

# Ohio Mathematics Correlation (Grade 8)

Reference: [Academic Content Standards \(PDF\)](#)

## Introduction

This document correlates Yenka Mathematics software to the content performance indicators of the Ohio mathematics core curriculum. It highlights specific areas of the curriculum that are covered by Yenka Mathematics and points to resources that will be useful when teaching the material.

The terminology we have used in this document is as follows:

- **Product:** this is the relevant Yenka Mathematics product, either [Yenka 3D Shapes](#) or [Yenka Statistics](#). More information about these products can be found on the Yenka web page by following the links.
- **Model:** a pre-made Yenka simulation with step-by-step instructions, which will either teach the pupils part of the curriculum, or give them opportunity to apply the knowledge they already have. These models are found under *Content* when you open Yenka itself, and they are linked to through our website.
- **Tutorial:** a model that explains how to use a particular aspect of the Yenka software. These can be found under *Getting Started* in the *Content* tab of Yenka.

Since the Yenka Mathematics titles are simulators, they will help you to cover other areas of the curriculum too. The final column of the table gives some possible *examples* of how you, or the students, can use Yenka Mathematics to create your own models and cover a wider scope of material. You may wish to look at the *tutorials*, and [training videos](#) provided on the website, to explore more of the potential uses of the software, and show you how to create your own models.



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## Measurement Standard

Area	Indicator	Product	Content (Model)	Example
<p><i>Use Measurement Techniques and Tools</i></p>	<p>4. Derive formulas for surface area and volume and justify them using geometric models and common materials. For example, find:            a. the surface area of a cylinder as a function of its height and radius;            b. that the volume of a pyramid (or cone) is one-third of the volume of a prism (or cylinder) with the same base area and height.</p>	<p>Yenka 3D Shapes</p>	<ul style="list-style-type: none"> <li>- <a href="#">Volume of a cylinder</a></li> <li>- <a href="#">Volume of a prism</a></li> <li>- <a href="#">Surface area of a prism</a></li> </ul> <p>See also:</p> <ul style="list-style-type: none"> <li>- <a href="#">Cube</a></li> <li>- <a href="#">Prisms</a></li> </ul>	
	<p>5. Determine surface area for pyramids by analysing their parts.</p>	<p>Yenka 3D Shapes</p>		<p>Ask students to select one of the <i>Pyramids</i> provided on Yenka 3D Shapes. They can use the surface area <i>Measurement tool</i> to determine its surface area. They can then unfold it into its net by double-clicking on it and selecting <i>unfold</i>. They should then calculate the area of each of the surfaces individually to determine the surface area themselves.</p>
	<p>9. Demonstrate understanding of the concepts of perimeter, circumference and area by using established formulas for triangles, quadrilaterals, and circles to determine the surface area and volume of prisms, pyramids, cylinders, spheres and cones. (Note: Only volume should be calculated for spheres and cones.)</p>	<p>Yenka 3D Shapes</p>		<p>It is easy to create models involving <i>3D Shapes</i>, and with a <i>Question</i> from the <i>Presentation</i> objects asking students to calculate the volume or surface area of the shape, which will reveal if they have the correct answer. The shape can be opened into its net to show more clearly how to calculate surface area and volume. Alternatively, the model could guide students through each step required in the calculation.</p>

	10. Use conventional formulas to find the surface area and volume of prisms, pyramids and cylinders and the volume of spheres and cones to a specified level of precision.			As above.
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## Geometry and Spatial Sense Standard

Area	Indicator	Product	Content (Model)	Example
<i>Characteristics and Properties</i>	3. Use proportions in several forms to solve problems involving similar figures (part-to-part, part-to-whole, corresponding sides between figures).	Yenka 3D Shapes	<ul style="list-style-type: none"> <li>- <a href="#">Similar triangles</a></li> <li>- <a href="#">Similar cuboids</a></li> </ul> <p>See also:</p> <ul style="list-style-type: none"> <li>- <a href="#">Find the similar triangle</a></li> </ul>	
<i>Visualization and Geometric Models</i>	6. Draw nets for a variety of prisms, pyramids, cylinders and cones.	Yenka 3D Shapes	<ul style="list-style-type: none"> <li>- <a href="#">Cube net</a></li> <li>- <a href="#">All the cube nets</a></li> </ul> <p>See also tutorial:</p> <ul style="list-style-type: none"> <li>- <a href="#">Making a die</a></li> <li>- <a href="#">Which is not a cube net?</a></li> <li>- <a href="#">Football net</a></li> </ul> <p>And tutorial:</p> <ul style="list-style-type: none"> <li>- Creating and folding nets</li> </ul>	

## Patterns, Functions and Algebra Standard

Area	Indicator	Product	Content (Model)	Example
<i>Use Algebraic Representations</i>	6. Describe the relationship between the graph of a line and its equation, including being able to explain the meaning of slope as a constant rate of change and y-intercept in real-world problems.	Yenka Statistics	Related model: - <a href="#">Line of best fit</a>	

## Data Analysis and Probability Standard

Area	Indicator	Product	Content (Model)	Example
<i>Data Collection</i>	1. Use, create and interpret scatterplots and other types of graphs as appropriate.	Yenka Statistics	Related models: - <a href="#">Box plot</a> - <a href="#">Stem and leaf</a> - <a href="#">Bar chart</a> - <a href="#">Histogram</a>  See also tutorial: - <a href="#">Graphing data</a>	
	2. Evaluate different graphical representations of the same data to determine which is the most appropriate representation for an identified purpose; e.g., line graph for change over time, circle graph for part-to-whole comparison, scatterplot for relationship between two variants.	Yenka Statistics		Use one of the prepared <i>Example datasets</i> , or add your own data to an <i>Empty data set</i> . Pupils can then add different <i>Graphs</i> to the model, e.g. histogram, bar graph, scatter plot, and compare and discuss their advantages or disadvantages in representing the data.

<i>Statistical Methods</i>	4. Compare two sets of data using measures of center (mean, mode, median) and measures of spread (range, quartiles, interquartile range, percentiles).	Yenka Statistics	Related model: - <a href="#">Comparing normal distributions</a>	
	5. Explain the mean's sensitivity to extremes and its use in comparison with the median and mode.	Yenka Statistics	- <a href="#">Comparing averages</a>	
	6. Make conjectures about possible relationship in a scatterplot and approximate line of best fit.	Yenka Statistics	- <a href="#">Correlation</a> - <a href="#">Line of best fit</a>  See also: - <a href="#">Extrapolation and interpolation</a>	
<i>Probability</i>	10. Calculate the number of possible outcomes for a situation, recognizing and accounting for when items may occur more than once or when order is important.	Yenka Statistics	Related model: - <a href="#">Independent and dependent events</a>	
	11. Demonstrate an understanding that the probability of either of two disjoint events occurring can be found by adding the probabilities for each and that the probability of one independent event following another can be found by multiplying the probabilities.	Yenka Statistics	- <a href="#">Combining independent events</a>	

If you have any questions about Yenka or this document, please contact [Esther Droop](#) or visit [www.yenka.com](http://www.yenka.com)