

# Maths/science integrated lesson sequence: "Keeping your finger on the pulse"

Overview of the lesson sequence and learning focus of integrated activities

In this sequence, students measure, calculate and compare their heart rates over a specific time frame and calculate the percentage increase and decrease.

Overview of learning tasks	Learning focus
<p>Lesson 1</p> <ul style="list-style-type: none"> <li>• Finding and measuring heart rate (HR)</li> <li>• Experimenting with measuring HR over 1 min</li> <li>• Calculating HR over time and noticing changes due to increased activity</li> </ul>	<p><b>Science focus:</b> Measure pulse rate over one minute and describe effects of increasing heart rate on body, specifically, how the body adapts when heart rate changes.</p> <p><b>Mathematics focus:</b> Measure, calculate and compare during an elapsed time (recording data over one minute). Explore meaning of rate per minute (proportional reasoning).</p>
<p>Lesson 2</p> <ul style="list-style-type: none"> <li>• Defining resting HR and looking at the range in the class</li> <li>• Explore strategies for lowering HR,</li> <li>• Designing experiment to increase HR by certain percentage</li> </ul>	<p><b>Mathematics focus:</b> Calculate a percentage and compare frequencies across experiments.</p> <p><b>Science focus:</b> Define resting HR. Investigate HR as being measured as a range (varies between people), strategies for lowering heart rate, influence of metabolism on heart rate, consider ideas of experimental design, accuracy for data collection i.e., the same person measuring, recording data accurately, notion of variables - not changing too much each time.</p>
<p>Lesson 3</p> <ul style="list-style-type: none"> <li>• Investigating how to raise HR by 50%: students engage with physical fitness activities</li> </ul>	<p><b>Science focus:</b> Adaptations for survival. The body needs oxygen and energy for survival. The heart is responsible for pumping blood around the body and the blood contains oxygen and energy.</p> <p>Heart rate increases when the body needs more of these things. Everybody has a different resting heart rate (hence why it is a range not a fixed figure). Heart rate changes when we exercise and when we are anxious. We can reduce our heart rate through purposeful means, such as mindful breathing.</p> <p><b>Mathematics focus:</b> Calculate percentage increase in HR.</p>

Source: <https://www.monash.edu/education/teachspace/articles/how-can-teachers-integrate-maths-and-science-in-their-classrooms>