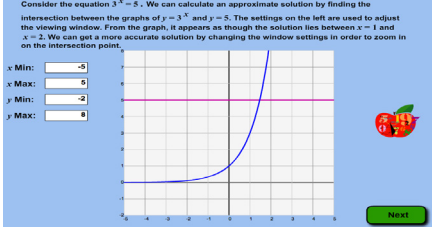
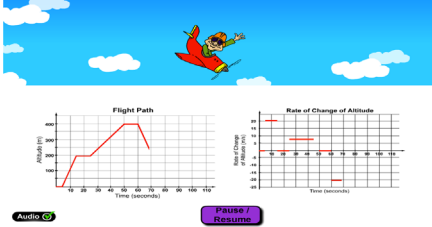
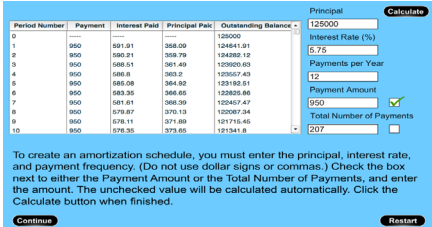
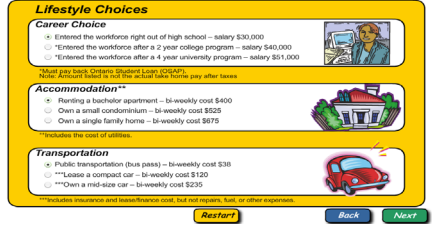


# MAP4C

## Ontario Educational Resources Bank (OERB) Activities

Mathematical Models	
Activity	Description
<div style="text-align: center; font-weight: bold; font-size: 1.2em; margin-bottom: 10px;">Exponential Graphing Activity</div>  <p style="text-align: center; font-weight: bold; margin-top: 10px;">Resource ID: ELO1149650</p>	<p>Build understanding of how to solve exponential equations by using a virtual graphing calculator to determine the point of intersection between an exponential graph and a constant.</p>
<div style="text-align: center; font-weight: bold; font-size: 1.2em; margin-bottom: 10px;">Test Pilot</div>  <p style="text-align: center; font-weight: bold; margin-top: 10px;">Resource ID: ELO1149630</p>	<p>Build understanding of rates of change by investigating simultaneously the graphs of height versus time and rate of change of height versus time, produced in a flight simulation. Practise applying this knowledge by answering multiple choice questions.</p>
Personal Finance	
Activity	Description
<div style="text-align: center; font-weight: bold; font-size: 1.2em; margin-bottom: 10px;">Amortization Scheduler</div>  <p style="text-align: center; font-weight: bold; margin-top: 10px;">Resource ID: ELO1149710</p>	<p>Build understanding of amortization schedules by entering the particulars of a mortgage and then creating an amortization schedule. Practise applying this knowledge by answering questions related to the schedules created.</p>
<div style="text-align: center; font-weight: bold; font-size: 1.2em; margin-bottom: 10px;">The Budget Game</div>  <p style="text-align: center; font-weight: bold; margin-top: 10px;">Resource ID: ELO1190150</p>	<p>Build understanding of factors that affect a budget by simulating the implementation of a budget and then dealing with unplanned events in a challenge activity.</p>

# MAP4C

## Ontario Educational Resources Bank (OERB) Activities

### Geometry and Trigonometry

#### Activity

#### Description

#### Angles of Elevation and Depression

**Angle of Elevation**

When solving problems using trigonometry the following terms will often be used: Angle of Elevation, and Angle of Depression. To understand the problem, and in turn to get the correct solution, you must have a clear understanding of what these terms mean.

Audio Next

**Resource ID: ELO1149670**

Build understanding of the terms “angle of elevation” and “angle of depression” by viewing an animated description of the two terms.

#### Introduction to Optimal Dimensions

Optimal Area of a Rectangle

What dimensions produced the maximum area for your enclosure?

Length:  m

width	Length	Area
0.5	27.5	13.75
1.0	27.0	27.00
1.5	26.5	39.75
2.0	26.0	51.00
2.5	25.5	61.50
3.0	25.0	71.00
3.5	24.5	79.50
4.0	24.0	87.00
4.5	23.5	93.50
5.0	23.0	99.00
5.5	22.5	103.50
6.0	22.0	107.00
6.5	21.5	109.50
7.0	21.0	111.00
7.5	20.5	111.50
8.0	20.0	111.00
8.5	19.5	109.50
9.0	19.0	107.00
9.5	18.5	103.50
10.0	18.0	99.00
10.5	17.5	93.50
11.0	17.0	87.00
11.5	16.5	79.50
12.0	16.0	71.00
12.5	15.5	61.50
13.0	15.0	51.00
13.5	14.5	39.75
14.0	14.0	27.00
14.5	13.5	13.75

Examining the graph created by plotting the length versus the area, we can see the the points form a parabola with a specific maximum value. An enclosure with a length and width of 15m would produce a maximum area of 225m<sup>2</sup>.

To maximize the area of a rectangle given a fixed perimeter, the length and width should be the same. Therefore, the enclosure should be a square with:

side length =      Perimeter =

Restart     Back     Next

**Resource ID: ELO1190160**

Build understanding of optimization by experimenting with a variety of length and width combinations for a fixed perimeter and investigating the areas that result. Practise applying this knowledge by completing a quiz.

#### Labelling of Right Triangles

**Labelling of Right Triangles**

The side across from angle C, or in other words “opposite to” angle C, is called the **OPPOSITE**.

Audio Back     Next

**Resource ID: ELO1149660**

Build understanding of how to properly label the sides of a right triangle by viewing an illustrated tutorial.

#### Making the Most of It

Length	Width	Height	Surface Area	Volume
5	10	20	700	1000
7	7.14	20	695.58	1000
9	5.56	20	692.48	1000
10	5	20	690	1000
11	4.55	20	688.11	1000
12	4.17	20	686.68	1000
13	3.85	20	685.68	1000
14	3.57	20	685.00	1000
15	3.33	20	684.67	1000
16	3.12	20	684.58	1000
17	2.94	20	684.70	1000
18	2.78	20	684.92	1000
19	2.63	20	685.23	1000
20	2.5	20	685.63	1000
21	2.38	20	686.10	1000
22	2.27	20	686.63	1000
23	2.17	20	687.21	1000
24	2.08	20	687.83	1000
25	2.0	20	688.50	1000
26	1.92	20	689.20	1000
27	1.85	20	689.93	1000
28	1.79	20	690.68	1000
29	1.73	20	691.45	1000
30	1.67	20	692.23	1000

Now that you've tried 10 different lengths, which length appears to give us the smallest surface area?

    Submit

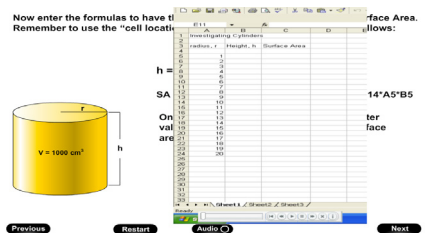
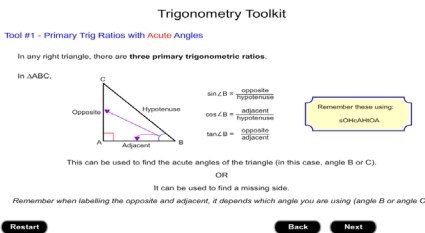
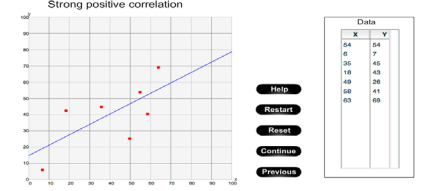
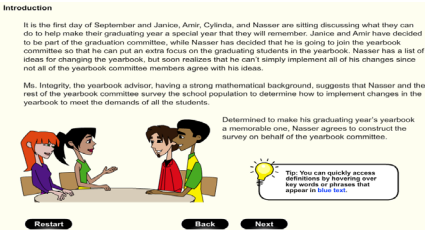
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**Resource ID: ELO1149690**

Build understanding of optimization by exploring the effects on surface area of varying the lengths and widths of rectangular and triangular prisms of fixed volume. Practise applying the knowledge gained by completing a multiple choice quiz.

# MAP4C

## Ontario Educational Resources Bank (OERB) Activities

Geometry and Trigonometry (continued)	
Activity	Description
<p style="text-align: center;"><b>Minimizing Surface Area</b></p>  <p style="text-align: center;"><b>Resource ID: ELO1149700</b></p>	<p>Build understanding of optimization by viewing an illustrated tutorial of how a spreadsheet can be used to determine the optimal dimensions to minimize the surface area of a cylinder with a fixed volume. Practise applying the knowledge gained by completing a multiple choice quiz.</p>
<p style="text-align: center;"><b>Trigonometry Review</b></p>  <p style="text-align: center;"><b>Resource ID: ELO1149720</b></p>	<p>Practise solving trigonometry problems by completing a quiz that involves selecting an appropriate diagram, selecting appropriate tools and calculating for the missing value in both right and non-right triangles.</p>
Data Management	
Activity	Description
<p style="text-align: center;"><b>Analysing Data and Linear Regression</b></p>  <p style="text-align: center;"><b>Resource ID: ELO1190100</b></p>	<p>Build understanding of lines of best fit by identifying trends in data presented graphically, categorizing scatter plots based on these trends, and exploring the effects of outliers on the line of best fit. Practise applying this knowledge by drawing lines of best fit.</p>
<p style="text-align: center;"><b>How to Create a Survey</b></p>  <p style="text-align: center;"><b>Resource ID: ELO1190090</b></p>	<p>Build understanding of how to create a survey by viewing an interactive tutorial that outlines the components of a good survey.</p>

# MAP4C

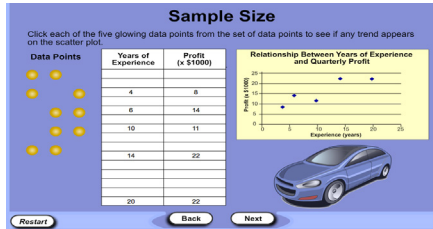
## Ontario Educational Resources Bank (OERB) Activities

### Data Management (continued)

#### Activity

#### Description

#### Two Variable Data Analysis



Resource ID: ELO1149730

Build understanding of the factors that contribute to the reliability of conclusions drawn from two variable data by exploring the effects of outliers and insufficient data on the line of best fit.