

Ohio Science Correlation (Grade 12)

Reference: [Academic Content Standards p.164 \(Word document\)](#)

Introduction

This document correlates Yenka Science software to the content performance indicators of the Ohio science core curriculum. It highlights specific areas of the curriculum that are covered by Yenka Science 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 Science product, covering Physics and Chemistry. These products can be used independently of each other, and more information can be found on the [Yenka website](#).
- **Online activity:** these are lesson plans for classroom activities for use with the Yenka software. Students work through these independently by interacting with a Yenka simulation, following notes and answering questions to learn about an aspect of the curriculum material. Some of these lesson kits are suitable for use as a whiteboard presentation, and are referred to as *online demonstrations*.
- **Model:** a short pre-made Yenka model with instructions, which will give pupils the opportunity to apply their knowledge of a subject. These models are found under the *Content* tab when Yenka is opened.

Since all the Yenka Science titles are simulators, they will help you to cover other areas of the curriculum too. This is just a list of the activities and models that are currently available; there are plenty of other experiments you can simulate. You may wish to look at the tutorials under *Getting Started* in Yenka, and the [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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Earth and Space Sciences

Area	Indicator	Product	Content
<i>The Universe</i>	3. Explain how information about the universe is inferred by understanding that stars and other objects in space emit, reflect or absorb electromagnetic radiation, which we then detect.	Yenka Light and Sound	Related online demonstration: - Pure Colour
	4. Explain how astronomers infer that the whole universe is expanding by understanding how light seen from distant galaxies has longer apparent wavelengths than comparable light sources close to Earth.	Yenka Light and Sound	Related model: - Doppler shift (Waves)

Physical Sciences

Area	Indicator	Product	Content
<i>Nature of Matter</i>	1. Explain how atoms join with one another in various combinations in distinct molecules or in repeating crystal patterns.	Yenka Inorganic Chemistry	Model: - Elements and compounds (Classifying Materials) See also the online activities: - Properties of Ionic Materials - Properties of Covalent Materials - Coloured Compounds
<i>Forces and Motion</i>	5. Use and apply the laws of motion to analyze, describe and predict the effects of forces on the motions of objects mathematically.	Yenka Motion	Online activities: - F = ma – Acceleration - Force and Acceleration Online demonstrations: - Orbit - Inclined Plane - Train Tensions - Kinetic Energy and Gravity Models: - Toppling tractors (Force and Acceleration) - Unequal forces (Force and Acceleration)

	8. Describe how the observed wavelength of a wave depends upon the relative motion of the source and the observer (Doppler effect). If either is moving towards the other, the observed wavelength is shorter; if either is moving away, the observed wavelength is longer (e.g., weather radar, bat echoes and police radar).	Yenka Light and Sound	Model: - Doppler shift (Waves)
	9. Describe how gravitational forces act between all masses and always create a force of attraction. Recognize that the strength of the force is proportional to the masses and weakens rapidly with increasing distance between them.	Yenka Motion	Online demonstrations: - Orbit - Mass and Gravitational Acceleration - Projectile with Varying Gravity

Scientific Enquiry

Area	Indicator	Product	Content
<i>Doing Scientific Enquiry</i>	2. Derive simple mathematical relationships that have predictive power from experimental data (e.g., derive an equation from a graph and vice versa, determine whether a linear or exponential relationship exists among the data in a table).	Yenka Electricity	Students will employ these scientific methods throughout Yenka science activities. Some examples are: Online activities: - Ohm's Law - Power, Current and Voltage Online demonstrations: - Resistor Power Dissipation - Using Frequency to Find Period
	3. Research and apply appropriate safety precautions when designing and/or conducting scientific investigations (e.g., OSHA, MSDS, eyewash, goggles and ventilation).		Safety precautions are highlighted in many of the Yenka activities and demonstrations. In particular, hazards associated with the use of chemicals are pointed out, and students are made aware of the additional safeguards required to conduct the experiments in a real laboratory situation.

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