

LESSON 2: FITNESS CIRCUIT TRAINING

Grade-Level Outcomes

Primary Outcome

Fitness knowledge: Uses available technology to self-monitor quantity of exercise needed for a minimal health standard and/or optimal functioning based on current fitness level. (S3.M8.8)

Embedded Outcomes

Personal responsibility: Uses effective self-monitoring skills to incorporate opportunities for physical activity in and outside of school. (S4.M2.8)

Accepting feedback: Provides encouragement and feedback to peers without prompting from the teacher. (S4.M3.8)

Lesson Objectives

The learner will:

- use a heart rate monitor to self-monitor the amount of exercise in which she participates.
- create fitness circuits with a range of fitness activities.

Equipment and Materials

- IHT heart rate monitors that estimate Calories (kcal) burned
- Fitness center:
 - Agility ladders
 - Sand bells
 - Aerobic steps
 - Weighted bars
 - Jump ropes
 - Medicine balls

Introduction

Today, we are continuing our module of studying where you can use available technology to self-monitor the quantity of exercise needed for a minimal standard and for optimal functioning. For homework you determined this quantity by multiplying your weight in kilograms by 3 and 4 Calories to determine a minimal standard and by 6 and 8 Calories to determine how much you would need for optimal functioning. Today, you will use heart rate monitors that estimate the number of Calories you burn during your workout.

Instructional Task:

Calories and Heart Rate Monitors Discussion

■ PRACTICE TASK

Guiding questions for students:

- What ways have heart rate monitors been traditionally used? (e.g., measure exercise intensity, heart rate)
- Can we judge the effectiveness of heart rate monitors by how much physical activity we are getting? (yes)

That is what you are doing today. You are tracking how many Calories are being burned during circuit training. Remind students that you can quantify the amount of exercise a person gets more accurately if you track Calories rather than just time. This is because Calories tell us how much energy is being used.

Guiding questions for students:

- Who can remember what Calories are?
- Where do we get them from?

Remember, food energy is chemical energy, and human movement is mechanical work or mechanical energy. This is what allows us to quantify how much exercise we are getting.

Student Choices/Differentiation

Handouts or videos will help students learn the content.

What to Look For

Students have an understanding of Calories and why we would use heart rate monitors.

Instructional Task: Circuit Training

■ PRACTICE TASK

Divide the class into six groups. Each group will receive one of the following pieces of equipment to start.

- Agility ladders
- Sand bells
- Aerobic steps
- Weighted bars
- Jump ropes
- Medicine balls

Students create their own fitness circuit training stations using their piece of equipment. After 4 or 5 minutes, groups will rotate to the next piece of equipment and design a new fitness circuit training station.

Cycle continues until all groups have three different circuit training stations (rotate the rest of the way in Lesson 4).

Encourage students to design the routine with various levels at each station so that students of various ability levels can be challenged (e.g., beginning, intermediate, and advanced agility ladder drills).

Refinement

Make sure students are designing a circuit that will keep their group moving and provide a significant workout.

Extension

Have students put heart rate monitors on and lead each other through their stations.

EMBEDDED OUTCOME: S4.M3.8. Encourage students to provide encouragement and feedback to peers without prompting from the teacher.

Student Choices/Differentiation

- Students design various levels at each station.
- Students may choose their groups.
- If students need ideas, provide a handout with suggested activities they can choose from.

What to Look For

- Students properly execute the exercises at each station.
- Students fully participate in the circuit training workout.
- Students encourage others without being prompted.

Instructional Task: Comparing Energy Expenditure

■ PRACTICE TASK

This practice task prepares students for their homework.

Provide students with a sample heart rate graph and data. Inform students this is the type of graph they will be looking at for homework. They will receive an e-mail with the data from their heart rate monitor later today.

In cooperative groups, have students calculate a minimal health standard and optimal functioning standard for a 185-pound (84 kg) person. Use these numbers to make a comparison with the sample graph and data provided.

Refinement

Review calculating the minimal health standard and optimal functioning standard if needed.

Guiding questions for students:

- How do you convert 185 pounds to kilograms?
- What is the minimal health standard for our 185-pound person?
- What is the optimal functioning health standard for this 185-pound person?
- What is the difference between the quantities of exercise this sample person obtained and the minimal standard and optimal functioning standard you calculated?
- What would this person need to do outside of physical education class to obtain one or both of these recommendations?
- Identify some times during the day that are available for people your age to get additional physical activity.

Student Choices/Differentiation

- Students can choose from several graphs with data from various activities or sports.
- Students can work in pairs.

What to Look For

- Students correctly convert to kilograms for a 185-pound person.
- Students correctly determine the ranges for a minimal health standard and optimal functioning standard.
- Students compare the Calories burned in the sample data to the ranges that were determined.

Formal and Informal Assessments

- Calculations for sample 185-pound person
- Homework reflection submitted via e-mail and cloud storage

Closure

Today, you used technology to track how much physical activity you were able to obtain in a typical physical education class. Based on the data you collected and the amount of physical activity you determined in the previous lesson, what can you conclude?

- Students should conclude that we need additional physical activity outside of physical education if we want to be healthy (i.e., a typical physical education class does not provide enough time to get enough physical activity).
- Ask students if their use of technology provided them with additional motivation.

Reflection

- Does the use of technology seem to enhance engagement in the lesson?
- Did students plan appropriate circuit stations?
- Did students provide maximal effort during the lesson?
- Were students able to use heart rate monitors correctly?

Homework

Your heart rate data are being stored in the cloud by the company that manufactures the heart rate monitors we used today.

Later today, you will receive an e-mail with a link to look at the data. For homework, reflect on the quantity of exercise you obtained in class today and tell me how this compares to the minimal health standard and optimal functioning standard that you have calculated for yourself based on your weight. To do this, you simply need to reply to the e-mail message, and I will be able to see your reflection after you have submitted it.

Embedded outcome: S4.M2.8. If you fell short of the recommended quantity of your choosing (either minimal or optimal functioning), I want you to tell me how you are going to incorporate additional physical activity opportunities outside of school to obtain this recommendation.

Resources

Interactive Health Technologies Spirit System (heart rate monitor supplier and cloud management system)