La Trobe Wildlife Sanctuary

Tree Heights (7 – 10)

In this thought-provoking activity, your students will learn five different methods to estimate the height of a tree, without the aid of technology.

Learning Intention	Success Criteria
Students will understand a variety of practical methods for determining tree height. Students will be able to use these to estimate approximately the same height for each method.	Students can estimate the height within a reasonable amount of error between each of the methods. Students can proactively use 5 methods for determining tree height.

Student Activity
Your students will be led to an area in the sanctuary with a large River Red Gum tree. They will be shown the different methods for measuring tree height, each of which has a different level of accuracy. They will then estimate the error between the number reached for each method and the actual height of the tree, and determine which method is the most precise.

Learning Outcomes	
Cognitive	Students will understand a variety of methods for calculating tree heights and apply their mathematical knowledge in a practical context.
Affective	Students will value the connection between a natural environment and the use of mathematical concepts in a practical way.
Observational Skills	Students will be skilled in the processes behind determining tree height using 5 different methods.

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Curriculum Links

Year 7-8:

Identify questions, problems and claims that can be investigated scientifically and make predictions based on scientific knowledge (VCSIS107)

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed (VCSIS108)

In fair tests, measure and control variables, and select equipment to collect data with accuracy appropriate to the task (VCSIS109)

Reflect on the method used to investigate a question or solve a problem, including evaluating the quality of the data collected, and identify improvements to the method(VCSIS112)

Year 9-10:

Solve problems using ratio and scale factors in similar figures (VCMMG317)

Apply trigonometry to solve right-angled triangle problems (VCMMG320)

Select and use appropriate equipment and technologies to systematically collect and record accurate and reliable data, and use repeat trials to improve accuracy, precision and reliability (VCSIS136)

Analyse patterns and trends in data, including describing relationships between variables, identifying inconsistencies in data and sources of uncertainty, and drawing conclusions that are consistent with evidence (VCSIS138)

Summary

Throughout this collaborative activity, your students will use different mathematical methods to estimate the height of a river red gum tree. After they have estimated the tree height using their eyes, they will use five different methods, which vary in how accurate they are. After each method has been used, the students will then be given the known height of the tree, from which they will determine the error for each method. They will then come to a conclusion about how accurate each method is, and which one scientists should use in their studies.

A New Pedagogy Deep Learning (NPDL)

The LTWS incorporates the work of Michael Fullan and Maria Langworthy into their activities and support resources.

Instructional Model and incorporate a range of activities designed to develop 21st Century Learning Skills.

The **Tree Heights** activity provides an authentic link to a pedagogy for Meaning-Oriented (Deep) learning. The ticks below provide an indication of the skills this activity is designed to develop.

Support Materials

The LTWS have (and are) developing a range of support materials that provide additional resources for teachers to explore this NPDL framework.

Visit our Webpage – www.latrobe.edu.au\wildlife

Keep in touch via the sanctuaries Blog, Facebook and Youtube pages to discover more about the sanctuary and the opportunities your students can explore.

http://bit.ly/1TdbMnN
http://on.fb.me/1WeQwfD
http://bit.ly/1V4yMTL