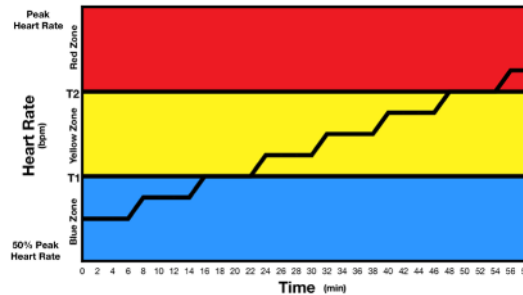


## Understanding by Design

# Lesson #1L. Find Your Peak



### Stage One Outcomes

**Lesson Goals:** Assess the highest number of beats-per-minute (bpm) called peak heart rate doing an all-out effort.

**Standard 1.** The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

**Standard 2.** Applies knowledge of concepts, principles, strategies and tactics related to movement and performance. (S2.H1.L1, S2.H2.L1)

**Standard 3.** Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness (S3.H2.L2, S3.H3.L2, S3.H8.L1, S3.H10.L1, S3.H10.L2)

**Standard 4.** Exhibits responsible personal and social behavior that respects self and others (S4.H1.L1, S4.H2.L1, S4.H3.L1, S4.H4.L1, S4.H4.L2, S4.H5.L1)

**Standard 5:** Recognizes the value of physical activity for health, enjoyment, challenge, self expression and/or social interaction (S5.H1.L1)

#### Understandings

##### The students will understand:

- that their highest all-out peak heart rate is their maximum heart rate.
- that their all-out peak heart rate is different for every individual.
- that their maximum heart rate is genetically determined.
- that maximum heart rate declines with age until puberty is reached.
- that their maximum heart rate cannot be determined by any mathematical formula but must be field tested for each individual.

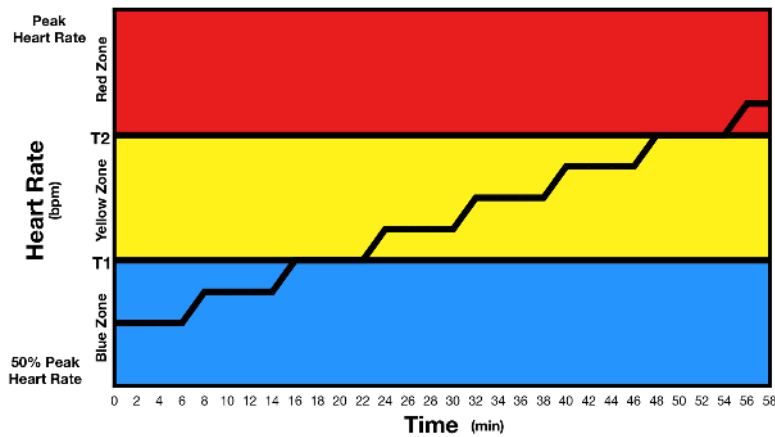
#### Essential Questions:

- Why is each individual's all-out peak heart rate different?
- Why is it important to know your individual and personal peak heart rate?
- Why is the highest peak heart rate the same as their maximum heart rate?

<p><b>Knowledge</b>  <b>The students will know:</b></p> <ul style="list-style-type: none"> <li>• that peak heart becomes their maximum heart rate.</li> <li>• their peak heart rate is their maximum heart rate.</li> <li>• how peak heart rate is measured.</li> <li>• that they cannot change their maximum heart rate because it is genetically determined.</li> </ul>	<p><b>Student will be able to</b></p> <ul style="list-style-type: none"> <li>• Complete a peak heart rate test.</li> <li>• Explain the meaning of peak heart rate.</li> <li>• Explain why an all-out peak heart rate effort is the same as your maximum heart rate.</li> </ul>
<p><b>Stage Two Assessment Evidence</b></p>	
<p><b>Performance Tasks:</b></p> <ul style="list-style-type: none"> <li>• Students will take a peak heart rate test running.</li> <li>• Students will record their maximum heart rate into their Heart Zones Fitness Profile Sheet.</li> </ul>	<p><b>Other Evidence:</b></p> <ul style="list-style-type: none"> <li>• Individual students print-out from the Heart Zones PE software application</li> <li>• Individual students report from the Heart Zones Training iPhone App.</li> </ul>
<p><b>Self Assessments:</b></p> <ul style="list-style-type: none"> <li>• Ask the student "could they go faster during the test," with thumbs up "yes" and thumbs down "no".</li> </ul>	<p><b>Other Evidence Summarized:</b></p> <ul style="list-style-type: none"> <li>• The teacher can review a heart rate profile aka heart rate graph.</li> </ul>
<p><b>Stage Three Learning Plan</b></p>	
<p><b>Learning Activities:</b> See the MLA #1A, Movement Learning Activity.</p>	
<p><b>Resources:</b> <i>This is also known as the 2-4 Minute Max Heart Rate Test. Details can be found in The Heart Rate Monitor Guidebook by Sally Edwards pages 62-64</i></p>	
<p><b>Key Terms:</b></p> <ul style="list-style-type: none"> <li>• <b>Peak Heart Rate</b> - the highest number of beats-per-minute during any single workout.</li> <li>• <b>All-Out Peak Heart Rate</b> - the highest heart rate reaching in a 100% effort.</li> <li>• <b>Maximum Heart Rate</b> - the greatest number of beats-per-minute possible for your heart muscle. This number is highly individualized and mode-specific.</li> </ul>	

## Movement Learning Activity

### Lesson #1L. Find Your Peak



**Standard 1.** The physically literate individual demonstrates competency in a variety of motor skills and movement patterns.

**Standard 2.** Applies knowledge of concepts, principles, strategies and tactics related to movement and performance. (S2.H1.L1, S2.H2.L1)

**Standard 3.** Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness (S3.H2.L2, S3.H3.L2, S3.H8.L1, S3.H10.L1, S3.H10.L2)

**Standard 4.** Exhibits responsible personal and social behavior that respects self and others (S4.H1.L1, S4.H2.L1, 4.H3.L1, S4.H4.L1, S4.H4.L2, S4.H5.L1)

**Standard 5.** Recognizes the value of physical activity for health, enjoyment, challenge, self expression and/or social interaction (S5.H1.L1)

<b>Equipment and Material</b>	<ul style="list-style-type: none"> <li>• The Heart Zones System with heart rate sensors.</li> <li>• Student Recording card and pen/pencil</li> <li>• Stopwatch or timer on the Big Board</li> </ul>	Suggestion: Partner activity with one partner recording the heart rate data for each 15-seconds while the other takes the test.
<b>Notes</b>	<b>Activity</b>	<b>Debrief</b>
<b>Instant Activity</b>	All student do an easy low zone warmup walking and talking of at least 5 minutes and a heart rate of 100-130 bpm.	Keep all students moving until the test begins in order that their heart rate does not drop low before the test starts.

<p><b>Learning Activity Instructions</b></p>	<ul style="list-style-type: none"> <li>• Explain that this is an all-out short duration effort. The goal is to achieve the highest heart rate number possible. The test stops when they hit their biggest number.</li> <li>• Designate one timer for the entire class.</li> <li>• All students partner with one as a recorder and the other as the test-taker. They then switch positions.</li> <li>• Prior to starting, make sure that the student knows their individual tile on the Big Board in order to see their heart rate numbers.</li> <li>• Start the test with all students showing an exercise heart rate at about 120 bpm.</li> <li>• Have all students accelerated their speed so that heart rate increases 5 bpm every 15 seconds.</li> <li>• Timer shouts out two numbers: (1) elapsed time and (2) heart rate number target. <i>Example: the test is at the end of the first minute. Timer yells out 1:00 minute heart rate 140 bpm.</i></li> <li>• Test stops when the participant can no longer raise their heart rate even though they are running faster.</li> </ul>	<p>See the Attached Student Worksheet #1 Peak Heart Rate Challenge</p> <p><b>Note:</b> Go to the Heart Zones PE app on the iPad and flip the switch to store the peak heart rate values:  <i>Settings &gt; Current Class &gt; Save Peak Value During Session</i></p>
<p><b>Modify Activity</b></p>	<ul style="list-style-type: none"> <li>• Can substitute running for cycling, exercise equipment such as rowers, ellipticals, etc., and swimming. See the <i>Heart Rate Monitor Book for Cyclists</i> by Sally Edwards and Sally Reed for details</li> <li>• Can use a set of stairs to climb at the near end of the test to further drive heart rate to the biggest or peak number.</li> <li>• Can substitute Line Drill on an indoor court with first line drill "easy", second line drill "moderate" third line drill "hard", and fourth time "all out max effort."</li> </ul>	

<b>Check Understanding (Assessment)</b>	Formative Assessment with a yes (thumbs up) or a no (thumbs down) as the answer: Is all-out peak heart rate the same as maximum heart rate?	
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