I. THE FIVE FITNESS COMPONENTS:

- **CARDIOVASCULAR ENDURANCE** is the ability to exercise the entire body for long periods of time. It measures how long your heart and lungs can continue to work efficiently providing oxygen to your muscles.
  
  **What Happens:** muscles need extra oxygen during exercise; heart and lungs must work harder to supply extra oxygen; breathing becomes faster and deeper; and if you are out of shape you run out of oxygen and must stop.
  
  **Activities:** jogging, walking, running, jumping rope, roller skating/blading, roller hockey, cycling, aerobic dance, stair stepping, cross-country skiing, swimming, etc.
  
  **Tests:** Mile Run; Pacer Test; Step Test; etc.

- **FLEXIBILITY** is the ability of body joints to move through their full range of motion. It allows you to bend, twist and reach easily without straining muscles or joints.
  
  **What Happens:** stretching regularly helps protect you from getting bad posture, back problems and injuries to muscles and ligaments.
  
  **Activities:** static stretching for all activity, tumbling, gymnastics, dance, track, etc.
  
  **Tests:** Sit and Reach; Shoulder Stretch; etc.

- **MUSCULAR STRENGTH** measures the amount of force a muscle can exert in one contraction.
  
  **What Happens:** doing strength activities regularly help you to pull, push, lift and carry objects.
  
  **Activities:** weight lifting, wrestling, chin-ups, pull-ups, rope climbing, push-ups, isometric exercises, etc.
  
  **Tests:** Bench Press, Right Angled Push-ups; Pull-ups; Flexed Arm Hang; Modified Pull-ups; Modified Push-ups; Maximum Lifts of weights; etc.

- **MUSCULAR ENDURANCE** is the ability of the muscles to contract and relax repeatedly during exercise over a long time. It is the ability to lift light weights for more repetitions.
  
  **What Happens:** allows increased blood flow to the muscles; heart works harder to get oxygen to the muscles; regular exercise improves endurance for long periods without tiring.
  
  **Activities:** weight lifting, tennis, jogging, golf, bowling, swimming, surfing, cycling, hiking, rowing, etc.
  
  **Tests:** Partial Curl-ups; Sit-ups; etc.

- **BODY COMPOSITION** shows the relative amount of body fat to lean body mass. Lean body mass is muscle, tendons, ligaments and bones. Methods used to measure body fat are: 1) underwater weighing, 2) electrical impedance, 3) skinfold measurements; and 4) body circumference measurements.
What Happens: weight is gained or weight is lost depending upon the kind of food consumed and the level of activity expended. Nutrition supplies the body with needed energy. Eat plenty of fruits and vegetables, grains, cereals, milk, and protein. Drink plenty of water (eight glasses a day).

Activities: Balance your nutrition with exercise.

Tests: Skinfold measurements; Body Circumference measurements; Electrical Im-pedance (Body Fat Scale)

II. THE SIX SKILL-RELATED FITNESS PARTS:

- Agility – ability to change the position of your body quickly and to control movement of the whole body.
- Balance – ability to keep an upright posture while standing still or moving.
- Coordination – ability to use your senses, with other body parts together. Example: eyes/hands or hand/foot/eyes.
- Power – ability to do strength performances quickly. Involves both strength and speed. Example: shot, discus, high jump, football, etc.
- Reaction time – Amount of time it takes you to get moving once you see need to move.
- Speed – ability to perform a movement or cover a distance in a short period of time.

III. FITNESS PRINCIPLES AND TERMS:

The principles of fitness are applied to the five health-related components of fitness in different ways. As you study each component, these principles will be incorporated so you can understand proper training techniques. In addition, frequency, intensity and time (duration) will be adjusted differently in order to improve performance.

- Hyperkinetic means physically active. A hyperkinetic condition is a health problem caused by much physical activity.

- Hypokinetic means physically inactive or sedentary. A hypokinetic condition is a health problem caused partly by lack of exercise.

- Principle of Overload: To improve your level of physical fitness, you must increase the amount of activity or exercise that you perform normally. This can be accomplished by increasing the number of times you exercise over a period of time, increasing the duration (time) or length of time of each exercise period or increasing the intensity (how hard you work) during the exercise period.

- Principle of Progression: The best benefits of exercise are gained when starting slowly and gradually increasing the amount over a period of time. This applies to the rate you change frequency, intensity and time/duration of your exercise program.

- Principle of Specificity: Different exercises put different demands on your system. You must do specific activities to build specific parts of physical fitness. The amount of exercise varies among the health-related components of fitness.
• **F.I.T.T** stands for **Frequency**, **Intensity**, and **Time/Duration & Type** which are the guidelines that help you set up a workout routine to fit your goals and fitness level while helping you get the most out of your exercise program.

  - **Frequency** is the number of activity or exercise sessions per period of time or simply how often one participates in activity or exercise.
  - **Intensity** is the degree of exertion while exercising or simply how hard one is working.
  - **Time/Duration** is the length of time spent in each exercise session or simply how long one performs continuous exercise.
  - **Type** if the type of activity you’re doing

• **Threshold of Training** is the minimum amount of exercise necessary to build fitness. For the best results, you must exercise above your threshold of training but within your Fitness Target Zone. To achieve fitness, you must 1) work near your target heart rate; 2) work at least three times per week; and 3) work for at least 20 to 30 minutes at one time.

### IV. TWO WAYS TO HELP CARDIOVASCULAR FITNESS

- **Aerobic exercise** – means with oxygen. If exercise is not too fast and is rather steady, the heart can supply all the oxygen the muscles need. (i.e. Basketball or distance running)

- **Anaerobic** – means without oxygen – exercise done in short hard bursts. This cannot be done for very long because the heart can not supply blood and oxygen to the muscles properly. (i.e. weight lifting or sprinting)

### V. CHRONIC SEDENTARY LIFESTYLE:

- **Sedentary Lifestyle** is a lifestyle with no or irregular physical activity. A person who lives a sedentary lifestyle may be known as a “couch potato”. Sedentary activities include sitting, reading, watching TV, playing video games, and computer use for much of the day with little or no vigorous physical exercise. Sedentary lifestyle can contribute to many preventable causes of death.

  - **Sedentary Health Effects:**
    1. Anxiety
    2. Cardiovascular disease
    3. Depression
    4. Diabetes
    5. Colon Cancer
    6. High Blood Pressure
    7. Obesity
    8. Osteoporosis
To name just a few….

- **Metabolism** is a term that is used to describe all chemical reactions involved in maintaining the living state of the cells and the organism. Metabolism can be conveniently divided into two categories:
  - Catabolism - the breakdown of molecules to obtain energy
  - Anabolism - the synthesis of all compounds needed by the cells

Metabolism is closely linked to nutrition and the availability of nutrients and energy formation is one of the vital components of metabolism.

VI. **HEART RATE/PULSE RATE:**

( Monitoring Pulse Rate: When you stop exercising, quickly place your index finger and your third finger lightly over the soft part of your wrist (or two fingers to side of neck), Count your pulse for 15 seconds and multiply by 4.)

- **Heart Rate (HR)** – The number of times your heart beats in a single minute. The higher your heart rate, the faster your heart is pumping blood through your entire body. Heart rate is most commonly taken for 10 seconds and the total multiplied by 6 to determine the HR per minute.

- **Resting Heart Rate (RHR)** – The number of times the heart beats per minute prior to activity. Most accurate evaluation is taken in the morning prior to getting out of bed. A lower resting heart rate is common among physically active individuals which indicates that the heart muscle is strong and efficiently pumping blood through the entire body with fewer beats.

- **Recovery Heart Rate** – The rate at which the heart beat eventually returns to normal heart rate after periods of strenuous activity. Recovery heart rate is usually a good indicator of cardiovascular fitness. After strenuous activity, a cool down should be continued until the recovery heart rate returns to the lower levels of your target heart rate zone.

- **Maximum Heart Rate (MHR)** – The top most limits of heart beats per minute during exercise. To determine maximum heart rate, you must subtract your age from 220. Age is the factor that determines MHR.

  **Formula:**
  
  \[
  220 \text{ minus Age} = \text{MHR}
  \]

  **Example:**
  
  \[
  220 - 16 = 204 \\
  \text{MHR}
  \]

- **Target Heart Rate Zone** – Also known as Active Heart Rate Zone. The ideal heart rate range for an individual to maintain during exercise in order to obtain the greatest cardiovascular benefits. This range can be calculated in several ways. The easiest calculation is not influenced by gender or level of fitness. It is related almost entirely to
age. The maximum heart rate (MHR) must be determined and multiplied by the percentage of intensity desired.

**Sample Target Intensity Guide**
- Inactive/Begninner 60%
- Moderately Active 70%
- Very Active 80%

**Formula:**
220 minus age = MHR
Multiple by Intensity Level
Lower Level of Target
If the top of the intensity level is 80% (204 x .80 – 163.2) then the Target Heart Rate

**Example:** 16 year old student

Zone for this 16 year old student would be 143 – 163.

Note: This is an estimate only accurate within 10-20 beats per minute.

- **Critical or Threshold Heart Rate** – This is the minimal heart rate which must be reached and maintained if maximum development of cardiovascular fitness is to result. It is a more accurate method of calculation which required knowledge of your resting heart rate. The resting heart rate (RHR) is subtracted from the maxi-mum heart rate (MHR) and the difference multiplied by 60%. The resting heart rate is added to this number to obtain a specific heart rate.

**Formula:** (MHR minus RHR) X 60% Plus RHR = Threshold Heart Rate

**Example:** Age 16/RHR 70

(220 – 16 age = 204MHR) – 70 RHR = 134 X .60 = 80.4 + 70 RHR = 150.4

**Note:** To determine beats for 10 seconds, divide by 6. (150 / 6 = 25)

**VII. Facts About Fitness Goal Setting**

- **BE SPECIFIC, realistic goals work best**
- It takes time for a change to become an established habit
- Repeating a goal makes it stick
- Pleasing other people does not work
- Roadblocks don’t mean failure

**VIII. Why Exercise?**

- **Exercise benefits every part of the body, including the mind.** Exercising causes the body to produce endorphins, chemicals that can help a person to feel more peaceful and happy. Exercise can help some people sleep better. It can also help some people who have mild depression and low self-esteem. Plus, exercise can give people a real sense of accomplishment and pride at having achieved a certain goal — like beating an old time in the 100-meter dash.
- **Exercising can help you look better.** People who exercise burn more calories and look more toned than those who don't. In fact, exercise is one of the most important parts of keeping your body at a healthy weight.
• **Exercise helps people lose weight and lower the risk of some diseases.** Exercising to maintain a healthy weight decreases a person's risk of developing certain diseases, including type 2 diabetes and high blood pressure. These diseases, which used to be found mostly in adults, are becoming more common in teens.

• **Exercise can help a person age well.** This may not seem important now, but your body will thank you later. Women are especially prone to a condition called osteoporosis (a weakening of the bones) as they get older. Studies have found that weight-bearing exercises like jumping, running, or brisk walking can help girls (and guys!) keep their bones strong.

**IX. Food Groups/Healthy Eating**

![My Plate Diagram]

• **Five Food Groups:**
  A. Vegetables
  B. Fruits
  C. Grains
  D. Protein
  E. Dairy

• **Choose variety and avoid oversized portions!**

**X. Class/Gym Rules**

• Be on time – you have minutes after bell to get dressed and be upstairs
• Dress Out – Proper PE attire should be worn, including athletic shoes of some kind
• Follow directions – Pay attention so you know what is going on
• NO PHONES in class
• Respect equipment
• Respect your peers and teacher/coach
• When in weight room or fitness room do not horse around and make sure to always have a spotter with free weights
• If there is a problem bring it to a teacher/coach immediately
FITNESS TESTING

A. 1 Mile Run (Cardiovascular endurance)
B. Bench Press (Muscular Strength)
C. Sit and Reach (Flexibility)
D. Sit Up Test (Muscular Endurance)

- Each coach will document goal (of the student) and actual numbers for each of the above fitness tests that fall under the 5 fitness components.