Integration of Academic and CTE Instruction
Bayside High School    January 28, 2019
Dick Jones    Dick@spnet.us
Activity

Scavenger Hunt:
Form in teams of 6-8
Find These Items

• Federal Reserve note with a serial number that does not contain number 1 or 3
• An item over 30 years old
• A quarter with a state west of Mississippi
• Picture of a child under age of 2
• Anything without worth
• A writing pen (not marker) that does not have blue or black ink
• Something you wish you could throw away but can’t
• One brown shoe
Essential Questions

• What are the benefits of integration?
• What are the optional forms for integration?
• What are the must do’s, should do’s, and could do for integration?
• What resources are available to support teachers and administrators in integration?
Integration of Academic and CTE Instruction

Why Integrate?
What do we mean by integration?
Definition

- Joint or connected instruction
- Teaching the same skills in different context in courses
- Teaching related skills across disciplines
- New instruction including multiple disciplines
Activity

Discussion: What are benefits of integration of Academic and CTE subjects?
BENEFITS

- Teacher collaboration
- Student engagement
- Less fragmented learning
- Higher level thinking
- Content mastery
- Mirrors real world
Activity

Discussion: What are examples of interdisciplinary courses and/or instruction?
Activity

Discussion:
Where are there opportunities for Integration of Academic and CTE
Integration of Academic and CTE Instruction

Options for Integration
Options

Curriculum
- Cross-Reference
- Academically Rigorous Instruction
- Thematic Units

Instruction
- Parallel Instruction
- Relevant Student Work
- Team Teaching
- Consulting Model

Assessment
- Academic Reinforcement
- Common Assessments
Integration of Academic and CTE Instruction

Must Do’s, Should Do’s Could Do’s
Must do

1. Allow CTE **Specialized** Courses to meet diploma requirements.

   *After completing required Regents, e.g. Forensic/Science or Business Communication/ELA*

   *Core Requirements, e.g. Design & Drawing for Production/Fine Arts or Health Career/Health*

2. Allow **Integrated** Courses - e.g., Math/Construction, Science/Agriculture

Guidelines for Career and Technical Education Administrators and School Counselors, New York State Education Department
Must do

In CTE Approved Programs - Cross Reference Related Academics

Curriculum
- Cross-Reference
- Academically Rigorous Instruction
- Thematic Units

Instruction
- Parallel Instruction
  - Relevant Student Work
    - Team Teaching
    - Consulting Model

Assessment
- Academic Reinforcement
- Common Assessments
Should do

1. Collaborate more - look for opportunities
2. Teach for Rigor and Relevance
3. Integrate Life/Career across Curriculum
4. Reading and Writing Across the Curriculum
Could do

1. Interdisciplinary Projects
2. Collaborate on Parallel Teaching
3. Create Integrated Courses and Co-Teach
4. Consider Consulting Model
5. Develop Common Assessments
6. Thematic Units
Integration of Academic and CTE Instruction

Resources for Integration
ACADEMIC INTEGRATION

What is academic integration?

Integration means combining separate parts smoothly to improve effectiveness. In CTE, academic integration means combining technical skill development based on industry standards with content knowledge from related academic subjects (English Language Arts, Mathematics, Science or Social Studies). There are many successful models for CTE academic integration; all require a commitment of CTE staff to the importance of integration and the collaborative planning and implementation by teachers of various subjects.

http://nyctecenter.org/instruction/academic-integration
Organizing for Success

What Doesn’t Work

• Everyone does their own thing
• Only those comfortable work together
• No defined responsibility for the delivery of content or support
• No common rubrics
• The program is vocational

What Works

• Common planning time
• Agreed upon delivery protocol
• Participation in student assessment
• Calibration to grade student work with the same rubrics
• Structured assignments and schedule for academic support for students
Standards of Practice

Curriculum Implementation Effectiveness

Developed Specifically for BOTH The System Level (Organization) and the Teacher Level (CTE and Academic Integration)
# Implementation at the Teacher Level

<table>
<thead>
<tr>
<th>Standards of Practice</th>
<th>Ineffective</th>
<th>Developing</th>
<th>Accomplished</th>
<th>Exemplary</th>
</tr>
</thead>
<tbody>
<tr>
<td>The primary model used to support academic integration is a consistent push-in/co-teaching model, which ensures quality instruction based on the expertise of the academic and CTE teachers.</td>
<td>The model for academic integration support does NOT ensure the quality of instruction due to lack of expertise or capacity.</td>
<td>Integration support relies heavily on RANDOMLY co-planned or co-taught lessons that are NOT connected to the industry standards within the CTE curriculum.</td>
<td>Integration support is provided through a CO-planning and co-teaching approach that is MOSTLY scheduled and directly connected to the industry standards being taught.</td>
<td>Academic integration support is achieved through a CONSISTENTLY implemented and scheduled push-in/co-teaching model that ensures quality of instruction is based on teacher expertise.</td>
</tr>
<tr>
<td>The co-planning process identifies and defines the co-teaching roles to ensure equitable and active involvement by both academic and CTE teachers</td>
<td>The co-planning process FAILS to define the roles of both academic and CTE teachers to ensure active involvement.</td>
<td>The co-planning process IDENTIFIES the co-teaching roles but does NOT define them well enough to ensure equitable and/or active involvement by both academic and CTE teachers.</td>
<td>The co-planning process IDENTIFIES and DEFINES the co-teaching roles to ensure equitable and active involvement by both academic and CTE teachers.</td>
<td>The co-planning process is used to IMPROVE co-teaching and ensure the equitable and active involvement by both academic and CTE teachers.</td>
</tr>
<tr>
<td>Visual representations are evident in the learning environment that show a commitment to the integration process.</td>
<td>Visual representations that show the importance of academic content in the CTE program area are FEW or ABSENT entirely in the learning environment.</td>
<td>Visual representations are present in the learning environment but DO NOT effectively demonstrate the importance of academic knowledge in CTE.</td>
<td>Visual representations in the learning environment CLEARLY demonstrate the importance of academic knowledge in CTE.</td>
<td>Visual representations in the learning environment demonstrate the COMMITMENT to academic knowledge in CTE.</td>
</tr>
<tr>
<td>Student evaluation measures are established for implementation of co-planned activities to show the connection of technical and academic skills and knowledge.</td>
<td>Student evaluation measures are NOT established that show the connection between technical and academic skills and knowledge.</td>
<td>Student evaluation measures are developed but DO NOT ALWAYS show the connection between technical and academic skills and knowledge.</td>
<td>Student evaluation measures are developed and IMPLEMENTED that show the connection between technical and academic skills and knowledge.</td>
<td>Student evaluation measures are developed through the CO-PLANNING process that show the connection between technical and academic skills and knowledge.</td>
</tr>
<tr>
<td>Students perceive both academic and CTE teachers as equally important in the integrated learning environment.</td>
<td>Students DO NOT perceive both academic and CTE teachers as equally important in the integrated learning environment.</td>
<td>Students typically perceive CTE teachers as MORE important in the integrated learning environment.</td>
<td>Students generally perceive both academic and CTE teachers as EQUALLY important in the integrated learning environment.</td>
<td>Students in ALL programs perceive both academic and CTE teachers as equally important in the integrated learning environment.</td>
</tr>
<tr>
<td>Both CTE and academic integration teachers are involved in, and responsible for, co-assessment strategies designed to measure student performance.</td>
<td>CTE teachers are SOLELY responsible for assessment strategies.</td>
<td>Both CTE and academic integration teachers are involved in assessment, but strategies are NOT typically co-planned.</td>
<td>Both CTE and academic integration teachers are involved in CO-ASSESSMENT of students in relation to integrated academics.</td>
<td>Both CTE and academic integration teachers are involved in co-planning and co-assessment strategies in ALL programs.</td>
</tr>
</tbody>
</table>
Make Rigor and Relevance Quantifiable
"Integration is not a goal, it is a means to more rigorous and relevant learning."
# Bloom's Taxonomy - Cognitive

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Verbs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Remembering</strong></td>
<td>To recall, recognise, or identify concepts</td>
<td>Identify, Highlight, Arrange, Define, Describe, Label, List, Relate, Memorise, Select, Reproduce, State, Match, Outline</td>
</tr>
<tr>
<td><strong>2. Understanding</strong></td>
<td>To comprehend meaning, explain data in own words</td>
<td>Explain, Illustrate, Paraphrase, Classify, Summarise, Translate, Report, Interpret, Critique, Reiterate, Reference, Locate, Indicate</td>
</tr>
<tr>
<td><strong>3. Applying</strong></td>
<td>Use or apply knowledge, in practice or real life situations</td>
<td>Use, Apply, Manage, Execute, Produce, Implement, Construct, Prepare, Respond, React, Change, Compute, Solve, Operate, Show</td>
</tr>
<tr>
<td><strong>4. Analysing</strong></td>
<td>Interpret elements, structure relationships between individual components</td>
<td>Analyse, Structure, Catalogue, Compare, Break Down, Quantify, Test, Examine, Experiment, Relate, Measure, Plot, Contrast, Extrapolate, Infer</td>
</tr>
<tr>
<td><strong>5. Evaluation</strong></td>
<td>Assess effectiveness of whole concepts in relation to other variables</td>
<td>Assess, Review, Justify, Report On, Defend, Present A Case For, Argue, Appraise, Investigate, Support, Predict, Judge, Rate</td>
</tr>
<tr>
<td><strong>6. Creation</strong></td>
<td>Display creative thinking, develop new concepts or approaches</td>
<td>Develop, Create, Plan, Design, Revise, Formulate, Propose, Establish, Assemble, Modify, Arrange, Synthesise, Generate, Devise, Compose</td>
</tr>
</tbody>
</table>
Rigor/Relevance Framework

Relevance

Rigor /Knowledge
Activity

What does clockwise rotation look like?
D Quadrant

**Verbs**
- animate
- adapt
- compose
- create
- design
- develop
- devise
- discover
- explore
- formulate
- invent
- modify
- plan
- podcast
- predict
- prioritize
- propose
- publish
- rate
- recommend
- revise
- teach

**Products**
- brochure
- evaluation
- lesson
- estimation
- solution
- experiment
- trial
- editorial
- machine
- web site
- presentation
- advertisement
- taxonomy
- play
- exhibit
- machine
- adaptation
- adaptation
- poem
- debate
- new game
- invention
- field guide
Contextualized Academics

Focuses on the natural occurrence of academics in various careers
Mean Scores 2008

- Geometry in Construction 9th Grade
- AP, IB, Honors @ LHS
- Geometry in Construction
- Loveland High School Regular Geometry
- Berthoud High School
- Mountain View High School
- Thompson Valley High School
Activity

Using Themes to Connect Disciplines
Theme-based Units

- Political Issue
- Environmental Issue
- Historical Event
- Economic Change
- Current Event
- Demographic
Activity

Overcoming Obstacles
<table>
<thead>
<tr>
<th>Force Field Analysis</th>
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</thead>
<tbody>
<tr>
<td>Negative</td>
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<td>----------------------</td>
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<td></td>
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</tbody>
</table>
“The biggest obstacle to interdisciplinary planning is that people try to do too much at once. What they need to look for are some, not all, natural overlaps between subjects.”

Heidi Hayes Jacobs
Activity

Evaluation
Complete last page for reflection and feedback
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