Academic Retooling: Cultivating Learning in the 21st Century

“Engagement with technology isn’t so much about what technology, as it is about what is allowed to be done with technology”
Ambitious and aspirational mission:

- Transforming rhetoric and reality
- Cultivating 21st century learning environments
- Ensuring rigor, relevance, and relationships
All resources and processes (instructional, cultural, staffing, facilities and financial) are focused on supporting how today’s students learn best.
Shenendehowa Central Schools - 20/20 Vision

Flexible structure/collaborative

21st century teaching practices, co-teaching, interdisciplinary, focused professional development

Globally focused

Multicultural & linguistic opportunities, international benchmarks

Innovative

Digital content, experiential learning, multi-source embedded content, disruptive technology

Success for all

Literacy across curriculum, authentic assessment/portfolio, use of data, demonstration of Profile statements

Learning and communication tools limitless

Social media, blogs, parent/student portal, electronic gradebooks, website
Cultivating Learning in the 21st Century

Quality Pedagogy

Aligning how we teach with the way students learn

Quality Learning
Cultivating Learning in the 21st Century

- Mapped Curriculum
- Disruptive Technology
- Digital Content
- Targeted Professional Development
- Instructional Leadership
- Reliable Access Anywhere

Quality Pedagogy
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- Students Engaged in their Learning
- School Replicates How Students Seek Information in Life (learning is transferable)
- Reliable Anywhere Access
- Access to Disruptive Technology
- Stimulating Intellectual Curiosity and Enhanced Capacity
Learning in the 21st Century

Traditional Paradigm
3Rs:
Reading
Writing
Arithmetic

Innovative Practice
Infusion of the 3Rs with the 4Cs:
Critical thinking & problem solving
Communication
Collaboration
Creativity & innovation

(Partnership for 21st Century Skills, 2009)
LOOKING TO THE FUTURE...

INTEGRATION OF TECHNOLOGY IN SUPPORT OF ACADEMIC RETOOLING
Integration of Technology

- Infrastructure
- Digital Content
- Hardware
CULTIVATING LEARNING IN THE 21ST CENTURY

INFRASTRUCTURE

HARDWARE
Cultivating Learning in the 21st Century

Digital Content is the vehicle to our Destination

Learning in the 21st Century
Digital Content

- Shifting the bell curve... from a curve to a straightline upward trajectory

- Rapid proliferation of education software (textbooks, math facts, graphing calculators, remedial programs...)

- Customized based on individual student, tracks student progress
Instructional content must be engaging, dynamic, and responsive to informational changes.

Their reality...
Cultivating Learning in the 21st Century

**Content**
How does technology ease the delivery of content?
How can we be more responsive to changing knowledge?

**Pedagogy**
How does technology make practice more effective?
More engaging?
More meaningful?

**Relationships**
How does technology make the learning experience more relevant for students?
How does technology extend learning beyond the traditional classroom setting?
“Digital media has brought new kinds of literacies to the table. They will never replace traditional habits, but rather add to the rich menu of ways in which we interact with each other.”

(Sue Thomas, De Montfort University, UK, 2013)
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A quality education continues to be about acquisition of content and skills:

- ELA- comprehension and drawing inferences
- Math/Science- analysis to refine problems and change reality, not simply to solve a formula
- Social Studies- historical context for current events to help forecast future eventualities
- LOTE- appreciation of the nuances of different cultures
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Destination...

24/7 Access to Curriculum Resources

Social Studies

LOTE

Science
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Destination...
24/7 Access to Curriculum Resources

Math
Music
English
“Last Backpack Generation”

- Integrated use, not isolated applications
- Interactive (embedded videos, narration of text)
- Focus on how technology impacts learning, not on learning the technology
- Content easily upgraded, accessible by several grade levels so chronology or topics can be rearranged as standards change
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Shen 2013 and beyond..

Increase number of devices:
550 Chromebooks (Secondary)
250 iPads (Elementary)

• Provide greater access to technology, including digital content
• Ready Shen for PARCC (online assessments) where we will need 2,500 devices
• Begin working toward 1:1 learning environment for Grades 4-12 (est. 7,200 for students, 500 for staff)
Additionally, Shen will leverage Bring Your Own Device (BYOD) in the Fall of 2013.

- BYOD is an invitation for students and staff to engage in current and evolving practices... not just another mandate...
- Recent survey of middle schoolers indicates many own devices and have internet access at home.
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Middle School Survey - March 2013
1,909 Students Surveyed (80%)

<table>
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<tr>
<th></th>
<th>iPod Touch</th>
<th>Smart Phone</th>
<th>No Device</th>
<th>Internet access at home</th>
<th>Believe parents would allow them to bring device to school for learning</th>
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<td></td>
<td>50%</td>
<td>4%</td>
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Equity and Excellence are not mutually exclusive

- Partnerships with local agencies in working toward equity and access
- Libraries, CAPTAIN, other agencies and organization
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Anywhere Accessible

- Courses outlined on Learning Management Systems (LMS)
- Student Help Desk
- Common Areas with Open Access in Schools
- Online Assessments (both formative and summative)
- Individualized Student Profiles
Edmodo: a FREE learning management system that allows students and teachers to learn and communicate in a safe online environment.
Edmodo Features:

- Maintain a class calendar
- Post assignments
- Embed documents and videos
- Create online assessments
- Facilitate class discussion
Algebra

Conceptual videos and worked examples from basic algebra through algebra 2. Includes videos from the former algebra worked examples playlists.

Community Questions
Kids are not inherently or otherwise fearful of technology, being natives, hence it is more about employing patience to understand the logic behind technology.

It comes down to problem-solving or sequential decision making, using technology as a tool in the process of learning.
New York - Grades 6-8:
Earth and Space Science

Table of Contents

Our Universe
- UNIT: Stars
- UNIT: Our Solar System
- UNIT: Earth's Moon

Changes in the Air and on the Land
- UNIT: Weather and Climate
- UNIT: Weathering and Erosion

Earth's Structure and Composition
- UNIT: Minerals, Rocks and Fossils
- UNIT: Earth's Structure and Plate Tectonics
Characteristics of Stars

Balls of gas with superhot centers, stars vary in size, color, and temperature. Our medium-sized yellow Sun is 865,000 miles in diameter. Red supergiant stars can be 600 million miles across, neutron dwarfs a mere 10 miles. In this concept, you will learn more about the characteristics of the stars in our universe.

Getting to Know: Characteristics of Stars

The sun warms Earth. Plants capture light energy from the sun, which helps them and the animals like us that eat them grow. Did you know that the sun is actually a star? Like all stars, the sun is a massive, hot ball of burning gas that is constantly changing.

Our Sun Is a Star

The closest star to Earth is the sun.

View Video Segment
UNIT:
Classifying Living Things

CONCEPTS IN THIS UNIT

- Characteristics of Living Things
- Features & Naming
- Levels of Classification
- Species
- Animals
- Plants
- Fungi

CONCEPT:
Characteristics of Living Things

Lesson Objectives:
By the end of this lesson, students should be able to:
- Identify cells as the basic building block of life
- Explain that some living things are unicellular and some are multicellular
- Explain that life on Earth is so diverse that scientists have not been able to count all of the living things that exist, nor have they been able to catalogue all of them

Lesson Essential Questions:
- What do all living things have in common?
- Why haven't scientists catalogued all living things?

Core Curriculum
Characteristics of Living Things

The search for life on other planets is an exciting quest in science. Life is characterized by the ability to grow, respond to stimuli, and reproduce. Living things range from simple cells to complex organisms.

What Do All Living Things Have in Common?

There is a tremendous variety of living things right here on Earth, and all living organisms share some common characteristics. One of the most important characteristics of life is that all living things are made of **cells**. Cells are the basic unit of life—if something is alive, it is composed of one or more cells. Another characteristic of living things is that they have **growth**. As organisms grow, they change in size and complexity. A third characteristic is that living things **respond to stimuli**. This means that they can sense and react to changes in their environment. Finally, living things **reproduce**. This allows them to pass on their characteristics to their offspring.