

LESSON 1: LEARNING TO TRACK ACTIVITY AND NUTRITION

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

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)

Accepting feedback: Provides corrective feedback to a peer, using teacher-generated guidelines, and incorporating appropriate tone and other communication skills. (S4.M3.7)

Lesson Objective

The learner will start a two-week physical activity and nutrition log.

Equipment and Materials

- Weekday and weekend physical activity and nutrition logs, 2 per student (see handouts)
- LCD overhead projector
- Calories Used for Activities by Weight Categories handout, 1 per student (see handout)
- Physical Activity Log templates, 1 per student (see grade 6 module in Chapter 10, lessons 2 and 5)
- Portable tennis nets
- Plastic pickleballs
- Plastic paddles
- Tennis rackets
- Low-compression tennis balls
- Foam tennis balls
- Exercise or physical activity app (e.g., MapMyRun, Endomondo, MapMyHike, MapMyRide)

Introduction

Today, you begin work on a physical activity and nutrition log for two weeks. After completing your log, you will reflect on various components of the log and use it and your reflection to make adjustments to your physical activity, if needed. You also will use this log and reflection to design a program of remediation for two areas of weakness on your fitness assessment, if needed. To start off your physical activity and nutrition log, we will review how to determine the number of Calories that you expend through a short game of pickleball or tennis.

Instructional Task: Rallying Drills

■ PRACTICE TASK

Have students engage in 15 minutes of rallying drills through the sport of pickleball.

EMBEDDED OUTCOME: S1.M14.7 The purpose of the activity is to provide physical activity to measure and log in the lesson. Make sure that students are using a mature form of forehand and backhand strokes for pickleball.

Follow the progression found in *Right Fielders Are People, Too*, by John Hichwa.

- Forehand volleys 10×
- Forehand to backhand 10×
- Backhand to forehand 10×
- Backhand to backhand 10×
- Rallying (How many consecutive hits can you have with a partner?)

Extension

If students are proficient at rallying, let them play a modified game (simplified rules, modified boundaries).

EMBEDDED OUTCOME: S4.M3.7. Have students provide feedback on partners' pickleball skills using teacher-generated guidelines.

Student Choices/Differentiation

- Students can use pickleball paddles with plastic pickleballs.
- Students can use tennis rackets with spongy tennis balls.
- Students can use tennis rackets with low-compression tennis balls.
- Students can use racquetball rackets.

What to Look For

- Students use the appropriate grips for forehand and backhand.
- Students use the ready position.
- Students turn the body as the feet pivot.
- Students rotate the hips and shoulders.
- Students meet the ball in front of the feet.
- Students swing low to high.
- Students use a follow-through.
- Students use the backhand and forehand appropriately.
- Students judge the ball's trajectory and speed.

Instructional Task: Recording Calorie Expenditure

■ PRACTICE TASK

Review how to record Caloric expenditure. Distribute the physical activity logs and the Calories Used for Activities by Weight Categories handout.

Tell students to imagine that they just played 15 minutes of either pickleball or tennis. Based on the Calories Used for Activities by Weight Categories handout, have students determine how many Calories they expended for the 15 minutes.

Note: Calorie, with capital c, denotes kilocalories, that is, 1,000 calories.

Extension

How does today's activity compare to other activities in which you participate outside of school? Fill out the handout with other activities you engage in regularly.

CALORIES USED FOR ACTIVITIES BY WEIGHT CATEGORIES

Body weight in pounds (this has been converted from kilograms)										
	44 lb.	55 lb.	66 lb.	77 lb.	88 lb.	99 lb.	110 lb.	121 lb.	132 lb.	143 lb.
Activity	Calories (kcal) for 10 minutes									
Basketball (game)	35	43	51	60	68	77	85	94	102	110
Calisthenics	13	17	20	23	26	30	33	36	40	43
Cross-country skiing (leisure)	24	30	36	42	48	54	60	66	72	78
Cycling (6 mph; 9.7 km/h)	15	17	20	23	26	29	33	36	39	42
Cycling (9 mph; 14.5 km/h)	22	27	32	36	41	46	50	55	60	65
Field hockey	27	34	40	47	54	60	67	74	80	87
Figure skating	40	50	60	70	80	90	10	110	120	130
Horseback riding -canter	8	11	13	15	17	19	21	23	25	27
-trot	22	28	33	39	44	50	55	61	66	72
-gallop	28	35	41	48	50	62	69	76	83	90
Ice hockey (on-ice time)	52	65	78	91	104	117	130	143	156	168
Judo	39	49	59	69	78	88	98	108	118	127
Running (5 mph; 8.0 km/h)*	37	45	52	60	66	72	78	84	90	95
Running (6 mph; 9.7 km/h)	48	55	64	73	79	85	92	100	107	113
Running (7.5 mph; 12.1 km/h)	—	—	76	83	91	99	107	115	125	130
Running (9 mph; 14.5 km/h)	—	—	—	—	—	113	121	130	140	148
Snowshoeing	35	42	50	58	66	74	82	90	98	107
Soccer (game)	36	45	54	63	72	81	90	99	108	117
Squash	—	—	64	74	85	95	106	117	127	138
Swimming, front crawl (30 m/min)	25	31	37	43	49	56	62	68	74	80
Swimming, breaststroke (30 m/min)	19	24	29	34	38	43	48	53	58	62
Swimming, backstroke (30 m/min)	17	21	25	30	34	38	42	47	51	55
Table tennis	22	28	33	39	44	50	55	61	66	72
Tennis	22	28	33	39	44	50	55	61	66	72
Volleyball (game)	20	25	30	35	40	45	50	55	60	65
Walking* (2.5 mph; 3.2 km/h)	17	19	21	23	26	28	30	32	34	36
Walking* (4 mph; 6.4 km/h)	24	26	28	30	32	34	37	40	43	48

*Note: The transition from walking to running occurs between 4 & 5 miles per hour (mph). Walking at 2.5 mph is a slow walk. Walking at 4 mph is a fast walk and is almost running.

PHYSICAL ACTIVITY LOG

Weekday Physical Activity Log

Day of the week (circle): M T W Th F

Part of day	Activities	Time (min)	Easy to measure? (circle)	Calories	Intensity	Comments (technology or app used, how did you feel?, whom did you participate with?, etc.)
Before school			Yes/No			
Nutrition (morning) break			Yes/No			
Lunch break			Yes/No			
In-class physical activity break (If so, list classes)			Yes/No			
Physical education class			Yes/No			
After school			Yes/No			

Weekend Physical Activity Log

Day of the week (circle): M T W Th F

Saturday (Date: _____)						
Part of day	Activities	Time (min)	Easy to measure? (circle)	Calories	Intensity	Comments (technology or app used, how did you feel?, whom did you participate with?, etc.)
Morning			Yes/No			
Afternoon			Yes/No			
Evening			Yes/No			
Sunday (Date: _____)						
Part of day	Activities	Time (min)	Easy to measure? (circle)	Calories	Intensity	Comments (technology or app used, how did you feel?, whom did you participate with?, etc.)
Morning			Yes/No			
Afternoon			Yes/No			
Evening			Yes/No			

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).

Student Choices/Differentiation

- Students can choose various methods to determine Caloric expenditure because the table is based on 10 minutes of physical activity:
 - Determine unit rate per minute so that the total number of minutes can simply be multiplied by this number.
 - Take half of the number for 10 minutes and add it to the original number to get a 15-minute expenditure.
 - Multiply the 10-minute expenditure by 1.5 to get a 15-minute Caloric expenditure.
- Have students work in pairs if they have difficulty with the number sense.

What to Look For

- Students determine how many Calories (kcal) are expended while playing tennis.
- Students use the proper weight column on the sheet.
- Students multiply the Calories expended by 2 since the table provides information for 10 minutes.
- Students estimate their Caloric expenditure based on the information provided in the caloric expenditure handout if their exact weight is not listed.

Instructional Task: Use of Log

■ PRACTICE TASK

Have students fill in today's physical activity based on the table.

- Ask students if today's activity is easily measured.
- Explain that some activities may not be easily quantified (e.g., their activities outside of school may not be listed on the table or they may not be easily found in books or on the Internet).
- Review with students some ways we can describe and determine the exercise intensity of various physical activities or exercise. (Examples: Is walking to school considered vigorous or moderate intensity? What types of objective measures can we get from an exercise app that can be used to measure intensity? What kind of feedback do we get from exercise machines such as an elliptical, treadmill, or stationary bike that can indicate exercise intensity?)

Extension

Ask students to categorize the various measures of exercise intensity as either subjective or objective.

Guiding questions for students:

- How can you use these measures of intensity?
- Do you prefer objective measures or subjective measures?
- What are some possible benefits of tracking exercise intensity for an older person especially?

Student Choices/Differentiation

- Students can work in pairs if they are having difficulty with the log.
- Have sample logs for students to view.

What to Look For

- Students recognize the following ways to measure or estimate exercise intensity:
 - Ratings of perceived exertion
 - Average speed (walking, running, riding a bike)
 - Watts (rate of performing work on a treadmill, elliptical, or exercise bike)
 - Moderate or vigorous (perception)
 - Steps per minute
 - Pace (e.g., 18-minute mile when hiking)

- Calories per minute (from a treadmill, elliptical, or exercise bike)
- Heart rate
- Students recognize that measures of intensity can be used with the progressive overload principle.

Instructional Task: Model Use of Physical Activity Log

■ PRACTICE TASK

Model the use of the activity log using several examples of various physical activities on the overhead LCD projector.

Extensions

- Demonstrate under the overhead LCD how a cellphone app can be used to collect data for various physical activities.
- Point out how these apps can provide useful information on exercise intensity, Caloric expenditure, time, etc.
- Also point out that while these apps provide good information, they are also rough estimates of energy expenditure since the equations they use are based off of the average person (i.e., it is not a perfect science).

Student Choices/Differentiation

- Have videos and handouts ready for students to use if they have difficulties with the content.
- Allow time for think, pair, shares, if needed.

What to Look For

Students have a basic understanding of using various physical activities and technology in the activity log.

Instructional Task: Model Use of Nutrition Log

■ PRACTICE TASK

Model the use of the nutrition log using the LCD overhead projector. Point out that it is a simple log and that it need not contain detailed nutrition content. This is a homework assignment that accompanies students' two-week physical activity log.

Extension

Have students recall what they had for breakfast or a snack, and include it in their logs.

Student Choices/Differentiation

Students can create their own nutrition logs or journals to provide more specifics as to the nutritional content of the foods they choose to eat.

What to Look For

Students use the physical activity and nutrition log.

Formal and Informal Assessments

Physical Activity and Nutrition Log Self-Assessment

Closure

Today, we reviewed energy expenditure and exercise intensity so that you can complete a two-week physical activity and nutrition log. Being able to complete a two-week log is important so that you can reflect on physical activity and nutrition patterns and their relationship to your health and fitness.

What can you expect to learn when you reflect on these logs in two weeks?

Reflection

- Do students seem to understand what is being asked of them over the next two weeks?
- What additional teaching or review will need to occur over the next two weeks to make this assignment successful?

Homework

Complete your physical activity and nutrition logs over the next two weeks. I will remind you to continue working on this, and we will continue to estimate caloric expenditure and exercise intensity in class. You can print additional logs from the physical education website. If you can't print these at home, you can use a paper, ruler, and pen or pencil to create the forms.

Resources

Bar-Or, O., & Rowland, T. (2004). *Pediatric exercise medicine: From physiological principles to health care application*. Champaign, IL: Human Kinetics.

Hichwa, J. (1998). *Right fielders are people, too: An inclusive approach to teaching middle school physical education*. Champaign, IL: Human Kinetics.