

LESSON 5: MODIFIED 1 REPETITION MAXIMUM

Grade-Level Outcomes

Primary Outcomes

Assessment & program planning: Designs a fitness program, including all components of health-related fitness, for a college student and an employee in the learner's chosen field of work. (S3.H12.L1)

Safety: Applies best practices for participating safely in physical activity, exercise and dance (e.g., injury prevention, proper alignment, hydration, use of equipment, implementation of rules, sun protection). (S4.H5.L1)

Fitness knowledge: Demonstrates appropriate technique on resistance-training machines and with free weights. (S3.H7.L1)

Fitness activities: Demonstrates competency in 1 or more specialized skills in health-related fitness activities. (S1.H3.L1)

Embedded Outcome

Fitness knowledge: Identifies types of strength exercises (isometric, concentric, eccentric) and stretching exercises (static, proprioceptive neuromuscular facilitation [PNF], dynamic) for personal fitness development (e.g., strength, endurance, range of motion). (S3.H9.L1)

Lesson Objectives

The learner will:

- determine her or his modified 1 repetition maximum (1 RM) for selected exercises.
- perform weight training activities using correct form and proper alignment.
- spot her or his peers properly to ensure safety.

Equipment and Materials

- Modified 1RM task sheet with table (1 per student; look up the table online if you don't have access to one)
- Weight room

Introduction

Last lesson, we reviewed the weight room and all it has to offer. Today, we will focus on how to set up an appropriate muscle fitness training program for a two-days-a-week plan depending on your goals. First, you will determine your modified 1 repetition max, which will help you determine how much weight you should be lifting for particular exercises based on your goals and sets and reps. This will help you apply the FITT and overload principles to the muscular fitness portion of your plan.

Instructional Task: Warm-Up

■ PRACTICE TASK

Before grouping students for the modified 1RM activity, run them through a 5- to 7-minute warm-up of light cardio, range-of-motion (ROM) exercises, and light stretches.

Guiding questions for students:

- Why is it important to warm up before lifting weights?
- What are some ways you can warm up before lifting?

Student Choices/Differentiation

- Students may jog a lap and then perform some dynamic stretches.
- Students may go through a dynamic stretching routine.

What to Look For

Students are participating in the warm-up activities.

Instructional Task: Finding Modified 1 Repetition Max (1RM)

■ PRACTICE TASK

Hand out the modified 1RM instructions and task sheet and review them with students.

Have students pair up and start at a station. Review proper spotting. There are a total of 16 stations (you can make more or fewer as desired). Nine stations are modified 1RM stations, and the others are not.

The modified 1RM stations are as follows:

- Shoulder press
- Leg press
- Bench press
- Knee extension
- Hamstring curl
- Biceps curl
- Heel raise
- Lat pull-down
- Triceps press

Other stations include the following:

- Planks
- Curl-ups or V-sits
- Side planks
- Dead bugs
- Medicine ball twists, seated or standing
- Opposite arm/leg extensions on hands and knees
- Medicine ball partner twists, seated or standing

Number the stations so that about every other station measures a modified 1RM. Rotate students through the stations.

EMBEDDED OUTCOME: S.3.H.9.1.1 Have students review muscle groups and types of exercises at each station.

Refinements

- Be sure the weight is not too heavy and can be lifted at least five times.
- Be sure students are lifting in a slow and controlled manner.
- Be sure students are lifting through the full and appropriate range of motion.
- Be sure equipment is adjusted appropriately and peers are spotting.

Guiding questions for students:

- Who can tell me what 1RM is?
- What does it measure?
- When you are not lifting, what are you doing for your partner?

Student Choices/Differentiation

- At the non-1RM stations, students have the option of doing flexibility exercises or yoga poses.
- Students choose their partners.

What to Look For

- Students can lift with correct form and technique.
- Students can find their estimated 1RM.

Formal and Informal Assessments

- 1RM task sheets
- Cardio and flexibility plans

Closure

- Today, you found your estimated 1RM. Why is finding your 1RM helpful when planning a fitness program?
- When determining how much weight you will lift, what part of the FITT principle are you using?
- What other principle does it cover?
- Now using your Fitnessgram and estimated 1RM, develop the muscle fitness portion of your fitness plan. You should end up with a five-days-a-week plan that includes all the health-related fitness components with two days of muscle fitness and three days of cardio each week.
- Turn in your cardio and flexibility plans, so I can review them.

Reflection

- How well did students do in finding the estimated 1RM for the different muscle groups?
- Were they putting in a good effort?
- Were they able to use the table correctly? Did partners spot attentively?
- Review cardio and flexibility plans.

Homework

- Using your modified 1RM and your overall goals for muscular fitness, develop a resistance-training routine that you can complete two days a week that includes upper- and lower-body and core exercises. This should be in addition to your cardio and flexibility plan draft.
- Remember you can work on muscle fitness without a weight room, so don't just plan on using machines. You can use body weight, bands, medicine balls, free weights, and so on.
- Be sure to include the actual exercises you will perform and the FITT principles.
- Note: If you want to work on increasing strength, you will do fewer reps and sets at a higher percentage of your estimated 1RM (heavier weight). To work on toning and muscular endurance, then you would use lighter weight (a lower percentage of estimated 1RM) with higher reps and sets. Your draft plan is due next class.

Resources

Dale, D., McConnell, K., & Corbin C. (2007). *Fitness for life: Wraparound teacher's edition and resources kit*. 5th ed. Champaign, IL: Human Kinetics.

Faigenbaum, A., & Westcott, W. (2009). *Youth strength training programs for health, fitness, and sport*. Champaign, IL: Human Kinetics.

National Academy of Sports Medicine: www.nasm.org

Built Lean: www.builtlean.com

Internet keyword search: "1-Rep Max," "modified 1-Rep Max," "FITT principle"

DETERMINING MODIFIED 1RM

1. Choose a weight that you think you can lift between 5 and 10 times. Do not use a weight that you can lift fewer than five times.
2. Using the proper technique and alignment, lift the weight as many times as possible. Count the number of lifts and write the number on your task sheet. If you were able to do more than 10, rest while your partner goes, and then try again after adjusting the weight.
3. If you can tell that you will not be able to lift the weight at least 5 times, stop and adjust the weight. Partners should be watching and helping for safety.

If you were able to find the appropriate weight for lifting it 5 to 10 times, but no more, then refer to the table posted on the wall (or school's physical education web site). Find the weight that you lifted in the left-hand column. Now find the number of reps that you completed in the top row. Your estimated 1RM score is the number in the box where the column and row intersect. Record that on your task sheet.

From L.C. MacDonald, R.J. Doan, and S. Chepko, eds., 2018, *Lesson planning for high school physical education* (Reston, VA: SHAPE America; Champaign, IL: Human Kinetics). Adapted from: Dale, D., McConnell, K., & Corbin C. (2007). *Fitness for life: Wraparound teacher's edition and resources kit*. 5th ed. Champaign, IL: Human Kinetics; Faigenbaum, A., & Westcott, W. (2009). *Youth strength training programs for health, fitness, and sport*. Champaign, IL: Human Kinetics.

TASK SHEET

Exercise	Weight	Number of reps	Estimated 1RM
Shoulder press			
Leg press			
Bench press			
Knee extension			
Hamstring curl			
Biceps curl			
Heel raise			
Lat pull-down			
Triceps press			

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