexual characteristics of a man or a woman

**andropathy**—(man + disease) any disease that only men have

**cardiologist**—(heart + specialist) a physician specializing in the heart

**cardionephric**—(heart + kidney) having to do with the heart and the kidney

**cardioneural**—(heart + nerves) having to do with the nervous control of the heart

**cardiopathy**—(heart + disease) disease of the heart

**carditis**—(heart + inflammation) inflammation of the heart

**dentist**—(teeth + specialist) a specialist in the treatment of the teeth

**dermatitis**—(skin + inflammation) skin inflammation

**dermopathy**—(skin + disease) disease of the skin

**gastrocardiac**—(stomach + heart) having to do with stomach and heart

**gastrologist**—(stomach + specialist) expert in the study of the stomach

**gastropathy**—(stomach + disease) disease of the stomach

**gynecopathy**—(woman + disease) diseases peculiar to the female reproductive system

**nephritis**—(kidney + inflammation) inflammation of the kidney

**neuritis**—(nerves + inflammation) inflammation of a nerve or nerves
neurocardiac—(nerves + heart) having to do with the nerves supplying the heart

neurogastric—(nerves + stomach) having to do with the nerves of the stomach

neurologist—(nerves + specialist) a physician who specializes in diseases of the nervous system

neuroophthalmology—(nerves + eyes + the study of) the study of the nerves of the eyes

neuropathy—(nerves + disease) diseases of the nervous system

neuropsychopathy—(nerves + the mind + disease) disease of the nerves combined with a mental disorder

oncologist—(cancer or tumor + specialist) a physician who specializes in treatment of tumors or cancer

ophthalmitis—(eye + inflammation) inflammation of the eye

ophthalmoneuritis—(eye + nerve + inflammation)
  inflammation of the optic nerve (the nerve to the eye)

psychiatrist—(mind + physician) a physician who specializes in mental disorders

psychopathology—(mind + disease + study of) the study of diseases of the mind

tonsillopathy—(tonsils + disease) diseased tonsils
3. An Emergency

In this story you will learn these word parts:

- abdomin/o
- acute
- appendic/o
- ectomy
- febr/o
- gram
- meter
- pharmac/o
- phobia
- son/o
- therm/o

Two weeks passed quickly after Mary met Thelma. The two women became friends. Mary trusted Thelma and knew she had a friend she could rely on.

Early one morning, just after Mike had gone to work, Billy woke up crying. He said he had a terrible pain in his belly. Mary felt his forehead. He felt very hot—he had a fever. She took his temperature with a thermometer (thermc/o means heat; meter is a measuring device). It was 103°! By the time Mary read the thermometer, Billy was screaming that his belly hurt. Mary ran to her phone and called Thelma. She came right over, bringing her son, Gregg, with her.

Thelma said that they should take Billy to the emergency room. Mary’s mother stayed with Gregg until it
was time for school. Mary, Thelma, and Billy went to the emergency room.

Along the way, Thelma tried to comfort Billy and help Mary keep calm. Billy was especially frightened because he was really afraid of doctors. Someone had once told Mary that Billy had a phobia (extreme fear) of doctors.

Soon they were in the emergency room and Billy was being examined by the physician. She said that Billy had acute abdominal pain and was febrile. She ordered a blood test and told Mary that Billy could possibly have appendicitis. If he did have appendicitis, he would have to have an appendectomy.

Mary was very frightened and asked Thelma what that meant. Thelma explained that acute meant a disorder that had a sudden start that would not be permanent. Abdominal meant in the abdomen or belly. Febrile meant the same as fever. Mary knew that itis means inflammation. Appendic/o refers to the appendix. That is a part of the body found in the lower right side of the abdomen. Ectomy means to remove by surgery. If Billy had appendicitis, he would have to have an operation to remove his appendix.

A worker came into the room and took some blood from Billy for a blood test. Mary and Thelma waited with Billy for the results. As they waited, Billy began to feel better. His belly still hurt, but he said it felt better. Soon the doctor came back. She said the blood test looked good and she didn't think Billy had appendicitis. Just to be sure, she wanted Billy to have
another test. She called it a **sonogram**. She explained that **gram** means to record and **sono** means sound. A **sonogram** uses sound waves to look inside the body. It wouldn’t hurt Billy at all.

Thelma and Mary took Billy to another part of the hospital where the **sonogram** was done. Then they went back to the emergency room. A nurse took Billy’s temperature. It had gone down to 99.9°. Billy was beginning to feel better.

The doctor came back into the room. She said that the **sonogram** showed that everything was normal. Billy probably had a virus. She gave Mary a prescription to take to the **pharmacy** (the word part **pharmac/o** means drugs).

By the next day, Billy was fine. Mary was thankful that he didn’t need an operation.

New word combinations:

- **androphobia**—(man + fear) abnormal fear of men
- **appendectomy**—(appendix + surgical removal) surgical removal of the appendix
- **appendicitis**—(appendix + inflammation) inflammation of the appendix
- **appendicopathy**—(appendix + disease) disease of the appendix
- **arthrectomy**—(joint + surgical removal) surgical removal of a joint
- **cardiogram**—(heart + mark) a record of the electrical activity of the heart muscle
cardiophobia—(heart + fear) fear of heart disease
febriphobia—(fever + fear) fear caused by the rise in temperature
gastrectomy—(stomach + surgical removal) surgical removal of stomach
gynephobia—(woman + fear) fear of women
nephrectomy—(kidney + surgical removal) surgical removal of the kidney
neuropharmacology—(nerves + drugs) having to do with drugs that affect the nervous system
ophthalmectomy—(eye + surgical removal) surgical removal of the eye
pathophobia—(disease + fear) abnormal fear of diseases
pharmacist—(drugs + specialist) a druggist
pharmacology—(drugs + study of) study of drugs
pharmacophobia—(drugs + fear) abnormal fear of drugs
psychopharmacology—(mind + drugs + the study of) the study of drugs that affect the mind
thermophobia—(temperature + fear) abnormal fear of heat
tonsillectomy—(tonsils + surgical removal) surgical removal of tonsil
4. Mary Learns New Word Parts

Here are the word parts you will learn in this story:

anti
audio
bi
dis
disks
inter
intra
lingu/o
post
pre
sub
venous
vertebra(e)

In a few days, Billy was feeling just fine again. Mary was grateful that Thelma had helped her when Billy was sick, so she bought a plant for Thelma to say thank you.

Mary took the plant to Thelma's apartment. As soon as Thelma opened the door she noticed something was bothering her new friend. "Mary, something's bothering you. What's wrong?"

Mary looked a little ashamed. "To tell you the truth, Thelma, I feel stupid. If you hadn't been with me last week when I took Billy to the hospital, I would have never known"
what the doctors and nurses were talking about. You know all those medical words. I don’t.”

Thelma smiled. “Come in here and sit down. Let’s talk about this.” The two women went into Thelma’s living room and sat down.

“You know, I didn’t always know those words. I learned them in LPN training,” Thelma explained.

“But I don’t think I could ever learn them,” Mary said.

Thelma smiled at Mary and said, “I once thought that way about myself, but a friend of mine helped me. She gave me confidence in myself and said I could learn those medical words. She helped me by showing me how to break the words down into the word parts. Once you know some of the word parts, you can usually figure out the whole word.”

“Look, Mary,” Thelma continued, “You already know some of the word parts. You use them every day. Like this: before you put something into the oven to bake, what do you do?”

“I preheat it,” Mary said. “I know that.”

Thelma laughed. “See, there’s a word part you already know—pre. It means before.”

“How is that used in a hospital?” Mary asked.

“Well,” Thelma answered, “before an operation, a nurse gives a patient preoperative care. The word part post means after. After the operation you give postoperative care.”

“Here’s another word part you know—inter. It means between. International means between nations. Here’s a big
word for you. **Intervertebral disks** are the **disks** between the **vertebrae**.

Mary held up her hand to stop Thelma. “Hold it! What are **vertebrae**?”

Thelma laughed. “Run your hand down your back. Feel the bone there. That’s your backbone or your **spine**. Feel each bump. Each one is a bone called a vertebra. The plural of **vertebra** is **vertebrae**. Your spine or backbone is really your **vertebrae**.”

Thelma went on, “In the hospital the word part **intra** is used a lot. **Intra** means within. Remember in school, when you had sports, but instead of playing teams from other schools, you played teams from within your school? They were called **intramurals**. There are different ways to give injections. You know, shots. **Intramuscular** means within a muscle. **Intravenous** means within a vein.

“Here’s another one. What do they sell at an **audio** store?”

Mary answered, “Equipment to play music. You know, tape players, compact disk players, things like that.”

“Right. They’re all things you listen to. The word part **audio** means hearing. So, what would an **audiologist** be?”

Mary was getting excited. “Let’s see...a **logist** is a specialist. **Audio** is hearing. So an **audiologist** is a hearing specialist.”

“See, you’re getting it. You put the word parts together.”
Mary suddenly remembered something she learned in school. "We learned about prefixes in school. Now I understand. Pre means before, so prefixes go before the other words. I know one—anti. It means against. Like anticommunist means you are against communism. Anti-American means you are against Americans. Are there any medical terms with anti in them?"

"Yes," Thelma answered. "Antibacterial is something that kills bacteria. Anti-inflammatory stops inflammation."

"Here's another one, Mary. What about bi?"

"Well, let me see, a bicycle has two wheels. So bi must mean two. Does it?"

Thelma smiled at Mary. "You are really getting it now. Bi does mean two. Bifocals are glasses with two lenses."

Thelma continued, "The prefix dis can mean to be free of or it can mean not. So disagree means not to agree. What do you think disease means?"

"I guess it would mean to be free of ease or not at ease," Mary answered.

"What about sub?" Mary continued. "I know that means below or under. A submarine is under the water. If the temperature is subfreezing, I know it's under 32°. Are there any medical terms with the prefix sub?" Mary asked.

Thelma said to Mary, "Subabdominal means below the abdomen. The medical term for the tongue is lingu/o. Some special medicines are taken by placing them under the tongue. Can you figure out what that's called?"
“Well, if sub is under, and lingual is tongue, I guess under the tongue would be sublingual.”

“That’s right. See, it’s not so hard if you learn the word parts.”

Here are new combinations:

**antiarthritic**—(against + joints + inflammation) anything used to relieve arthritis (inflammation of joint)

**audiologist**—(hearing + specialist) a specialist in hearing disorders

**audiometer**—(hearing + measure) an instrument used to measure hearing

**dentilingual**—(tooth + tongue) having to do with the teeth and tongue

**disease**—pathological condition; “lack of ease”

**diskectomy**—(disk + surgical removal) surgical removal of an intervertebral disk

**diskitis**—(disk + inflammation) inflammation of a disk

**intra-abdominal**—(within + belly) within the abdomen

**intrafebrile**—(within + fever) during a fever

**intragastric**—(within + stomach) within the stomach

**intravenous**—(within + vein) within a vein

**ophthalmometer**—(eye + measurement) instrument to measure different parts of the eye

**postfebrile**—(after + fever) after a fever

**postneuritic**—(after + nerves + inflammation) period of time after neuritis
prevertebral—(before + bone of vertebra) in front of a vertebra
subabdominal—(below + belly) below the abdomen
subdental—(below + tooth) beneath a tooth
subdermal—(below + skin) beneath the skin
subfebrile—(below + fever) low fever
vertebrectomy—(vertebra + surgical removal) removal of a vertebra
Mary Reviews What She Has Learned

Mary went home and started to think about what Thelma had taught her about medical words. She thought about all the new words and word parts she had learned in the past few weeks. She went to the desk drawer and took out a notebook and started to write all the words and word parts she had learned.

This is what her notebook looked like:

*abdomin/o: the abdomen*
*acute: illness that came on suddenly and will not last permanently*
*anti: against*
*append/o: the appendix*
*arthr/o: joint*
*audio: having to do with hearing*
*bi: two*
*cardi/o: heart*
*dent/o: tooth*
*dermat/o: skin*
*dis: free of; without*
*disks: pads between the vertebrae that absorb shock*
*ectomy: to remove surgically*
*febr/o: a fever*
*gastr/o: something to do with the stomach*
*-gram: a recording or a measurement*
*gynec/o: woman*
*hemat/o: blood*
iatric/o and ian/o: doctor
inter: between
intra: within
ist: specialist
itis: inflammation
lingu/o: tongue
logist: a specialist
-meter: a measuring instrument
nephr/o: kidney
neur/o: nervous system including the brain
onc/o: tumor or cancer
ophthalm/o: eyes
pharmac/o: having to do with drugs
phobia: extreme fear
post: after
pre: before
psych/o: the mind
son/o: sound
sub: under; below
therm/o: heat
tonsill/o: having to do with the tonsils (tissue in the throat)
venous: having to do with veins
vertebra(e): bones that make up the spine; the backbone
As Mary looked over her notebook, she was surprised at all she had learned. Thelma was right! She could learn medical terms. Mary felt proud of herself. She suddenly felt more confident about what she could accomplish. For the first time in years, Mary began to think about going back to school. She called the local community college and asked them to send her information about classes.

She received a catalog from the community college in a few days. There was one course that really interested her. She wanted to be an LPN like Thelma. Could she do it?
6. Mary Starts School

Here are the word parts you will learn in this story:

hemi
lateral
multi
para
plegia
poly
quadri
semi
tri
uni

Mary was accepted at the community college and started her classes. It would take time, but she was determined to become an LPN. Thelma told her that she would help Mary all she could.

One of Mary's first courses was one on medical terminology or medical words. Mary felt that Thelma had helped her prepare for the course, but she still felt a little nervous. Many of the medical terms used the word parts Thelma had told Mary about.

After her first day of class, Mary went to see Thelma. She showed Thelma the book she was using. Thelma pointed out that many of the word parts she and Mary had talked about were in the book. She also showed her more everyday
word parts that are part of medical terms. Thelma and Mary went through the book and picked them out.

"I remember when we talked about the word part bi before. It means two. Here are some more words that have something to do with numbers. Uni means one. Tri means three. A bicycle has two wheels. A unicycle has one wheel. A tricycle has three wheels."

"That's right, Mary. Lateral means side. What does unilateral mean?"

Mary said, "That's easy. Unilateral means one side."

"So, what does it mean if a patient has unilateral pain?"

asked Thelma.

"Well, that means he or she has pain on one side," answered Mary.

"Good. What about bilateral and trilateral?"

"Two sides and three sides," answered Mary. "Is there a word part for the number four?" Mary asked.

Thelma replied, "Yes. That is quad. If a woman has quadruplets, she has four babies."

"Better her than me," laughed Mary.

"Yes. There is a less happy word with the word part quad in it. Plegia is the medical term for paralysis (not being able to move or not functioning). Quadriplegia is paralysis of all four limbs—both arms and both legs."

"Could different word parts mean the same thing?"

Mary asked.

"They could," Thelma answered.
"I thought so. I think poly and multi mean the same thing. I think they both mean many."

"That's right," Thelma said. "See if you can figure out this long word—polyneuropathy."

"That seems like such a long word. Let's see. Poly means many. Neur means nerves. Pathy means disease. So polyneuropathy would mean a disease of many nerves. I did it! What about a word with multi in it?"

"Well, let's see," Thelma said with a smile. "You're making this hard for me. There is multilateral. You know what that means."

"Yes, Thelma, I know. It means many sides. Any other one?"

"Here's one. Para means birth. What would multipara mean?"

Mary thought for a minute. "I guess multipara would mean many births."

"Yes," Thelma said. "It refers to the mother. Multipara means a woman has had more than one child, but not necessarily at the same time."

"Here are two more word parts that mean the same thing—hemi and semi. I think they both mean half. A hemisphere is half of a sphere—half of the globe. Semiannual means every half year. Are they used in medical terms?"

"Well, hemiplegia means paralysis on one side of the body—half of the body. It would mean, for instance, that a
person was paralyzed on the right side, arm and leg. What do you think hemicardia means?” Thelma asked Mary.

“You are making me think,” Mary laughed. “Hemi is half. Cardia is heart. Hemicardia means there is only half of a heart.”

“Good,” Thelma said. “Now let me think. A word with semi in it. Semicircular means a half-circle. The semicircular canals are part of the ear that are shaped like half circles.”

Here are new combinations:
cardioplegia—(heart + paralysis) paralysis of the heart
gastroplegia—(stomach + paralysis) paralysis of the stomach
hemigastrectomy—(half + stomach + surgical removal)
    surgical removal of half of the stomach
hemilingual—(half + tongue) affecting or having to do with one half of the tongue
heminephrectomy—(half + kidney + surgical removal) surgical removal of one kidney
hemiplegia—(half + paralysis) paralysis of one side of the body
hemivertebra—(half + vertebra) born with only half of a vertebra
polyarthritis—(many + joint + inflammation) inflammation of more than one joint
polyneuritis—(many + nerve + inflammation) inflammation of more than one nerve
polypathia—(many + diseases) several diseases in one person at one time
polyphobia—(many + fear) excessive fear of many things
polyplegia—(many + paralysis) paralysis of more than one muscle
postpartum—(after + birth) occurring after childbirth (refers to the mother)
thermoplegia—(heat + paralysis) heat stroke
Mary and Thelma continued looking at Mary’s new textbook.

"Here’s another familiar word part," said Mary. "**Trans** is part of a lot of words I know—like **transport**. **Trans** means to pass across or over. **Transport** means to carry across."

"Right," added Thelma, "The word part **fusion** means to pour. In medicine, a **transfusion** literally means to pour across. In a **transfusion**, blood is passed from one person to another."

"I know the word part **micro** means small. A **microcomputer** is a small computer," Mary said.
"That's right. And the word part scope means an instrument used to examine visually, you know, to look at something," added Thelma.

"So a microscope is an instrument to look at something small. Isn't that right?" asked Mary.

"That's right, Mary. If micro means small, what do you think macro means?"

Mary wasn't quite sure. "Does it mean large?"

"Right again. You are really learning this. Pretty soon you'll know more than I do," Thelma said with a smile.

"Things that can be seen with the naked eye are called macroscopic. If they are so small, you cannot see them with the naked eye, they are called microscopic. Microsurgery is surgery on a very small scale. Surgeons have to use special instruments for that type of surgery. The word part dactyl means fingers or toes. So, macrodactylia means abnormally large fingers or toes."

"Here's an interesting word part. Pseudo. Doesn't that mean false?" asked Mary.

Thelma said, "Yes, it does. A pseudopregnancy is a false pregnancy. A woman thinks she is pregnant, but she isn't."

"That's strange. Here are two word parts that look almost the same—hypo and hyper."

"Well, they are opposites. Hypo means under or too little and hyper means above or too much. They used to talk about children who were hyperactive. They meant children who were too active." Thelma laughed. "Usually they were little
boys, like my Gregg, who are just normally active. 

**Hypertension** is high blood pressure. **Hypotension** is low blood pressure.

"I remember talking about the word part *gram* before. That is a record. But here is the word part *graph*. What does that mean?" Mary asked.

"Well, that is the instrument used to record something. An **electrocardiograph** is the instrument used to record the electric impulses given off by the heart. The result or record is called an **electrocardiogram**.

"I know the word part *hydro* means water. How is that used?"

"Let me think. It is used with the word **therapy** which means treatment. **Hydrotherapy** is a treatment with water. Like a whirlpool bath for someone who has been injured. That is **hydrotherapy**."

Mary yawned. "I could use some **hydrotherapy** right now. I am tired. My first day of classes has been tiring. I'm going to say good night.

"I'll see you later, Mary. Good night."

Here are new combinations:

**cardiograph**—(heart + writing) the device or machine used to record the electrical activity of the heart

**cardioscope**—(heart + to examine) an instrument to examine the interior of the heart

**cardiotherapy**—(heart + treatment) treatment of the heart
dactylitis—(finger or toe + inflammation) inflammation of the bones of fingers and/or toes
dermatoscopy—(skin + examination) visual examination of the skin with lens or microscope
dermatotherapy—(skin + treatment) treatment of the skin
gastroscope—(stomach + examine) an instrument to examine the stomach visually
gastroscopy—(stomach + examination) visually examining the stomach
gastrotherapy—(stomach + treatment) treatment of the stomach
hydrophobia—(water + fear) abnormal fear of water
hyperdactylia—(too much + finger or toe) having too many fingers or toes
hyperdontial—(too much + teeth) having too many teeth
hyperhydration—(too much + water) too much water in the body
hyperthermia—(too much + heat) high fever
hypodactylia—(under; too few + finger or toe) too few fingers or toes
hypodermic—(under; too few + skin) under the skin
hypodontia—(under; too few + teeth) too few teeth
hypothermia—(too little + heat) too low body temperature
macrodontia—(large + teeth) abnormal increase in size of teeth
macrophthalmia—(large + eye) abnormally large eyeball
microcardia—(small + heart) unusually small heart
**microdactyli**a—(small + finger or toe) abnormally small toes and fingers

**microdontia**—(small + teeth) unusually small teeth

**microgastria**—(small + stomach) unusually small stomach

**oncotherapy**—(tumor or cancer + treatment) treatment of tumors

**ophthalmoscope**—(eye + examine) instrument for examining the inside of the eye

**polydactyly**—(many + finger or toe) having more than the usual number of fingers or toes

**pseudoarthritis**—(false + joint + inflammation) a condition that imitates arthritis

**submicroscopic**—(below + small + to examine) too small to be seen with a microscope

**therapist**—(treatment + specialist) a person who gives therapy

**thermotherapy**—(heat + treatment) treatment using heat

**tonsilloscopy**—(tonsil + examine) looking at tonsils

**transdermal**—(across + skin) through the skin
8. Places and Directions

In this story you will learn these word parts:

ante
anteri/o
caud/o
cephal/o
deep
dors/o
inferior
lateral
medial
midline
poster/o
superficial
superior
ventr/o

When Mary began studying her medical terminology book, she realized that there are some special terms used to tell direction or places. It confused her at first.

One day when she was talking to Thelma she said, "Why can't they use regular words like top when talking about a person's body?"

Thelma laughed. "It seems like it would make it easier to learn, I know. But the medical terms are more precise and can..."
be used to show direction or place all over the body. Think about this. A person is standing up. What is on top?"

"The head, of course," Mary said.

"OK, suppose the person is lying down. Is the head still the top?" Thelma asked.

"Yes...No... I'm not sure," Mary answered.

"That's right. So when we talk about something toward the head in medicine, we don't say 'the top,' we use the term *cephalic*. *Cephalic* really refers to the head. Used with other words, the word part is *cephal/o*. It means the head or toward the head."

"What about the other direction?" Mary asked.

"Well, we sometimes use the word for tail. Of course a person doesn't have a tail, but if we did, it would be at the end of the spine. So toward the tail or end of the spine is *caudal*. When it's put with other words it's *caud/o.*" Thelma got a piece of paper and pencil. She drew something and showed it to Mary. "Look at this drawing."
"So cephalic is toward the head and caudal is toward the tail. I can remember that," Mary said. "What about front and back?"

"Well, there are two ways of looking at that. First, remember when we used the word part post?"

Mary thought for a minute. "Yes, I remember, it means after. Postoperative means after an operation. Postpartum means after a woman has a baby."

"Good. You remembered," said Thelma. "Posterior means located behind—the back side. The word part ante means in front of. An anteroom is a room you go to first. So, if post means after, and posterior means located behind. What would located in the front be?"
“Let’s see. **Ante** means before. **Anterior** would mean located in the front. Right?”

“That’s right. You’ve got it!” Thelma patted Mary on the back.

Thelma continued, **“Dorsal** means near or on the back. It’s the same as **posterior. Ventral** means on the belly side of a person, so it’s the same as **anterior.”**

“Let’s see,” Mary said as she thought. “**Ante** means before. **Anterior** and **Ventral** both mean the front side or belly side of the body. **Post** means after. **Posterior** and **dorsal** both mean the back side of the body or on the back.
Thelma drew another picture for Mary to show the words **dorsal, posterior, ventral,** and **anterior.**

"Now, think of a person standing up. Draw a line down the middle of the person from the top to the bottom. Here, look at this." Thelma took a pencil and paper and drew this:
"Toward the **midline** is called **medial**. Away from the midline is called **lateral**.

"I remember the word **lateral** from before," said Mary. "It means side."

"Yes, that's a way of thinking about it. As you move **laterally**, you move toward the side," Thelma replied.

"Two other words you might know are **superior** and **inferior**," Thelma said. "Do you know what they mean in medical terminology?"
Mary thought about it for a minute. "Well, **superior** means better and **inferior** means worse. But I suppose that's not what they mean in medicine."

"It's a little different. **Superior** means above or toward the head. **Inferior** means below or away from the head."

"That's easy to remember if you think that something **superior** is above other things and something **inferior** is below other things," Mary thought.

Thelma continued. "Two more words to describe where something is on a body are **deep** and **superficial**. **Deep** is far from the surface of the body. A **deep** cut goes far into the body. **Superficial** means close to the surface of the body. A **superficial** cut does not go far into the body."

"I can remember that," Mary said.

"Those words are all used to tell where on a body something is located. They are really more precise than just saying something is on top or above. You'll see those words all the time in nursing."
Here are new combinations:

**Antefebrale**—(before + fever) before the beginning of a fever

**Anterolateral**—(before + side) in front and on one side

**Bilateral**—(two + sides) two sides

**Cephalopathy**—(head + disease) any disease of the brain or head

**Cephaloplegia**—(head + paralysis) paralysis of the muscles about the head

**Dorsolateral**—(back + side) having to do with the back and the side

**Dorsoventral**—(back + front) having to do with the back and front of the body

**Hemicephalia**—(half + head) born with half of the brain and skull

**Hydrocephalus**—(water + head) increased fluid in the brain

**Lateroabdominal**—(side + belly) having to do with the side of the body and the abdominal area

**Macrocephaly**—(large + head) abnormally large head

**Microcephaly**—(small + head) unusually small head

**Posteroanterior**—(behind + in front) moving from back to front

**Posteroinferior**—(back + below) located back and below

**Posterolateral**—(back + side) located in the back and on the side

**Posteromedial**—(back + middle) located on the back and in the middle
posterosuperior—(behind + above) located on the back and above
subdorsal—(below + back) below the back
superolateral—(above + side) above and to the side
superomedial—(above + middle) above the middle
9. Mary Begins to Learn Body Parts
(Nervous System)

In this story you will learn these word parts:

algesi/o
an
asthenia
crani/o
encepahl/o
esthesi/o
meningi/o
myel/o

Soon Mary realized that she would have to learn words and word parts that refer to parts of the body. Thelma explained that some of these word parts would not be familiar to Mary. “But you know, Mary,” Thelma said, “you still will be able to learn the word parts and put them together to form new words.”

Thelma and Mary began to look at these new word parts. The first chapter in Mary’s book was about the nervous system.

Thelma explained, “The nervous system includes your brain, your spinal cord, and the nerves in your body. Let’s look at some of the words and word parts. Remember a long
time ago, we talked about a doctor who specializes in disorders of the nervous system. Remember we said he is a neurologist. Neur/o has to do with the nervous system."

"Now, let’s talk about the nervous system. Let’s talk about the brain first. Remember we learned that cephal/o refers to the head? Well, encephal/o is the brain. Of course, your brain is in your head. It’s protected by the skull. The medical term for skull is crani/o."

"OK," said Mary. "Let me think about this. We are talking about the nervous system. Your brain, spinal cord, and nerves are in the nervous system. I know from before that neur/o refers to the nervous system. I remember that cephal/o refers to the head. Now, you say that encephal/o refers to the brain. That makes sense. The brain is protected by the skull—the cranium. OK, I think I have it so far."

"Good, then let’s keep going. There is a membrane around the brain and the spinal cord. It’s called the meninges," Thelma continued.

"Wait a minute. Let me make sure I have this right. The meninges is the membrane around the brain and spinal cord. I think I have heard of a disease called meningitis," Mary said.

"Right," Thelma answered. "Remember your word parts. What does itis mean?"

"An inflammation," Mary replied. "So meningitis is an inflammation of the meninges."

"Here’s another word part—myel/o. That refers to the spinal cord. Remember the spinal cord goes from the brain to
the lower back. It goes down your spine. Remember the **vertebrae**? They are the bones of your back. They protect the spinal cord the way the **cranium** protects the brain.”

“I'm going to see if I can remember what you said so far. The **encephal/o** refers to the brain. The brain is protected by the **cranium**. The **myel/o** refers to the spinal cord. The **meninges** is the membrane covering the spinal cord and the brain.”

“That's it,” Thelma said. “Now here is some more information. **Algesi/o** or **algia** is a word part meaning pain. The pain can be anywhere. Whenever you see a word with **algia** in it, it means pain someplace. The prefix **an** means no, not, or without. Aspirin is an **analgesic**. What do you think that means?”

Mary was quiet for a minute. “I have to think about this. If **algesi/o** means pain and **an** means without or no, then **analgesic** is something to reduce pain. Aspirin does that.”

“Good, you're right,” said Thelma. “Now think of this. **Esthesi/o** means feeling. Not feeling sad or happy, but feeling with your body. What do you think **anesthesia** does?”

“Well, **anesthesia** would mean without feeling. I know when you have an operation, you get **anesthesia** so you do don't feel anything during the operation.”

“Good,” Thelma said. “You know, sometimes medical word parts look alike. The word part **asthenia** is a word part that means weakness. It looks something like **esthesia**, but you know that means feeling.”
Mary frowned. "I have to be sure to keep those words straight. **Esthesia** means feeling, so **anesthesia** is without feeling. **Asthenia** means weakness.

Here are new combinations:

- **abdominalgia**—(belly + pain) pain in the belly
- **algesimeter**—(pain + measure) an instrument for measuring sensitivity to pain
- **analgesia**—(without + pain) absence of pain
- **analgesic**—(without + pain) something that relieves pain
- **anencephalus**—(without + brain) a baby born without a brain and spinal cord
- **anesthesia**—(without + sensation) loss of sensation or feeling with or without loss of consciousness
- **anesthesiologist**—(without + sensation + specialist) a physician who specializes in anesthesia
- **anesthetist**—(without + sensation + specialist) a person who gives anesthesia, may be a doctor or a nurse
- **anhydrous**—(without + water) lacking of water
- **anodontia**—(without + teeth) loss of teeth
- **anophthalmia**—(without + eyes) born with one or both eyes missing
- **antineuralgic**—(against + nerve + pain) relieving neuralgia (pain along a nerve)
- **appendalgia**—(appendix + pain) pain in the lower right quadrant or quarter of the abdomen, where the appendix is located
arthralgia—(joint + pain) pain within the joint
asthenometer—(weakness + measure) device to measure strength or weakness
cephalomeningitis—(head + membranes + inflammation) inflammation of the meninges (membranes) around the brain
craniektomy—(skull + removal) opening of the skull and removal of part of it
craniomcter—(skull + measure) instrument used for making measurements of the skull
craniospinal—(skull + spine) having to do with the skull and the spine
dermalgia—(skin + pain) pain in the skin
dorsalgia—(back + pain) pain within the back
electroencephalogram—(electric + brain + record) a recording of the electrical activity of the brain
encephalalgia—(brain + pain) pain deep in the head
encephalitis—(brain + inflammation) inflammation of the brain
encephalogram—(brain + record) x-ray showing waves of the brain
encephalomyelitis—(brain + spinal cord + inflammation) an inflammation of the brain and spinal cord
encephalomyeloneuropathy—(brain + spinal cord + nerves + disease) any disease involving the brain, spinal cord, and nervous system
encephalomyelopathy—(brain + spinal cord + disease) any disease involving the brain and the spinal cord
encephalopathy—(brain + disease) any dysfunction of the brain
encephalospinal—(brain + spine) having to do with the brain and the spine
esthesiometer—(feeling + measure) device to measure ability of senses
gastralgia—(stomach + pain) pain in stomach
hemianalgesia—(half + not + feeling) lack of feeling on one side of the body
hemiancephaly—(half + brain) born with only one side of the brain
hyperalgia—(too much + pain) overly sensitive to pain
hyperthermalgesia—(too much + heat + pain) high sensitivity to heat
hypoesthesia—(too little + feeling) decreased sensitivity to pain
intracranial—(within + skull) within the skull
meningitis—(meninges + inflammation) inflammation of the membranes of the brain or spinal cord
meningoencephalomyelitis—(meninges + brain + spinal cord + inflammation) inflammation of the meninges, the brain, and the spinal cord
meningoencephalitis—(meninges + brain + inflammation) inflammation of the brain and its membranes
meningomyelitis—(meninges + spinal cord + inflammation)
inflammation of the meninges and the spinal cord
myelalgia—(spinal cord + pain) pain in the spinal cord
myelitis—(spinal cord + inflammation) inflammation of the spinal cord
myeloencephalic—(spinal cord + brain) having to do with the spinal cord and the brain
myelogram—(spinal cord + record) x-ray of the spine after dye has been injected
myeloneuritis—(spinal cord + nerve + inflammation)
inflammation of the spinal cord and the nerves
myelopathy—(spinal cord + disease) disease of the spinal cord
nephralgia—(kidney + pain) pain in the kidney
neuralgia—(nerve + pain) pain along the nerve
neurocranium—(nerve + skull) the part of the skull where the brain is enclosed
neuromyelitis—(nerve + spinal cord + inflammation)
inflammation of the nerves and the spinal cord
ophthalmalgia—(eye + pain) pain in the eye
polyneuralgia—(many + nerve + pain) pain in several nerves
postanesthetic—(after + not + feeling) time after anesthesia
postencephalitis—(after + brain + inflammation) period of time after encephalitis
pseudesthesia—(false + feeling) a false sensation such as feeling a leg after it has been amputated
subcranial—(below + skull) beneath or below the skull
thermalgesia—(heat + pain) pain caused by heat
thermanesthesia—(heat + not+ feeling) inability to recognize heat and cold

thermesthesia—(heat + feeling) ability to recognize heat and cold

thermesthesiometer—(heat + feeling + measure) device to measure ability to recognize heat and cold
Mary went home and took her notebook out again. Remember, this is what it looked like:

**abdomin/o**: the abdomen

**acute**: illness that came on suddenly and will not last permanently

**anti**: against

**append/o**: the appendix

**arthr/o**: joint

**audi/o**: having to do with hearing

**bi**: two

**cardi/o**: heart

**dent**: tooth

**dermat/o**: skin

**dis**: free of; without

**disks**: pads between the vertebrae that absorb shock

**ectomy**: to surgically remove

**febr/o**: a fever

**gastr/o**: something to do with the stomach

**-gram**: a recording

**gynec/o**: woman

**hemat/o**: blood

**-iatr/ian**: doctor

**inter**: between

**intra**: within

**-ist**: specialist
itis: inflammation
lingu/o: tongue
logist: a specialist
-meter: a measuring instrument
nephr/o: kidney
neur/o: nervous system including the brain
onc/o: tumor or cancer
ophthalm/o: eyes
pharmac/o: having to do with drugs
phobia: extreme fever
post: after
pre: before
psych/o: the mind
son/o: sound
sub: under; below
therm/o: temperature
tonsill/o: tissue in the throat
venous: having to do with veins
vertebra(e): bones that make up the spine; the backbone

She added this to the notebook:
ante: before
anter/o: front or belly side of the body
caud/o: toward the tail; away from the head
cephal/o: the head; toward the head
Mary began to believe that she could learn the medical terminology so she could become an LPN. She knew she still had more terms to learn.
11. Mary Knows More Body Parts

In this story you will learn the following word parts:

hepa/to
hyster/o
mast/o
ot/o
pod/o
pulmon/o
rhin/o

Mary finished her first course at the community college and did very well. She couldn’t believe that she actually earned an “A” in the medical terminology. Her new course was anatomy—studying the body, its parts, and structure. She learned where different body parts are and the word parts that are used to represent the parts.

Mary learned that the liver is a very important part of the body. Mary talked to Thelma about what she had learned.

“I know that the word part hep/a or hepat/o has something to do with the liver. Hepatitis is a disease. It means inflammation of the liver.

Thelma laughed. “You know, Mary, I remember when you didn’t think you would be able to do this. Now you can teach me the body parts and the words for them. Try this one—what does pulmon/o mean?”
"Oh, I know that one, Thelma. It has to do with the lungs. **Pulmon/o** means lungs. So when someone uses the word **pulmonary**, they are talking about the lungs."

"Let's see if I can find a word part you don't know," Thelma said.

"Go right ahead, Thelma," Mary laughed. "I feel up to the challenge."

"OK, Mary, what about the word part **mast/o**?"

"That refers to the breast. A **mastectomy** is the surgical removal of the breast," Mary answered. "OK, now let me challenge you."

Thelma laughed so hard. "Is this the woman who thought she couldn't learn the words? It's good to see you so confident. OK, I'll take the challenge."

"What about the word part **rhin/o**? What does that mean?" Mary asked.

"Well, I guess you don't mean one of those animals with a big horn on his nose, do you? But that gives me a clue. **Rhino** means nose. Am I right?"

"Of course you are, Thelma. So **rhinitis** is an inflammation of the nose. Give me a hard word part now, Thelma."

By this time Mary and Thelma were really laughing.

"It's my turn now," Mary said. "I have a hard one for you. What about **ot/o**?"

"Oh, I have an ear for word parts," Thelma giggled. "It means ear. **Ot/o** is the word part used to mean ear."
"Here's one for you, Mary," Thelma said. "What about pod/o?"

"Thelma, you can think of one that's harder than than, can't you? Pod/o is the word part used to mean foot.

"OK, Mary. Here's a harder one. What about hyster/o?"

"Well, hyster/o means uterus or womb. That's the one that makes me angry. Hysterical is from the same word part. They used to think that women became hysterical because there was something wrong with their womb. Isn't that silly?"

Mary became serious. "You know, Thelma, I'm sitting here thinking about all I have learned in a few months. Today we talked about the liver (hepat/o). I know that pulmon/o means lung and mast/o means breast. Rhin/o is not the animal with the horn on his nose, but means a nose. Ot/o refers to the ear and pod/o is the foot."

Thelma looked serious for a moment. "You really have changed. You have confidence in what you can do. I feel proud that I helped you reach this place. You will be a very good nurse."

Just then Billy and Gregg ran into the room. "We're hungry, Mom," Gregg said. "What are we having for dinner? Can Billy stay?"

"Well, I guess we can't get too serious around here with these guys," Thelma said to Mary. "Serious conversation is over for now." Thelma turned to Gregg. "We're having spaghetti and meatballs tonight. Yes, Billy can stay. In fact,
Mary, why don't you all come to dinner tonight. Mike and my husband can talk about football."

"That sounds great. I love spaghetti and meatballs."
Here are the new combinations:

**anhepatia**—(without + liver) failure of liver

**cardiohepatic**—(heart + liver) having to do with the heart and liver

**cardiopulmonary**—(heart + lung) having to do with the heart and lungs

**hemihepatectomy**—(half + liver + surgical removal) surgical removal of half of the liver

**hepatalgia**—(liver + pain) pain in the liver

**hepatitis**—(liver + inflammation) inflammation of the liver

**hepatogastric**—(liver + stomach) having to do with the liver and the stomach

**hepatologist**—(liver + specialist) a specialist in diseases of the liver

**hepatonephric**—(liver + kidney) having to do with the liver and the kidney

**hepatonephritis**—(liver + kidney + inflammation) inflammation of the liver and kidneys

**hepatopathy**—(liver + disease) any disease of the liver

**hepatopulmonary**—(liver + lung) having to do with the liver and the lungs

**hepatotherapy**—(liver + treatment) treatment of the liver

**hepatectomy**—(liver + surgical removal) surgical removal of all or part of the liver

**hypohepatia**—(too little + liver) decreased functioning of the liver
hysteralgia—(uterus + pain) pain in the uterus
hysterectomy—(uterus + surgical removal) removal of the uterus through surgery
hysteritis—(uterus + inflammation) inflammation of the uterus
hysterometer—(uterus + measure) device for measuring the uterus
hysterogram—(uterus + record) x-ray of the uterus
hysteroscope—(uterus + examine) instrument used to examine the uterus visually
hysteropathy—(uterus + disease) any disease of the uterus
intrahepatic—(within + liver) within the liver
intrapulmonary—(within + lung) within the lungs
macrorhinia—(large + nose) abnormally large nose
mastalgia—(breast + pain) pain in the breast
mastectomy—(breast + surgical removal) the surgical removal of the breast
mastitis—(breast + inflammation) inflammation of the breast
microhepatia—(small + liver) unusually small liver
otitis—(ear + inflammation) inflammation of the ear
otologist—(ear + specialist) a specialist in the study of the ear
otopathy—(ear + disease) a diseased condition of the ear
otoscope—(ear + examine) a device used to examine the ear
podalgia—(foot + pain) pain in the foot
podiatrist—(foot + one who treats) a specialist in the treatment of foot disorders
pulmometer—(lung + measure) a device to measure the capacity of the lungs
pulmonectomy—(lung + surgical removal) surgical removal of all or part of a lung
pulmonitis—(lung + inflammation) inflammation of the lung
rhinalgia—(nose + pain) pain in the nose
rhinesthesia—(nose + feeling) the sense of smell
rhinitis—(nose + inflammation) inflammation in the nose
rhinologist—(nose + specialist) a specialist in diseases of the nose
rhinometer—(nose + measure) an instrument for measuring the nose
rhinopathy—(nose + disease) any nasal disease
rhinoscope—(nose + measure) an instrument used to visually examine the nose
subpulmonary—(below + lung) beneath the lung
12. Mike Hurts His Neck

In this story you will learn these word parts:

burs/o
cervic/o
coccyg/c
ogenic
lumb/o
my/o
sacr/o
spasm
spin/o
spondyl/o
thorac/o

Mornings later, Mike woke up groaning. “What’s wrong?” Mary asked.

“I don’t know. My back and neck hurt. I feel so stiff. I guess I pulled a muscle.”

“Do you think you should go to work today? Maybe you should just stay home.”

“I don’t know,” Mike said. “There’s a lot to do today and I really don’t want to risk losing my job. I really like it. Anyway, it’s not my turn to drive, so I can just rest in the car along the way.”

Mike slowly got out of bed and got ready for work. Mary didn’t have any classes that day, so she decided to do some laundry. About 10:00 a.m. the phone rang. It was Mike.
"Mary," he said. "Please come to get me. My neck is so stiff and my back hurts."

When Mary picked Mike up at work, she was worried about him. "I'm going to take you to the hospital to see what is wrong." She expected Mike to say no. When he agreed, she knew that he really hurt.

A doctor examined Mike. She said, "Right now you are having muscle spasms in your back. That means the muscles are contracting or tightening. That can be very painful. I'm going to give you some antispasmodic medicine that will control the spasms. Have you ever had anything like this before?"

"I once had bursitis," Mike answered.

"Well, that's not what's wrong now. Bursitis is an inflammation of the bursa. A bursa is a sack of fluid, usually found between joints. Was your bursitis in your shoulder?"

"Yes, it was," Mike said.

"Well that's pretty common, but you can also get bursitis in your knee or elbow. But what you have now is not bursitis. Most likely, it is a muscle strain or it could be a sprain. But just to be sure, get those x-rays."

Mike went to get the x-rays. The technician said, "We are going to take x-rays of your spinal column—your backbone. Sometimes we only do part of the spine, but your doctor wants to get all sections of the spine."
A week later, Mike and Mary went back to see Dr. Lehman. She showed them this drawing.
“Look at this, Mr. and Mrs. Consola. This is what the spinal column looks like. It is made up of vertebrae. The cervical vertebrae are those in your neck.”

Mary knew that the word part cervic/o means neck. It can mean your neck, or the neck of an organ. The neck of the uterus is called the cervix. It is from the same word part that means neck.

“The next group of vertebrae are near your chest. The chest is the thorax, so those are called thoracic vertebrae. Next is your lower back. These are called lumbar vertebrae, from the word part lumbo. Below that is your sacrum and last is your coccyx. Between each vertebrae is a disk. Sometimes a disk can cause problems. Some people call them slipped disks, but actually they bulge out. You can’t completely see disk problems with x-rays, but you can often see some sign of the problem. I don’t see anything here to make me think you have a disk problem.”

“Well, that’s good,” Mike said.

“Sometimes you can get a type of arthritis in your vertebrae. It is called spondylitis. You might know that spondyl/o refers to the vertebrae. Of course itis is an inflammation. I don’t see that that is the problem either.”

“I think you are having a problem with your muscles, not your vertebrae. I think this problem is myogenic.”

Mike looked at Mary. By his look, Mary knew he wanted to know what the doctor meant. She said to Mike. “My/o means muscle. Genic means where something starts or
comes from. Mike, it’s like the beginning—like Genesis in the Bible. So myogenic means something that started in the muscles."

“That’s right,” said Dr. Lehman. “So, I think you need some physical therapy. Let’s see if that helps. If you are still having problems in a month after having physical therapy, come back to see me again.”

Mike started his physical therapy. They put heat on his sore back and taught him special exercises. Within two weeks he was feeling better. He didn’t go back to Dr. Lehman about his back.

Here are the new word combinations:

bursectomy—(bursa + surgical removal) surgical removal of the bursa
bursitis—(bursa + inflammation) inflammation of the bursa
bursopathy—(bursa + disease) diseased condition of the bursa
cephalothoracic—(head + chest) having to do with the head and chest
cervicetomy—(neck or neck of an organ + surgical removal) the removal of the cervix or neck of the uterus
cervicitis—(neck or neck of an organ + inflammation) inflammation of the neck of the uterus
dorsosacral—(back + sacrum) having to do with the lower back
gastrogenic—(stomach + beginning) originating in the stomach
**intralumbar**—(within + lumbar) within the lumbar region of the spine
**lumbosacral**—(lumbar + sacrum) having to do with the lumbar and sacral vertebra
**myalgia**—(muscle + pain) muscle pain
**myasthenia**—(muscle + weak) great muscle weakness
**myocardia**—(muscle + heart) pertaining to the myocardium, the middle layer of the heart wall composed of muscle
**myocardiopathy**—(muscle + heart + disease) any disease of the middle layer of the heart wall
**myocarditis**—(muscle + heart + inflammation) an inflammation of the middle layer of the heart wall
**myogram**—(muscle + record) a record of the movements made by muscle contractions
**myometer**—(muscle + measure) instrument to measure muscle contractions
**myoneural**—(muscle + nerve) having to do with the muscles and the nerves
**myopathy**—(muscle + disease) any disease of a muscle
**myositis**—(muscle + inflammation) inflammation of a muscle
**myosthenometer**—(muscle + weak + measure) instrument to measure muscle strength
**pathogen**—(disease + beginning) substance capable of producing a disease
**polymyopathy**—(many + muscle + disease) disease that affects several muscles
sacrectomy—(sacrum + surgical removal) removal of part of the sacrum
sacrolumbar—(sacrum + lumbar) having to do with the sacral and the lumbar vertebrae
sacrovertebral—(sacrum + lumbar) having to do with the sacrum and the spinal column
spondylopathy—(vertebra + disease) any disorder of the vertebrae
spondylalgia—(vertebra + pain) pain in the vertebra
spondylarthritis—(vertebra + joint + inflammation) arthritis of the vertebrae
spondylitis—(vertebra + inflammation) inflammation of one or more vertebrae
spondylomalacia—(vertebra + softening) softening of the vertebrae
spondylotherapy—(vertebra + treatment) treatment of the spine
sublumbar—(below + lumbar) beneath the lumbar area
thoracalgia—(chest + pain) pain in the chest wall
thoracolumbar—(chest + lumbar) having to do with the thoracic and lumbar parts of the spine
thoracometer—(chest + measure) an instrument used to measure the expansion of the chest
thoracopathy—(chest + disease) any disease of the chest area
thoracoscope—(chest + examine) instrument used to examine the thoracic cavity visually
13. Mary Moves

In this story you will learn the following word parts:

- brady
- cost/o
- edema
- malacia
- nat/i
- oma
- osis
- oste/o
- plastic
- sclerosis
- seps/o
- tachy
- tomy
- tox/o
- trauma

Two years passed. Mary finished school and became a licensed practical nurse. It seemed like a dream come true. But Mary knew how hard she had worked for that dream. Mike was doing well in his job. He had been promoted to foreman. His boss told him that if he went back to school, he might get more promotions. So Mike started back to school part-time so he could work toward his degree. Billy was doing well in school, too. Thelma and her husband moved to their
own home, but Thelma and Mary remained close friends. In fact, Thelma and Mary worked in the same hospital, but on different floors.

Another dream was coming true for Mary. She and Mike bought their own home and they were moving. On a Saturday morning, Mary was cleaning out her desk drawers. In one drawer she found slips of papers with words and word parts on them. She laughed as she remembered using the papers to study for tests in her medical tests. She read each paper and remembered how she learned the words. Here are the papers she found:

<table>
<thead>
<tr>
<th>brady</th>
<th>slow—<strong>bradycardia</strong> is a slow heart rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>tachy</td>
<td>opposite of brady—means fast; <strong>tachycardia</strong>—fast or rapid heartbeat</td>
</tr>
<tr>
<td><strong>edema</strong></td>
<td>A condition where the body or parts of the body retain too much fluid causing swelling</td>
</tr>
<tr>
<td><strong>oste/o</strong></td>
<td>Bone</td>
</tr>
<tr>
<td><strong>oma</strong></td>
<td>A tumor—<strong>osteoma</strong> is a bony tumor found on or near a bone</td>
</tr>
<tr>
<td><strong>malacia</strong></td>
<td>Softening—<strong>osteomalacia</strong> (bones + softening) means the softening of bones; <strong>encephalomalacia</strong> (brain + softening) is softening of the brain tissue</td>
</tr>
<tr>
<td>nat/i</td>
<td>birth—<strong>prenatal</strong> (before + birth) care means medical care while pregnant, before the baby is born</td>
</tr>
<tr>
<td>neo</td>
<td>new—<strong>neonatal</strong> (new + birth) means a newly born baby</td>
</tr>
<tr>
<td>osis</td>
<td>a condition—<strong>dermatosis</strong> (skin + condition) is a condition of the skin without inflammation (not the same as dermatitis which is an inflammation of the skin)</td>
</tr>
<tr>
<td>tomy</td>
<td>making an incision or cut; <strong>craniotomy</strong> is cutting into the skull.</td>
</tr>
</tbody>
</table>
plasty - surgical repair or reconstruction; rhinoplasty - surgical reconstruction of the nose.

cost/o - ribs—costalgia (rib + pain) means pain in the ribs.

traumat/o - wound or injury; traumatopathy is a disease caused by a wound or injury.

toxic/o - poison; toxicologist (poison + specialist) is a specialist in the study of poisons.
septic

having to do with organisms that can cause disease; **antiseptic** is something that can kill disease-causing organisms.

sclerosis

hardening

Here are new word combinations:

**antiseptic**—(against + disease causing organisms) something that kills bacteria and other disease causing organisms

**antitoxin**—(against + poison) neutralizing a poison

**bradycardia**—(slow + heart) slow heart beat

**cardiomalacia**—(heart + softening) softening of the heart muscle

**cardiosclerosis**—(heart + hardening) hardening of the heart and arteries (**arteriosclerosis**)

**costalgia**—(rib + pain) pain in the ribs

**costectomy**—(rib + surgical removal) surgical removal of a rib
cranialacia—(skull + softening) softening of the bones of the skull

cranioplasty—(skull + form) plastic surgery on the skull

craniosclerosis—(skull + hardening) abnormal hardening of the bones of the skull

cranietomy—(skull + cutting into) cutting through the skull

gastroplasty—(stomach + form) surgical repair of the stomach

hepatoma—(liver + tumor) a tumor of the liver

hypostosis—(too little + bone) lack of development of the bone

intercostal—(between + ribs) between the ribs

meningioma—(meninges + tumor) tumor of the lining of the brain or spinal cord

myelosclerosis—(spinal cord + hardening) hardening of the spinal cord

myomalacia—(muscle + softening) softening of muscle

neonatal—(new + birth) referring to a newly born baby

neuroschlerosis—(nerves + hardening) hardening of the nervous tissue

ostalgia—(bone + pain) pain in a bone

osteotomy—(bone + surgical removal) surgical removal of a bone or part of a bone

osteitis—(bone + inflammation) inflammation of a bone

osteoarthritis—(bone + joint + inflammation) degenerative arthritis

osteodermia—(bone + skin) bony-like skin

osteoma—(bone + tumor) a benign tumor of the bone
**otoplasty**—(ear + to form) plastic surgery of the ear

**ototomy**—(ear + cut) cutting into the ear

**plastic surgery**—(form + surgery) surgery to repair, reconstruct, or restore body parts

**podedema**—(foot + swelling) retention of fluid in the foot causing swelling

**prenatal**—(before + birth) before birth

**rhinoplasty**—(nose + form) plastic surgery of the nose

**spondylomalacia**—(vertebra + softening) softening of the vertebrae

**subcostal**—(below + ribs) below the ribs

**tachycardia**—(fast + heart) a fast heart beat

**thoracoplasty**—(chest + form) plastic surgery involving the chest and lung

**toxic**—(poison) having to do with or caused by poison

**toxicoderma**—(poison + skin) any skin disease caused by poison

**toxicodermatitis**—(poison + skin + inflammation) any skin inflammation caused by poison

**toxicologist**—(poison + specialist) a specialist in the field of poisons

**toxicopathy**—(poison + disease) any disease caused by poisons

**toxicophobia**—(poison + fear) abnormal fear of being poisoned

**toxicotherapy**—(poison + treatment) use of poisons to treat a disease
**vertebrocostal**—(vertebra + rib) having to do with the vertebrae and the ribs
CONCLUSION

Mary stopped in the supermarket one day right after work. She was still wearing her white uniform. While she was putting her groceries into her car a young woman with a baby stopped to talk to her.

"Are you a nurse?" the woman asked.

"Yes," answered Mary. "My name is Mary Consola. I'm an LPN. I work in the hospital across the street."

"My name is Debbie. I would really like to be a nurse," the young woman said.

Mary said, "Well, why don't you start school at the community college. They have an LPN course. That's where I went to school."

The young woman looked down at the ground. "I don't think I could learn everything. All the long medical words—I'd never be able to read them."

Mary smiled. She remembered the time she first met Thelma. "You know, Debbie, I felt that way too. I never thought I could learn those long words. But you can learn them. A friend helped me learn them. I can help you."

Debbie looked up. "Would you do that?" Debbie said.

"Sure! We have to help each other. Someone helped me and I can help someone else. Let's talk about this."

Mary and Debbie continued talking...
Glossary

andro—man
ante—before
anter/o—front or belly side of the body
anti—against
append/o—having to do with the appendix
arthr/o—joint
asthenia—lack of strength
audi/o—hearing
bi—two
brady—slow
burs/o—a sac filled with fluid found between tissues, especially joints
cardi/o—the heart
caud/o—toward the tail; away from the head
cephal/o—the head; toward the head
cervic/o—neck or neck of an organ
coccyg/o—bone at the bottom of the spinal column
cost/o—rib
crani/o—the skull
dactyl/o—finger or toe
depth—away from the surface of the body
dent/i—tooth
dermat/o—skin
dis—to be free from; not
dors/o—the back side of the body; on the back
ectomy—to remove surgically
edema—collection of fluid in the tissues
encephalo—brain
esthesi/o—feeling
febr/o—fever
fusion—to pour
gastr/o—stomach
genic—the origin
gram—recording
gynec/o—woman; female
hemat/o—blood
hemi—half
hepat/o—liver
hydr/o—water
hyper—above; too much; too many
hypo—below; too few
hyster/o—the uterus; the womb
iatrician—physician
inferior—away from the head; below
inter—between
intra—within
ist—a physician
itis—inflammation
later/o—side; away from the midline
lingu/o—tongue
logist—an expert
lumb/o—part of the back between the thorax and the sacrum
macro—large
malacia—softening
mast/o—breast
medial—toward the midline
mening/o—membrane surrounding the brain and spinal cord
meter—a recording instrument
micro—small
midline—an invisible line which runs down the middle of the body
multi—many
my/o—having to do with muscles
myel/o—spinal cord
natal—birth
nephro/o—kidney
neuro/o—the nerves
oma—tumor
onc/o—tumor or cancer
ophthalm/o—the eyes
osis—condition
oste/o—bone
ot/o—ear
para—birth
path/o—disease
ped/o—child; children
pharmac/o—drugs, medicines
phobia—abnormally strong fear
plasty—surgery to repair or reconstruct
plegia—paralysis
pod/o—foot
poly—many
post—after
poster/o—back of the body
pre—before
pseud/o—false
psych/o—the mind
pulmon/o—lung
quadr/i—four
rhin/o—nose
sacr/o—part of the back between the lumbar area and the coccyx
scope—instrument used to examine
scopy—to examine visually
semi—half
septic—disease causing organisms
sono—sound
spasm—contraction or tightening
spinal column—the backbone
spondyl/o—having to do with the vertebrae
sub—under
superficial—close to the surface of the body
superior—toward the head; above
tachy—fast
therapy—treatment
therm/o—heat
thorac/o—the chest area; thorax
-tomy—cutting into
tonsill/o—tonsil (tissues found in the throat)
toxic/o—poison
trans—across
trauma—wound or injury
tri—three
uni—one
venous—vein
ventr/o—the front or belly side of the body
vertebra(e)—bones that make up the spine or backbone
The core curriculum consists of a series of stories that present medical words and word parts in an enjoyable, story-like format. Students will enjoy following the two main characters, Mary and Thelma, as they form a friendship based on Mary's curiosity about Thelma's LPN career. At the same time, students will be able to practice and apply the structural analysis strategy as they learn new words and word parts in a way that is nonthreatening and fun. Students will discover that it can be fun to learn words that once appeared intimidating.

The stories, however, are just one part of the core curriculum. The core curriculum requires active involvement on the part of the teacher as well as the learner. This manual will provide teacher-based and learner-based activities to supplement the curriculum. No curriculum should ever stand alone; successful use of a curriculum is always the result of a delicate balance of teacher and learner involvement.

Each lesson in the core curriculum consists of three components:

• before reading activities;
• while reading activities;
• after reading activities.

It is important to provide guidance, as needed, during all three components. This manual will give suggestions for ways to do this. Part one contains both teacher- and learner-based ideas and activities for before, during, and after reading. Part two provides reproducible activities to be used with specific lessons in the core curriculum. These are intended as preliminary exercises and teachers are encouraged to develop further the activities in a similar manner.

Students respond positively when they are given the opportunity to work cooperatively. Working cooperatively helps to develop the interpersonal and communication skills that are so critical in the health care profession. Try to provide many opportunities for learners to work in different group patterns. For instance, students can work in pairs and read aloud to each other, or develop exercises for each other; students can work in small groups with each group assigned several word parts to teach in some creative way to the other group; or students can work in small groups developing lessons they can present to the whole group.
Modeling of appropriate behaviors is an important responsibility of the teacher. Some important behaviors to model include:

- use of structural analysis strategy;
- enthusiasm for learning new words and word parts;
- communication skills;
- use of self-monitoring techniques while reading;
- visualization as a tool for learning word parts and words.

It is also important to provide guidance with word parts that are similar. For example: myo (muscle) and myel/o (spinal cord), asthenia (lack of strength) and esthesi/o (feeling; sensation), and cephal/o (head) and encephal/o (brain) might be confusing for some students.

The core curriculum covers 115 word parts so students are exposed to many different word parts. Realistically, however, students may not encounter all of them in their studies or on the job. Talk with students about realistic expectations for encountering all of the words and word parts that are covered in the curriculum.

Review Lessons

Lessons five and ten of the reproducible activities section are review lessons. Each lesson has practice exercises that will develop the students' communication skills. In addition to these exercises, the following activities can also be adapted for your students:

- Divide students into groups of three to four. Each group should have five different word parts. Have students, as a group, come up with creative ways to teach the word parts to other groups. For instance, students might use visual aids, drama or role playing, or cartoons. Encourage creativity and game playing to make the exercise more active and fun.

- Have a race with the entire group. Say aloud the meaning of a word that can be made from word parts. Students should use their word part notecards and paper clips to form the word and hold the cards up in the air to signal that they have found it.

- For spelling practice, dictate words or word parts to the students. Or, write misspelled words on the board and have students spot the incorrect letters (Ex. anesthesiologist). Or, write parts of words or word parts on the board and have students supply the missing letters. Ex: ca_ _/o (heart), _entra_ (front)

- Make crossword puzzles or word searches for words and word parts. Have students make them for each other.
Part One: Working with the Core Curriculum

A comprehensive approach to teaching requires that students and teachers engage in activities before, during, and after instruction. This approach takes into account recent research in the fields of cognitive psychology and reading. Each phase provides the student with appropriate activities to accomplish the following:

- **before**—to activate prior knowledge (or schemata), increase motivation, provide a reason for reading, help students predict content;
- **during**—promote use of strategies and self-monitoring techniques;
- **after**—model strategies, provide opportunities for practice and application as well as for maintenance of what has already been learned.

Review this section before beginning each chapter.
Before Reading:
- Pronounce new word parts and new words while students read over them. A medical dictionary will help with the pronunciation of unfamiliar terms. Help students predict what they think the words and word parts might mean.
- Point out any potentially confusing word parts, such as *myo* and *myelo*.
- Review strategy (first couple of lessons).
- Review previously learned word parts. Be creative in the ways you review.
- Encourage students to notice Mary's personal growth as the stories progress. For example, Mary has many insecurities about her abilities as the stories begin; as the stories progress, however, she becomes more confident and her self-esteem grows as she meets new challenges.

During Reading:
- Be available to provide guidance, as needed, to answer questions, etc.
- Encourage self-monitoring techniques.
- Encourage visualization to help learn and remember words.

After Reading:
- Discuss the new words and word parts.
- Encourage students to articulate any problems they may be having.
- Have students do word cards for new word parts.
- Have students record new word parts in their notebooks.
- Use the Supplementary Exercises in Part Two of this manual.
STUDENT'S GUIDE

Introduction

Part One

You will begin your career in the health care field soon. You will see and hear many new words. You may hear doctors, nurses, or other people using words you haven't heard before. You might see new words on charts, bulletin boards, reading materials, or other places. You will have to read and understand these new words to do well on the job.

This program will help build your medical vocabulary. You will learn an important strategy for figuring out new words. You will find that you already know many medical words. The words you already know will help you figure out new words.

First, think about what you do now when you see or hear unfamiliar words. Write about some of the things you do to help you figure out new words.

OUR GROWING LANGUAGE

Most people are unaware of how much the English language changes in their lifetime. But it does change. New words come into use, others are going out of style, and old words take on new meanings. The English language has been changing constantly since it first developed around 400-600 AD. This lesson will explore some of the reasons why language changes.

Think back to when you were a child. Then slowly begin to trace forward. Try to remember when you first heard words that are now familiar to you. Here are some words you probably didn't hear during childhood: microwave, digital, VCR, Ninja Turtles.

There may be hundreds of words that have become part of the language in your lifetime. If you went back in time to your childhood, what are some words that wouldn't have been heard then? Write them here.

________________________________________

________________________________________

________________________________________
You should have an idea of how much the language has changed in your lifetime. You should also understand some of the reasons why the language changes. There are influences from our own culture and from cultures around the world. You can say that language is like a mirror of culture and time.

Now, let's look at the special language used in the health care field. Think back to when you were a child. Suppose you were to go back in time and talk with people in the health care field. What are some words that are common now but wouldn't have been known back then? Write them here.
A SHORT HISTORY OF THE ENGLISH LANGUAGE

Part One

The English language has been spoken for a long time. It was being spoken in 400 AD! Think about how many changes there must have been in the language since then.

This lesson will tell you about the three main periods in the history of the English language.

1. Old English (Around 400 to 1100 AD)

At the beginning of this period, England was known only as Britain. It was occupied by the Celts, who were the ancestors of the Irish, Scots, and Welsh. Britain was invaded in the 400s by three Germanic tribes—the Angles, Saxons, and Jutes. The influence of these invading tribes marked the beginning of the English language as we know it. In fact, the name England came from one of these tribes, the Angles (England = the land of the Angles). The language spoken then was very different from what we speak today. But a few words remain unchanged from that time: run, man, a, child, the, for. This sample of Old English is taken from the Anglo-Saxon Gospels, which was written about 995 AD:

Behealdap heofonan fuglas, fordám dé hig ne sawap, ne hig ne ripap, ne hig ne gadriap on berne; and eower heofonlica fæder hig fet. Hu ne synt ge selran ðonne hig?

(Look at the birds of the air: they neither sow nor reap nor gather into barns, and yet your heavenly Father feeds them. Are you not of more value than they?)

Another major influence during this period was the spread of Christianity, which began around 500 AD. Latin was the language of the Church, and to this day our language contains thousands of words from Latin. Some examples of words that have survived unchanged include: hymn, priest, bishop, nun, shrine, monk, and psalm.
2. Middle English (1150 to 1500 AD)

There was an enormous French influence on the language of this time. The Normans, who were French, invaded England in 1066 AD. After the invasion, the official language of England was Anglo-Norman French, but it never replaced English. The common people still spoke English. But the French influence was strong. It added nearly ten thousand words to the English language. For example, the English used the names of animals when they talked about meat. We can thank the French for giving us the words veal for calf, beef for cow, mutton for sheep, venison for deer, and pork for pig.

As the Norman influence began to fade, English was once again the major language. This example of Middle English is taken from *The Canterbury Tales*, by Geoffrey Chaucer. It was written between 1370 and 1399 AD:

Wel he loved he garleek, oynons, and eek lekes
And for to drynken strong wyn, reed as blood;
Thanne wolde he speke and crie as he were wood
And when that he wel dronken hadde the wyn,
Than wolde he speke no word but Latyn.

Another important influence was the printing press, which was brought to England in 1476 AD.

3. Modern English (1500 AD to present)

The printing press made reading materials available to more people. At the same time, formal education was available to more people. The teaching of Latin and Greek was important in the schools at that time. Some Latin and Greek words have survived intact: *alibi*, bonus, doctor, junior, stimulus from Latin; and asbestos, chaos, echo, and idea from Greek.

Two other important influences on the growth of the English language were colonization and the spread of commerce. During their travels for trade and colonization, the English brought back to the vocabulary many new words from around the world. Some examples include:

kindergarten (Germany), piano, pizza (Italy), wigwam (American), tank (Portugal), and rodeo (Spain).
Part Two

Let's look at a short history of medical language. You will hear many Latin and Greek words in the health care field.

First, when Rome invaded Greece, it did not have much knowledge about the science of medicine. The Greeks had a long tradition of study and diagnosis of disease. So the Romans took much of this knowledge with them. Many Greek words were reshaped into Latin words.

But why would something that happened so long ago have an influence on medical language today? Sometimes doctors and other health care workers want a "polite" way of discussing a patient's condition without alarming or offending the patient. Medical words with Latin and Greek parts also allow health care workers to be more precise in what they are discussing. For example, compare "dizzy" to the more precise terms of vertigo, disorientation, ataxia, or somnolence.

Many English words are made up of word parts. If you know the meanings of the parts, you can often figure out what the whole word means. This helps build your vocabulary. Using word parts will help you learn medical words. Hundreds of medical words are built from word parts.

First, let's look at some words you already know that are made up of word parts.

telephone, subway, bicycle

Part Three

Now let's look at how the strategy works. Suppose you come across an unfamiliar word in your reading:

Example: Scientists are exploring geothermal sources for forms of energy to replace gas, oil, and coal.

You are not sure what the word geothermal means, so you:

1. Identify the word parts and think about other words you already know that have these word parts:

   geo—geology, geography, geode, geomagnetic
   thermal—thermostat, thermometer, thermal underwear, thermos
2. Identify the meanings of the parts from the familiar words.

geo—earth
thermal—heat

3. Come up with what you think might be the definition.

geothermal—heat from the earth

4. Read the sentence again and ask yourself if the definition makes sense in the sentence.

It is important for you to become comfortable with this strategy. It will be used in all the lessons of the health care vocabulary unit. A word of caution, however: when it is important to be absolutely certain and precise about a definition, always use a glossary or a dictionary.

A Closer Look

Word parts may be at the beginning, middle, or end of a word. This lesson will teach you the names for each type of word part.

1. All words have a main part called the root. The root of the word carries the meaning of the word. For example:

What do you think is the root of these words?

breaking, breakable, break, unbreakable

Some words have more than one root. They are called compound words.

Look at these compound words.

breakfast, breakdown

2. Some words have a word part added to the beginning of the word. The group of letters added to the beginning of the word is called the prefix. The prefix adds to or changes the meaning of the root.

What do you think is the prefix of these words?

unbreakable, unfriendly, mistreat
3. Some words have a word part added to the end of the word. The group of letters added to the end of the word is called the **suffix**. The suffix adds to or changes the meaning of the word and often changes the part of speech of the word.

   Look at this group of words. The **suffix** adds to or changes the meaning of the root. It usually changes the part of speech of the root.

   act, active, activate, action
   operate, operation, operator

4. Sometimes two roots are put together and we have to add a vowel in between them. The vowel that is added to make the two roots "stick" together is called a **combining form**. Look at the word *thermometer*. There are two roots, therm and meter. **O** is a **combining form**. Combining forms are often added because it makes the word easier to pronounce.
Students: Refer to this list every time you begin a new chapter in your student book.

Before Reading:
- Review the strategy in your head.
- Read over the new list of word parts and think about any words you already know that have those parts. If you don't know any, think about what the new word parts might mean.
- Listen as the teacher pronounces the new word parts.
- Ask yourself, “What do I want to learn from this chapter?”

During Reading:
- Write down any confusing words or word parts as you encounter them in your reading.
- Think about and use the strategy as you try to figure out unfamiliar words.
- Think about what you already know that can help you figure out the new information.
- Form a picture in your mind to help you learn and remember the new words and word parts.
- Ask yourself, “Do I understand this chapter? Do I need to go back and review some of the word parts?” If you think you will have trouble remembering any word parts, jot them down on a piece of paper and review them when you are finished reading.

After Reading:
- Review any word parts you jotted down while reading.
- Make word cards (one-half of a 3x5 notecard) with the word part on the front and its meaning on the back.
Lesson One

Activity #1: Compare and Contrast

- Directions. Put a check beside the sentence that uses the new word correctly.

1. The doctor looked in Kelly's throat to check for arthritis.
   Joseph could not move quickly and easily because of his arthritis.

2. Tony put a warm cloth on his neck when he thought he had tonsillitis.
   The doctor said I had tonsillitis after I dropped the brick on my foot.

3. When Hector had gastritis, he had to put his arm in a sling.
   Jen could not eat hot and spicy food because of her gastritis.

Activity #2: Writing Activity

- Directions. Write a sentence for each new word made up of word parts. Leave a blank space where the new word belongs. When you are finished, exchange with a partner and write the missing word in the blank. Then read the sentences aloud to each other.
Lesson Two

Activity #1: Cloze
Directions. Read the following paragraphs. Fill in the blanks with the right word from the medical words you have learned so far.

1. A team of doctors was working with a seriously ill young boy. The ______________________ kept records of his heart and his kidneys were monitored closely by the ______________________. The ______________________ analyzed the boy’s blood work every day and gave reports to the ______________________ who tried to figure out what disease the young boy had. Together, they hoped they would be able to make the young boy well enough to go home to his family.

2. When Ashley developed a horrible case of poison ivy rash, her mother took her to the best skin doctor in town. Dr. James, the ______________________, gave Ashley some cream because the rash was very itchy. The doctor wrote on the chart that Ashley had a skin inflammation, or ______________________. Dr. James also suggested that Ashley see her children’s doctor, or ______________________, for her yearly check-up.

Activity #2: Grouping Words
Directions. Look at the way the following list of words was divided:

dog, yellow, horse, purple, green, pig
dog, horse, pig, yellow, purple, green

Divide the following list of words into two groups of words that have something in common.

dermatologist arthritis nephritis

gastritis pathologist ophthalmologist

Group One: ______________________

Group Two: ______________________

What do the words in group one have in common?

What do the words in group two have in common?
Activity #3: Maze
• Directions. Circle the best word to fill in the blank

1. Most women see their (neurologist, oncologist, gynecologist) at least once a year.

2. When John felt a tumor on his neck, he made an appointment with the (ophthalmologist, oncologist, nephrologist).

3. People who drink too much and take illegal drugs could benefit from seeing a (pediatrician, hematologist, psychologist).

4. After her eye exam, Carol thanked the (cardiologist, ophthalmologist, nephrologist).

Activity #4: Use What you Know
• Directions. Use the word parts from the first and second unit to build words that mean.

   inflammation of the kidneys
   __________________________

   inflammation of the skin
   __________________________

   inflammation of the nerves
   __________________________

Activity #5: Design a Business Card
• Directions. Choose one of the words that describes a person who is a specialist (cardiologist, gynecologist, dermatologist, hematologist, neurologist, pathologist, nephrologist, etc.). Imagine you work for a printing company and you have been asked to design a business card for that person. Use your name and address as the name of the specialist on the card. Include a picture that would serve as a clue to the profession of the person.
Lesson Three

Activity #1: Compare and Contrast

- Directions. Put a check mark beside the sentence that uses the new word correctly.

1. Carlos had 10 stitches in his abdomen after his appendectomy. The pharmacy will give you the appendectomy.

2. The doctor's assistant put the phobia in the file cabinet. Mary's mother has a phobia about meeting new people.

3. Sarah's brother was febrile so she put cold cloths on his head. Ken watched the febrile work on his patient.

4. The pharmacy requires the doctor's signature on the prescription. Rosa took the pharmacy to make her tooth stop hurting.

5. The doctor told Bernie that he needed to have a sonogram. If you want to get in touch with someone, try sending a sonogram.

6. Debbie did not notice the abdominal paper in her mailbox. Her abdominal region is very sore and tender.

Activity #2: Think Aloud

- Directions. Take your paper from Activity #1 and work with a partner. Read the first sentence aloud. Tell your partner how you would figure out the meaning of "appendectomy" from its word parts and the clues in the sentence. You should take turns with your partner on sentences 2-6.

Activity #3: Use What You Know

- Directions. Use the word parts you learned in lessons one, two and three to build the word that means:

removal of tonsils by surgery ____________________________
abnormal fear of women ____________________________
abnormal fear of the heart ____________________________
instrument for measuring the size of the eye ____________________________
Use the word parts to figure out what these words might mean. Write your answer in the blank.

neuropharmacology

psychopharmacology

electrocardiogram
Lesson Four

Activity #1: Write a Memo
- Directions. You need to write a memo to the LPN who comes on duty after you. You want to tell him that the patient in room 234 will need special care after her operation. Part of the memo has been done for you. First, fill in the top part of the memo. Then fill out the rest of the memo with the correct new words from chapter four.

Memo:
To: Brian Kelly
From: _______________
Date: _______________

The patient in room 234, Ellen Fast, had her appendix removed this morning. You will be asked to assist with her _____________. Be sure to wash your hands with _________________ soap before and after you enter her room. The RN will give most of Ellen's medicine through an _________________ tube inserted in Ellen's vein. But Ellen's 10 p.m. pill is _________________. That means you must put it under her tongue at 10 p.m.

Activity #2: Write a Memo
- Directions. You need to write a memo to the LPN who comes on duty after you (her name is Carol White). You must give her directions for caring for the patient in room 315, Hillary Jackson. Use the following words in your memo:
  arthritis  anti-inflammatory  intramuscular  preoperative

Memo:
To: _______________
From: _______________
Date: _______________

___________________________
___________________________
___________________________
___________________________
___________________________
Activity #3: Compare and Contrast

**Directions.** Put a check mark beside the sentence that uses the new word correctly.

1. The doctor wanted to take an x-ray of my **vertebrae**. The **vertebrae** didn't fill out the form.

2. Many people use **bifocals** to straighten their back. Wear your **bifocals** when you read the newspaper.

3. **Intervertebral** disks are part of your spine. The doctor used the **intervertebral** disks to measure the wound.

4. We looked through the **subabdominal** glass. Frank had severe **subabdominal** pain.

5. The **audiologist** checked Maria's hearing. She used an **audiologist** to measure her heartbeat.

6. After her operation, Kelly received **preoperative** instructions. Follow the doctor's **preoperative** instructions to make sure you heal properly.

7. The **antiarthritic** drug eased the pain in John's back. The **antiarthritic** drug eased the pain in John's heart.

8. **Antibacterial** diseases spread throughout the office. Use **antibacterial** soap before and after you touch the patient.

9. Do not allow the **intravenous** line to become tangled. She placed the **intravenous** pill under the patient's tongue.

10. She felt better during the **postoperative** period than she felt during the time before her operation. **Postoperative** care helps you to get ready for your operation.
Lesson Five

This lesson is a review of all the word parts the student has learned in lessons one through four. Review the words and word parts.

Here are some activities to try:

1. Compare your notebook with Mary's notebook. Check to see if you have recorded the new words and word parts correctly.

2. Choose 10 word parts. Brainstorm with your class to see how many words you can think of that are made of word parts. Compose a short story using 10 of the words, leaving blanks where the words belong. Exchange stories with a partner and fill in the blanks.

Lesson Six

Activity #1: Write an Article

• Directions. Imagine you have been asked to write an article for a hospital newsletter. You have been asked to write about an exciting event that took place at the hospital.

Use the following words in your article:

quadruplets    multipara    postpartum

Activity #2: Work with a Partner

• Directions. You and your partner should have a notebook to write down your answers for this activity. Use the word parts from lesson six: hemi, lateral, multi, para, plegia, poly, quadr/i, semi, tri, uni. Brainstorm as many words as you can think of that are made up of those word parts. They don't have to be medical words. When everyone in the class is finished, compare lists and see who thought of the most words.
Activity #3: Maze
• Directions. Circle the best word to fill in the blank

1. The woman was (multipara, unilateral, polyneuritis) and decided not to have any more children.

2. Rosa was in extreme pain because of her (multipara, postpartum, polyneuritis).

3. Many women feel depressed during the (polypathia, postpartum, semicircular) period.

4. A person who is a (quadriplegia, quadrilateral, trilateral) needs a lot of help everyday.

5. The jogger was running in the heat and developed (polyarthritis, hemilingual, thermoplegia).

6. People who suffer from (thermoplegia, gastroplegia, polyphobia) are often too afraid to leave their homes.

Activity #4: Cloze
• Directions. Read the following paragraphs. Fill in the blanks with the correct words from lesson six.

Karen gave birth to ________________. She and her husband, Tim, were shocked to find out they had four babies! The doctor told them they were expecting twins. Two weeks after she came home from the hospital, Karen suffered from ________________ depression. It was so exhausting trying to care for four little babies! Luckily, her mother and sister came to stay with them for awhile. They helped Karen and Tim take care of little Joe, Flo, Zoe, and Moe.
**Directions.** Read the following paragraphs. Fill in the blanks with the correct words from lessons one through six.

Melanie was very worried about the patient in room 304. She took his temperature with a _____________. It was 105°F! She called the RN into the room. The RN suggested they page the _____________ Martha Quinn, one of the heart specialists in the hospital.

Dr. Quinn examined the patient and said he had _____________. An inflammation of the heart can be very serious. The RN began giving the patient medicine through an _____________ in his right arm. Two days later, the patient began to recover. Melanie was proud of the professional way she handled the situation.

**Lesson Seven**

Activity #1: Sorting

*Directions.* Sort the following list of words into four groups. Each word in a group should have a similar word part at the beginning of the word. Write the meaning of the similar word part at the top of the group.

- gastroscope
- hypodermic
- carditis
- cardiologist
- hyperthermia
- hypothermia
- cardiograph
- hyperdontial
- hypertension
- gastrotherapy
- hypotension
- gastroscopy

Group One: ____________ (meaning of word part)

Group Two: ____________ (meaning of word part)

Group Three: ____________ (meaning of word part)

Group Four: ____________ (meaning of word part)
Activity #2: Sorting
Directions. Sort the following list of words into four groups. Each word in a group should have a similar word part at the end of the word. Write the meaning of the similar word part at the top of the group.

hypodontia  dermatitis  macrodontia  dermatitis
dermatotherapy   dermatitis   gastroplegia  dermatotherapymacrodontia
quadri-legia  gastroplegia  carditis   gastrotherapy
nephritis  hyperdontia  cardioplegia  hydrotherapy

Group One:  ____________________________  (meaning of word part)
__________________________
__________________________

Group Two:  ____________________________  (meaning of word part)
__________________________
__________________________

Group Three:  ____________________________  (meaning of word part)
__________________________
__________________________

Group Four:  ____________________________  (meaning of word part)
__________________________
__________________________

Activity #3: Compare and Contrast
Directions. Put a check mark beside the sentence that uses the new word correctly.

1. The physician's assistant used the electrocardiograph.  
   The electrocardiograph put the record in the box.

2. Luis had to wear a cast for his hypertension.  
   Do not use too much salt if you have hypertension.

3. The cat would not go near the tub; you might say it has hydrophobia.  
   The hydrophobia treatment felt good on Steve's back.

4. Susan needed a complete blood transfusion.  
   The transfusion kept the needle in the cabinet.
5. We suffered from hyperthermia during the heat wave. We applied hot cloths to John's head when he had hyperthermia.

6. The LPN inserted the hypotension in the patient's arm. Consuela's hypotension made her feel very tired.

7. The young couple were disappointed when the nurse said it was only a pseudopregnancy. The pseudopregnancy scared the young couple. How would they be able to care for so many babies?

8. Hydrotherapy kept the scared young boy out of the water. The hydrotherapy treatment eased the soreness in June's muscles.

Activity #4: Report to the RN

- Directions. Imagine you have to give a report to the RN. First, you have to write about what happened to the patient in room 112. Use the following words in your report: electrocardiograph, hypertension, hypodermic, and intramuscular. Then, read your report to a partner.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Lesson Eight:

Activity #1: Help Yourself Remember

Directions. This activity will help you remember the words in lesson eight. First, write the meaning of the word. Use the book if you can't remember the meaning. Second, write about how you will try to remember the meaning. For example, for dorsal, you might write something like:

I know that the shark's fin that sticks out of the water is called the dorsal fin. This will help me to remember that dorsal means near or on the back. You might even draw a picture of a shark to help you remember. Whatever works for you!

Or, you might write something like this:

I will use the initials d and p to help me remember dorsal and posterior mean the same thing. I will use the initials v and a to help me remember ventral and anterior mean the same thing.

You can use these examples if you like or you can make up your own.

dorsal means ___________________________
How I will remember it:

ventral means __________________________
How I will remember it:

anterior means _________________________
How I will remember it:

posterior means _________________________
How I will remember it:

cephalic means _________________________
How I will remember it:

caudal means ___________________________
How I will remember it:

medial means ___________________________
How I will remember it:

midline means __________________________
How I will remember it:

lateral means __________________________
How I will remember it:
Activity #2: Label the Figures
- Directions. Label each drawing with the correct word. Choose from the following words:
  anterior  dorsal  lateral
  midline  caudal  posterior
  medial  cephalic  ventral

DORSAL
POSTERIOR

VENTRAL
ANTERIOR

Activity #3: Make a Compare and Contrast Exercise
- Directions. In some of the activities, you were asked to choose the sentence that used the new word correctly. For example: Debbie did not notice the abdominal paper in her mailbox. Her abdominal region is very sore and tender.

For this activity, you will have to make a similar exercise for your partner. Use the following words dorsal, posterior, midline, medial, lateral, ventral, anterior, caudal, cephalic
Remember to make one sentence that uses the word correctly and one that does not. When you are finished, exchange papers with your partner.
Lesson Nine:

Activity #1: Confusing Word Parts
• Directions. This lesson has some word parts that might be confusing. This activity will help you remember them.

1. esthesi/o (feeling) and asthenia (weakness)

You might remember the word part esthesi/o means feeling because the word part and its meaning both have the letter e and its sound in them. Say them aloud. You might remember the word part asthenia means weakness because the word part and its meaning both have the letter a in them.

Don't be confused when other word parts are added. For example, when the word part an is added to esthesi/o, try to remember the meaning of just the word part esthesi/o first, and then look at the other word parts.

For example, add the word part that would change the meaning to without feeling:

_________ esth i/o

Now, add the word part that would make the word mean "a person who specializes in...."

anesthesia ____________________

2. alg esi/o (pain)

This word part looks similar to asthenia and esthesi/o. One way you might remember alg esi/o is by thinking of the following: If you have severe pain, you might say something like, "Gee, I have a lot of pain." Alg esi/o has the letter g in it.

Activity #2: Compare and Contrast
• Directions. Put a check mark beside the sentence that uses the new word correctly.

1. The analgesic was painful for the nurse.
   The RN gave the patient an analgesic.

2. An inflammation of the meninges can be very serious if it is not treated properly.
   The doctors asked the meninges to fill out the forms.

3. The nurse injected the dye for Sharon's myelogram.
   The myelogram showed that her lungs were clear.
4. The cranium protects the spinal cord. The cranium protects the brain.

5. She did not feel anything during the operation because she had anesthesia. His anesthesia made him sneeze in the springtime.

6. Janet was very worried because her son, John, had encephalitis; if the CAT scan of his brain did not show improvement, he would be moved to intensive care. Encephalitis made Katrina's nose run almost all day; she went through two boxes of tissues.

7. Ken wanted the skilled anesthesiologist to perform the craniectomy. Ken wanted the skilled neurologist to perform the craniectomy.

8. She was flat on her back because of neuralgia. Neuralgia made the pain in her back feel better.

Activity #3: Figuring Out New Words

- Directions. Use the words parts you learned in this lesson and some of the ones from the other lessons to figure out the meanings of these words. They may look long and complicated, but they are made up of word parts you have learned!

hyperthermalgesia

myeloencephalic

neuromyelitis

ophthalmalgia

anencephalus
Lesson Ten

This lesson is a review of all the word parts you have learned in lessons one through nine. Review the words and word parts.

Here are some activities to try:

1. Make up imaginary phobias using word parts from the story. Draw pictures or role play your stories.

2. Role playing is a good way to practice saying new words and word parts aloud. Develop case studies similar to the one you did in lesson seven, Activity #4.

3. Go through your notebook and cover up the word part; read the meaning and try to guess the word part.

Lesson Eleven

Activity #1: Case Study

Directions. Read the case study. Fill in the blanks with words from lesson ten or words you already learned.

Judy was very unhealthy in the winter of 1992. It all began with a pain in her liver which turned into an inflammation. The doctor diagnosed it as ____________. He prescribed an _______________ to relieve the pain. He also told her to be extra careful about washing her hands; he said she should always use _______________ soap.

When that cleared up, Judy lived through one of the most frightening experiences of her life. She found a lump during a self-exam of her breast! She was afraid she would have to have a _______________. Fortunately, the doctor did some tests and discovered that the lump was not serious.
Activity #2: Sorting

- Directions. Sort the following list of words into three groups. Each word in a group should have at least one word part that is the same. Write the meaning of the similar word part at the top of the group.

<table>
<thead>
<tr>
<th>cardiopulmonary</th>
<th>rhinitis</th>
<th>hepatalgia</th>
</tr>
</thead>
<tbody>
<tr>
<td>pulmonitis</td>
<td>mastitis</td>
<td>microhepatia</td>
</tr>
<tr>
<td>subpulmonary</td>
<td>intrahepatic</td>
<td>hysteritis</td>
</tr>
</tbody>
</table>

Group One: ____________________________ (meaning of word part)

Group Two: ____________________________ (meaning of word part)

Group Three: ____________________________ (meaning of word part)

Make a sorting list for your partner. Choose two words that have similar word parts for each group. Make four groups of words.
Activity #3: Write a Memo

Directions. You need to write a memo to the LPN who comes on duty after you (his name is Joseph Torelli). You must give him directions for caring for the patient in room 304, Marion Cullen. Use the following words in your memo:

*otitis, otologist, rhinalgia, rhinesthesia.*

You can also use other health care words if you like.

Memo:

To: ______________________
From: ____________________
Date: ____________________

________________________________________________________

________________________________________________________

________________________________________________________

________________________________________________________

Lesson Twelve

Activity #1: Confusing Word Parts

1. *myel/o* (spinal cord) and *my/o* (muscle)

You might remember that *myel/o* has the letter I in it that kind of looks like the spinal cord. Or, you can think of a different way to remember the difference between the two word parts. Write about your way below:

________________________________________________________

________________________________________________________

________________________________________________________

Write a sentence using the word *myostitis*. Write another sentence using the word *myelitis*.

________________________________________________________

________________________________________________________

________________________________________________________
Activity #2: Maze

- Directions. In some exercises you have been asked to choose the correct word to fill in the blank. For example:
After her eye exam, Carol thanked the (cardiologist, ophthalmologist, nephrologist).

For this exercise, you will be asked to make a maze activity for a partner. Make five questions using five new words from lesson 11. You may use any of the words you have learned as possible answers in the activity.
Activity #3: Crossword Puzzle

Directions. Use the clues to fill in the puzzle.

Across:
1. surgical removal of the sack of fluid between joints
2. started in the muscle
3. substance capable of producing a disease
4. started in the muscle
5. end of spinal column
6. vertebrae in neck
7. inflammation of middle layer muscle of heart wall
8. contracting or tightening of muscles
9. vertebrae of lower back
10. muscle pain
11. group of vertebrae in chest area

Down:
1. inflammation of vertebrae
Lesson Thirteen

Activity #1: Sorting
- Directions. Sort the following list of words into four groups. Each word in a group should have a similar word part. Write the meaning of the similar word part at the top of the group.

<table>
<thead>
<tr>
<th>costal</th>
<th>spondylomalacia</th>
<th>toxicologist</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhinoplasty</td>
<td>intercostal</td>
<td>myomalacia</td>
</tr>
<tr>
<td>toxic</td>
<td>plastic surgeon</td>
<td>costectomy</td>
</tr>
<tr>
<td>cardiomalacia</td>
<td>toxicophobia</td>
<td>otoplasty</td>
</tr>
</tbody>
</table>

Group One: ___________________________ (meaning of word part)
__________________________
__________________________

Group Two: ___________________________ (meaning of word part)
__________________________
__________________________

Group Three: ___________________________ (meaning of word part)
__________________________
__________________________

Group Four: ___________________________ (meaning of word part)
__________________________
__________________________

Activity #2: Report to the RN
- Directions. Imagine you have to give a report to the RN. First, you have to write about what happened to the patient in room 112. Use the following words in your report: antitoxin, neonatal, tachycardia. Then, read your report to a partner.

________________________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________
________________________________________________________________________________________________________________________________________

12
Activity #3: Figuring out New Words

- Directions. Use the word parts you learned in this lesson and the other lessons to figure out the meanings of these words. They may look long and complicated but they are only made up of word parts you have learned!

- cardiosclerosis
- gastroplasty
- meningioma
- otoplasty
- podoedema
- toxicodermatitis
- vertebrocostal
- thoracoplasty
- craniomalacia
- hepatoma
Pre/Post Tests
Write the word part in the blank that means:

_________ before

_________ inflammation

_________ heat

_________ many

_________ three

_________ half

_________ uterus

_________ woman

_________ ribs

_________ the mind
Use two word parts to make a word that means:

an expert of the mind

an inflammation of the liver

abnormal fear of being poisoned

multiple births

water treatment

removal of all or part of the stomach
Use word parts to help you understand the meaning of these words. Write the meaning in the blank.

- cardiogram
- rhinoplasty
- encephalomyelitis
- nephralgia
- hypothermia
- quadriplegia
- cardiohepatic
Match the word parts to their meanings (not all meanings will be used):

| ______ vertebr/o | A. skull          |
| ______ pseud/o   | B. bile           |
| ______ crani/o   | C. feeling, sensation |
| ______ esthesia  | D. backbone       |
| ______ sclerosis | E. slow           |
| ______ pulmon/o  | F. false          |
|                | G. hardening      |
|                | H. lung           |
Answer the following questions:

The doctor prescribed an analgesic. What will that do?

The woman had edema. What does that mean?

The test showed that he had hyperthyroidism. Did his thyroid produce too much or too little?

After exercising, he suffered from back spasms. What was happening to his back?
Here are some word parts that show direction or location. Match the right direction or location with the word parts. Some meanings might match more than one word part. Not all meanings will be used.

_____ medial

_____ trans

_____ posterior

_____ dorsal

_____ inferior

A. below

B. on the left side of the body

C. beside

D. in the middle

E. back of the body

F. across or over
Use the word parts in the box to match the definitions. Write the correct word part in the blank. Not all word parts will be used.

<table>
<thead>
<tr>
<th>dactyl/o</th>
<th>lingual</th>
<th>mening/o</th>
<th>abdomin/o</th>
</tr>
</thead>
<tbody>
<tr>
<td>encephal/o</td>
<td>hydr/o/a</td>
<td>oma</td>
<td>tachy</td>
</tr>
<tr>
<td>brady</td>
<td>my/o</td>
<td>febr/o</td>
<td>cost/o</td>
</tr>
</tbody>
</table>

______________ fast

______________ rib

______________ muscle

______________ slow

______________ brain

______________ fever

______________ finger or toe