



WAYNE STATE UNIVERSITY

STEM Day Lesson Plan

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Title: Human Performance Assessments: Am I Warrior Strong?

Subject Area: Exercise Physiology and Human Performance

Learning Activity Description: All participants will be dispensed a heart-rate (HR) monitor (which displays HR in real-time) and then participate in five different fitness assessments: Rockport™ walking test for aerobic fitness, push-up test for upper body strength, sit-up test for abdominal endurance, sit-and-reach test for trunk flexibility, and vertical jump test for power. Mood will be assessed on a 1-5 scale before and after the fitness assessments. Stress balls will be given at the end, with a brief meditation session designed to lower HR. Certificates will be signed at the end, as each participant hands back their designated HR monitor.

Lesson Activity Objectives: 1) To understand the importance of exercise on physical and mental health. 2) To understand how to increase stress (with exercise) and decrease stress (with meditation) using the HR monitoring devices as a real-time guide.

Lesson Activity Outcomes: All participants will see how fit and strong they are, compared to other school-children across the USA (from the Presidential Fitness Challenge database).

Materials/Supplies Listed: We will supply the Firstbeat™ HR monitors. Personalize certificates will be made and given out as a record of fitness and participation. Stress balls will be handed out to all participants, as a relaxation tool they can use in future and reminder of their STEM lesson.

Teacher Procedures: There will be six enthusiastic WSU student volunteers that will be: supervising each exercise test; awarding the “star” stickers; handing out and retrieving the HR monitors; and coaching each participant on ways to sustain physical activity throughout their lifespan while offering encouragement and support.

Preparation Time for Learning Activity: Our Team will require 60 minutes to arrange the equipment and go over the protocol.

Room set-up: We will set-up the exercise physiology lab in quadrants to accommodate simultaneous testing of all testing elements.

Group Strategies (example, group size, expected time for groups, etc.): All students will perform the walk test of aerobic fitness together in the basement corridor. Then, the participants will be divided into four groups, containing 7-8 participants each. Each group will

rotate through the four remaining tests (push-ups, sit-ups, vertical jump, sit and reach), each led by a WSU fitness expert student volunteer. The estimated time for each activity is as follows:

5-minutes: Intro and setup HR

15-minutes: walk-test of aerobic fitness

5-minutes: push-ups (1-minute; two groups)

5-minutes: sit-ups (1 minute, two groups)

5-minutes: sit and reach

5-minutes: vertical jump

5-minutes: stress meditation, hand in HR monitors, sign certificates

if we don't have time to do the meditation, the WSU student volunteers will instruct them and hand out the stress balls as they filter out of the lab

Assessment Criteria/Rubric: Each participant's results will be compared with those results (percentiles) published from the 2009 Presidential Fitness Challenge Guidelines. Scores that are "above average" will be awarded a gold star, "average" scores awarded a silver star and "completers" awarded a green star on their personalized "Medal of Health" certificates.

Closing/Transition to next activity: At the end of the testing session, participants will be funneled through one exit, to sign certificates and collect the HR monitors. WSU student volunteers will be available to talk to participants about their results while they wait in line to exit the laboratory.