**Lesson Plan**

**By:** Joel St. Pierre, Frank Rosati and Tyler Moir

**Topic:** Fast Twitch vs. Slow Twitch Muscle Fibers

**Duration**: 75 minutes

**Curriculum Expectations:** Grade 12, Healthy Living and Personal and Fitness Activities

* **1.3:** communicate effectively, using verbal and non-verbal means, as appropriate, and interpret information accurately as they participate in physical activities, develop movement competence, and acquire knowledge and skills related to healthy living (ex: communicate clearly that they are ready before beginning activities, such as doing lifts with free weights, that require a partner or spotter)
* **1.5:** use a range of critical and creative thinking skills and processes to assist them in making connections, planning and setting goals, analysing and solving problems, making decisions, and evaluating their choices in connection with learning in health and physical education (ex: pacing while doing a fitness circuit)
* **A 1.1:** actively participate in physical activities
* **A 2.2:** evaluate the effectiveness of various physical activity and fitness programs, approaches, and types of fitness equipment for achieving specific personal physical activity and fitness goals
* **A 2.3:** assess their level of health-related fitness and monitor changes related to their personal fitness and activity goals
* **A 3.1:** demonstrate behaviours and apply procedures that maximize their safety and that of others (make sure there are partners or spotters)
* **B 1.1:** perform stability and locomotor skills in a combination in a variety of physical activities while responding to external stimuli
* **B 1.2:** perform locomotor and manipulation skills in a combination in a variety of physical activities while responding to external stimuli
* **B 1.3:** demonstrate an understanding of the phases of movement

**Specific Objectives:** by the end of the lesson, students should/will be able to:

* **Attitudes:** recognize the importance of working out, maintaining a healthy lifestyle and recording fitness results to measure progress
* **Skills:** be able to use proper form in all exercises and construct a basic workout plan to improve fitness level
* **Knowledge**: know proper form for all exercises involved and the benefits of exercising for your overall health.

**Resources:**

* Open space/gym
* Weight room facility with bench press, shoulder press, bicep curl, lat pulldown, triceps pulldown, calf raises, leg extensions and medicine ball equipment
* Recording sheet
* Whistle
* Timer

**Introductory Activity** (5/10 minutes):

* Have students change into their athletic clothing and sit in their squads to take attendance
* Make students perform a light jog 2-3 times around the gym in order to warm up and get the blood flowing
* Dynamic Stretching Activity: break the students up into five equal lines on the baseline and have them walk to half court and back doing the following stretches: high knees, butt kicks, lunges, karaoke, hamstring pulls, shoulder circles
* Once the stretching is complete, have students line up in a single file at the door of the gymnasium and walk over to the weight room located in the school

**Development Strategies:**

**Activity 1** (10 minutes):

* Explain to students the differences between fast- twitch (muscles that fatigue faster but are used in powerful bursts of movement like sprinting) and slow-twitch (muscles that help enable long-endurance feats such as distance running) muscles and how there are different ways to work them out (to work out fast-twitch muscles, focus on doing heavy lifts with short reps (6 to 8) and to work out slow-twitch muscles, focus on doing lighter lifts with long reps (12 to 15) ).
* Have students find a partner and explain to them we are doing a fitness circuit today. Explain and demonstrate the proper form for the exercises in the circuit below
  + Required Exercises:
    - Bench Press (chest)
    - Shoulder Press (shoulders)
    - Bicep Curls (biceps)
    - Lat Pulldown (back)
    - Triceps Pulldown (triceps)
    - Calf Raises (calves)
    - Leg Extensions (quads)
    - Medicine Ball Side to Side Sit ups (abdominals)
    - Push ups with or without negative work (chest)

-Explain to the students that one partner will be focusing on fast-twitch muscles today (heavier weight with 6-8 reps) while the other will be focusing on slow-twitch muscles (lighter weight with 12-15 reps). Tomorrow, the students will be doing the exact same activity except they will be working out the opposite type of muscle fiber.

-Handout/explain the recording sheet (see attached). While one student is lifting, his/her partner will be spotting while analyzing in their head if they are doing the proper form for each exercise. During the rest time between reps, the student will record if the other student was being safe or not on the recording sheet as well as their results for each lift.

**Activity 2** (45 minutes):

* Have each group of students start out at one of the fitness circuits described above. When you say go, each student will have five minutes at each circuit and they will do each workout 3 times. The amount of reps for each student will depend on whether they are focusing on fast-twitch or slow-twitch muscles. While students are resting at each circuit, make sure they are filling out the recording sheet for their partner. As a teacher, walk around the weight room and observe if each student is properly doing each exercise so they do not get hurt and motivate the students to give a 100% effort for the duration of the activity
* When the 5 minutes is up, yell ROTATE and the students will move on to the next circuit located to their left.

**Culminating Activity (10/15 minutes**):

* Have students put all the equipment they were using away where the found it and have them line up in a single file at the weight room door to walk back to the gymnasium
* Once back at the gymnasium, get one student in the class to volunteer to lead stretches in order to relax the muscles used in each circuit
* Once the stretching is complete, have students go to the change room, shower/change back into their everyday clothes and wait for the dismissal bell.

**On-Going Assessment/Evaluation:**

* Formal: assess each student’s recording sheet and if it is comparable to the fitness level for an average grade twelve student in Canada.
* Informal: assess if the students are using the proper form at each circuit and if they are giving a maximum effort (more important than the formal assessment)

**Reflection and Self Evaluation**:

* Once the class is complete, record in your day planner what went successful in the lesson plan and what were some of the challenges encountered. For the challenges encountered, record what you learned from the experience and create an action plan addressing these challenges.

**Follow-Up Activities/Ideas or Next Steps:**

* Perform the exact same lesson plan for the following class except those students who focused on fast-twitch muscles today will focus on slow-twitch muscles tomorrow and vice versa. Also, monitor body soreness of each student and if a majority of students are suffering from severe soreness, have a gym class with no weight lifting to give students an opportunity to rest their bodies.