



Human Body Systems

Virtual Learning

9-12th PLTW[®] HBS

PLTW[®] 4.1.2 Range of Motion

April 7, 2020



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9-12th PLTW HBS
Lesson: April 7, 2020

Objective/Learning Target:

Students will be able to determine how bones, muscles and joints work together to enable movement, and why medical professionals measure range of motion at a joint. (*Reference: PLTW[®] 4.1.2 Range of Motion*)



Human Body Systems

Let's Get Started / Warm Up Activities:

Watch Videos:

- [Range of Motion Explanation](#)
- [Easiest Ways to Remember Movement Terms](#)

Lesson/Activity:

Watch Video: [Anatomical Terms of Movement](#)

Activity #1: Using the video above as a reference or the warm-up videos, complete the following:

In your notebook or on a piece of paper, create a visual that helps you remember the path of motion for each pair of terms below. Use arrows to help you show the path of the movement. Also describe each motion in words.

- Depression and elevation
- Rotation and circumduction
- Flexion and extension (and hyperextension)
- Abduction and adduction
- Plantar flexion and dorsiflexion

Lesson/Activity continued:

Watch Video: [How to Use a Goniometer](#)

Activity #2:

- Watch the video above about how to use a goniometer. Write down the main steps in your notebook or on your piece of paper.

View Document: [Range of Motion \(ROM\) Matching](#)

Activity 3:

- Click on the link above. In your notebook or on your piece of paper, identify the range of motion that you see in each set of pictures A-H.

Activity #1 Answer:

- Click [HERE](#) to view range of motion document and/or click [HERE](#) to view video.

Activity #2 Answer:

- Click [HERE](#) to see step-by-step instructions on how to use a goniometer.

Activity #3 Answer:

- Click [HERE](#) to see the answers to the range of motion matching exercise.

Practice:

Watch Video: [Exercises to Improve Flexibility and Function](#)

Practice Activity: Click on the link above to view warm-up exercises. Physical therapists (PT) and athletic trainers use range of motion exercises to help their patient after accidents, to increase flexibility, and to help the elderly who suffer from arthritis and other mobility issues.

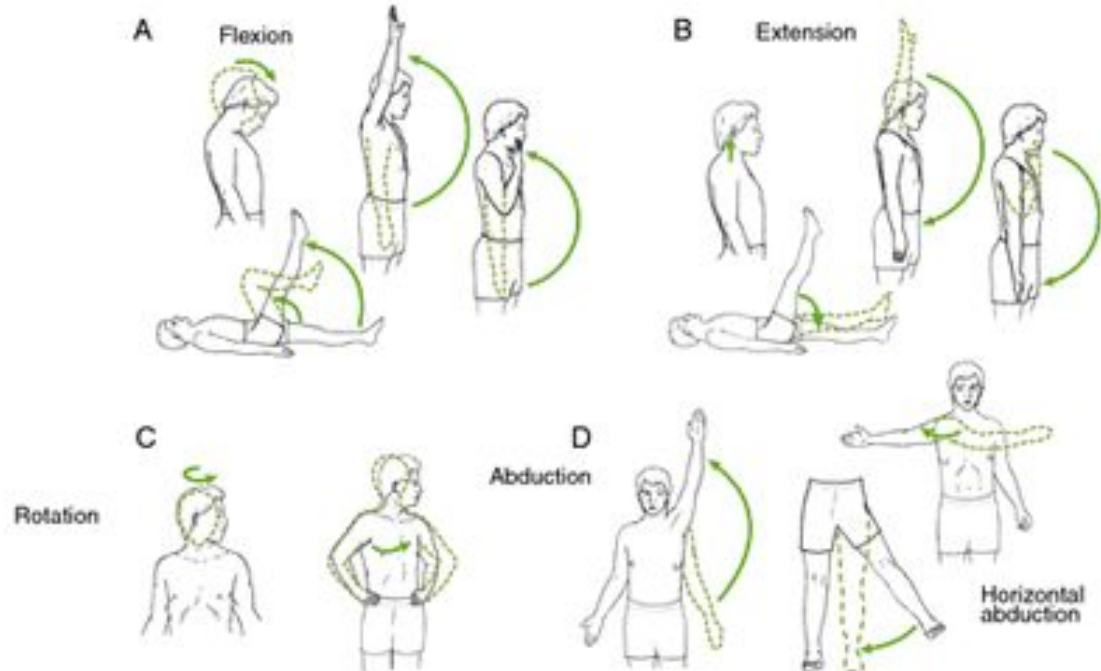
As you go through the video, try performing the range of motion exercises yourself. Even invite a sibling or parent/guardian to join in! Afterwards, in your notebook or on your piece of paper, describe which range of motions (ROM) the PT in the video performed during each of the six stretches. Note that there may be multiple ROMs performed in a stretch. Underline the ROMs in your descriptions:

- Depression and elevation
- Rotation and circumduction
- Flexion and extension (and hyperextension)
- Abduction and adduction
- Plantar flexion and dorsiflexion

Practice Answers:

Note: There may be several ROMs within each exercise. Here are some of the main ROMs within the warm-up exercises:

RANGE OF MOTION



Additional Practice and/or Resources:

Go to these websites:

[4.1.2 Range of Motion Flashcards](#)

Test your knowledge by clicking on the link above.

[Anatomical Terms of Movement](#)

Read over this website document. There are several additional ROMs that were not discussed in this lesson. In your notebook or on your paper, create a visual that helps you remember the path of motion for each pair of terms below. Use arrows to help you show the path of the movement. Also describe each motion in words.

- pronation and supination
- inversion and eversion
- opposition and reposition
- protraction and retraction