21st Century Curriculum

Developing 21st Century Leaders Who Can Lead 21st Century Schools

From the Agriculture Age to the Conceptual Age

18th century 19th century 20th century 21st century

ATG
Affluence, Technology, Globalization

Information Age (knowledge worker)

Conceptual Age (creators and empathizers)

Agricultural Age (farmers)

Industrial Age (factory workers)

21st Century Curriculum

Definition of Curriculum
The content standards, objectives and performance descriptors for all required and elective content areas and 21st century learning skills and technology tools at each programmatic level

Policy
Policy 2510
13.27

21st Century Partnership
Emphasis on 21st Century Content

- Global Awareness
- Financial, Economic and Business Literacy
- Civic Literacy
- Health and Wellness Awareness
- Information/Communication Processing
- Thinking and Problem Solving
- Personal and Workplace Productivity Skills

The West Virginia Standards for 21st Century Learning include 21st century content standards and objectives as well as 21st century standards and objectives for learning skills and technology tools. This triangulated scope of curriculum is built on the firm belief that quality engaging instruction must be built on a curriculum that translates rigorous 21st century content, 21st century learning skills and the use of 21st century technology tools.

Policy 25128.14

Revision of Content Standards and Objectives

- External Reviews
  - Dr. Norman Webb, University of Wisconsin
  - 21st Century Partnership Members
  - Representatives of WV business community, government and national organizations
  - National Council of Teachers of Mathematics, English, etc.
  - REL Appalachia Alignment Study (ongoing)
  - Dr. William Schmidt, Michigan
- Internal Reviews
  - Internal reviews with West Virginia educators
  - Statewide comment period of 120 days before the State approved this work as policy
Depth of Knowledge

- **Level 1** – Recall, recognition. Skill a behavior or sequence of behaviors learned through practice and easily performed
- **Level 2** – Application of skills, concepts; conceptual understanding; procedural understanding
- **Level 3** – More sophisticated reasoning and analysis; students required to solve problems, draw conclusions given data, arguments, situations and other information; construct mental models translating among different representations; justifying from evidence; summarizing a body of text
- **Level 4** – Extended thinking; requires integration of knowledge from multiple sources and ability to represent knowledge in a variety of ways; usually requires work over a period of time

Format Change

Mathematics CSO Comparison – Grade 3

**Previous Policy**

MA.3.4.8 read and write amounts of money to $100.00

**Revised Policy 07/01/08**

M.O.3.4.5 identify, count and organize coins and bills to display a variety of price values from real-life examples with a total value of $100.00 or less and model making change using manipulatives

Mathematics CSO Comparison - Algebra

**Previous Policy**

AL.2.10 determine the equation of a line given a graph of a line, two points on the line, the slope and a point, and the slope and y intercept

**Revised Policy**

AL.2.8 extrapolate data represented by graphs, tables and formulas to make inferences and predictions on rate of change (slope) and justify when communicating results within a project-based investigation

RELA CSO Comparison – Grade 4

**Previous Policy**

RLA.4.1.10 Determine a purpose for reading across the curriculum

**Revised Policy 07/01/08**

RLA.0.4.1.09 determine author’s purposes in literacy and informational texts and use supporting material to justify author’s intent:
- To persuade
- To entertain
- To inform
- To determine a specific viewpoint
### Science CSO Comparison – Grade 8

<table>
<thead>
<tr>
<th>Previous Policy</th>
<th>Revised Policy</th>
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</thead>
<tbody>
<tr>
<td>SC.8.4.25 summarize problems related to water on earth as a life sustaining substance (e.g., quality and quantity of surface and ground water)</td>
<td>SC.0.8.2.26 research and draw conclusions related to the quality and quantity of ground water</td>
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</tbody>
</table>

### Social Studies CSO Comparison – Grade 10

<table>
<thead>
<tr>
<th>Previous Policy</th>
<th>Revised Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS.10.3.1 define and illustrate the trade patterns of regions of the world across time</td>
<td>SS.0.9.3.1 examine and illustrate the trade patterns of regions of the world across time and explain their significance to the evolution of global economics</td>
</tr>
</tbody>
</table>

### Learning Skills & Technology Tools Format

#### Standard 1: Information and Communication Skills

**21C.O.9-12.1.LS1**

Student recognizes information needed for problem solving, can efficiently browse, search and navigate online to access relevant information, evaluates information based on credibility, social, economic, political and/or ethical issues, and presents findings clearly and persuasively using a range of technology tools and media.

### Standard 2: Thinking and Reasoning Skills

**21C.O.9-12.2.LS4**

Student visualizes the connection between seemingly unrelated ideas and independently produces solutions that are fresh, unique, original and well developed. Student shows capacity for originality, concentration, commitment to completion, and persistence to develop unique and cogent products.

### Standard 3: Personal and Workplace Skills

**21C.O.9-12.3.TT4**

Student adheres to acceptable use policy and displays ethical behaviors related to acceptable use of information and communication technology (e.g., privacy, security, copyright, file-sharing, plagiarism); student predicts the possible cost and effects of unethical use of technology (e.g., consumer fraud, intrusion, spamming, virus setting, hacking) on culture and society; student identifies the methodologies that individuals and businesses can employ to protect the integrity of technology systems.
Where do we begin?

UNPACKING THE CONTENT STANDARDS

The UbD “Three-Circle Audit” Process
http://wvde.state.wv.us/teach21

Curricular Priorities and Assessment Methods

Backward Design

Begin with the end in mind.
1. Identify desired results.
2. Determine acceptable evidence.
3. Plan learning experiences and instruction.

Checking for Validity

Validity requires that all of these elements be aligned:
- The understandings/learning goals
- Performance objectives (Know-Do)
- Essential questions
- Performance Task(s)
- Student products/performances
- Assessment criteria
The Academic Prompt

- A structured performance task that elicits the student’s creation of a controlled performance or product.
- These performances and products should aligned with criteria expressed in a scoring guide or rubric.
- Successful prompts articulate a format, audience, topic/content focus, and purpose (FAT-P).

Planning to Take Action
The citizens of Hacker Valley, West Virginia, are upset about how the state legislature is dealing with their pleading for a public water system to address the level of arsenic in ground water. With a partner create a chart, table, or timeline depicting previous actions and three actions your partner committee feels would be beneficial to prompt your delegate or senator to work to obtain the needed waterline. Share your findings with other committee groups. Discuss what actions have merit and which actions are not plausible at this time.

Balancing Mobile

You are a sculptor and you have been hired to design a large metal mobile. This mobile will be made of flat triangular metal plates and is to be displayed in the town museum. Each triangular piece will hang so that it will be suspended with the triangular surface parallel to the floor. You are to construct a model using Geometer’s Sketchpad and experiment with the points, segments and triangles to look for solutions. From what point should each piece hang? Why would you want to find the center of a triangle? What is this point called?

Elements of an Effective Performance Task and Culminating Project

- G=real-world goals
- R=real-world role(s)
- A=real-world audience
- S=real-world situation
- P=real-world products and performances
- S=standards for acceptable performance

Conic Sections Play a Fundamental Role in Space Science

You are an engineer employed by NASA. You have been asked by your former mathematics teacher to return to your alma mater and give a PowerPoint presentation to an Algebra II class on “How Conic Sections Play a Fundamental Role in Space Science.” In your presentation, you will include pictures and detailed examples of the mathematics used for each of the conics sections.
A Rubric

- is based on a continuum of performance quality, built upon a scale of different possible score points to be assigned;
- identifies the key traits or dimensions to be examined and assessed; and
- provides key features of performance for each level of scoring (descriptors) which signify the degree to which the criteria have been met.
The Rigor/Relevance Framework

Knowledge

Application Model

- Evaluation
- Synthesis
- Analysis
- Application

Understanding

Awareness

C: Assimilation
D: Adaptation

A: Acquisition
B: Application

KNOWLEDGE

APPLICATION

UNDERSTANDING

Evaluate
Synthesize
Analyze
Apply

Evaluate
Synthesize
Analyze
Apply

Knowledge
Apply to discipline
Apply to multidisciplinary situations
Apply to real-world predictable situations
Apply to real-world unpredictable situations