

## LESSON 2: REFLECTING ON ACTIVITY LOGS; MUSCLE- AND BONE-STRENGTHENING ACTIVITIES

### Grade-Level Outcomes

#### Primary Outcome

**Assessment & program planning:** Maintains a physical activity and nutrition log for at least 2 weeks and reflects on activity levels and nutrition as documented in the log. (S3.M16.7)

#### Embedded Outcomes

**Physical activity knowledge:** Identifies barriers related to maintaining a physically active lifestyle and seeks solutions for eliminating those barriers. (S3.M1.7)

**Forehand & backhand:** Demonstrates the mature form of the forehand and backhand strokes with a short-handled implement in net games such as paddle ball, pickleball or short-handled racket tennis. (S1.M14.6)

### Lesson Objectives

The learner will:

- reflect on his completed physical activity log as it pertains to muscle-strengthening and bone-strengthening physical activity after experiencing these two types of activities in class.
- participate in various muscle- and bone-strengthening physical activities.

### Equipment and Materials

- Portable tennis nets
- Plastic pickleballs
- Plastic paddles
- Tennis rackets
- Low-compression tennis balls
- Foam tennis balls
- Resistance bands (variety of resistances)
- Sand bells (variety of weights)
- Agility ladders
- Station cards for muscle-strengthening resistance training and bone-strengthening physical activities (see handout)
- Self-Assessment of Muscle Strengthening and Bone Strengthening Recorded in Physical Activity and Nutrition Log (see handout)

### Introduction

*Today, you will reflect on your completed two-week physical activity logs after you have experienced examples of muscle-strengthening and bone-strengthening physical activities.*

## Instructional Task: Stations for Muscle-Strengthening and Bone-Strengthening Physical Activities

### ■ PRACTICE TASK

In groups of two, students rotate around stations, spending about 3 to 4 minutes at each station. Students read each station card, which contains definitions and examples. Students perform the task at each station and rotate on your signal.

# STATION CARDS FOR MUSCLE-STRENGTHENING RESISTANCE TRAINING AND BONE-STRENGTHENING PHYSICAL ACTIVITIES

## Activity 1

Jog around the perimeter of our area until you hear the signal to go to the next station.

### Guidelines, Definitions, and Benefits

Children and adolescents should engage in 60 minutes or more of physical activity daily. Most of those 60 minutes should consist of either moderate- or vigorous-intensity aerobic physical activity and should include 60 minutes of vigorous-intensity physical activity at least three days a week.

**Benefit:** Aerobic activities *improve* cardiorespiratory endurance.

## Activity 4

Determine a baseline for your muscles for a biceps curl. Choose an exercise band that makes your muscles fail after about 10 repetitions. Once you have determined what resistance band will max out your biceps at about 10 repetitions, use a resistance band that is one step more difficult. This is called overload, and you should not be able to perform 10 repetitions with that band until your muscles get stronger.

### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least three days of the week. Bone-strengthening activities produce a force on the bones that promotes growth and strength. Activities that cause these forces typically involve impact with the ground.

**Examples:** Hopping, skipping, jumping, jumping rope, running, gymnastics, basketball, volleyball, and tennis

## Activity 2

Volley with your partner until you hear the signal to rotate. Choose either pickleball or tennis.

### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least three days of the week. Muscle-strengthening activities make muscles do more work than they do during normal activities of daily life. Muscle-strengthening activities can be unstructured or structured.

#### Examples of unstructured activities:

- Using a climbing wall
- Games such as tug-of-war

#### Examples of structured activities:

- Curl-ups or crunches
- Resistance exercises with exercise bands, weight machines, or weights
- Push-ups and pull-ups

## Activity 5

Jump rope with your partner, and encourage each other until you hear the signal to rotate.

### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least three days of the week. You might notice that bone-strengthening activities can also be muscle-strengthening and aerobic activities.

## Activity 3

See how many push-ups and curl-ups you can complete before you hear the signal to rotate. Take turns with your partner, and have your partner count for you.

### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity at least three days a week. Muscle-strengthening activities make muscles do more work than they do during normal activities of daily life. Making muscles do more work than usual is called the overload principle.

## Activity 6

With your partner, practice a pickleball or tennis forehand volley. Take 10 turns each tossing a ball to your partner's forehand.

### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity at least three days a week. Muscle-strengthening activities make muscles do more work than they do during normal activities of daily life. Making muscles do more work than usual is called the overload principle.

#### Activity 7

Determine a baseline for your muscles for an upright row. Choose an exercise band that makes your muscles fail after about 10 repetitions. Once you have determined which resistance maxes out your muscles at about 10 repetitions, use a resistance band that is one step more difficult. This is called overload, and you should not be able to perform 10 repetitions with that band until your muscles get stronger.

#### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least three days of the week. Muscle-strengthening activities do more work than they do during normal activities of daily life. Making muscles do more work than usual is called the overload principle.

#### Activity 10

Perform various agility ladder drills until you hear the signal to rotate. Choose from the following ladder drills:

- Two-foot hops: Hop with both feet between each ladder rung.
- One-foot hops: Hop with one foot, jog back, and hop with the other foot.
- Hopscotch: Hop with both feet in and both feet out (advance one rung after each hop.)

#### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least three days of the week. Bone-strengthening activities produce a force on the bones that promotes growth and strength. Activities that cause these forces typically involve impact with the ground.

**Examples:** Hopping, skipping, jumping

#### Activity 8

Determine a baseline for your muscles for a seated row. Choose an exercise band that makes your muscles fail after about 10 repetitions. Once you have determined what resistance band will max out your muscles at about 10 repetitions, use a resistance band that is one step more difficult. This is called overload, and you should not be able to perform 10 repetitions with that band until your muscles get stronger.

#### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least three days of the week. Muscle-strengthening activities do more work than they do during normal activities of daily life. Making muscles do more work than usual is called the overload principle.

#### Activity 11

Perform various agility ladder drills until you hear the signal to rotate. Choose from the following ladder drills:

- Carioca, as demonstrated by teacher
- Icky shuffle, as demonstrated by teacher

#### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least three days of the week. You might notice that bone-strengthening activities can also be muscle-strengthening and aerobic activities.

#### Activity 9

Determine a baseline for your muscles for a triceps extension. Choose sand bells that make your muscles fail after about 10 repetitions. Once you have determined which sand bells max out your triceps at about 10 repetitions, use a sand bells that are one step more difficult. This is called overload, and you should not be able to perform 10 repetitions with that band until your muscles get stronger.

#### Guidelines, Definitions, and Examples

As part of their 60 minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least three days of the week. Bone-strengthening activities produce a force on the bones that promotes growth and strength. Activities that cause these forces typically involve impact with the ground.

**Examples:** hopping, skipping, jumping

#### Activity 12

Practice your pickleball or tennis backhand volley with a partner. Take 10 turns each tossing a ball to your partner's backhand.

## Refinement

Stop the task, if needed, to remind students to focus and work hard during the short amount of time they are on each task.

## Student Choices/Differentiation

Provide videos and handouts, if needed, to explain the different stations.

## What to Look For

- Students use fundamental movement patterns.
- Students use equipment safely.
- Students follow directions on station cards.

## Instructional Task: Station 1

### ■ PRACTICE TASK

Students read the guidelines for physical activity and examples of aerobic activity.

Students jog around the perimeter of the teaching area until you signal for them to go to the next station.

## Refinement

Encourage students to run with a forefoot or midfoot strike.

## Student Choices/Differentiation

- Students can choose jogging speed.
- Students can jog with a partner.

## What to Look For

- Students read the definitions and guidelines.
- Students jog at an appropriate pace.

## Instructional Task: Station 2

### ■ PRACTICE TASK

Students read the guidelines for physical activity, examples for aerobic activity, and the benefit of aerobic activity.

Students rally with a partner across a portable tennis net.

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**EMBEDDED OUTCOME: S1.M14.6.** See that students use correct forehand and backhand techniques and that they follow through with their hits while participating in the practice task.

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## Extension

Challenge students to hit the ball across the net in a manner that makes their partners run to meet the ball, causing an increase in heart rate.

## Student Choices/Differentiation

- Students can use a pickleball.
- Students can use a low-compression tennis ball.
- Students can use a foam tennis ball.

## What to Look For

- Students read the definitions, guidelines, and examples.
- Students use forehand and backhand strokes.
- Students volley the chosen ball back and forth with a partner.

## Instructional Task: Station 3

### ■ PRACTICE TASK

Students read the guidelines for muscle strengthening and the provided examples.

Students perform as many push-ups and curl-ups as they can until they hear the signal to rotate.

Students take turns with their partners, counting for each other.

### Extension

Students provide feedback to one another on the form of their push-ups and curl-ups.

### Student Choices/Differentiation

- Students can do a traditional push-up.
- Students can do a modified push-up (against a wall or with knees on the ground).

### What to Look For

- Students read the station cards.
- Partners provide corrective feedback on push-ups and curl-ups.

## Instructional Task: Station 4

### ■ PRACTICE TASK

Students read the guidelines, definitions, and examples for muscle strengthening.

Students read the definition for the principle of overload.

Students determine a baseline for a biceps curl by using resistance tubing that causes the muscle to fail after approximately 10 repetitions.

After determining a baseline for 10 repetitions, students attempt a resistance band that is one step more difficult (overload).

### Extension

Students provide feedback to each other on correct form for the biceps curl.

### Student Choices/Differentiation

Provide a selection of resistance bands to determine baseline.

### What to Look For

Students experiment with the resistance tubing until they find the level that leads to a 10-repetition max.

## Instructional Task: Station 5

### ■ PRACTICE TASK

Student read the guidelines, definitions, and examples for bone strengthening.

Students jump rope with a partner and encourage each other.

### Extension

Partners provide feedback on jump rope technique.

### Student Choices/Differentiation

Students can use various jump rope patterns.

### What to Look For

- Students read the station cards.
- Students jump rope at a rate that allows them to be engaged for the length of the station interval.

## Instructional Task: Station 6

### ■ PRACTICE TASK

Students read the guidelines, definitions, and examples for bone strengthening.

Students practice the forehand, taking turns tossing the ball to their partners' forehand.

### Extension

Challenge students to toss the ball in such a way as to force the hitters to move to the ball so that they create an impact force with the ground (bone-strengthening exercise).

### Refinement

Make sure students are making proper tosses to partners.

### Student Choices/Differentiation

- Students can use a pickleball or tennis ball.
- Students can use a low-compression tennis ball.
- Students can use a foam tennis ball.

### What to Look For

- Students read the station cards.
- Students move to the ball and position their feet to allow for rotation of hips and shoulder girdle when performing the forehand.

## Instructional Task: Station 7

### ■ PRACTICE TASK

Students read the guidelines, definitions, and examples for muscle strengthening.

Students determine a baseline for an upright row with resistance tubing for approximately 10 repetitions.

Students attempt the next level up to experience overload (fewer than 10 repetitions).

### Extension

Students provide feedback to each other on technique of the upright row.

### Student Choices/Differentiation

Provide a variety of resistance tubing to determine baseline.

### What to Look For

- Students execute the upright row properly.
- Students experiment with a variety of resistance bands to find approximately a 10-repetition max load.

## Instructional Task: Station 8

### ■ PRACTICE TASK

Students read the guidelines, definitions, and examples for muscle strengthening.

Students determine a baseline for a seated row with resistance tubing for approximately 10 repetitions.

Students attempt the next level up to experience overload (fewer than 10 repetitions).

### Extension

Students provide feedback to each other on technique of the seated row.

## **Student Choices/Differentiation**

Provide a variety of resistance tubing to determine baseline.

## **What to Look For**

- Students execute the seated row properly.
- Students experiment with a variety of resistance bands to find approximately a 10-repetition max load.

## **Instructional Task: Station 9**

### **■ PRACTICE TASK**

Students read the guidelines, definitions, and examples for muscle strengthening.

Students determine a baseline for a triceps extension with a sand bell for approximately 10 repetitions.

Students attempt the next level up to experience overload (fewer than 10 repetitions).

## **Extension**

Students provide feedback to each other on technique of the triceps extension.

## **Student Choices/Differentiation**

Provide a variety of sand bells to determine baseline.

## **What to Look For**

- Students execute the triceps extension properly.
- Students experiment with a variety of resistance bands to find approximately a 10-repetition max load.

## **Instructional Task: Station 10**

### **■ PRACTICE TASK**

Students read the guidelines, definitions, and examples for bone strengthening.

Students perform a variety of agility ladder drills.

## **Extension**

Students can create their own agility ladder drill if they are proficient at the choices presented.

## **Student Choices/Differentiation**

- Students can choose from a variety of agility ladder drills.
- Students can choose their speed during drills.

## **What to Look For**

Students follow the description for the agility ladder drills.

## **Instructional Task: Station 11**

### **■ PRACTICE TASK**

Students read the guidelines, definitions, and examples for bone strengthening.

Students perform various agility ladder drills (more advanced than Station 10).

## **Extension**

Students help coach each other on the drills listed on the station card.

**Student Choices/Differentiation**

- Students can do the carioca (beginning/intermediate).
- Students can do the icky shuffle (advanced).

**What to Look For**

Students perform the carioca or icky shuffle on the agility ladders.

## Instructional Task: Station 12

**■ PRACTICE TASK**

Students read the guidelines, definitions, and examples for bone strengthening.

With a partner, students practice their backhand by tossing a ball to the partner's backhand.

**Extension**

Encourage partners to toss the ball in such a way as to force the hitter to move to the ball so that an impact force with the ground is created (bone-strengthening exercise).

**Student Choices/Differentiation**

- Students can use a pickleball or tennis ball.
- Students can use a low-compression tennis ball.
- Students can use a foam tennis ball.

**What to Look For**

Students move to the ball and position their feet to allow for rotation of hips and shoulder girdle when performing the backhand.

## Instructional Task: Reflecting on Two-Week Physical Activity and Nutrition Log

**■ PRACTICE TASK**

Distribute completed two-week physical activity logs.

Have students review their logs using the Self-Assessment of Muscle Strengthening and Bone Strengthening Recorded in Physical Activity and Nutrition Log.

**Guiding questions for students:**

- Based on your self-assessment, can you identify any areas of physical activity that you need to address in order to meet suggested guidelines?
- Upon reflecting on your physical activity log, what barriers exist that may prevent you from being as active as you may like? What are some possible solutions?
- How has your understanding of health benefits for the activities you engage in changed?

**Student Choices/Differentiation**

Students may choose to complete the assessment with a partner with whom they feel comfortable.

**What to Look For**

Students use the self-assessment tool to reflect on their two-week physical activity and nutrition logs.

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## SELF-ASSESSMENT OF MUSCLE STRENGTHENING AND BONE STRENGTHENING RECORDED IN PHYSICAL ACTIVITY AND NUTRITION LOG

**Directions:** Read the definitions below. Examine and reflect on the physical activity that you recorded in your Physical Activity and Nutrition Log.

**Guidelines:** According to the U.S. Department of Health and Human Services, children and adolescents should engage in a minimum of 60 minutes of physical activity daily.

Guidelines	Definitions	Examples
<b>Aerobic:</b> Most of the recommended minimum 60 minutes or more a day of physical activity should be either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least three days a week.	<b>Aerobic activities</b> involve rhythmic movements of the large muscles. This type of activity increases cardiorespiratory fitness.	<ul style="list-style-type: none"> <li>• Running</li> <li>• Hopping</li> <li>• Skipping</li> <li>• Jumping rope</li> <li>• Swimming</li> <li>• Dancing</li> <li>• Bicycling</li> </ul>
<b>Muscle strengthening:</b> As part of their recommended 60 minutes or more of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least three days of the week.	<b>Muscle-strengthening activities</b> make muscles do more work than they usually do in daily life. They use the overload principle and make muscles stronger.	<ul style="list-style-type: none"> <li>• Games such as tug-of-war</li> <li>• Push-ups and pull-ups</li> <li>• Resistance exercises with exercise bands, weight machines, handheld weights</li> <li>• Climbing wall</li> <li>• Curl-ups and crunches</li> </ul>
<b>Bone strengthening:</b> As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least three days of the week.	<b>Bone-strengthening activities</b> produce a force on the bones that promotes bone growth and strength. These activities typically involve impacts with the ground.	<ul style="list-style-type: none"> <li>• Hopping, skipping, jumping</li> <li>• Jumping rope</li> <li>• Running</li> <li>• Sports such as gymnastics, basketball, volleyball, tennis</li> </ul>

1. Aerobic physical activity: Did you participate in 60 minutes or more of moderate- to vigorous-intensity physical activity? Circle: Yes No
2. Muscle-strengthening activity: As part of your physical activity, on how many days of the week did you participate in muscle strengthening?  
 Week 1: \_\_\_\_\_ days  
 Week 2: \_\_\_\_\_ days
3. Bone-strengthening activity: As part of your physical activity, on how many days of the week did you participate in bone strengthening activities?  
 Week 1: \_\_\_\_\_ days  
 Week 2: \_\_\_\_\_ days
4. Barriers to physical activity: Now that you can reflect on your two-week log, identify (by listing in the space below) some barriers related to maintaining a physically active lifestyle (i.e., what might have prevented you from being as active as you wanted to be?). \_\_\_\_\_

From U.S. Department of Health and Human Services, 2008.

From R.J. Doan, L.C. MacDonald, and S. Chepko, eds., 2017, *Lesson planning for middle school physical education* (Reston, VA: SHAPE America; Champaign, IL: Human Kinetics).

## Formal and Informal Assessments

- Physical activity and nutrition log (for two weeks)
- Peer assessment: formal and informal feedback at stations
- Self-assessment of muscle-strengthening and bone-strengthening activities
- Sticker assessment on student understanding of new concepts (see Closure)

## Closure

Have red, green, and yellow stickers ready for students. Ask them to place stickers on their self-assessments and reflections using the following color codes:

- Red = “I’m confused; I really need the concepts of muscle strengthening and bone strengthening to be retaught.”
- Yellow = “I need you to slow down. I think I understand most of what was taught, but I need some review.”
- Green = “I understand everything. I’m ready to move on to new concepts and ideas!”

## Reflection

- What are the percentage breakdowns of red, yellow, and green stickers on the student self-assessments?
- Is the class ready to move on? Do the concepts need to be re-taught?

## Homework

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**EMBEDDED OUTCOME: S3.M1.7.** What kind of barriers do we face to participating in physical activity? Discuss some of these barriers with your parents or guardians, and try to find some ways to eliminate or work around the barriers that you identify.

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## Resources

- Hichwa, J. (1998). *Right fielders are people, too: An inclusive approach to teaching middle school physical education*. Champaign, IL: Human Kinetics.
- Sound Body Sound Mind Foundation. (2014). *Sound body sound mind: Teaching the basics of movement and physical activity—high school & middle school curriculum*. Los Angeles: Sound Body Sound Mind Foundation.
- U.S. Department of Health and Human Services. (2008). *Physical activity guidelines for Americans*. Available at [www.health.gov/paguidelines](http://www.health.gov/paguidelines).