Lesson 1 – Pre-Visit
The Athlete's Body

Objective: Students will be able to:

- Explain the meaning of “fitness.”
- Identify ways that athletes maintain physical fitness.
- Correctly identify different muscle groups in the human body.
- Recognize the importance of exercising and training safely.
- Understand that athletes perform specific exercises in order to improve different aspects of their fitness.

Time Required: 2-3 class periods

Materials Needed:
- *Optional* Copies of anatomical charts showing the muscles of the human body
- Internet access for student research in the classroom, library, or media center
- Health pamphlets addressing common sports injuries (you can collect these from your local health center or hospital)

Additional Resources:
- [http://www.mlbplayerworkouts.com](http://www.mlbplayerworkouts.com)
  This website includes specific MLB players’ workout routines, fitness, and diet plans. The site includes a variety of videos demonstrating specific exercises.
  A website dedicated to the different kinds of workouts baseball players need to be exposed to.
- [http://kidshealth.org/teen/your_body/body_basics/bones_muscles_joints.html](http://kidshealth.org/teen/your_body/body_basics/bones_muscles_joints.html)
  This article provides a great overview of the musculoskeletal system written in teen-appropriate language.
Vocabulary:
Agility - The ability to move quickly and easily
Cardiac Muscle - The muscle tissue of the heart
Coordination - Body parts working together smoothly
Skeletal Muscle - Muscle attached to the skeleton
Smooth Muscle - Muscle found in the body's organs such as the stomach and intestines
Speed - The swiftness of performance or action
Stamina – The body's resistance to weariness
Strength - Great physical power

Applicable Common Core State Standards:

CCSS.ELA-Literacy.SL.9-10.1, SL.11-12.1 Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade-appropriate topics, texts, and issues, building on others’ ideas and expressing their own clearly and persuasively.

CCSS.ELA-Literacy.W.9-10.2, W.11-12.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the effective selection, organization, and analysis of content.

CCSS.ELA-Literacy.W.9-10.7, W.11-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
Additional Relevant National Learning Standards:
(Based on Mid-continent Research for Education and Learning)

Health. Standard 1. Knows the availability and effective use of health services, products, and information


Health. Standard 6. Understands essential concepts about nutrition and diet

Health. Standard 7. Knows how to maintain and promote personal health

Health. Standard 10. Understands the fundamental concepts of growth and development

Physical Education. Standard 4. Understands how to monitor and maintain a health-enhancing level of physical fitness

Science. Standard 5. Understands the structure and function of cells and organisms
1. To begin this lesson, discuss that a very important part of life for everyone, especially an athlete, is maintaining fitness. Athletes train hard in order to improve their fitness levels and to prepare their bodies to perform well during competition.

2. Remind students that athletes can only benefit from training if they do exercises in the right way. Ask students, "Why do athletes warm up and stretch before exercise?"

3. Explain that a warm-up is meant to prepare muscles for action. Often, athletes can be seen on the sidelines jogging or walking. At the end of a warm-up, an athlete might also perform some light stretches. Stretching helps muscles become more flexible. A warm-up can also involve a sport-specific activity, such as taking batting practice or shots on goal before a game. Muscles that have been properly warmed up are much less likely to become injured during competition.

4. Ask students "What is muscle?" Muscle is tough elastic tissue. There are different types of muscle, and each has a unique function.

5. *Optional* Pass out printed anatomical charts showing the muscle groups of the human body.

6. Review the three types of muscle in the human body:
   - **Skeletal muscle** enables us to walk, run, lift, or do other physical movements. These are the muscles that can be seen and felt.
   - **Smooth muscle** is found in the walls of the stomach and intestines, the bladder, the lungs, and blood vessels. The nervous system controls these muscles.
   - **Cardiac muscle** makes up the heart and pumps blood throughout the body.

7. Discuss that smooth muscles and cardiac muscles are involuntary muscles. That means they work all by themselves, without us even thinking about it.
8. Ask students, "How do you build muscles?" Discuss that muscles grow with practice (using them consistently).

9. An athlete will usually perform many different types of exercises as part of a balanced training program to improve their speed, flexibility, agility, strength, and endurance. Define and discuss each word with the class.
   - **Speed** – Speed measures the swiftness of your actions and performance. Training for speed can help your body respond quickly to commands from your brain.
   - **Flexibility** – Being flexible means you can bend and stretch your body without feeling stiff, lowering your risk of injury.
   - **Agility** – Agility means you can move quickly and easily.
   - **Strength** – When you strength train, with or without weights, you ask your muscles to move against resistance. When muscles work harder, they become stronger and work better.
   - **Endurance** – Endurance activities make your heart stronger. Building endurance will help you play for long stretches of time.

10. Discuss that all athletes work to improve their bodies, and they usually perform a variety of different work-outs based on how they want to improve. Ask students to brainstorm a list of exercises that an athlete might do to improve speed, flexibility, etc. **Examples:**
   - Speed exercises include sprinting and interval training.
   - Flexibility exercises include yoga, dancing, martial arts, gymnastics, and stretches.
   - Agility exercises include jumping and special skill practice.
   - Strength exercises include weight lifting, push-ups, and pull-ups.
   - Endurance exercises include swimming, basketball, skating, jogging, and cross-country skiing.

11. Discuss high-intensity, short-duration exercises, such as weight lifting, cause muscles to increase in **strength**. Low-intensity, long-duration activities, such as running and swimming, cause muscles to increase in **stamina**.

12. Ask students to name some exercises that they have done as either part of a sports training program, or simply as part of gym class. Have students identify which type of exercise they performed (high or low intensity) and explain the potential benefit derived from that exercise (i.e., able to run longer, able to swing a bat harder, etc.).
13. Provide students with the example of a professional baseball player. Baseball players perform skill maintenance drills, flexibility drills, and core fitness exercises (like running and lifting weights) to make sure that they are ready on the first day of the season. Each player will have a different set of workouts depending on their position.

- **Speed** workout (increases speed in running the bases or fielding)
- **Agility** workout (increases the ability to gracefully get from one place to another quickly and smoothly)
- **Strength** workout (increases the ability to hit the ball harder and throw the ball faster)

1. Introduce the activity by explaining that students will be doing online research to find out more about how top athletes stay in shape.

2. Divide students into pairs or into small groups, depending on how many computers you have access to.

3. Direct students to the following websites:
   - http://www.mlbplayerworkouts.com
   - http://www.baseballconditioningexercises.com/

4. Allow students to explore each website, and take notes on specific activities or workout plans that are of interest to them. Pairs or groups are expected to report back to the class on exercises and/or workout regimens that improve a player’s:
   - Speed
   - Flexibility
   - Agility
   - Strength
   - Stamina

5. Come back together as a class and discuss students’ findings. Were any of the exercises or workouts familiar to students? Were students surprised by any of the conditioning exercises performed by baseball players? Were students surprised to find any exercises missing from players’ workouts?

6. Now have each student choose their favorite sport and create a written workout plan for an athlete in that sport.

7. The workout plan should include the following:
   - 1 exercise to improve speed
   - 1 exercise to improve agility
   - 1 exercise to improve strength
   - 1 exercise to improve flexibility
   - 1 exercise to improve endurance
8. For each exercise, students should include instructions as well as photos or drawings showing how the exercise should be done.

9. Have students research some of the most common sports injuries online or using health pamphlets that you can collect from your local health center or hospital. Ask students to come up with some modifications to their exercise routine if the athlete using the routine were to suffer one of these injuries. Examples of common sports injuries include ankle sprains, shoulder strain, stress fractures and cartilage tears.

10. *Optional* You may choose to have a baseball or softball player (college, minor league, or major league level) come to your classroom to discuss his or her fitness plan. Students should prepare questions for the athlete in advance.

11. After the discussion, have students compare the athlete’s workout with those they read about/saw online. What elements are similar? What elements are different?

**Conclusion:**
To complete this lesson and check for understanding, discuss the role that medical professionals play in professional sports. Have students research or contact physicians, athletic trainers, sports psychologists and other medical professionals, and have them create a profile of the profession. In each profile, students should include the necessary education for each profession.