



Cardiac Adaptations to Exercise

Curriculum links

Year 10 Maths

- Patterns and algebra - Substitute values into formulas to determine an unknown and re-arrange formulas to solve for a particular term (VCMNA333)
- Data representation and interpretation - Investigate and describe bivariate numerical data, including where the independent variable is time (VCMSP353)

Learning intention and success criteria

Learning intention

- To use maths to determine the effect of training on an athletes heart.

Success criteria

- Manipulate and substitute into equations to find unknown values.
- Display and interpret data on a line graph.

Instructions to teachers

This activity has been developed for students to see the real world application of manipulating and substituting into equations and displaying data on graphs to determine trends. The task should be completed by students after they are confident in manipulating equations. Students will take around 45 minutes to complete this activity.

The worksheet that students complete is a word document that has been designed using the developer function. This means that students can save the document to their device and are able to modify certain sections to record their answers. Although students are able to quickly adapt to this format, it is recommended that you briefly familiarise yourself with the document before you distribute it to students.

Answers including the excel worksheets with the line graphs have been provided to you to make feedback to students easier.

Instructions for students

1. Download the activity, save to your device and then select view and select edit document.
2. Complete the activity and resave to your device.
3. Submit the task to your teacher for feedback.

Resources to distribute with activity

The following links may be handy to send to students as a resource to help them complete the tasks within the activity:

Manipulating equations

<https://www.khanacademy.org/math/algebra2/x2ec2f6f830c9fb89:modeling/x2ec2f6f830c9fb89:manipulating-formulas/v/example-of-solving-for-a-variable>

Creating a line graph in excel

<https://www.youtube.com/watch?v=3PwVWX28dEE>

Further resources

The following resource can be distributed to students that would like to know more about the adaptations that occur as a result of training:

<https://www.labroots.com/trending/cardiology/13468/hearts-adaptations-chronic-exercise>