ED 628

Instructor Information
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Course Context
This course is one of the required courses in the Educational Technology endorsement and master’s degree program. It is offered online each semester.

Course Description
The focus of this 3 credit course is to:
• build on basic computing skills and their use within current educational practice of meaningful integration of technology into the classroom environment,
• prepare you to assume a leadership role in your school or district with respect to technology,
• introduce you to the concepts of Understanding by Design and the Backward Design Process,
• enhance your K-12 classroom preparation and experiences.

Instructional Methodologies
This course is delivered online. Participants must have access to the Internet and e-mail. Students are expected to join the Caucus online discussion at least twice each week. Course assignments are posted each week on the course website.

Texts
Course Content
This course consists of fourteen weeks of experiences driven by essential unit questions. Coursework includes pertinent readings, weekly discussions, practical applications of technology use in the classroom, and progressive steps to understanding the concepts of Backward Design. Each week has three or four assignments that allow you to demonstrate your mastery of these experiences. Throughout the course you are encouraged to ask questions, pose problems, and create a dialogue with your instructor and other students by email, computer conferencing, or even the telephone. This dialogue is perhaps the most important aspect to successfully completing this distance education course. If an assignment does not fit the context in which you work, please feel free to propose an alternative that does fit your needs.

The final project of this course, a backwards-design unit using technology as a tool, will be designed, developed, and presented in an incremental fashion throughout the course. This approach is useful for a number of reasons. First, it allows you and your instructor to discuss and negotiate during the developmental phases of this final project. Second, it insures that your progress is on the right track, as some of the concepts are new and challenging. Finally, it models continuous assessment and allows you and the instructor a dialogue that will be valuable for your current and future students.
<table>
<thead>
<tr>
<th>CTE Conceptual Framework Goals and NETS</th>
<th>Performance Objectives</th>
<th>Assessments</th>
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<tbody>
<tr>
<td>1. Philosophy 2. Technology</td>
<td>Candidates articulate a philosophy of technology integration that supports student learning.</td>
<td>A reflective writing paper that discusses how an ethic of excellence supported by the infusion of technology will cultivate student learning.</td>
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<tr>
<td>9. Technology</td>
<td>Candidates apply technology design principles and value technology as a tool for students and teachers.</td>
<td>A document (web page, résumé, business card, or flyer) that demonstrates use and application of design principles.</td>
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<tr>
<td>2. Development</td>
<td>Candidates show the complexity of student understanding.</td>
<td>A graphic created from a draw or paint program that depicts their understanding of student understanding.</td>
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<tr>
<td>TL-II.A.1.</td>
<td>Research project-based instructional units modeling appropriate uses of technology to support learning.</td>
<td>A discussion of exemplary project-based units that incorporate technology from web search results.</td>
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<tr>
<td>TL-II.A.2.</td>
<td>Identify and evaluate methods and strategies for teaching computer/technology concepts and skills within the context of classroom learning.</td>
<td>A discussion of digital citizenship, grammar of the Internet, critical evaluation of web pages and online digital archives.</td>
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<tr>
<td>TL-VI.B.1.</td>
<td>Incorporate research on best practices related to applying appropriate technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.</td>
<td>A list of accommodations for diverse learners within a unit designed by the candidate.</td>
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<tr>
<td>TL-II.C.1.</td>
<td>Identify technology resources and evaluate them for suitability.</td>
<td>A discussion about evaluating software after conducting a software inventory, assessing software, completing a Learning With Technology profile and reading about software linked to different intelligences.</td>
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<tr>
<td>TL-IV.C.1.</td>
<td>Design strategies and methods for evaluating the effectiveness of technology resources for learning, communication and productivity.</td>
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<td>3. Diversity</td>
<td>Candidates design curriculum that shows:</td>
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<td>4. Content</td>
<td>• differentiated instruction</td>
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<td>5. Assessment</td>
<td>• student demonstration of understanding of content in an authentic context</td>
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<td>6. Management</td>
<td>• formative and summative assessments</td>
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<td>7. Partnerships</td>
<td>• an effective instructional plan that demonstrates classroom management and a logical progression of learning</td>
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<tr>
<td>9. Technology</td>
<td>• partnerships beyond the classroom.</td>
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| TL-III.A.1 | Design methods and strategies for teaching concepts and skills that support integration of technology productivity tools, problem solving/decision-making tools, hypermedia development, scripting, and/or computer programming, in a problem-solving context in the school environment. |
| TL-III.A.4 | Design methods and model classroom management strategies for teaching technology concepts and skills used in P-12 environments. |
| TL-III.C.1. | Model curricular methods and strategies that are aligned with district/region/state/national content and technology standards. |
| TL-VIII.D.4. | Develop curriculum activities or performances that meet national, state, and local technology standards. |
| TL-III.E.2. | Investigate trends related to the use of technology in education to support integration throughout the curriculum. |

| A unit using a backwards-design process that demonstrates student understanding of at least two Alaska state standards, including one technology standard through an authentic culminating task. |
| A discussion of effective models in integrating technology to teach for meaning (Articles: *Using Technology to Dig for* |
| TL-II.F.1. | Identify and evaluate instructional design principles associated with the development of technology resources. | *meaning & Online Digital Archives*) |
| TL-II.F.1. | Identify and evaluate instructional design principles associated with the development of technology resources. | A reflective writing paper that discusses the use of technology as a tool in a unit designed by the candidate. |
| 8. Professionalism | Candidates maintain professional, moral, and ethical attitudes, behaviors, relationships, and habits of mind. | Evidence of professionalism shown by meeting or exceeding the expectations in the scoring guides for class participation, assignments, reflective writing, and unit design. |
## ED 628 Timeline

**Course Essential Question:**
How do we create an ethic of excellence supported by the infusion of technology?

<table>
<thead>
<tr>
<th>Week</th>
<th>Essential Questions</th>
<th>Assignments</th>
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<tbody>
<tr>
<td><strong>One:</strong></td>
<td>Who are we, and what is our mission?</td>
<td>• Review UAS Online course site including the National Education Technology Standards (NETS)</td>
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<tr>
<td><strong>Sept. 7</strong></td>
<td>How can we create a sense of community online?</td>
<td>• Introduce yourself in Caucus conference</td>
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<td>• Caucus discussion: Our mission, Creating community</td>
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<td>• Read for discussion next week: <em>An Ethic of Excellence</em>, Ron Berger</td>
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<td>• Add your photo &amp; complete online survey</td>
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<td><strong>Two:</strong></td>
<td>What is an ethic of excellence and how does technology fit into the picture?</td>
<td>• Discussion: <em>An Ethic of Excellence</em></td>
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<td><strong>Sept. 13</strong></td>
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<td>• Read: <em>Non-Designer’s Design Book</em>, Williams, chapters 1-6</td>
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<td>• Find a venue for using design principles</td>
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<td><strong>Three:</strong></td>
<td>How can the principles of design impact student work?</td>
<td>• Discussion: <em>Non-Designer’s Design Book</em></td>
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<td><strong>Sept. 20</strong></td>
<td>What is backward design?</td>
<td>• Design Principles assignment given</td>
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<td>• Read: <em>Understanding by Design</em>, introduction, chapters 1 &amp; 2, and discuss in Caucus</td>
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<td>• Read &amp; discuss <em>You Can Teach for Meaning</em> article</td>
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<td>• View Helena Fagan’s interview</td>
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<td>• Complete “Learning with Technology Profile” (NCREL)</td>
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<td><strong>Four:</strong></td>
<td>What does it mean to understand?</td>
<td>• Turn in Design Principles assignment w/ justification and all drafts</td>
</tr>
<tr>
<td><strong>Sept. 27</strong></td>
<td>How does technology impact and support a good design?</td>
<td>• Read <em>Understanding by Design</em>, chapters 3 &amp; 4 &amp; discuss in Caucus</td>
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<td>• Read &amp; discuss <em>Using Technology to Dig for Meaning</em>, and <em>Online Digital Archives</em> article</td>
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<td>• Understanding of understanding assignment</td>
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<td>• Webliography, bibliography and web search for exemplary units</td>
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<td></td>
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<td>• Software inventory &amp; discussion</td>
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</table>
| Five: Oct. 4 | How do you use the Internet productively with students?  
How can we teach students to “look under the hood?”  
How can we address appropriate technology use? | - Caucus sharing of web search results & design analysis  
- Discussion: creating criteria for effective use of technology  
- Reviewing tools to help students look under the hood  
- Read: *Digital Citizenship* article |
| Six: Oct. 11 | What are the big ideas of my targeted content? | - Review unit template – note 3 stages  
- Discussion: analyzing units  
- Review PowerPoint: Enduring Understandings  
- Begin unit designs – select technology and other content standards, list enduring understanding (see Clarifying Big Ideas in Resources section). |
| Seven: Oct. 18 | What will it look like when students understand? | - Complete self-assessment  
- Complete online course survey  
- Review PowerPoint: Essential and Unit Questions  
- Write essential questions  
- Read: *Understanding by Design*, chapters 5 & 6 & discuss in Caucus  
- Discussion: practice checking for validity with partially designed units  
- Brainstorm culminating tasks  
- Complete technology criteria in Caucus  
- **Turn in for teacher review: standards, enduring understandings, essential question(s), culminating task ideas**  
**USING THE UNIT DESIGN TEMPLATE** |
| Eight: Oct. 25 | How do we measure understanding? | - Use GRASP worksheet to construct a culminating task  
- **Post unit Desired Results**  
- Peer review of units  
- Turn in draft scoring guide of task  
- Review technology criteria  
- **Turn in for teacher review: standards, enduring understandings, essential question(s), culminating task.** |
| Nine: Nov. 1 | What do students need to know & do to complete the culminating task? | - Continue revising unit  
- Create Know and Do lists  
- Create Resources list  
- Peer review work |
| Ten: Nov. 8 | How do we create an ethic of excellence supported by the infusion of technology?  
What learning experiences and teaching promote understanding, interest, and excellence?  
What is uncovered? | • Reflective writing document e-mailed to me about use of technology in your unit.  
• Read: *Understanding by Design*, chapters 7 & 8, discuss in Caucus  
• Using WHERETO to help with unit learning plan guidelines  
• Continue to respond to each others’ work in Caucus |
| Twelve Nov. 15 & 22 | How do we help students take the driver’s seat?  
How will technology meet the needs of all learners? | • Build an instructional sequence using WHERETO  
• Design formative (dipstick) assessments – metacognition  
• Read *Accessibility for All Learners* article  
• Peer review work  
• Final instructor unit feedback (optional)  
• Post unit on Caucus |
| Thirteen: Nov. 29 | Are we there yet? | • Read assigned partner’s unit  
• Ask partner “skinny” and “fat” questions about their unit using the unit scoring guide & criteria for effective integration of technology |
| Fourteen: Dec. 6 | Work week | • Using partner feedback, revise your unit  
• Self-assessment – unit, class participation, reflective writing work  
• Reflective writing assignment |
| Fifteen: Dec. 13 | ~Finals Week~ | Final revised unit, self-assessments and final reflective writing paper due by December 13. This deadline is firm. |
## Grading and Evaluation

### ED 628 Assessments & Grading

#### Class Participation Scoring Guide

<table>
<thead>
<tr>
<th>Meets Expectations</th>
<th>Below Expectations</th>
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</thead>
<tbody>
<tr>
<td>• Student participates in the majority of Caucus discussions as an active member of the community, often asking probing questions or contributing thoughtful ideas, analysis or responses that facilitate and support design improvement and community learning</td>
<td>• Student contributions to discussions are minimal and/or may be insubstantial and do not help to build an online community or offer real support to classmates.</td>
</tr>
<tr>
<td>• Assignments demonstrate appropriate and correct use of technology tools and software.</td>
<td>• Assignments reveal incorrect or inappropriate use of technology tools and software. It is clear student needs to work more at an introductory level with tutorials.</td>
</tr>
<tr>
<td>• Responses are made in a regular and timely manner</td>
<td>• Responses are often so late that participant is not really part of the ongoing dialog.</td>
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</table>

#### Assignments Scoring Guide

<table>
<thead>
<tr>
<th>Meets Expectations</th>
<th>Below Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Effective use of design principles (contrast, repetition, alignment, proximity). Work is professional, organized, and unified.</td>
<td>• Few or no design principles considered. Assignment is more a work-in-progress where the reader must work hard to find organization and the most important information.</td>
</tr>
<tr>
<td>• Accurately interprets information and concisely synthesizes it.</td>
<td>• Makes errors in interpreting information or synthesizes the information imprecisely or awkwardly.</td>
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</table>
## Reflective Writing Scoring Guide

<table>
<thead>
<tr>
<th>Meets Expectations</th>
<th>Below Expectations</th>
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<tbody>
<tr>
<td>• Reflection provides thoughtful, specific and accurate analysis, grounded in course readings and theories</td>
<td>• Reflection is too brief or general to provide much insight and fails to demonstrate student application or understanding of course readings or theories.</td>
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<tr>
<td>• Writing is clear, concise and demonstrates correct use of conventions.</td>
<td>• Writing is vague, confusing, or wanders, and demonstrates lack of attention to conventions.</td>
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## Unit Scoring Guide

<table>
<thead>
<tr>
<th>Component</th>
<th>Meets Expectations</th>
<th>In Progress</th>
<th>Does Not Meet Expectations</th>
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<tbody>
<tr>
<td><strong>Stage 1: Desired Results</strong></td>
<td>• Unit is clearly aligned with Alaska State Standards, including technology standards</td>
<td>• The unit aligns with State Standards, including technology, although too few or too many standards have been targeted.</td>
<td>• Unit is not aligned with Alaska State Standards, and/or includes no technology standards</td>
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<td>• The targeted understandings are enduring, based on transferable, big ideas at the heart of the discipline and in need of uncoverage.</td>
<td>• The targeted understandings will lead to some discovery but may not be enduring or at the heart of the discipline</td>
<td>• The targeted understandings are too specific or too simplistic to allow for work with depth</td>
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<td>• Unit is framed by questions that spark meaningful connections and provoke genuine inquiry &amp; deep thought.</td>
<td>• The essential and unit questions serve as guides, but might not provoke student engagement, connections or inquiry.</td>
<td>• The essential and unit questions have right answers and are dead-ended versus door opening.</td>
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<tr>
<td><strong>Stage 2: Assessment Evidence</strong></td>
<td><strong>Stage 3: Learning Plan</strong></td>
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<tr>
<td>• Culminating task asks students to exhibit understanding through an authentic performance</td>
<td>• Learning plan provides thorough scaffolding of skills &amp; knowledge necessary to complete culminating task.</td>
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<tr>
<td>• The task assesses the targeted understandings</td>
<td>• Lesson sequence, with the help of technology, provide</td>
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<tr>
<td>• Scoring guide clearly states what it looks like when students meet the targeted standards</td>
<td>• Learning plan omits some instructional pieces that would help ensure student success.</td>
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<tr>
<td>• Frequent student assessment &amp; self-assessment enable teacher to monitor and adjust learning experiences and help students own their learning</td>
<td>• Lesson sequence, with the help of technology, provide differentiated instruction to meet</td>
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<tr>
<td>• The culminating task and the skills and knowledge listed are not completely aligned</td>
<td>• Sequence of instruction leaves gaps in building required skills and knowledge for successful performance.</td>
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<tr>
<td>• The scoring guide shares a partial picture of what it looks like when students meet the targeted standards</td>
<td>• Lesson sequence provides little or no differentiation.</td>
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<tr>
<td>• Student assessment and/or self-assessment might help the teacher monitor and adjust, but isn’t likely to help students own their learning</td>
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</tbody>
</table>
differentiated instruction to meet the needs of all learners.

- Use of technology resources assists students in problem solving, communication, collaboration, research, and/or exhibitions of understandings.

differentiated instruction to meet the needs of some of the learners.

- Technology supports student learning, but the unit would support stronger use.

- It is unclear how technology enhances learning. Use seems to be an “add-on” versus an authentic piece of the unit.

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**Grading**

**To earn an A in this course, your work:**
- Meets expectations for both class participation, assignments and reflective writing assignments
- Exceeds expectations for unit design in at least one of the three stages of Backward Design – Desired Results, Assessment Evidence, or Learning Plan.

**To earn an B in this course, your work:**
- Meets most expectations for both class participation, assignments and reflective writing assignments
- Is “in progress” on more than one stage of your unit design with no areas falling in the “Does not meet expectations” category

**To earn a C in this course, your work:**
- Is below expectations in class participation and reflective writing
- Does not meet expectations in one or more stages of unit
Webliography

Alan November: The Web, Teaching Zack to Think. Alan November. 
Extremely helpful and informative.

Students in upper elementary use the five themes of geography to explore the five regions of Alaska. Through the process of designing a newspaper about one region, and creating a presentation about a specific theme of geography; they will understand that climate, natural resources and topography of a region influence how people live and work. 

The essential question is, "How does where you live affect how you live?"

Alaskool's Ready to Go Curricula. Institute of Social and Economic Research - UAA.  
If you haven't yet discovered the Alaskool site, it's time you did! An incredible array of resources for Alaska teachers. This link takes you right to their shared curricula.

ARCTIC. <http://www.treca.org/arctic/about.shtml>.  
This site explains the Alaska Reform in the Classroom through Technology Integration and Collaboration program. All of the units listed in the Webliography as ARCTIC came from the UAS Professional Education Center portion of the ARCTIC program.

A plethora of links to units and resources.

Terrific stuff! Your lesson plans for evaluating web pages are here, along with an incredible array of other links.

Study this and determine the authenticity of the information!

This 9-12 project is an examination of the evidence that scientists use to explain the major changes in geology, climate, and biology that have occurred throughout earth’s history. Student teams work together to create a timeline exhibit that illustrates and describes these changes. Student created multimedia presentations describe the evidence used to develop the timeline. By the end of the unit, the students understand that the geologic and climate changes that have occurred over time have also caused changes in the organisms that inhabit earth.
Lots of good ideas here, for all grade levels and content areas. Take a look and see what you can find!

Lots of excellent ideas here, for all grade levels and content areas. Take a look and see what you can find!

Fourth grade students in Fairbanks look at the forces that shape the earth and try to figure out how all of this impacts them. They use technology to share their answers.

Clones-R-Us. You can create your own genetically healthy child online!

More from Alan November. Some very, very helpful resources!

Some great standards-based projects, elementary through high school, many projects about land use and water issues.

You decide. Reality or fantasy?

In this earth science unit students explore density, volume, and lift, through a project that involves the testing of several shapes of model hot air balloons with the purpose of finding the most efficient design to sell to a logging company. Good stuff here!

Be sure to look at this one! She even aligns Internet evaluation skills with NETS (National Standards). Also, great tools are explained.

A Haines elementary teacher takes her kids ot the eagles and they work as scientists!

More great resources.
From this site’s Appendix, there is a link to a description of lesson planning using  
Understanding by Design as described by Wiggins and McTighe.

Planning and Mapping a School Garden. Ellie Sharman. 2003. ARCTIC.  
A lower elementary project that took kids into authentic community work as well as  
integrated art and technology.

Rain, Rain Go Away. Jan Love. 2003. ARCTIC.  
Upper elementary Sitka students learn how to predict the weather! Great integration of  
technology and science with an authentic assessment.

This is a great resource to help with creating scoring guides!  
Contributed by: Nicole Bassett

This unit is designed to introduce the solar system to students in grades K-3. The  
culminating group project answers the essential questions: Why can we live on Earth?  
Can we live on other planets? The students create their own three dimensional planet and  
justify how the planet would support life to a panel of students and teachers.

Sorry, this site is under construction. I'll let you know when or if it will be available. But,  
it's incredible...an amazing array of integrated technology, art, writing, culture. Students  
complete very exciting projects and Sheila clearly shares her organization, creativity and  
student products. Let’s hope it becomes available.

Just because you've never seen one, does it mean there's no such thing??
Bibliography
This book is a good resource for incorporating technology into instruction. It's split into 5 sections: Instructional Design Overview, Foundations of Instructional Design, Designing for Learners in Primary & Secondary Education, Designing for Learners in Higher Education, and Designing for Learning Environments.

This is an authentic, exciting unit that goes to the heart of history. This will give you an idea of what we can expect from primary students.

*Media Literacy Unit*, 4 - 8, Mary McCaffrey, 2003.
The essential question is: How does the media influence my perspectives? Students' culminating task is to create a television commercial. High student interest in this well-designed project.

*Microbe Unit*, 4 - 8, Nancy Duez, 2003.
Students conduct a microbe investigation to find out the health of their classroom. They design a digital slideshow of their results for the school board and science fair judges.