NY Intermediate Level Science
Core Curriculum Correlation (Grade 5-8)

Reference: Standards (pdf)

Introduction

This document correlates Yenka Science software to the content performance indicators of the New York state 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.

STANDARD 4: The Physical Setting

Key Idea 1: *The Earth and celestial phenomena can be described by principles of relative motion and perspective.*

	Performance Indicator	Product	Content
1.1e	Most objects in the solar system have a regular and predictable motion. These motions explain such phenomena as a day, a year, phases of the Moon, eclipses, tides, meteor showers, and comets.	Yenka Motion	Online activity: - Light Rays 3 – Eclipses

Key Idea 3: *Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.*

	Performance Indicator	Product	Content
3.1b	Solubility can be affected by the nature of the solute and solvent, temperature, and pressure. The rate of solution can be affected by the size of the particles, stirring, temperature, and the amount of solute already dissolved.	Yenka Inorganic Chemistry	See also model (Water and Solutions): - Solubility and temperature and online activities: - Solubility - Solubility Curves
3.1c	The motion of particles helps to explain the phases (states) of matter as well as changes from one phase to another. The phase in which matter exists depends on the attractive forces among its particles.	Yenka Inorganic Chemistry	Related online activities: - States of Matter - Comparing Gases, Liquids and Solids - The Behaviour of Solids, Liquids and Gases and model (Classifying Materials): - Solids, liquids and gases
3.1d	Gases have neither a determined shape nor a definite volume. Gases assume the shape and volume of a closed container.		
3.1e	A liquid has definite volume, but takes the shape of a container.		
3.1f	A solid has definite shape and volume. Particles resist a change in position.		

3.1g	Characteristic properties can be used to identify different materials, and separate a mixture of substances into its components. For example, iron can be removed from a mixture by means of a magnet. An insoluble substance can be separated from a soluble substance by such processes as filtration, settling, and evaporation.	Yenka Inorganic Chemistry	Related online activities: - Separation Techniques - The Vocabulary of Mixtures
3.2a	During a physical change a substance keeps its chemical composition and properties. Examples of physical changes include freezing, melting, condensation, boiling, evaporation, tearing, and crushing.	Yenka Inorganic Chemistry	Online activities: - Some Chemical and Physical Changes - Looking at Chemical Changes - Reaction - The Vocabulary of Mixtures
3.2b	Mixtures are physical combinations of materials and can be separated by physical means.		
3.2c	During a chemical change, substances react in characteristic ways to form new substances with different physical and chemical properties. Examples of chemical changes include burning of wood, cooking of an egg, rusting of an iron, and souring of milk.		
3.2e	The Law of Conservation of Mass states that during an ordinary chemical reaction matter cannot be created or destroyed. In chemical reactions, the total mass of the reactants equals the total mass of the products.	Yenka Inorganic Chemistry	Online activities: - Mass Changes in Chemical Reactions
3.3b	Atoms and molecules are perpetually in motion. The greater the temperature, the greater the motion.	Yenka Inorganic Chemistry	Related model (Classifying Materials): - Melting ice and boiling water
3.3g	The periodic table is one useful model for classifying elements. The periodic table can be used to predict properties of elements (metals, nonmetals, noble gases).	Yenka Inorganic Chemistry	Related online activities: - Periodic Table (1) - Periodic Table (2)

Key Idea 4: *Energy exists in many forms, and when these forms change energy is conserved.*

	Performance Indicator	Product	Content
4.1e	Energy can be considered to be either kinetic energy, which is the energy of motion, or potential energy, which depends on relative position.	Yenka Motion	Related online activities: - Kinetic Energy Formula - Work Done Against Gravity
4.2e	Temperature affects the solubility of some substances in water.	Yenka Inorganic Chemistry	Online activity: - Solubility Curves Model (Water and Solutions): - Solubility and temperature
4.4a	Different forms of electromagnetic energy have different wavelengths. Some examples of electromagnetic energy are microwaves, infrared light, visible light, ultraviolet light, X-rays, and gamma rays.	Yenka Light and Sound	Model (Waves): - Electromagnetic spectrum
4.4c	Vibrations in materials set up wave-like disturbances that spread away from the source. Sound waves are an example. Vibrational waves move at different speeds in different materials. Sound cannot travel in a vacuum.	Yenka Light and Sound	Related model (Waves): - Speed of sound

Key Idea 5: *Energy and matter interact through forces that result in changes in motion.*

	Performance Indicator	Product	Content
5.1c	An object's motion is the result of the combined effect of all forces acting on the object. A moving object that is not subjected to a force will continue to move at a constant speed in a straight line. An object at rest will remain at rest.	Yenka Motion	Model (Force and Acceleration): - Newton's first law See also: - Resultant Forces
5.1d	Force is directly related to an object's mass and acceleration. The greater the force, the greater the change in motion.	Yenka Motion	Model (Force and Acceleration): - Newton's second law Online activity: - Force and Acceleration

5.1e	For every action there is an equal and opposite reaction.	Yenka Motion	Model (Force and Acceleration): - Newton's third law
5.2a	Every object exerts gravitational force on every other object. Gravitational force depends on how much mass the objects have and on how far apart they are. Gravity is one of the forces acting on orbiting objects and projectiles.	Yenka Motion	Online demonstration: - Orbit See also model (Force and Acceleration): - Weight
5.2d	Friction is a force that opposes motion.	Yenka Motion	Related online demonstrations: - Inclined Plane - Friction Up and Down a Slope