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Module 1

Teaching with Projects

Description: Projects provide an authentic and real-world context for connecting learning activities, incorporating higher-order thinking around big ideas, and engaging students in the learning process. In this module, you explore how technology-supported projects can be used in the classroom, determine the type of planning required, and begin planning your own unit.

Activity 1: Getting Started

Step 1: Getting Acquainted

During this time, introduce yourself and meet the other course participants. The colleagues you meet here will be a valuable resource for you as you complete the course work as well as later, when you apply what you have learned in your classroom.



Introduce yourself to the group, share the grade level and subject you teach, and share what you are hoping to learn in this course.

Note: You may find your experience in this course more valuable if you collaborate with a colleague on your unit. As you meet the teachers in the course, consider working with participants that share your grade level or subject area.

Step 2: Introducing the Intel® Teach Essentials Course

Goal of the Course

The Intel® Teach Essentials Course helps you use the power of computer technology to spark student imagination and ultimately move students toward greater learning.

Throughout the course, you encounter questions asking how your students can best use computers to enhance learning. The Essential Question for the entire course is:

**How can technology be used most effectively
to support and assess student learning?**

You will have many opportunities in the course to investigate this question as it applies to your students and your classroom.

Module 1

Teaching with Projects

We are well aware that life's most important lessons can be taught without a computer. Therefore, we solidly ground this course with research-based curricular planning and assessment practices as you design classroom units and projects.

Our Goal for You

As you progress through the modules of this course, you collaborate with other teachers and discuss ideas for both introducing and using technology in your classroom. You develop a unit based either on material you currently teach or material you would like to teach in the future.

Throughout this course, you will use many different technological resources and tools that can help you create your Unit Portfolio, improve your instruction, and enhance your students' learning.

- A wiki for collaboration on Pedagogical Practice discussions
- A blog for reflective thinking—sometimes personally and sometimes as a group reflection
- An online collaborative Web site for sharing ideas
- A tagging/bookmarking resource for noting and commenting on useful Web sites

Our goal is for you to have a Unit Portfolio you can implement in your classroom—a unit that allows you to raise the level of excellence in your classroom and meet important learning objectives and 21st century skills.



Note: A list of 21st century skills is available in the *Thinking* folder on the Curriculum Resource CD.

Course Overview

Examine the following table to see the major focus and outcomes for each module during the course.

Module 1: Teaching with Projects	
Topic: Project-based learning and unit design	Key Activities: <ul style="list-style-type: none">▪ Review portfolio components▪ Create a publication on projects▪ Identify 21st century skills for your unit▪ Develop initial unit ideas▪ Reflect on learning in your blog

Module 2: Planning My Unit	
<p>Topic:</p> <p>Curriculum-Framing Questions and student-centered assessment</p>	<p>Key Activities:</p> <ul style="list-style-type: none"> ▪ Identify standards for your unit ▪ Create learning objectives ▪ Create Curriculum-Framing Questions ▪ Research effective assessment strategies ▪ Draft an Assessment Timeline ▪ Create an assessment to gauge student needs ▪ Create a Unit Portfolio Presentation ▪ Reflect on learning in your blog
Module 3: Making Connections	
<p>Topic:</p> <p>The Internet to support teaching and learning</p>	<p>Key Activities:</p> <ul style="list-style-type: none"> ▪ Obtain feedback to improve Unit Portfolio and gauging student needs assessment ▪ Share ideas for meeting standards with projects ▪ Understand copyright laws and Fair Use ▪ Create a Works Cited document ▪ Integrate the use of Internet resources to support research, communication, collaboration, problem solving, and other 21st century skills ▪ Use an online collaborative Web site to share unit ideas ▪ Reflect on learning in your blog
Module 4: Creating Samples of Learning	
<p>Topic:</p> <p>Project outcomes from a student perspective</p>	<p>Key Activities:</p> <ul style="list-style-type: none"> ▪ Identify strategies to help students adapt to a project-based, student-centered classroom ▪ Create a sample student publication, presentation, wiki, or blog to demonstrate student learning ▪ Draft your Instructional Procedures ▪ Self-assess your student sample ▪ Reflect on learning in your blog

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Module 5: Assessing Student Projects	
Topic: Formative and summative assessment	Key Activities: <ul style="list-style-type: none">▪ Obtain feedback to improve your student sample▪ Explore challenges and solutions for involving students in the assessment process▪ Self-assess your current assessment practices▪ Draft an Assessment Summary▪ Create an assessment for your student sample▪ Revise your student sample based on the assessment▪ Revise your Unit Plan▪ Reflect on learning in your blog
Module 6: Planning for Student Success	
Topic: Student support and self-direction	Key Activities: <ul style="list-style-type: none">▪ Explore strategies to differentiate instruction▪ Create an assessment to encourage student self-direction▪ Create student support materials▪ Revise your Unit Plan to incorporate accommodations for all learners▪ Reflect on learning in your blog▪ Self-assess your facilitation of a student-centered classroom
Module 7: Facilitating with Technology	
Topic: Teacher as facilitator	Key Activities: <ul style="list-style-type: none">▪ Explore questioning strategies to promote higher-order thinking▪ Create facilitation materials▪ Revise your Unit Plan▪ Discuss implementation strategies▪ Create management documents▪ Self-assess your Unit Portfolio and revise based on your assessment▪ Reflect on learning in your blog

Module 8: Showcasing Unit Portfolios	
Topic: Sharing learning	Key Activities: <ul style="list-style-type: none"> ▪ Prepare for showcasing your work ▪ Give and receive feedback on Unit Portfolios ▪ Reflect on learning in your blog ▪ Evaluate the Essentials Course

Setting My Goals for the Course

1. Think about what you will be learning and doing in this course:
 - Which topics interest you the most?
 - Which topics will be the most challenging for you?
-  2. Participate in a face-to-face discussion with the whole group.
3. After the discussion, think about the areas in which you would like to focus your learning and write your initial goal(s) for the course. You will revisit these goals later in the module.

This is your opportunity to make sure you understand the goals and expectations of the course.

Note: The following example goals may give you ideas for developing your own goals:

- I want to improve my assessment methods for student projects.
- I want to help students develop self assessment and self direction that they will use and build on all year.
- I want to design well-organized projects that engage my students deeply and address required standards.



Classroom Tip: Ask students to set goals at the beginning of projects to help them think about the areas in which they would like to focus their learning.

Step 3: Considering My Role as Curriculum Designer

Classroom teachers are more than instructors—they are facilitators of student learning, implementers, evaluators, and curriculum designers.

You make decisions about how the curriculum is implemented in your classroom, such as how to structure activities and respond to students’ questions and ideas. The decisions you make impact the curriculum that your students experience. For this reason, we ask you to thoughtfully consider your role of curriculum designer as you examine the steps of

good instructional design throughout the course and develop the elements of your Unit Portfolio.

Course Outcomes

In this course, you design and develop resources for a unit of study that you teach. The unit may range in length from a couple weeks to several months, but it should encompass a key area of study in your curriculum. Your Unit Portfolio (the unit of study along with the resources to support its implementation) is developed throughout the course's eight modules.

Step 4: Creating a Portfolio Folder

To help you organize your Unit Portfolio, you create a main folder, referred to as the Portfolio folder, and subfolders in the main folder. Using this file management system assists you in organizing and managing both your works-in-progress and your completed portfolio components. All documents, publications, and presentations relating to your Unit Portfolio are saved in these folders so you or others can find them easily. A Portfolio Checklist on page 1.07 helps you keep track of your completed Portfolio elements. You then view the Unit Plan Template in detail and save it in the *course_resources* folder in your Portfolio folder.

1:1 Tip: Helping students develop a system for organizing folders is especially important in a one-to-one computing environment.



Classroom Tip: Giving students specific directory structures in which to save their files models an effective classroom management technique. This allows you and your students to store and retrieve saved work in a logical and efficient manner.

Using the Intel® Education Help Guide

Follow your facilitator's guided instructions and overview for how to use the *Help Guide* found on the Curriculum Resource CD:

- Preview the topics contained in the *Help Guide*
- Learn how to search for topics and navigate the skills
- Note the "always on top" feature of the *Help Guide* steps while you work

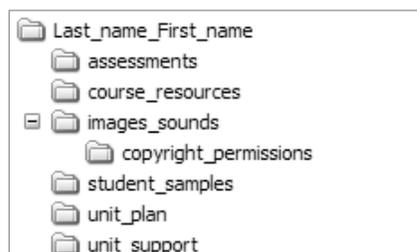
Follow your facilitator's guided instructions for creating the folders for your portfolio.



At various points in this course, you may look to other resources to help you find answers to your questions. Often, you can search online or ask a peer when you are looking for help. When you are looking for technical help during this course, you can use the Intel® Education *Help Guide*. This digital resource provides step-by-step directions for completing technical skills. You can use the *Help Guide* to quickly learn how to do certain tasks on the computer as they are needed. The *Help Guide* is a valuable resource that is available to you while you are enrolled in this course and in the future.

Creating the Portfolio Folder

1. Examine the portfolio structure below.



Teaching with Projects



2. Create the folder structure on your desktop. Use the *Help Guide* if you need help creating folders and subfolders. (See Intel Teach Courses Skill 2.1.)



Note: If you are likely to use different computers while you work on your portfolio, consider creating the course folders in a wiki or save your files on an online storage site. See a list of sites in Transporting and Storing Files Using the Internet in the *About This Course* folder on the Curriculum Resource CD.



3. Review the following checklist. You use this checklist throughout the course to keep track of your progress. This checklist is also available in the *Assessment* folder on the Curriculum Resource CD.

Refer to the following skill in the *Help Guide* for this section:

- Intel Teach Courses Skill 2.1:
To create the course folder and subfolders

Portfolio Checklist

Completed	Unit Portfolio Component	Saved In	Started In
<input type="checkbox"/>	Unit Plan	<i>unit_plan</i> folder	Module 1 (developed throughout all modules)
<input type="checkbox"/>	Publication to present the idea of projects in your classroom	<i>unit_support</i> folder	Module 1
<input type="checkbox"/>	Assessment to gauge student needs	<i>assessments</i> folder	Module 2
<input type="checkbox"/>	Unit Portfolio Presentation	<i>Portfolio</i> folder	Module 2
<input type="checkbox"/>	Works Cited document	<i>unit_plan</i> folder	Module 3
<input type="checkbox"/>	Student sample (presentation, publication, web-based resource)	<i>student_sample</i> folder	Module 4
<input type="checkbox"/>	Student sample assessment	<i>assessments</i> folder	Module 5
<input type="checkbox"/>	Other assessments (optional)		
<input type="checkbox"/>	Assessment to foster self-direction and metacognition, such as project plans, checklists, conference questions, and reflective prompts	<i>assessments</i> folder	Module 6
<input type="checkbox"/>	Document(s) to scaffold students' content learning, such as guidelines, forms, and templates	<i>unit_support</i> folder	
<input type="checkbox"/>	Facilitation Material	<i>unit_support</i> folder	Module 7
<input type="checkbox"/>	Management Resource		
<input type="checkbox"/>	Unit Portfolio for Showcase	<i>Portfolio</i> folder	Module 8

In this course, you will be creating all the items listed in this checklist. These items together make up a complete Unit Portfolio.

Step 5: Viewing the Unit Plan Template

In this step, you review the Unit Plan Template and the different sections that you will create during the course. A complete Unit Plan Template with detailed descriptions for how to complete each section is available in the *Unit Portfolios* folder on the Curriculum Resource CD. Your Unit Portfolio (the unit of study along with the resources to support its implementation) is developed throughout the course's eight modules.



Refer to the following skills in the *Help Guide* for this section:

- Intel Teach Courses Skill 1.2: To create a shortcut to the Intel® Teach Essentials Course CD index
- Intel Teach Courses Skill 1.1: To start the Intel® Teach Essentials Course Curriculum Resource CD index
- Intel Teach Courses Skill 1.3: To navigate the CD Index
- Intel Teach Courses Skill 1.4: To open and view files from the CD
- Intel Teach Courses Skill 1.5: To save a file from the CD to a location on your computer



1. For easier access to the Curriculum Resource CD, create a shortcut to the "Start Here" file located at the top level of the CD. (See Intel Teach Courses Skill 1.2.)

Note: The Curriculum Resource CD works best with Microsoft Internet Explorer 6.0* and later. However, if you are using Mozilla Firefox* or Netscape Navigator* as your Internet browser, create a shortcut to the "Essentials.htm" file in the *Curriculum_Resource_CD* folder instead.

2. Start the Curriculum Resource CD and navigate to the *Unit Portfolios* folder on the CD. (See Intel Teach Courses Skills 1.1, 1.3, and 1.4.)



3. Save the Unit Plan Template into the *unit_plan* folder of your Portfolio folder. (See Essentials Course Skill 1.5.)
4. View the following Unit Plan Template. Briefly review the major sections. Participate in a group discussion about the Unit Plan components and identify in which module you complete each section. Discuss how the portfolio pieces build on each other and are incorporated into the Unit Plan Template during module activities. You might want to refer back to the Portfolio Checklist to confirm where each portfolio piece is created in relation to the Unit Plan Template.

Note: The Unit Plan Template is the major organizer for a Unit Portfolio. Teachers will go back to school with thoughtfully developed and peer reviewed Unit Portfolios that they can implement in their classrooms. Notice that the components of the Unit Plan are not completed sequentially, and, in many cases, you start a section in one module and complete it in another.

You will notice the components of the Unit Plan are not completed sequentially, and in many cases you start a section in one module and complete it in another.

Unit Plan Template

Unit Author	
First and Last Name	
School District	
School Name	
School City, State	

Unit Overview	
<ul style="list-style-type: none"> ▪ Module 1: Think of a topic and possible project scenario for your unit. Revise this section as you work through the remaining modules. ▪ Module 2: Write first draft of your Unit Summary. 	
Unit Plan Title	
Unit Summary	
Subject Area	
Grade Level	
Approximate Time Needed	
Unit Foundation	
<ul style="list-style-type: none"> ▪ Module 2: Choose standards, create objectives, and develop Curriculum-Framing Questions for your unit. Revise this section as you work through the remaining modules. 	
Targeted Content Standards and Benchmarks	
Student Objectives/Learning Outcomes	
Curriculum-Framing Questions	
Essential Question	
Unit Questions	
Content Questions	

(continued)

<p>Assessment Plan</p> <ul style="list-style-type: none"> ▪ Module 2: Draft an Assessment Timeline and create an assessment to gauge student needs. ▪ Module 5: Draft an Assessment Summary and create a summative assessment for your student sample. ▪ Module 6: Create an assessment to foster student self-direction and update your Assessment Plan. 		
<p>Assessment Timeline</p>		
<p>Before project work begins</p>	<p>Students work on projects and complete tasks</p>	<p>After project work is completed</p>
<p>Assessment Summary</p>		
<p>Unit Details</p>		
<p>Prerequisite Skills</p>		
<p>Instructional Procedures</p> <ul style="list-style-type: none"> ▪ Module 4: Create a student sample and draft instructional procedures <p>Update Instructional Procedures to include:</p> <ul style="list-style-type: none"> ▪ Module 5: Assessment methods used throughout your unit ▪ Module 6: Differentiation strategies ▪ Module 7: Facilitation and implementation strategies 		

Accommodations for Differentiated Instruction	
<ul style="list-style-type: none"> ▪ Module 6: Draft ideas to support all learners and create a student support material. 	
Special Needs Student	
Nonnative Speaker	
Gifted/Talented Student	
Materials and Resources Required for Unit	
<ul style="list-style-type: none"> ▪ Module 3: Identify Internet resources for research, communication, collaboration, and problem solving. ▪ Module 4: Incorporate materials and resources into your Instructional Procedures. 	
Technology—Hardware	
Technology—Software	
Printed Materials	
Supplies	
Internet Resources	
Other Resources	

Activity 2: Examining Good Instructional Design

Teaching well—and engaging students in learning—requires planning and thoughtful unit design. In this activity, you examine and discuss the research supporting the instructional design of this course and the units you create. You also review the Essentials Course Portfolio Rubric. These resources can help you develop a unit plan that meets your learning goals and engages your students.

Small group discussions will reinforce your understanding of the instructional design principles based on educational research.

Step 1: Reviewing the Research

Research on learning and teaching indicates the importance of:

In-depth coverage of important subject matter

- “Superficial coverage of all topics in a subject area must be replaced with in-depth coverage of fewer topics that allows key concepts in that discipline to be understood....There must be a sufficient number of cases of in-depth study to allow students to grasp the defining concepts in specific domains within a discipline” (Bransford, Brown, & Cocking, 2000, p. 20).
- “The key attribute of expertise is a detailed and organized understanding of the important facts within a specific domain. Education needs to provide children with sufficient mastery of the details of particular subject matters so that they have a foundation for further exploration with those domains” (Bransford et al., 2000, p. 239).

Big ideas to organize understanding

- “In each subject field there are some basic ideas which summarize much of what scholars have learned. ...these ideas give meaning to much that has been learned, and they provide the basic ideas for dealing with any new problems” (Bloom, 1981, p. 235).
- “Without a focus on the big ideas that have lasting value, students are too easily left with forgettable fragments of knowledge” (Wiggins & McTighe, 2005, p. 66).

Ongoing assessment

- “Formative assessments—ongoing assessments designed to make students’ thinking visible to both teachers and students—are essential. They permit the teacher to grasp the students’ preconceptions, understand where the students are in the ‘developmental corridor’ from informal to formal thinking, and design instruction accordingly. In the assessment-centered classroom environment, formative assessments help both teachers and students monitor progress” (Bransford et al., 2000, p. 239).

- Black, Harrison, Lee, and Marshall (2003) reviewed studies of assessment and found “innovations that include strengthening the practice of formative assessment produce significant and often substantial, learning gains. The students ranged over ages (from 5-year-olds to university undergraduates), across several school subjects and over several countries” (p. 9).
- Extensive research on the impact of effective classroom assessment on student achievement has demonstrated remarkable gains of a full standard deviation or more in student scores on subsequent assessments of learning (Stiggins, 2004, p. 27).

Purposeful, authentic tasks

- “Learners of all ages are more motivated when they can see the usefulness of what they are learning and when they can use that information to do something that has an impact on others—especially their local community” (McCombs, 1996; Pintrich & Schunk, 1996, cited in Bransford et al., 2000, p. 61).
- “Assignments calling for more authentic intellectual work actually improve student scores on conventional tests... Participation in authentic intellectual activity helps to motivate and sustain students in the hard work that learning requires. Since demands for authentic intellectual work pose questions of interest to students in their lives beyond school, students are more likely to care about both the questions they study and the answers they learn” (Newmann, Bryk, & Nagaoka, 2001, pp. 29–30).

Introducing Project-Based Learning

Project-based learning is a student-centered, instructional model. This type of learning develops content area knowledge and skills through an extended task that promotes student inquiry and authentic demonstrations of learning in products and performances. Project-based curriculum is driven by important questions that tie content standards and higher-order thinking to real-world contexts.

Project-based units include varied instructional strategies to engage all students regardless of their learning style. Often, students collaborate with outside experts and community members to answer questions and gain deeper meaning of the content. Technology is used to support learning. Throughout project work, multiple types of assessment are embedded to ensure that students produce high quality work.

1:1 Tip: For research on how one-to-one computing enhances student-centered instruction, explore 1:1 Computing Classroom Resources in the *One-to-One Computing* folder on the Curriculum Resource CD.

Teaching with Projects

Project-based learning benefits include:

- The encouragement of active inquiry and higher-level thinking (Thomas, 1998)
- Increased attendance, growth in self-reliance, and improved attitudes toward learning (Thomas, 2000)
- Academic gains equal to or better than those generated by other models, with students involved in projects taking greater responsibility for their own learning than during more traditional classroom activities (Boaler, 1999; SRI, 2000)
- Opportunities to develop complex skills, such as higher-order thinking, problem-solving, collaborating, and communicating (SRI)
- Access to a broader range of learning opportunities in the classroom, providing a strategy for engaging culturally diverse learners (Railsback, 2002)

Step 2: Reviewing the Instructional Design Process

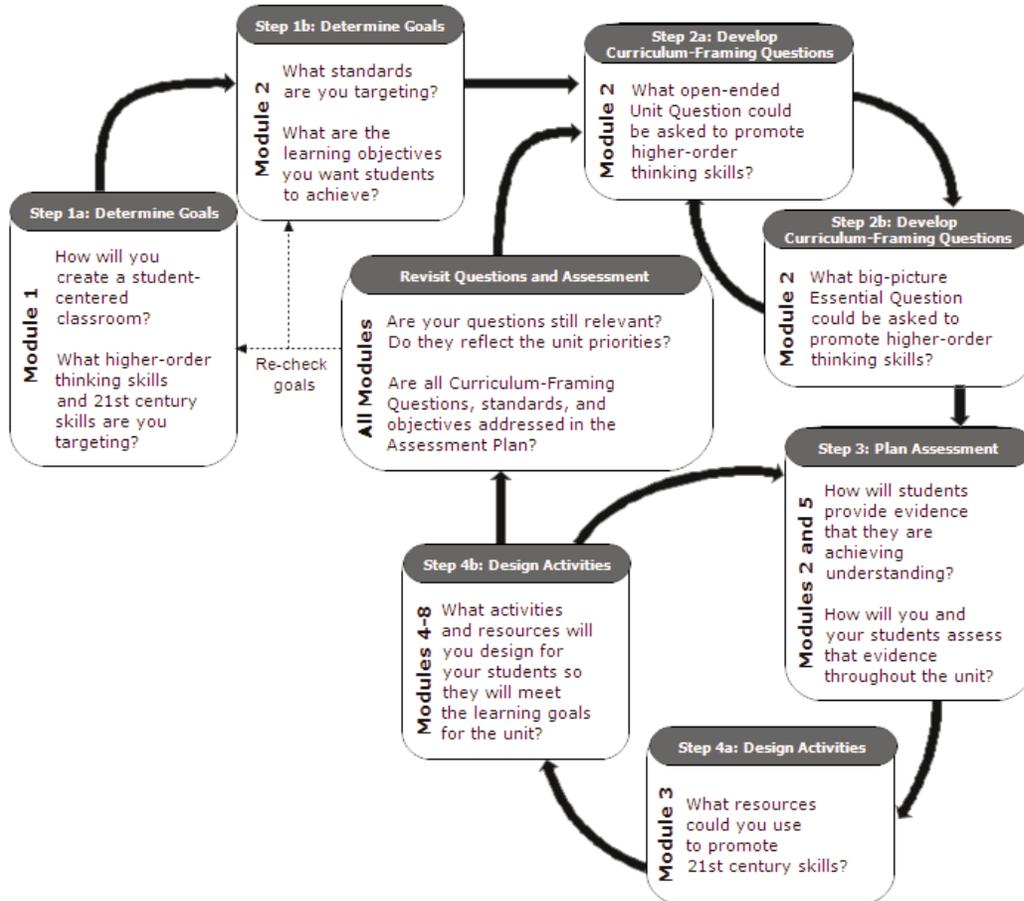
To be successful, units need to be designed with the end in mind and organized around important concepts (Wiggins & McTighe, 2005). You should ensure that planned activities help your students meet the intended learning objectives and understand the unit's essential concepts or big picture. By reviewing curricular goals, objectives, and standards, and seeing how they all fit together, teachers can make choices for establishing curricular priorities. During this course, you develop a Unit Portfolio by completing the following steps:

1. **Determine specific learning goals** from content standards and 21st century skills to ensure students delve deeply into a significant, core area of your curriculum.
2. **Develop Curriculum-Framing Questions** to help guide the unit and help students focus on important themes and concepts, targeting those big ideas.
3. **Make an assessment plan** that demonstrates student-centered, ongoing, and reflective assessments.
4. **Design activities** that meet the learning needs of the students, connect to the world outside of the classroom, and include meaningful tasks or projects that incorporate the use of technology.

This simple four-step process is deceiving. Unit planning is not linear; it always involves circling back to previous steps to ensure alignment among components of your unit as shown in the following graphic.

A detailed list of 21st century skills is available in the *Thinking* folder on the Curriculum Resource CD.

Teaching with Projects



Unit planning is an iterative process. Note that the graphic illustrates how knowledge builds when revisiting key concepts while working through the modules.

The use of Curriculum-Framing Questions and the resulting activities should all work together to support the learning goals and targeted standards of the unit. Throughout your unit, you should incorporate multiple opportunities for assessment and monitoring to measure your students' progress. Consider this planning process as you answer the following questions and identify goals for yourself in the following table:

1. Which steps do you know the most about?

2. Which areas do you need to learn more about?

Teaching with Projects

- Use the preceding information and flowchart to set your learning goals in the following table:

Unit Planning Steps	Specific Areas Where I Want to Focus My Learning
Determine specific learning goals	
Develop Curriculum-Framing Questions	
Make an Assessment Plan	
Design activities	

-  **Classroom Tip:** Ask students to set goals at the beginning of projects to help them think about the areas they would like to focus their learning.

Step 3: Reviewing the Portfolio Rubric

Reviewing a rubric before beginning to work on a project is valuable for communicating and clarifying expectations. Review the criteria outlined in the Portfolio Rubric to understand expectations for your Unit Portfolio.

-  1. View the following Portfolio Rubric. For future reference, the Portfolio Rubric is in the Appendix on page A.05 and in the *Assessment* folder on the Curriculum Resource CD.



Note: If you wish, save the Portfolio Rubric in the *course_resources* folder in your Portfolio.

- Highlight or underline areas of the rubric that relate to the goals that you identified in Step 2.



Classroom Tip: Share rubrics with your students prior to the start of a project so they clearly understand project expectations.

- Now that you have reviewed the planning process, revisit your initial goal(s) from Activity 1 and edit if necessary.

Portfolio Rubric

Use this rubric as you create your Portfolio to keep track of the course expectations.

4	3	2	1
Instructional design addresses standards and objectives.			
My Unit Plan clearly shows how the work my students do will help them meet the standards and objectives.	My Unit Plan shows how the work my students do will help them meet the standards and objectives.	My Unit Plan shows that some of the work my students do in my Unit Plan addresses standards and objectives.	My Unit Plan shows that very little of the work my students do in my unit addresses standards and objectives.
Instructional design addresses 21st century skills.			
In my unit plan, I provide instruction, modeling, and multiple opportunities for students to refine and develop relevant 21st century skills.	In my unit plan, I provide instruction and modeling to help students refine and develop relevant 21st century skills.	Students practice 21st century skills during the unit, but they receive little instruction to support their development.	Students rarely use 21st century skills during the unit.
Instructional design incorporates Curriculum-Framing Questions (CFQs).			
My unit integrates CFQs to focus student learning on important concepts and big ideas throughout the unit.	My unit uses CFQs to focus student learning on important concepts and big ideas multiple times in the unit.	The use of CFQs in my unit is superficial because they are not used to focus student learning.	My unit does not address CFQs.
Instructional design uses project approaches.			
In my unit, students have many choices about how they demonstrate their learning. They create authentic products and performances developed through connected tasks and activities.	In my unit, students have some choices about how they demonstrate their learning. They create products and performances developed through connected tasks and activities.	In my unit, students have few choices about how they demonstrate their learning. They complete discrete activities that do not connect to a final product or performance.	My students do not demonstrate their learning through products or performances.
Instructional design addresses student differences.			
My unit provides well-defined and thoughtful accommodations to support diverse learners.	My unit provides accommodations to support diverse learners.	My unit provides minimal accommodations to support diverse learners.	My unit does not provide any accommodations to support diverse learners.
Technology integration supports content learning.			
In my unit, students use technology to enhance conceptual understanding and develop content-specific skills and strategies.	My students use technology to understand important content concepts and develop content-specific skills.	My students use technology to explore content concepts.	My students' use of technology is superficially related to content.

(continued)

Module 1

Teaching with Projects

4	3	2	1
Technology integration supports 21st century skills.			
Technology enhances learning in my unit by creatively supporting and developing a variety of 21st century skills appropriate for the tasks and content	Technology enhances learning in my unit by supporting the development of relevant 21st century skills appropriate for the tasks and content.	Technology in my unit supports the practice of some 21st century skills.	Technology in my unit does not support the practice of 21st century skills.
Technology integration meets student and classroom needs.			
In my unit, my students use technology that is appropriate for all ability levels and interests in ways that challenge their skills while building proficiency.	In my unit, my students usually use technology that is age appropriate and meets the needs of diverse learners.	In my unit, my students occasionally use technology that is age appropriate.	In my unit, my students seldom use technology, and when they do use it, the technology is often inappropriate for their ability levels or interests.
The technology in my unit is reasonable and feasible given the specific circumstances of my teaching situation.	The technology used in my unit is reasonable although somewhat difficult given the specific circumstances of my teaching.	The technology used in my unit takes a great deal of effort on my part.	Given the specific circumstances of my teaching situation, the technology used in my unit is not feasible.
Assessment strategies address standards and objectives.			
My assessments clearly and thoroughly address all targeted standards and learning objectives, emphasizing content and processes over traits such as organization and appearance.	My assessments address all targeted standards and learning objectives, and emphasize content learning.	My assessments address some targeted standards and learning objectives.	My assessments address few targeted standards and learning objectives.
Assessment strategies are student-centered.			
In my unit, students contribute to the creation of assessments and frequently assess themselves and peers.	In my unit, students may contribute to the creation of assessments and assess themselves and peers.	In my unit, students may assess themselves and peers.	In my unit, students have little or no involvement in their assessment.
The assessments in my unit have specific criteria that define quality. My assessments make it easy for students to measure their work against expectations.	The assessments in my unit have criteria that define quality. Students can use my assessments to measure their work against expectations.	The assessments in my unit lack clear criteria for my students to measure their work.	Students cannot use my assessments to measure their work.
Assessment strategies are varied and ongoing.			
In my unit, a variety of informal and formal methods are used throughout the instructional cycle to meet all five assessment purposes.	In my unit, informal and formal methods are used throughout the instructional cycle to meet all five assessment purposes.	In my unit, students are assessed infrequently and in traditional ways to meet some assessment purposes.	In my unit, students are assessed in traditional ways at the end of the unit.

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Activity 3: Looking at Projects

You have many options for incorporating aspects of project-based learning in your classroom, ranging from those that address specific subjects in just a few days to those that encompass a whole year's curriculum. During this activity, you review the characteristics of projects and consider how you might include some elements of project design into your Unit Plan.

Step 1: Considering Project Approaches

Project-based learning is an instructional model that involves students in investigations of compelling problems. Projects that make for stronger classroom learning opportunities can vary significantly in subject matter and scope, and can be delivered at a wide range of grade levels. Projects put students in an active role, such as:

- Problem solver
- Decision maker
- Investigator
- Documentarian

Projects serve specific, significant educational goals. Projects are not diversions, adds-ons to the "real" curriculum, or merely activities with a common theme. Project-based curriculum is driven by important questions that tie content standards and higher-order thinking to real-world purposes. Students often take on real-life roles and have meaningful tasks to complete.

The following characteristics help define effective project-based units:

Project Characteristics Checklist

- Students are at the center of the learning process.
- The project focuses on important learning objectives aligned with standards.
- The project is driven by Curriculum-Framing Questions.
- The project involves ongoing and multiple types of assessment.
- The project involves connected tasks and activities that take place over a period of time.
- The project has real-world connections.
- Students demonstrate knowledge and skills through products and performances that are published, presented, or displayed.
- Technology supports and enhances student learning.

Module 1

Teaching with Projects

- Thinking skills are integral to project work.
- Varied instructional strategies support multiple learning styles.



Note: This Project Characteristics Checklist is also available in the *Assessment* folder of the Curriculum Resource CD.

A detailed list of 21st century skills is available in the *Thinking* folder on the Curriculum Resource CD.

While working on projects, students develop real-world, 21st century skills—many of the same skills desired by today’s employers—such as the ability to:

- Work well with others
- Make thoughtful decisions
- Take initiative
- Solve complex problems
- Self-manage
- Communicate effectively

Not all units need to incorporate project approaches to learning, but when appropriate, the integration of a project can greatly enhance student learning. Some units are project-based from start to finish, while other units only incorporate a project as a culminating experience or in one part of the unit. In the next step, you examine different ways projects are integrated into a unit. If you choose to include a project in your unit, you may want to refer to the Project Characteristics Checklist that is available in the *Assessment* folder of the Curriculum Resource CD and save it in the *unit_plan* folder of your Portfolio folder.

Refer to the following skills in the *Help Guide* for this section:

- Intel Teach Courses Skill 1.4: To open and view files from the CD
- Operating Environment Group 3: Changing Device Settings on Your Computer

Note that the sample Unit Portfolios are expanded versions of unit plans created by teachers participating in the Intel® Teach Program. Two of the Unit Portfolios in particular, *Romeo and Juliet* and *The Great Bean Race*, incorporate many more components than a typical Unit Portfolio created during this course.



Use the *Help Guide* if you need assistance in completing any technology skills identified below.



1. View sample Unit Portfolios located in the *Unit Portfolios* folder on the Curriculum Resource CD (see Essentials Course Skill 1.4) or view sample units on the Intel® Education Web site.



- a. Go to: www.intel.com/education/DesignProjects
- b. Click **Unit Plan Index**.

- c. Review units based on Grade or Subject.

Note: Some student samples have sound (voice recordings, music, and sound effects). Be sure to enable sound on your computer and turn on speakers or use headsets, if available. (See Operating Environment Group 3.)

- 2. As you review the Unit Portfolios, consider where and how they address the various elements of the Project Characteristics Checklist.
- 3. Take notes on any ideas you could adapt for use in your own Unit Portfolio.



Optional: If you are interested in information about teaching with projects in a one-to-one environment, read 1:1 Computing Scenarios located in the *One-to-One Computing* folder on the Curriculum Resource CD.



- 4. Discuss the following questions briefly in a small group:
 - In what ways did the units incorporate projects?
 - How could you use these project ideas to enhance your own units?

Teaching with Projects

The purpose of this activity is two-fold:

- To understand the benefits of using publication software so that you can choose the most appropriate tool when you create your student sample
- To create a resource to communicate with others about the reasons for doing projects in your classroom

Activity 4: Planning a Publication to Explain Projects

Students, parents, and community members accustomed to traditional teaching methods of lecture, memorization, and testing often have incorrect assumptions about project-based learning. This is especially true among those who are very successful in teacher-centered classrooms.

During the next few activities, you first plan and then create a publication to explain projects to an audience of your choosing. Your audience might be your students, their parents, or your school's teachers and administrators. You may want to address how your expectations of students may differ from the expectations in more traditional classrooms. Or you might focus on how projects meet standards, the changing role of students in a project-based classroom, or how projects are assessed. The activities can help you decide on the goal of your publication and which audience is most appropriate for your needs.

Print publications are an effective way for you to communicate with stakeholders while modeling good communication strategies for your students. You can choose among a variety of publication types—newsletter, newspaper, brochure, poster, or other print material—to help you meet your goal.

In this activity, you first do some preliminary planning for your publication. You then conduct research to learn more about project-based learning and view sample publications for ideas on design and content ideas. Consider how you currently use—or plan to use—projects in your classroom. Design your publication to answer the questions you anticipate your students or their parents might have. Sharing your publication at the beginning of the unit can help set expectations and prepare your audience for the work ahead.

Step 1: Planning the Publication

Think about how you currently use projects or plan to use projects in your classroom. What questions might your students, their parents, or other teachers in your school have about projects or project-based learning? How could you best answer their questions? What would you need to consider in your publication to explain projects? Use the following to help you plan your publication.

Note: An electronic course Notebook is available for downloading or printing in the *About This Course, Face-to-Face* folder on the Curriculum Resource CD. You may type your responses into the document or print the Notebook and write your thoughts out by hand. A note identifies those tasks in the course that are duplicated in the Notebook. The following checklist is available in Module 1, Activity 4, Step 1: Planning the Publication in your Notebook.

1:1 Tip: You may want to include information in your publication on what additional responsibilities and requirements are expected of students who are assigned a computer in a one-to-one environment. Consider providing a “day-in-the-life” article of a fictional student in your classroom to help clarify how assignments and work will be different in your classroom because of the ready access of computers, the Internet, and other technological resources.



Planning the Publication

Considering who would benefit, what would you like to include in your publication?

- How projects are used in my classroom
- Various student roles in a project and the tasks students may complete
- Benefits of projects
- How projects address standards
- What students can expect once a project is underway
- How a project is assessed
- How projects have been used in my classroom in the past
- Pictures to use _____
- Other: _____

Note above content that needs additional research:

Step 2: Researching Project-Based Learning

During this step, you locate information about projects at the Intel® Education Web site and keep track of the information using one of the online tagging or bookmarking sites.

Tagging and bookmarking sites allow you to save and annotate your favorite Web sites so you can access them online from any computer. Tagging sites have the additional feature of allowing you to “tag” saved Web sites with key words so you can categorize and organize your saved Web sites in new ways; other users can also take your tagged sites and add them to their own collection.



1. Go to the online and tagging resource that has been provided to you by your facilitator.

- a. Register for an account.
- b. Review instructions for using the online resource.



c. Write down the URL of the Web site, your login ID, and password on page vii of the Introduction and/or type the information in the Login Information document available in the *About this Course* folder on the Curriculum Resource CD. Save the file in the *Course Resources* folder of your Portfolio folder.

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Note: You can find additional sites to consider in the Online Tagging and Bookmarking Sites in the *Collaboration* folder on the Curriculum Resource CD.



2. Go to: <http://www.intel.com/education/designprojects>
3. Click **Project Design**.
4. Tag or bookmark the site.
5. Explore the following sections available and and decide which areas you need additional information about for your publication. Bookmark/tag as needed:
 - a. **Characteristics of Projects:** The design elements used in planning a project-based unit
 - b. **Planning Projects:** Help with designing a project-based unit for your classroom, including how to use ongoing, student-centered assessment strategies
 - c. **Curriculum-Framing Questions:** How Essential, Unit, and Content Questions spark interest and guide learning to higher levels of student thinking and engagement
 - d. **Projects in Action:** Examples of project-based approaches, changes in the roles of teachers and students, and collaboration with those outside the classroom



Note: For in-depth information on assessment, you can visit the Intel® Education *Assessing Projects* resource at: www.intel.com/education/AssessingProjects You have an opportunity to examine this resource in a later module.



6. **Optional:** Open Project-Based Learning Resources in the *Project Learning* folder on the Curriculum Resource CD to locate additional resources on projects. Bookmark/tag Web sites as needed.

Step 3: Viewing Sample Publications

View sample publications on the Curriculum Resource CD for design and content ideas for your own newsletter, newspaper, brochure, or poster:



1. Open the publications of interest in the *Project Learning* folder on the Curriculum Resource CD.
2. Note any ideas that you may want to include in your own publication.

Activity 5: Creating My Publication

Use the information you gathered in the previous activity to help you create a publication that explains how and why projects are used in your classroom.

If creating a publication with text boxes is new to you, follow the guided instruction provided by your facilitator to help you set up your publication.

Step 1: Starting My Publication



1. If desired, quickly sketch your ideas for your publication in a storyboard. Use the Intel Education *Help Guide* if you need assistance in completing any technology skills identified below.



- a. Open the storyboard document for the newsletter, newspaper, brochure, or poster file in the *Project Learning* folder on the Curriculum Resource CD. (See Essentials Course Skill 1.4.)

- b. Print the document and write your ideas by hand, or type the topics or titles directly into the sections of the publication. (See Essentials Course Skill 1.6.)



- c. If you are going to use a storyboard to type your initial ideas, save the document into your *unit_support* folder of your Portfolio folder, and then open the template from your Portfolio folder. (See Essentials Course Skill 1.5.)

2. Start the word processing software. (See Word Processing Skill 1.1.)

3. Consider customizing the toolbars, menus, and settings for your computer so that everyone has the same buttons and menu items. This change makes demonstrated instructions easier to follow. (See Word Processing Skill 1.6.)



Classroom Tip: Have your classroom or lab computers set up in a consistent manner for easier classroom instruction.

4. Set up the document for the appropriate publication style. Pick one of these options:

- Open a template for the desired publication (newsletter, newspaper, brochure, or poster) from within the word processing application. (See Word Processing Skill 10.3.)



- Save a template from the *Project Learning* folder on the Curriculum Resource CD. If the templates from the CD do not meet your needs, you can download a template from the Web. (See Word Processing Skill 10.5.)



Note: Before you start typing, remember to save the template to the *unit_support* folder of your Portfolio folder, and then open the template from your Portfolio folder. (See Word Processing Skill 10.4.)

Refer to the following skills in the *Help Guide* for this section:

- Intel Teach Courses 1.4: To open and view files from the CD
- Intel Teach Courses 1.6: To print a file from the CD
- Intel Teach Courses 1.5: To save a file from the CD to a location on your computer
- Word Processing Skill 1.1: To start word processing software
- Word Processing Skill 1.6: To customize toolbars and menus
- Word Processing Skill 10.3: To use a built-in document style, or template, to start a new document
- Word Processing Skill 10.5: To find and save a word processing template from the Web
- Word Processing Skill 10.4: To make and use your own document style, or template

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Refer to the following skills in the *Help Guide* for this section:

- Word Processing Skill 6.4: To set up a document to print sideways, or landscape
- Word Processing Skill 6.9: To add a box that you can type words into
- Word Processing Skill 6.10: To make a text box bigger or smaller

Refer to the following skills in the *Help Guide* for this section:

- Word Processing Group 3: Changing the Look of Your Words
- Word Processing Group 4: Making Paragraphs and Lines of Words Look Good
- Graphics Skill 7.2: To type words into a text box
- Word Processing Skill 6.9: To add a box that you can type words into
- Word Processing Skill 6.10: To make a text box bigger or smaller
- Word Processing Skill 6.13: To set the exact size of a picture, text box, or shape
- Word Processing Skill 6.11: To link text boxes so words flow from one into another
- Word Processing Group 5: Adding Pictures to Your Pages



- Create a new publication from scratch. Set up the page design, create text boxes to lay out the text areas for the desired publication (newsletter, newspaper, brochure, or poster), and resize them. (See Word Processing Skills 6.4, 6.9, and 6.10.)



5. Save your publication frequently in the *unit_support* folder of your Portfolio folder.

Step 2: Adding the Basics to My Publication

Create the content and design of your publication to help support your message. Use the *Help Guide* if you need assistance in completing any technology skills identified below.



1. If you are using a template, replace placeholder text with your own.
2. Change the appearance of your text to match your message and space restraints. (See Word Processing Group 3.)
3. Change the appearance of your paragraphs to enhance your text by changing the spacing, shading, and borders. (See Word Processing Group 4.)
4. Add a text box to insert new text in a specific place. (See Graphics Skill 7.2 and Word Processing Skills 6.9, 6.10, and 6.13. See Graphics Skill 5.1 to show the Drawing toolbar.)
5. Link text boxes to allow the text to flow from one box to the another. (See Word Processing Skill 6.11.)
6. Insert pictures to support your content. (See Word Processing Group 5.)
 - a. Save pictures from the Web.

Note: Tag the sites where you obtained any pictures, so you can properly cite sources later.
 - b. Change a picture's size or location.
 - c. Change how text interacts with the picture, such as flowing around the picture, going behind or in front of the picture, or lining up with the picture.
 - d. If desired, compress the pictures to help keep your file sizes small.



Additional Design Features

Add additional design features to enhance your message. Use the *Help Guide* if you need assistance in completing any technology skills identified below.



1. If available, add a design theme to change your publication's font and color scheme. (See Word Processing Skill 6.19.)
2. Insert a table to organize information. (See Word Processing Group 7.)
3. Draw shapes or borders to call attention to important details. (See Graphics Groups 5 and 6.)
4. Insert a chart or graph to visually display data. (See Word Processing Group 8.)

Refer to the following skills in the *Help Guide* for this section:

- Word Processing Skill 6.19: To pick and use a design theme
- Word Processing Group 7: Working with Tables
- Graphics Group 5: Using the Drawing Tools
- Graphics Group 6: Changing the Look of Lines and Shapes
- Word Processing Group 8: Working with Charts and Graphs

Activity 6: Reflecting on My Learning

Reflection is a critical, but often neglected, component of the learning process. The everyday context of teaching leaves little time for extended, serious contemplation of teaching practice. Of course, teachers reflect on what happens in their classrooms every day. They think about which activities “worked” or “didn’t work.” They assess their students’ learning in a variety of ways, but the kind of systematic thinking that results in powerful new learning is often neglected in place of more practical concerns.

Take this opportunity to devote some time to an in-depth study of your learning, to embrace the ambiguous and contradictory aspects of teaching in your classroom.

Step 1: Blogging My Journey

At the end of each module of the course, you reflect on the key concepts addressed in this module in your own personal blog. Blogs, short for weblogs, are used to share information and opinions with readers and to solicit feedback and discussion. They often take the form of a journal and are regularly updated with new entries.

In this activity, you first review the guiding questions and key points of the module and then reflect on your learning in your personal blog



1. Open the blog site provided by your facilitator.



Note: Additional Web sites that provide free blog space are listed in Blogging Sites in the *Collaboration* folder on the Curriculum Resource CD.

- a. Tag or bookmark the site.
- b. Log on and create a new blog site.

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c. Write down the URL of the blogging site, your login, and password on page vii of the Introduction and/or type the information in the Login Information document available in your *course_resources* folder (if previously saved) or in the *About This Course, Face-to-Face* folder on the Curriculum Resource CD.

- 2. Review the guiding questions and key points for Module 1 Summary on page 1.33.
- 3. Create a blog entry titled *Module 1 Reflection*, paste the following prompt into your blog, and write your response:

**This module has made me think about my role
as an instructional designer in the following ways...**

Note: If you are having intermittent connectivity issues, you may want to type your blog offline in a word processing document and then paste it into your blog. An alternate method of ensuring you do not lose your work is to copy your blog entry text into the temporary clipboard before you click submit. (See Word Processing Skill 2.6.)

- 4. Write about any other insights, questions, or concerns you want to address in your reflection.



Classroom Tip: Consider how “reflection” activities like this one—which will occur regularly at the end of each module—could enhance student learning if students make it a part of their daily lives to reflect on how and what they are learning.

Refer to the following skill in the *Help Guide* for this section:

- Word Processing Skill 2.6: To copy words or text



Planning Ahead

Beginning the Planning Process

Step 1: Thinking about My Unit Plan and Project Design

After working through this module’s activities, you probably have an idea or two about what topic you might want to address in your Unit Plan. In this activity, you begin to plan your unit. First, you think about some possible components of your unit. Then, you collect any curricular materials you might need to create your Unit Plan.



Note: This activity is available in the Notebook that you downloaded from the *About This Course, Face-to-Face* folder on the Curriculum Resource CD. Refer to Module 1, Planning Ahead, Step 1: Thinking about My Unit Plan and Project Design.

Planning Ahead: Thinking about My Unit Plan

1. What is the topic of the unit that you will develop during this course?

2. What real-world connections are you considering for your unit?

3. How might you integrate the use of technology?

1:1 Tip: You may want to review some of the Web resources listed in the One-to-One Computing Classroom Resources document as you think about these questions. This file is located in the *One-to-One Computing* folder on the Curriculum Resource CD.

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4. What project scenario are you considering? What is the big picture or general idea of your project?

5. What roles will your students play and what tasks will they complete?

Step 2: Targeting Higher-Order and 21st Century Skills

21st century skills are all important for your students to master to achieve success in the future. Open 21st Century Skills in the *Thinking* folder on the Curriculum Resource CD. Review the descriptions of each skill and brainstorm what it could mean in your subject and grade level. How can you incorporate these skills into your Unit Plan? What would these skills look like in your classroom?



Note: This 21st Century Skills activity is also available as Module 1, Planning Ahead, Step 2: Targeting Higher-Order and 21st Century Skills of the Notebook.

If you have access to the Web, you can obtain additional information on 21st century skills at the Intel Education Web site:



1. Open the Intel Education Web site for *Designing Effective Projects* from your tagged or bookmarked sites (www.intel.com/education/DesignProjects).
 - a. Click **Thinking Skills**.
 - b. Click **Higher-Order Thinking**.
 - For Critical Thinking:
 - i. Click **Analysis**.
 - ii. Click **Critical Thinking** in the Resources box and review.

- For Problem Solving:
 - i. Click **Using Knowledge**.
 - ii. Click **Problem Solving** in the Resources box and review.
- For Creativity:
 - i. Click **Using Knowledge**.
 - ii. Click **Creativity** in the Resources box and review.
- For Collaboration:
 - i. Click the top tab of **Instructional Strategies**.
 - ii. Click **Cooperative Learning**.



2. Open the Intel Education Web site for *Assessing Projects* from your tagged or book-marked sites (www.intel.com/education/AssessingProjects).
 - a. Click **Self Direction**.
 - b. Click **Overview and Benefits**.
 - c. Click **Formative Assessment**.
 - d. Click **Developing Self-Directed Learners** in the Differentiated Instruction box and review.

Step 3: Locating Curricular Resource Materials

If you haven't already, remember to collect and bring materials (such as textbooks, curricular support materials, grade-level expectations, district standards, samples of student work, and so forth) that will help you develop your Unit Plan.

List the items you need to collect:

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Module 1 Summary

Review the guiding questions and key points of Module 1 and think about the ideas and materials you have created that can be used in your classroom, instruction, or planning to help improve student learning.

Module Questions:

- How can projects help my students meet standards and develop 21st century skills?
- How can I use projects to enhance student learning?

Module 1 Key Points:

- Research on learning and teaching indicates the importance of:
 - In-depth coverage of important subject matter
 - Big ideas to organize understanding
 - Ongoing assessment
 - Purposeful, authentic tasks
- Projects concentrate on scenarios that provide rich learning opportunities. They involve students in problem solving investigations and other meaningful tasks. Projects establish connections to life outside the classroom and address real world concerns.
- The steps for designing projects include:
 1. Determining specific learning goals (from standards and 21st century skills)
 2. Developing Curriculum-Framing Questions
 3. Making an assessment plan
 4. Designing activities

In the following modules, you will build on these concepts as you discuss ways to support and encourage higher-order thinking skills through the use of standards-based projects and student-centered activities.

