Chapter 3:
Physical Activity and Fitness
Notes for lessons 1-6

Lesson 1: Becoming Physically Fit

Words to Know:

- **Physical activity-** any movement that makes your body use extra energy.
- **Fitness-** being able to handle physical work and play without getting overly tired.

Exercise- planned physical activity done regularly to build or maintain one's fitness.

Endurance- the ability to perform difficult physical activity without getting overly tired.

- **Muscle endurance-** the ability of a muscle to repeatedly use force over a period of time.

Cardiovascular endurance- the measure of how well your heart and lungs work during moderate-to-vigorous activity.

- **Strength-** the ability of your muscles to use force.

Flexibility- the ability to move joints fully and easily through a full range of motion.

Body composition- the proportions of fat, bone, muscle, and fluid that make up body weight.

Body Mass Index (BMI)- a method for assessing your body size by taking your height and weight into account.

Aerobic exercise- rhythmic, moderate-to vigorous activity that uses large amounts of O2 and works the heart and lungs.

- **Anaerobic exercise-** intense physical activity that builds muscle but does not use large amounts of O2.

Four parts of Fitness

1. Flexibility
2. Strength
3. Cardiovascular endurance
4. Body composition

http://www.brainpop.com/health/personalhealth/fitness/

Types of Exercise

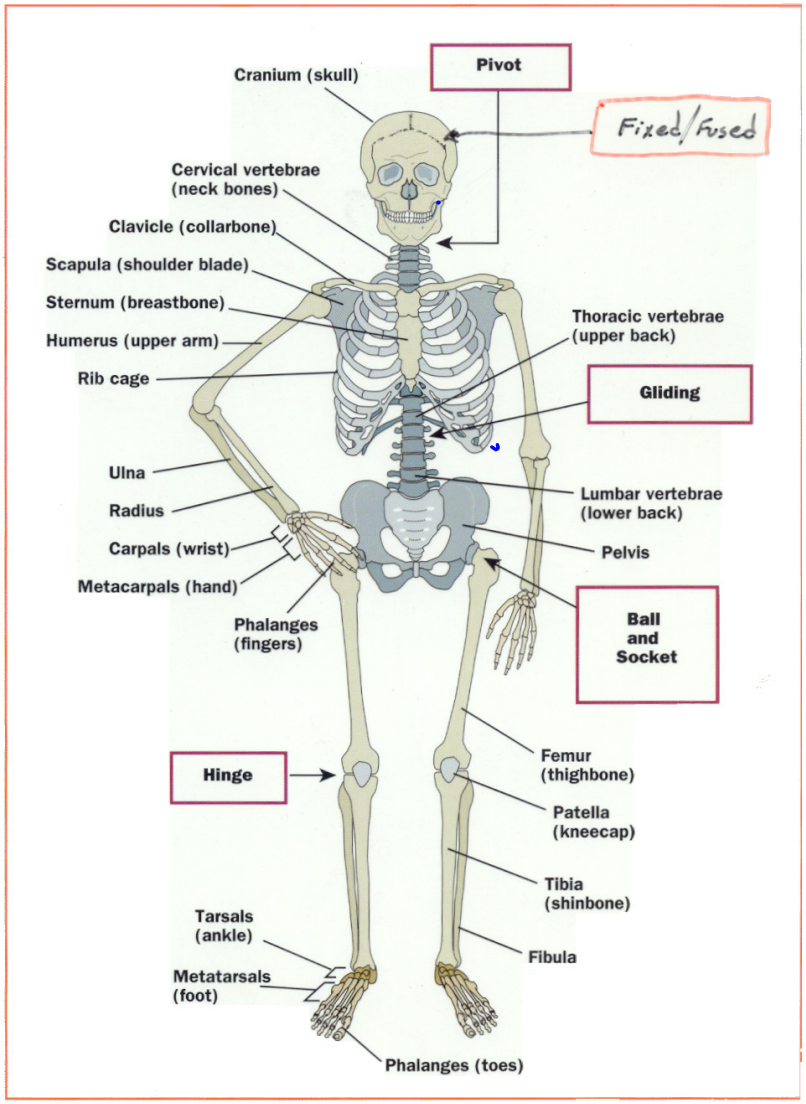
- A. Aerobic exercise
  1. dancing
  2. running
  3. swimming laps
  4. bicycling
- B. Anaerobic exercise
  1. weight lifting
  2. push-ups
  3. pull-ups

Lesson 2: Exploring Skeletal & Muscular Systems

Words to Know:

- **Skeletal system** -the framework of bones & other tissues that supports the body.

The Skeletal System



- **Joints** -the places where two or more bones meet.

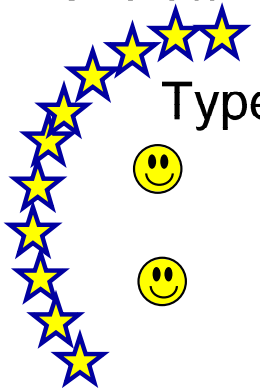
Tie – **Tendons** -a type of connecting tissue that joins muscles to bones and muscles to muscles.

Link – **Ligaments** - a type of connecting tissue that holds bones to other bones at the joint.

Cartilage - a strong, flexible tissue that allows joints to move easily, cushions bones, and supports soft tissues.

- **Muscular system** - tissues that move parts of the body and control the organs.

Skeletal System: 206 bones in the body

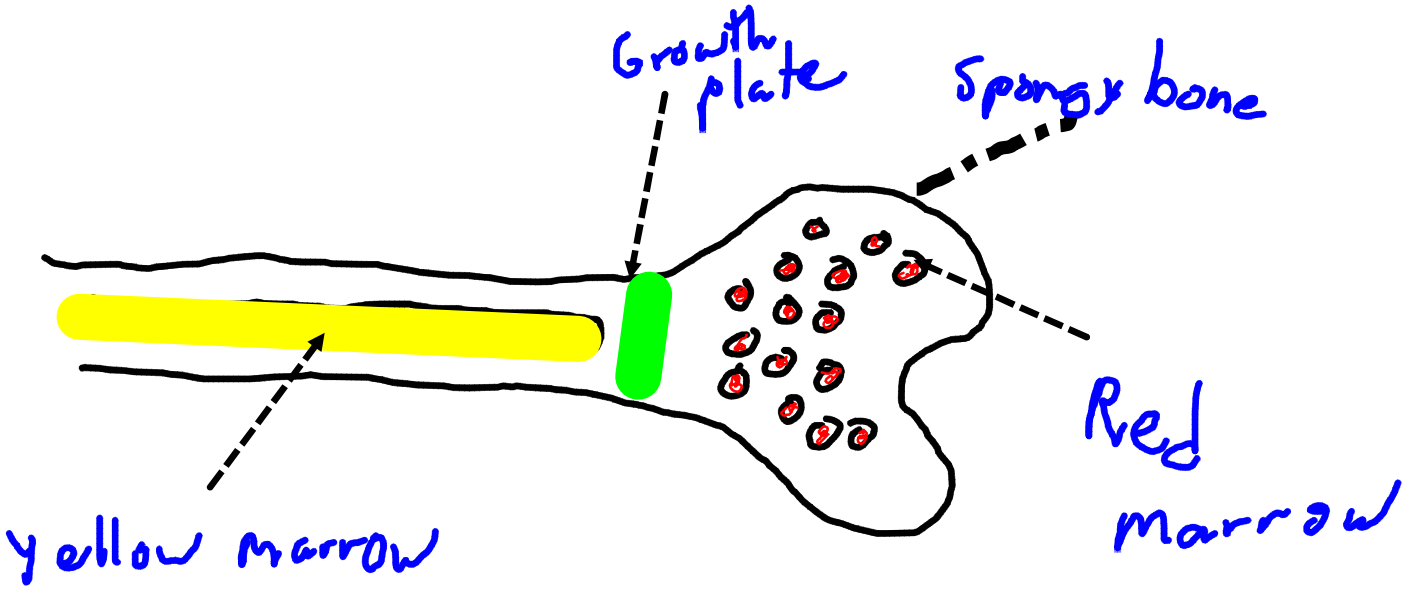


Types of bones: 206 bones in the body

- A. Long bones: found in arms and legs
- B. Short bones: found in hands and feet
- C. Flat bones: found in ribs, pelvis, shoulder, skull
- D. Irregular bones: found in vertebrae

Functions of bones:

1. Structure: to give us our shape
2. Movement: the bones work with the other systems to produce movement
3. Protection: protects vital organs
4. Storage: bones store fat and minerals
5. Blood production: long bones produce blood cells in the marrow



Types of Joints

A. Hinge joint: found in knees and elbows

B. Ball & Socket joint: found in hip

C. Gliding joint: found in wrist and vertebrae

D. Pivot joint: found in neck

E. Fixed or Fused joint: found in skull

http://www.brainpop.com/health/bodysystems/joints/

Muscular System: Over 600 different types of muscles in the body

Types of muscles

A. Voluntary muscles

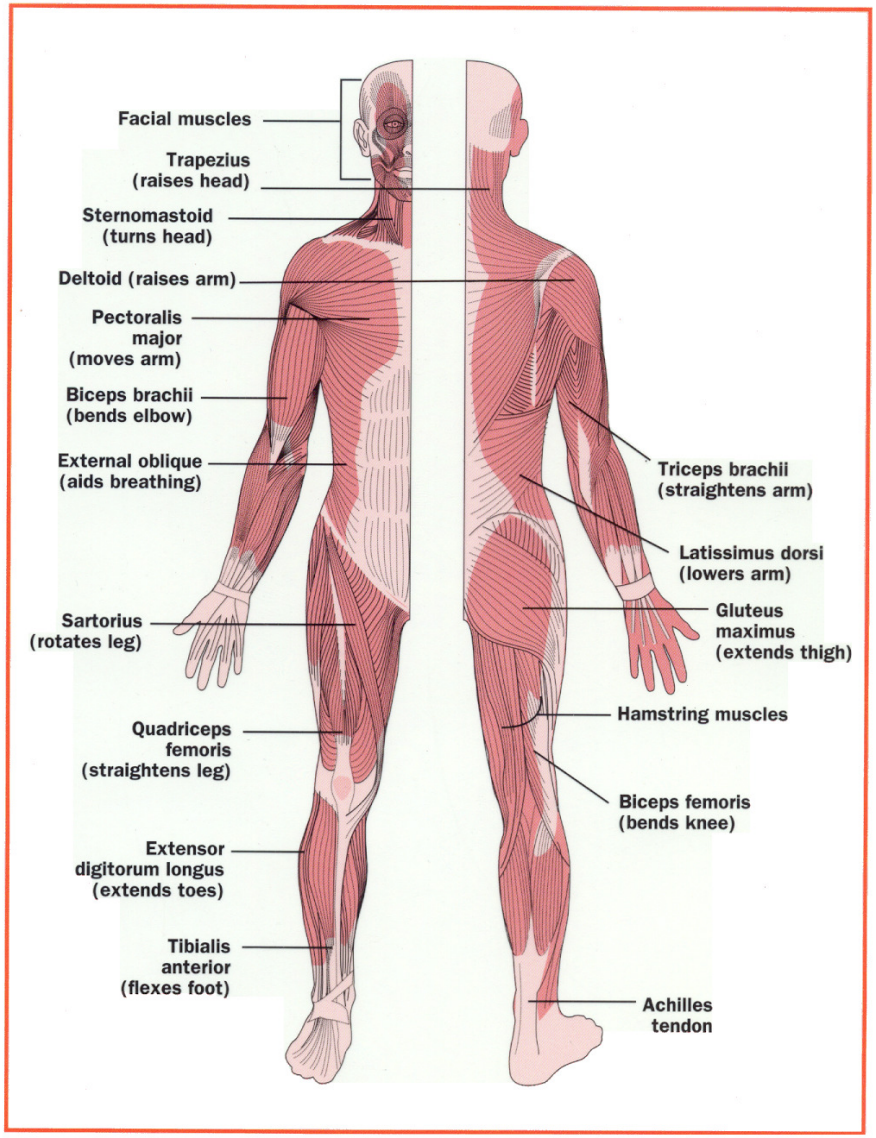
-Skeletal muscles work in pairs to move bones

B. Involuntary Muscles

-Smooth muscles found in body organs and blood vessels

-Cardiac muscle found only in the heart

The Muscular System



http://www.brainpop.com/health/bodysystems/circulatorysystem/

http://www.brainpop.com/health/bodysystems/heart/

http://www.brainpop.com/health/bodysystems/blood/

http://www.brainpop.com/health/personalhealth/bloodpressure/

Ways to care for your skeletal and muscular systems

- A. Maintain flexibility
- B. Do aerobic exercise to build cardiovascular endurance
- C. Do anaerobic exercise to build muscle strength
- D. Maintain a healthy diet
- E. Get 9 hours of sleep

Lesson 3: Exploring the Circulatory System

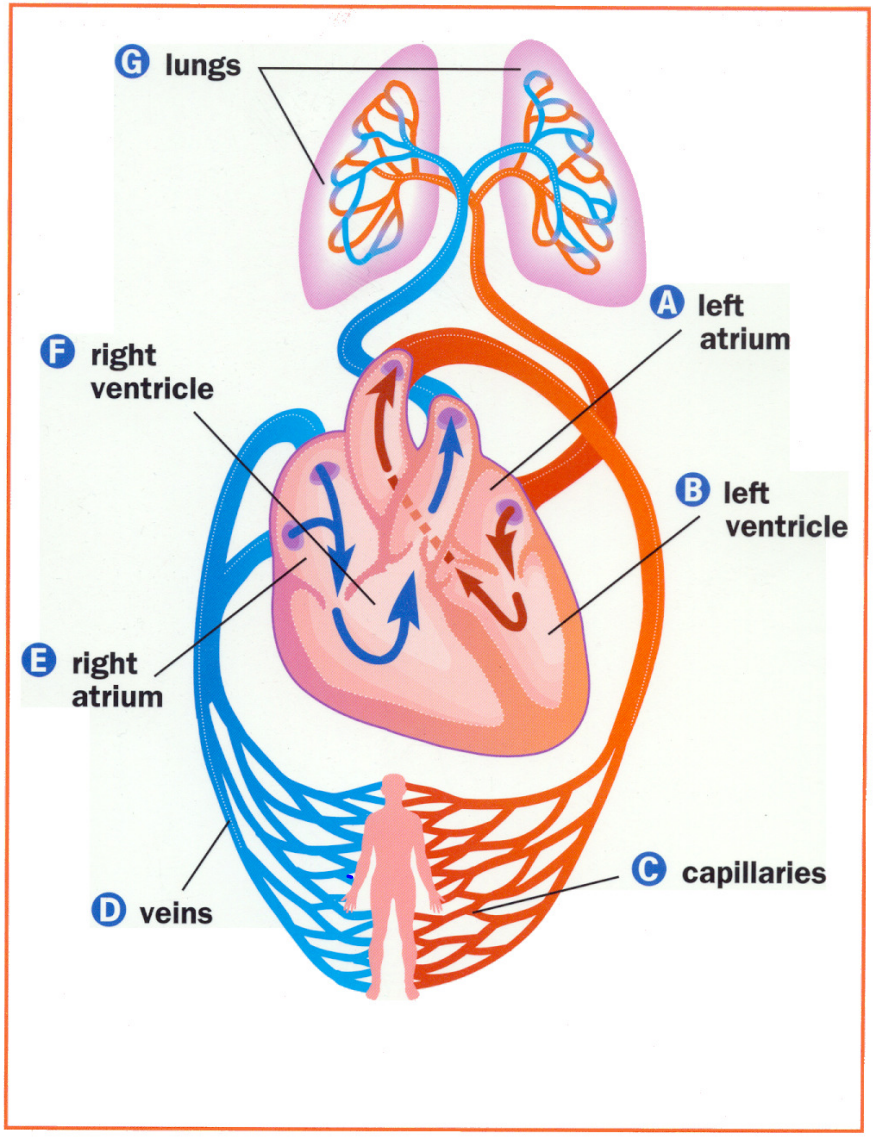
Words to Know:

Circulatory system - the group of organs that act as transfer stations carrying needed materials to the cells and removing their waste products.

Pulmonary Circulation - when blood travels from the heart through the lungs, and back to the heart.

Lungs

The Circulatory System



Systemic circulation - when oxygen-rich blood travels to all body tissues except the lungs.

- **Blood Pressure** - the force of blood pushing against the walls of the blood vessels.

Parts of the Circulatory System

A. Blood vessels

- -arteries -blood vessels that carry blood away from the heart to various parts of the body.
  -arterioles -small arteries.
  -veins -blood vessels that carry blood from all parts of the body back to the heart.
  -venules -small veins.
- -capillaries - tiny blood vessels that carry blood to and from almost all body cells and connect arteries and veins.

B. Blood

-Red blood cells (RBC) -carry oxygen to the cells and carbondioxide from the cells to the lungs for removal.

-White blood cells (WBC) - fight pathogens.

-Platelets -clot the blood.

-Plasma -the liquid part of the blood.

C. Heart

-four chambered double pump.

-right side pumps blood to the lungs to get oxygenated.

-left side pumps blood throughout the body.

Functions of the circulatory system

1. Transport

a. minerals

b. wastes

c. oxygen (O2)

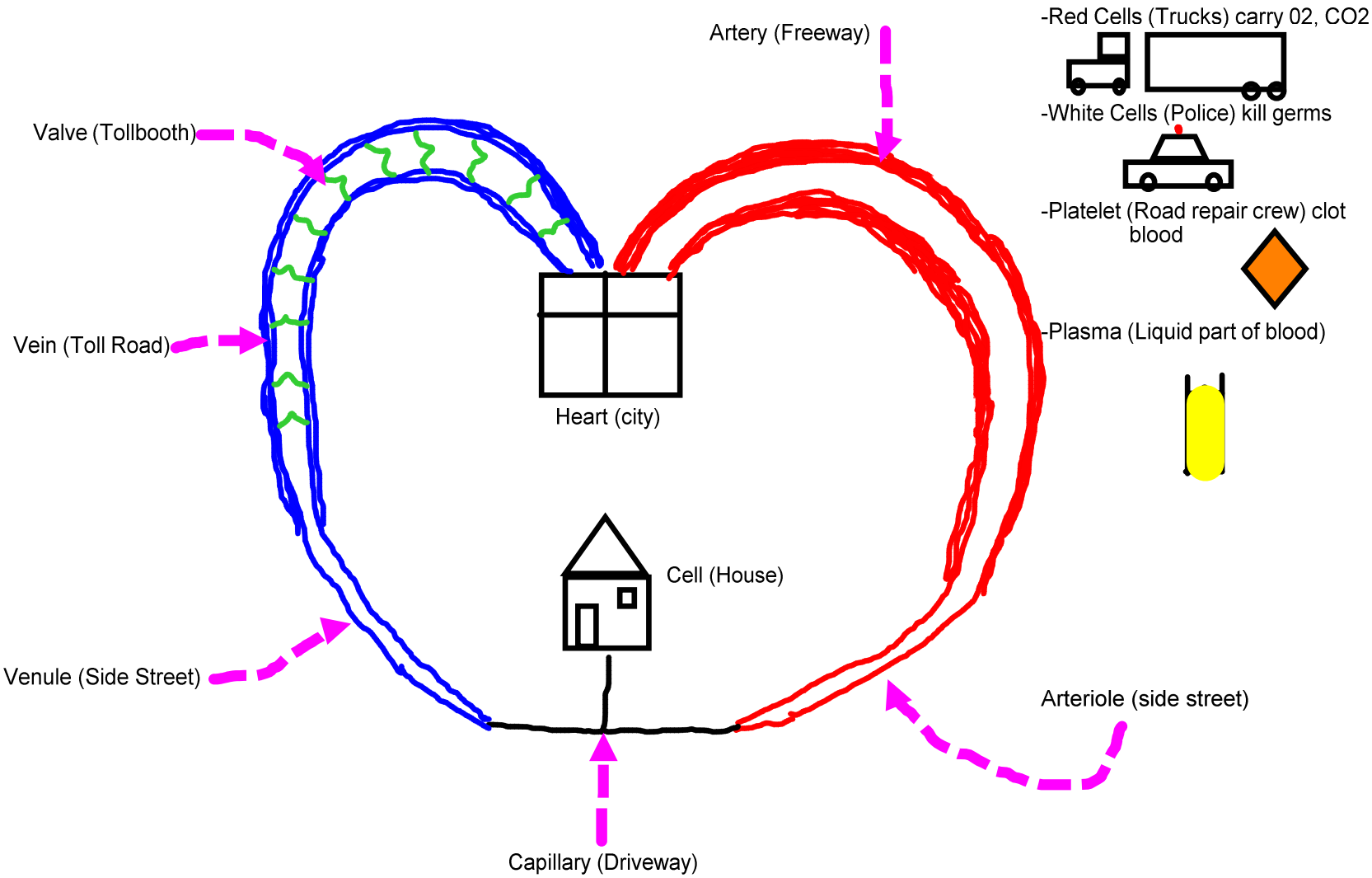
d. carbondioxide (CO2)

e. nutrients

f. vitamins

g. hormones

h. blood cells


Artery (Freeway)
-Red Cells (Trucks) carry 02, CO2
-White Cells (Police) kill germs
-Platelet (Road repair crew) clot blood
-Plasma (Liquid part of blood)
Valve (Tollbooth)
Vein (Toll Road)
Heart (city)
Cell (House)
Venule (Side Street)
Arteriole (side street)
Capillary (Driveway)

http://www.brainpop.com/health/personalhealth/bloodtypes/

Blood Types:

Types of blood

1. A 2. B 3. AB 4. O

-Rh factor: Rh refers to a chemical that may or may not be found in blood.

-Rh-positive: means that your blood has the Rh chemical, and can only receive blood that has the chemical in it.

-Rh-negative: means that your blood does not have the Rh chemical in it and you can only receive blood that does not contain the Rh chemical.

Blood type compatibility

TYPE	***CAN RECEIVE***	***CAN DONATE TO***
A	A, O	A, AB
B	B, O	B, AB
AB	A, B, AB, O	AB
O	O	A, B, AB, O

- -Systolic pressure: is the amount of pressure in the arteries caused when the heart contracts.
  -Diastolic pressure: is the amount of pressure in the arteries when the heart is at rest (in between beats)
  [redacted] is what is used to measure blood pressure.
  -Normal blood pressure (BP) is 120 systolic/80 diastolic (120/80mmhg)
  -High BP is 140 systolic/90 diastolic (140/90 mmhg) new HBP is 130/80mmHg

Caring for your circulatory system

- a. avoid drug use
- b. exercise
- c. healthy diet
- d. watch your weight
- e. watch diabetes
- f. control stress

Lesson 4: Creating Your Fitness Plan

Words to Know:

warm-up -involves gentle exercises that get muscles ready for moderate-to vigorous activity

cooldown -involves gentle exercises that let the body adjust to ending a workout.

- **frequency** - the number of days you work out each week.
- **intensity** - how much energy you use when you workout.

target heart-rate - the number of heartbeats per minute that you should aim for during moderate-to-vigorous aerobic activity to help your circulatory system the most.

Keys to a Fitness Plan

- a. Set goals
- b. Make time
- c. Be safe

Keys to a Good Workout

A. Warm-up & Cool-down

B. F.I.T.T.

- ***F***requency -the number of days that you work out each week. (How Often)
- ***I***ntensity -how much energy you use when you work out each week. (How Hard)
- ***T***ime -the amount of time you workout at each session (How Long)
- ***T***ype -the type of exercise that you do to reach your goals (What Exercise)

Calculating Your Target Heart Rate Range

Step 1: Subtract your age from 220. The resulting Number is your maximum heart rate.

Step 2: Multiply your maximum heart rate by 0.6 to find the low end of your target heart rate range.

Step 3: Multiply your maximum heart rate by 0.8 to find the high end of your target heart rate.

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220	176	176
-44	x0.6	x0.8
176 max. heart rate	105.6 low end target heart rate	140.8 high end target heart rate

When creating a fitness plan be sure to track your progress and make adjustments to reach your goal.

Lesson 5: Weight Training and Sports

Words to know:

- **Dehydration** -the excessive loss of water from the body.
- **Anabolic steroids** -substances that cause muscle tissue to develop at an abnormally high rate.
- **Conditioning** -training to get into shape for physical activity or a sport.
- **Overworking** -conditioning too hard or too often without enough rest between sessions.

Weight Training

A. Benefits

1. strengthens muscles
2. tones muscles
3. controls weight

B. Dangers

1. wait till 15 years of age or older to start lifting heavy weights.
2. too heavy too fast can lead to possible muscle and bone damage.

Sports

A. Benefits

1. improves fitness
2. improves skills
3. make new friends
4. relieves stress
5. etc...

B. Preventative measures

1. get a physical
2. know the rules
3. wear protective gear
4. eat right

a. don't eat right before practice or game
b. drink water 2 cups 2 hours before a game and 2 more 15 mins. before the start.
c. drink a cup for every 30 mins. of activity.
d. drink fluids after you play 2 cups for every Lb. of weight you lost during the game.
e. after the game eat a hearty healthy meal.

5. be in shape, but avoid overworking.

The "MIND" game

1. relax
2. picture what you want to accomplish
3. set a goal; such as a "personal best"
4. think positively

Lesson 6: Preventing Physical Activity Injuries

Words to Know:

- **Sprain** -an injury to the ligament connecting bones at a joint.
  Tendonitis -painful inflammation and swelling of a tendon caused by overuse.
- **Dislocation** -a major injury that happens when a bone is forced from its normal position within a joint.

Fracture -a break in a bone.

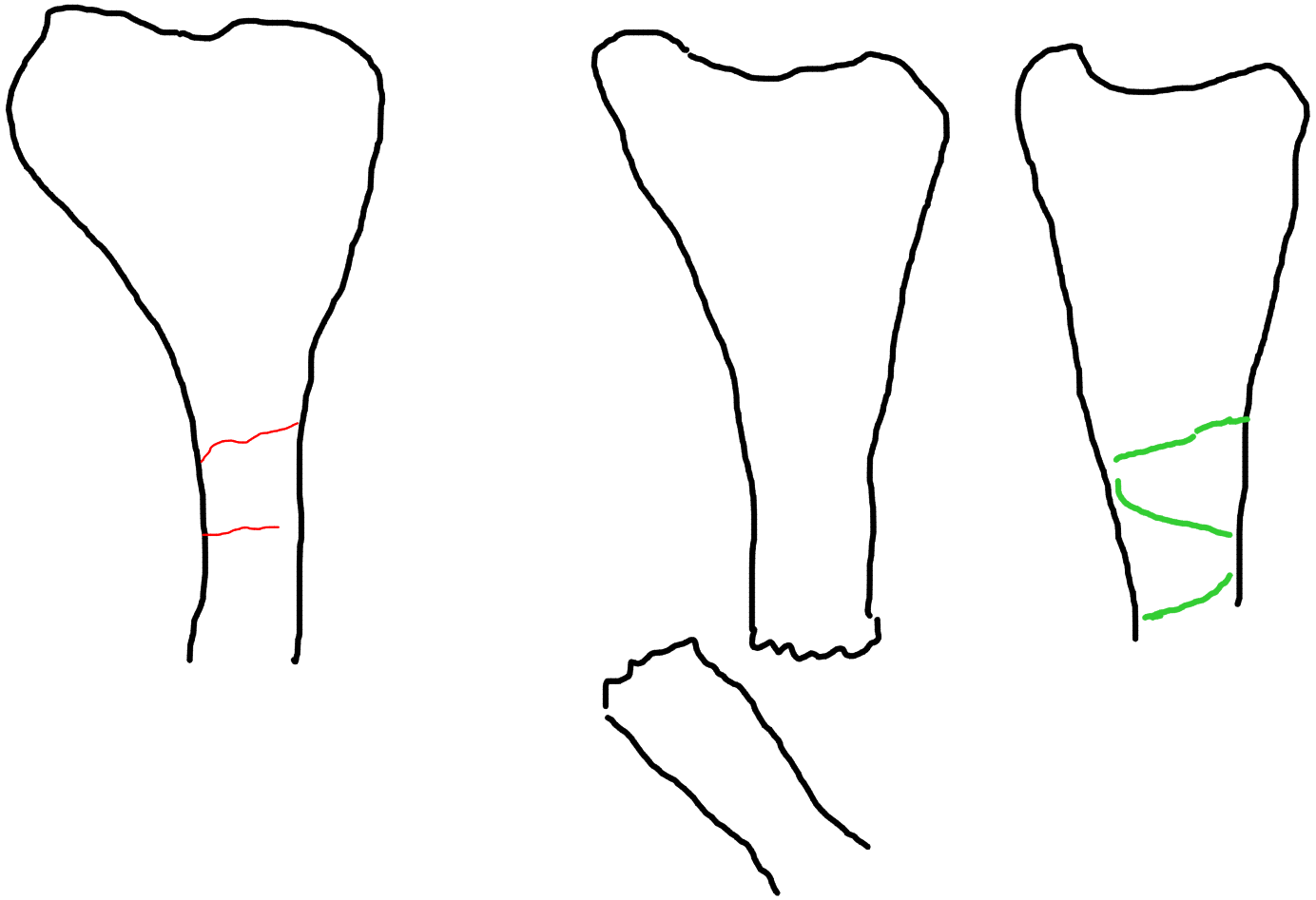
Stress Fracture - a small fracture cause by repeated strain on a bone.

Tips for Injury Prevention

1. get a physical
2. be in shape
3. start slow and build up
4. use safety equipment
5. follow the rules
6. warm-up and cool-down
7. report ***ANY*** injury to an adult
8. after an injury wait to play until given the okay by your Dr.

Common Injuries

1. Minor injuries
   - a. sprain
   - b. tendonitis
2. Major injuries
   - a. dislocation
   - b. fracture
   - c. stress fracture



The P.R.I.C.E. Procedure for injuries

P rotect the injured area by keeping it still
R est the injured area
I ce the injured area
C ompress, or put pressure on the area using an ace bandage
E levate the injured area above the heart.