

# Florida Mathematics Correlation (Grades 9-12)

Reference: [Florida Mathematics Standards p. 70 \(PDF\)](#)

## Introduction

This document correlates Yenka Mathematics software to the content performance indicators of the Florida 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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# Algebra

## Standard 2: Relations and Functions

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.A.2.1	Create a graph to represent a real-world situation.	Yenka Statistics		Yenka Statistics provides pre-made <i>Example Data sets</i> , which represent some real world situation such as 100m sprint times, or planets of the solar system data. Students can use these, or put the data they have collected themselves into an <i>empty data set</i> , and then add a variety of Graphs to the model. Students could be asked to study the graph apart from the data and highlight its key features, or compare types of graphs and their usefulness in representing the data.
MA.912.A.2.2	Interpret a graph representing a real-world situation.			

# Geometry

## Standard 2: Polygons

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.G.2.4	Apply transformations (translations, reflections, rotations, dilations, and scale factors) to polygons to determine congruence, similarity, and symmetry. Know that images formed by translations, reflections, and rotations are congruent to the original shape. Create and verify tessellations of the plane using polygons.	Yenka 3D Shapes	Related tutorial: - <a href="#">Rotating and resizing shapes</a>  and models: - <a href="#">Similar triangles</a> - <a href="#">Find the similar triangle</a>	Copy, resize, rotate and translate polygons in Yenka 3D Shapes. Students can use the <i>Measurement Tools</i> to e.g. compare the length of the sides of triangles to postulate and confirm theorems about similarity and congruence.

MA.912.G.2.5	Explain the derivation and apply formulas for perimeter and area of polygons (triangles, quadrilaterals, pentagons etc.).	Yenka 3D Shapes	<ul style="list-style-type: none"> <li>- <a href="#">Area of a rectangle</a></li> <li>- <a href="#">Area of a triangle</a></li> </ul> <p>See also:</p> <ul style="list-style-type: none"> <li>- <a href="#">Area of a square</a></li> <li>- <a href="#">Area of rectangles and triangles</a></li> <li>- <a href="#">Wallpapering</a></li> </ul>	
MA.912.G.2.7	Determine how changes in dimensions affect the perimeter and area of common geometric figures.	Yenka 3D Shapes	<ul style="list-style-type: none"> <li>- <a href="#">Area of a rectangle</a></li> <li>- <a href="#">Area of a triangle</a></li> </ul>	

## Standard 4: Triangles

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.G.4.1	Classify, construct, and describe triangles that are right, acute, obtuse, scalene, isosceles, equilateral, and equiangular.	Yenka 3D Shapes		Create a model with several different <i>isosceles, equilateral and right-angled triangles</i> . Ask students to use the <i>Measurement tools</i> to investigate features of these triangles. Alternatively use the <i>Presentation</i> objects to set questions for the students, asking them to correctly identify and classify the triangles.
MA.912.G.4.4	Use properties of congruent and similar triangles to solve problems involving lengths and areas.	Yenka 3D Shapes	<ul style="list-style-type: none"> <li>- <a href="#">Similar triangles</a></li> <li>- <a href="#">Find the similar triangle</a></li> </ul>	

## Standard 5: Right Triangles

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.G.5.1	Prove and apply the Pythagorean Theorem and its converse.	Yenka 3D Shapes		As an introduction to the proof of Pythagorean Theorem create a model with several <i>right-angled triangles</i> of different sizes, orientations etc. Ask students to use the length <i>Measurement tool</i> to determine the length of each of the sides of the triangle, and take them through the steps required to see an example of the theorem. Repeat with non-right triangles to illustrate its converse. Students can apply Pythagorean Theorem by calculating the length of one unknown side of the triangle, and entering their answer in a <i>Question presentation object</i> to see if they are correct.

## Standard 7: Polyhedra and Other Solids

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.G.7.1	Describe and make regular, non-regular, and oblique polyhedra and sketch the net for a given polyhedra and vice versa.	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:</p> <ul style="list-style-type: none"> <li>- <a href="#">Volume of a cylinder</a></li> <li>- <a href="#">Which is not a cube net</a></li> <li>- <a href="#">Football net</a></li> <li>- <a href="#">Surface area of a prism</a></li> </ul>	

MA.912.G.7.2	Describe the relationships between the faces, edges, and vertices of polyhedra.	Yenka 3D Shapes	Related model: - <a href="#">Cube</a>	
MA.912.G.7.5	Explain and use formulas for lateral area, surface area, and volume of three-dimensional solids.	Yenka 3D Shapes	- <a href="#">Cube</a> - <a href="#">Prisms</a> - <a href="#">Volume of a cylinder</a> - <a href="#">Equal volumes</a> - <a href="#">Volume of a prism</a> - <a href="#">Which cylinder has the largest volume?</a> - <a href="#">Combined volume</a> - <a href="#">Surface area of a prism</a>	
MA.912.G.7.6	Identify and use properties of congruent and similar three-dimensional solids.	Yenka 3D Shapes	- <a href="#">Similar cuboids</a>	
MA.912.G.7.7	Determine how changes in dimensions affect the surface area and volume of common three-dimensional geometric solids.	Yenka 3D Shapes		Allow students to interact with <i>3D Shapes</i> in Yenka. They can label dimensions, surface area and volume of the solids, and then resize them to see the effect upon volume. In this way they can investigate e.g. that two prisms with the same base surface area and lateral height will have the same volume. In a similar way students can be asked to calculate the volume or surface area of a solid, given its dimensions, and then check their answer in the model.

# Probability

## Standard 1: Counting Principles

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.P.1.1	Use counting principles, including the addition and the multiplication principles, to determine size of finite sample spaces and probabilities of events in those spaces.	Yenka Statistics	Related models: - <a href="#">Probability scale</a> - <a href="#">Probability and relative frequency</a>  and tutorials: - <a href="#">Playing probability games</a> - <a href="#">Using the probability tree</a>	
MA.912.P.1.2	Use formulas for permutations and combinations to count outcomes and determine probabilities of events.			

## Standard 2: Determine Probabilities

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.P.2.1	Determine probabilities of complementary events, and calculate odds for and against the occurrence of events.	Yenka Statistics	- <a href="#">Complementary events</a>	
MA.912.P.2.2	Determine probabilities of independent events.	Yenka Statistics	- <a href="#">Combining independent events</a>  See also: - <a href="#">Independent and dependent events</a>	

## Standard 3: Probability Distributions

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.P.3.1	Determine probabilities of events from distributions, including: <ul style="list-style-type: none"> <li>discrete uniform (all outcomes in a finite set equally likely)</li> <li>binomial</li> <li>normal</li> <li>exponential</li> </ul>	Yenka Statistics	Related models: <ul style="list-style-type: none"> <li>- <a href="#">Comparing normal distributions</a></li> <li>- <a href="#">Probability scale</a></li> </ul>	
MA.912.P.3.2	Determine the mean and variance of distributions, including: <ul style="list-style-type: none"> <li>discrete uniform (all outcomes in a finite set equally likely)</li> <li>binomial</li> <li>normal</li> <li>exponential</li> </ul>	Yenka Statistics	<ul style="list-style-type: none"> <li>- <a href="#">Mean</a></li> <li>- <a href="#">Calculating mean of grouped data</a></li> <li>- <a href="#">Calculating standard deviation</a></li> </ul> See also: <ul style="list-style-type: none"> <li>- <a href="#">Comparing normal distributions</a></li> </ul>	
MA.912.P.3.3	Apply the properties of the normal distribution.	Yenka Statistics		Use the <i>Normal distribution</i> data set found under <i>Data Sources</i> . In this data set pupils are able to alter some of the key properties of the distribution such as the mean and standard deviation. By adding a <i>frequency polygon</i> to the model and generating sample data, they can investigate graphically the effect of varying these key features.

# Statistics

## Standard 3: Summarizing Data (Descriptive Statistics)

Benchmark Code	Benchmark	Product	Content (Model)	Example
MA.912.S.3.1	Read and interpret data presented in various formats. Determine whether data is presented in appropriate format, and identify possible corrections.	Yenka Statistics	<ul style="list-style-type: none"> <li>- <a href="#">Box plot</a></li> <li>- <a href="#">Stem and leaf</a></li> <li>- <a href="#">Bar chart</a></li> <li>- <a href="#">Histogram</a></li> </ul> <p>See also:</p> <ul style="list-style-type: none"> <li>- <a href="#">Line of best fit</a></li> <li>- <a href="#">Correlation</a></li> </ul>	
MA.912.S.3.2	Collect, organize, and analyze data sets, determine the best format for the data and present visual summaries from the following: <ul style="list-style-type: none"> <li>• bar and line graphs</li> <li>• stem and leaf plots</li> <li>• circle graphs</li> <li>• histograms</li> <li>• box and whisker plots</li> <li>• scatter plots</li> <li>• cumulative frequency (ogive) graphs</li> </ul>			
MA.912.S.3.3	Calculate and interpret measures of the center of a set of data, including mean, median, and weighted mean, and use these measures to make comparisons among sets of data.	Yenka Statistics	<ul style="list-style-type: none"> <li>- <a href="#">Mean</a></li> <li>- <a href="#">Median with odd number</a></li> <li>- <a href="#">Median with even number</a></li> <li>- <a href="#">Mode</a></li> </ul> <p>See also:</p> <ul style="list-style-type: none"> <li>- <a href="#">Comparing averages</a></li> <li>- <a href="#">Calculating mean of grouped data</a></li> </ul>	

MA.912.S.3.4	Calculate and interpret measures of variance and standard deviation. Use these measures to make comparisons among sets of data.	Yenka Statistics	<ul style="list-style-type: none"> <li>- <a href="#">Calculating standard deviation</a></li> <li>- <a href="#">Comparing normal distributions</a></li> </ul>	
MA.912.S.3.5	Calculate and interpret the range and quartiles of a set of data.	Yenka Statistics	<ul style="list-style-type: none"> <li>- <a href="#">Quartiles and interquartile range</a></li> </ul> <p>See also:</p> <ul style="list-style-type: none"> <li>- <a href="#">Cumulative frequency</a></li> </ul>	
MA.912.S.3.8	Determine whether a data distribution is symmetric or skewed based on an appropriate graphical presentation of the data.	Yenka Statistics		Yenka Statistics has several pre-made <i>Example Datasets</i> that can be used by students as a basis for plotting a distribution using the <i>Graphs</i> . Alternatively, they, or the teacher, can enter their own data or import it from an Excel spreadsheet to an <i>empty data set</i> . From this they can then be asked to discuss the distribution and learn about the terms symmetric and skewed.
MA.912.S.3.9	Identify outliers in a set of data based on an appropriate graphical presentation of the data, and describe the effect of outliers on the mean, median, and range of the data.	Yenka Statistics		Similar to above. In the <i>summary tab</i> of the <i>data set</i> students can find a list of the key properties of the data including the mean, median and range. The data can be edited to include outliers, and the effect of this upon properties of the distribution can be investigated numerically and graphically.

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