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Identify: Standards that are supported by the thinking tools
Create: Learning objectives
Choose: Unit topic

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MODULE 2

Designing Standards-Based Projects

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

Activity 1: Identifying Standards and Learning Objectives

> *To begin with the end in mind means to start with a clear understanding of your destination. It means to know where you're going so that you better understand where you are now so that the steps you take are always in the right direction.*
>
> Stephen R. Covey, *The 7 Habits of Highly Effective People*

Step 1: Considering the Steps for Project Planning

To be successful, projects need to be designed with the end in mind. Without closely focused learning goals, the purpose of the project can become unclear and expectations for student learning outcomes can be miscommunicated. When designing projects, always ensure that the activities planned will help your students meet the intended learning objectives. At a very basic level, project planning involves four steps.

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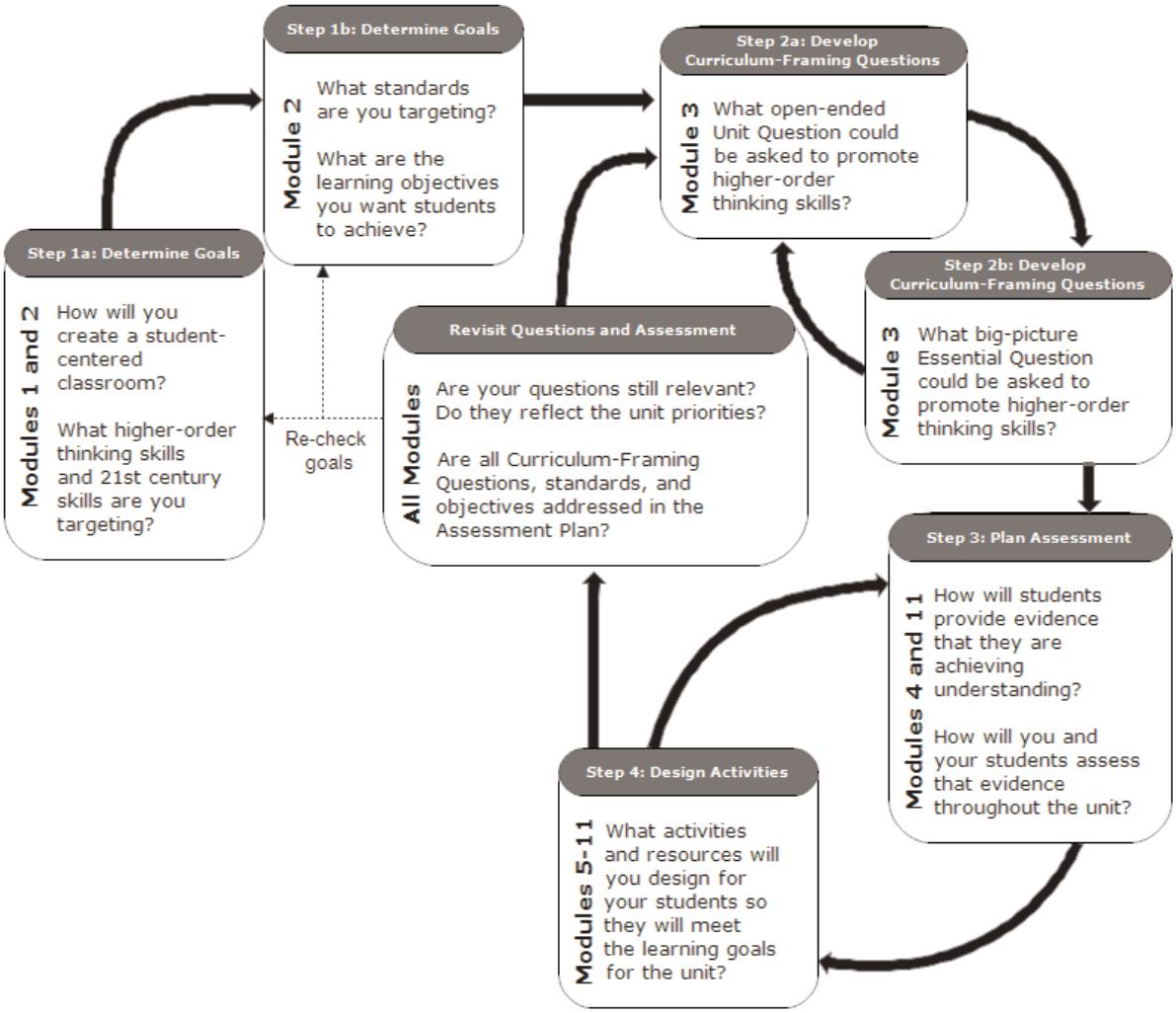
Designing Standards-Based Projects



1. **Determine specific learning goals** by using content standards and the desired higher-order thinking skills.
   a. From your standards and your own high expectations, what is it that you want your students to be able to know, do, or understand?
   b. What higher-order thinking skills do you want to target?
2. **Develop Curriculum-Framing Questions.**
   a. What is the big idea in those targeted standards?
   b. What Essential, Unit, and Content Questions will you use to help focus the learning for your students?

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3. **Make an assessment plan.**

   a. How will you know your students have met the learning goals?

   b. By what criteria will students be assessed?

   c. What methods of assessment will you use throughout the project in order to inform you and your students about their learning progress?

   d. What reporting and monitoring methods will you use to encourage student self-management and progress during independent and group work?

4. **Design activities.**

   a. What real-world scenarios will you develop to provide authentic roles and tasks to help students meet the learning goals?

   b. How can you involve students in problem solving investigations or other meaningful tasks that will help answer the Curriculum-Framing Questions and establish connections to life outside the classroom and address real-world concerns?

   c. How can technology be used to enhance learning? How will you manage your students' use of technology?

   d. What tools will be provided to help students manage project tasks, timelines, and group work?

This simple four-step process is deceiving. Project planning is not linear; it always involves circling back to the previous steps to ensure alignment. The use of Curriculum-Framing Questions (the focus of Module 3) and a project approach should all work together to support the learning goals and targeted standards of the unit. Throughout the unit, there should be multiple opportunities for assessment and monitoring to measure your students' progress.

Note: You may also want to review the project planning resources available at: **www.intel.com/education/designprojects**
Click **Project Design**, and then click **Planning Projects**.

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Your facilitator may provide the direct URL to your state/local standards.

Step 2: Identifying Standards

To lay the foundation for good project planning, take a look at your standards and identify those that need additional support in your classroom. Use the Intel® Education *Help Guide* if you need assistance in completing any technology skills identified below.

1. Go to the Web site that contains your state standards. Links to each state's standards are available at: **http://edstandards.org/standards.html**

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

- Web Technologies Skills 2.1 and 4.1: To download a document from a Web site

2. Save the page for your state's standards in your Favorites, or, if the standards are available in PDF or text files, save the file to your *Project Folder*. (See Web Technologies Skills 2.1 or 4.1.)

3. Scan your subject area and grade level standards for higher-order thinking words. What are some common patterns that you find? What do you notice?

   Note: An online resource that can assist in the review of your standards is the Verbinator at **www.studenthub.org/verbinator/default.php**. When you copy some text (like a section of your standards) into this interactive tool, it highlights and identifies the verbs with a particular level of Bloom's Taxonomy.

4. In your review of the standards, are there any potential areas that you would like to cover better or more in-depth? Are there any areas that students have a particularly difficult time understanding or that you have difficulty supporting? Are there any key sections that are currently just touched upon in your curriculum but need more support? If so, note them here.

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Step 3: Targeting Standards that May Be Supported by the Thinking Tools

Use the *Help Guide* if you need assistance in completing any of the following technology skills.

1. Considering the standards you have identified in the previous step, what standards are best served by one or more of the thinking tools? Could the thinking tools be used to help students in any of the following areas?

Visual Ranking	Seeing Reason	Showing Evidence
Would these standards require or be supported if students: ☐ Compare ☐ Consider perspective ☐ Contrast ☐ Differentiate ☐ Prioritize ☐ Rank ☐ Other: _____	Would these standards require or be supported if students investigate: ☐ Cause-and-effect relationships ☐ Consequences ☐ Impacts ☐ Influences ☐ Outcomes ☐ Systems ☐ Other: _____	Would these standards require or be supported if students: ☐ Analyze ☐ Argue ☐ Debate ☐ Evaluate ☐ Hypothesize ☐ Investigate ☐ Persuade ☐ Theorize ☐ Other: _____

Note: In your search of the standards, do not be limited by these key words. You may need to look for the hidden opportunities for higher-order thinking, especially if your state's standards focus mainly on very specific knowledge-based tasks or under standing.

2. Open your Unit Plan from your Project Folder.

3. Copy the standards that relate to any of the elements above—ones you may use in your unit—into your Unit Plan. You will be narrowing the actual standards that you will use in the following steps. (See Word Processing Skills 2.6 and 2.8.)

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

- Word Processing Skill 2.6: To copy words or text
- Word Processing Skill 2.8: To paste words or text in a new place

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

- Word Processing Skill 1.6: To customize toolbars and menu
- Word Processing Skill 2.3: To erase or delete words or text
- Word Processing Skill 11.4: To use highlighting to review a document

4. Use the highlight tool in your word processor to note key words in your standards that may indicate a good match between your targeted standards and the strengths and intended uses of each tool. Highlight any of the following words that you find in your standards. You may want to consider using a different color for each thinking tool, which will help you identify the specific areas for the thinking tools at a later time. (See Word Processing Skill 11.4.)

Note: If the Highlight button does not appear on the Formatting toolbar, change your settings so that all buttons appear (See Word Processing Skill 1.6.)

a. Key words for the *Visual Ranking Tool*—compare, contrast, differentiate, order, organize, perspective, placement, point of view, rank, sort

b. Key words for the *Seeing Reason Tool*—affect, cause, effect, impact, influence, inspire, produce, result, system

c. Key words for the *Showing Evidence Tool*—analyze, argument, conjecture, debate, evaluate, evidence, hypothesis, investigate, persuade, position, premise, social issue, thesis

5. Considering the wide range of standards you may have initially selected and the smaller subset that would match well with one or more of the online thinking tools, which standards will you choose to target in this unit? Delete those standards in your Unit Plan that you will not be targeting in this particular unit. (See Word Processing Skill 2.3.)

6. **Save** your Unit Plan, but keep it open for the next step.

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Step 4: Creating Learning Objectives

From the standards you selected in the previous step, create learning objectives for your unit. These objectives should outline what you want your students to understand or demonstrate. You should prepare well-focused objectives, rather than covering all concepts that might be addressed in your unit. Create objectives that focus on learning concepts with higher-order thinking, not on technology usage skills. For instance, rather than covering all concepts that might be addressed in your unit. Create objectives that focus on learning concepts with higher-order thinking, not on technology usage skills. For instance, rather than "students will create multimedia presentations," identify the learning outcome, such as "students will create a persuasive presentation appropriate for the targeted audience."

From your standards and your own high expectations, what do you want your students to be able to know, do, or understand? As you create these objectives, keep in mind the higher-order thinking skills you want to target.

You may use the lines below to draft your ideas, but then type your initial set of objectives into your Unit Plan.

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Step 5: Choosing a Unit Topic

From your standards and learning objectives, what could be the topic for your unit? Consider choosing a unit that could potentially use any of the thinking tools, so that you can try out each of those ideas in the following modules—although not all tools may end up in your final unit plan. However, you will still have the opportunity to change your mind and select a different unit in the upcoming modules as you develop your ideas.

The table below provides a few examples to help get you started in the brainstorming process.

Subject	Content Topic That Could Benefit from Thinking Tools
The Arts	Inspiration, influence, or impact of artists or musicians
Economics	Investments
Geology	Significant elements in a geological event
Health	Health threats, diseases
Industrial Arts	Design elements
Language Arts	Plot and character development
Math	Market trends, statistics
Physical Education	Greatest athletes, impacts on physical fitness
Science	Environmental impact, ecology
Social Studies	Factors in war, important events in history

Note: Additional examples are available in Appendix D.01.

Unit Topic: _____

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Activity 2: Exploring Project Design

Well-designed projects encourage active inquiry and higher-order thinking (Thomas, 1998), and address curriculum standards through relevant tasks that ensure that students understand the essential concepts. Brain research underscores the value of these learning activities. Students' abilities to acquire new understanding are enhanced when they are "connected to meaningful problem-solving activities, and when students are helped to understand why, when, and how those facts and skills are relevant" (Bransford, Brown, & Conking, 2000, p. 23).

Step 1: Understanding the Characteristics of Well-Designed Projects

While there are many definitions and degrees of project-based approaches, most definitions have a common set of characteristics. Nine of these characteristics are described below.

- **Students are at the center of the learning process.**

  Projects empower students to direct their own learning because projects allow students to build on their interests. Projects put students in an active role—problem solver, decision maker, investigator, documentarian. Students monitor decisions about how they will approach project tasks.

- **Project work aligns with standards and is central to the curriculum.**

  A project is developed around core curricular concepts that address national or local standards. The project has clear objectives that focus on what students should know as a result of their learning.

- **Projects are driven by Curriculum-Framing Questions.**

  Projects help students explore Curriculum-Framing Questions in a meaningful and authentic way. These questions help to immerse students in complex, real-world problems and investigations. The questions encompass Essential, Unit, and Content Questions.

- **Projects involve ongoing and multiple types of assessment.**

  Clear expectations are set for all students and are articulated throughout the project with varied types of assessment and multiple checkpoints. Models and guidelines for high-quality work are made available so that students know what is expected of them. Opportunities for reflection and feedback are embedded in the project.

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- **The project has real-world connections.**

  Projects are relevant to students' lives and the world outside the classroom, providing a context for learning. This means that students explore authentic problems and issues and may present their learning to an authentic audience, connect with community resources, tap into experts in the field of study, or communicate through technology. A project is not simply a set of thematic activities, but has a guiding purpose. Often students take on real-world roles—such as biologist, journalist, senator—and have a task to complete or a problem to solve.

- **Students demonstrate knowledge through a product or performance.**

  Projects typically culminate with students demonstrating their learning through products or presentations. These final products allow for student expression and ownership of learning.

- **Technology supports and enhances student learning.**

  Technology is used to support the development of thinking skills as well as content expertise. Students can reach beyond the walls of the classroom by collaborating with distant classes, sharing information on Web sites, or conducting presentations outside of the classroom for an authentic purpose.

- **Thinking skills are integral to project work.**

  The project supports the development of both metacognitive and cognitive thinking skills, such as self-monitoring, problem solving, and decision making.

- **Instructional strategies are varied and support multiple learning styles.**

  A range of instructional strategies ensures that the curricular material is accessible to all students and provides opportunities for every student to succeed. Instruction may include the use of different cooperative grouping strategies, graphic organizers, teacher and peer feedback, and others.

A teacher's role changes in a project that uses student-centered learning. Characteristics of the teacher's role are:

- "Guide on the side," no longer "sage on the stage"
- More coaching and modeling, less telling
- More finding out with the students, less being the expert
- More cross disciplinary thinking, less specialization
- More performance-based assessment; less paper-and-pencil, fact-recall assessment

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The student's role changes as well. Characteristics of the student's role are:

- More choices and decisions in learning activities
- More opportunities
- More responsibilities to manage project tasks and timelines
- More interdependence with other students in group work

When working on projects, students develop real-world 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

Step 2: Understanding the Teacher Workspace

Before looking at sample projects that incorporate thinking tools, you should create a teacher account so you can save projects of interest to your Teacher Workspace that you may want to adapt later for your own use. Your password-protected Teacher Workspace is where you create assessments, set up thinking tool projects, create student teams, and assign teams to one or more projects. All students log in through your account with a team ID and password that you create. Students or student teams do not register themselves and no personally identifying information is collected about your students. You are able to view and comment on the work that your student teams produce since it is stored in your Teacher Workspace. All work is saved on Intel's servers and will be available indefinitely—until you delete the projects. Both students and teachers can log in from any Internet-connected computer. Only teachers have access to the assessments created with *Assessing Projects* application.

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Step 3: Registering or Logging In

1. Go to the Teaching Tools Teacher Workspace at: **www.intel.com/education/visualranking**
2. Click **Teacher Workspace.**
3. If you already have an account, enter your **Login ID** and **Password** and click **Login**. Proceed to number 7 on the following page. If you have never registered before, select the **click here to register** link above the login box.

   Note: In order to have full access to the *Assessing Projects* application and use any of the thinking tools with your class, you must register so that your project information is saved and protected with a password. As a registered teacher, you may set up as many projects as you like and as many student team accounts that are needed for each project. Your email and other account information will be secure; if interested in Intel's privacy policy, click the **Privacy Policy** link.
4. Complete all of the required fields. When done, click the **Submit** button.

   Note: Keep in mind that your students will use your login ID (called teacher ID on the student login page), along with their own identifying information, to log into their projects. Your password must be at least one character long and no more than 14 characters.
5. A confirmation page will appear to notify you of successful registration.
6. Write down the login ID and password on Overview page vi or use the Login Information form in the *Unit Development* folder on the Curriculum Resource CD and save it in your Project Folder for easy access in the future. You will use the same login to set up and access all Teaching Tool projects.
7. Click **Continue to set up projects** to open and view the Teacher Workspace. You can manage your assessments, thinking tool projects, and student teams from the Teacher Workspace. This is where you can create assessments, set up new thinking tool projects, delete existing projects, and manage student teams and passwords.
8. Keep the Teacher Workspace page open and continue to Step 4.

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Step 4: Viewing Project Ideas Online

You will have additional time to view sample units and project ideas in tool-specific modules ahead. Use this time to simply get a sense of the project-approach to learning that can be enhanced and supported by these tools. If you see a project that you might like to modify for your own use in the future, you can use the Project Wizard to copy the project details into the Teacher Workspace you just created.

1. From the Teacher Workspace, click the **Project Examples** tab.
2. Click **Unit Plans**.
3. Review the short description under each unit's title and note the project approach used in many of the units. Click any unit titles of interest for more detail.
4. If you see any projects that you may want to use in your own classroom in the future, use the Project Wizard to add them to your Teacher Workspace. (See Teaching Tools, Visual Ranking Tool Skill 1.6, Seeing Reason Tool Skill 2.5, Showing Evidence Tool Skill 3.6.)

Note: If you click the link directly above the *Visual Ranking* list, **Click here to set up this project in your workspace**, a new window opens to your Teacher Workspace. A pop-up window also appears to notify you that the project has been added to your workspace. Close both windows to return to viewing additional unit plans. If you have a pop-up blocker, you may need to turn it off for this feature to work. Another way to override your pop-up blocker is to hold down the **Ctrl** key as you click the link to view the maps. **Macintosh* users:** You may be able to override a pop-up blocker by holding down the **Command** key as you click the link.

5. Open *Seeing Reason:* **www.intel.com/education/seeingreason**
6. Click **Project Examples**.
7. Click **Unit Plans**.
8. Review the short description under each unit's title and note the project approach used in many of the units. Click any unit titles of interest for more detail.

   Note: Not all units are project-based.
9. If you see any projects that you may want to use in your own classroom in the future, add them to your Teacher Workspace.
10. Open *Showing Evidence:* **www.intel.com/education/showingevidence**
11. Click **Project Examples.**

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

- Visual Ranking Tool Skill 1.6: Creating a Visual Ranking project from an existing project
- Seeing Reason Tool Skill 2.5: Creating a Seeing Reason project from an existing project
- Showing Evidence Tool Skill 3.6: Creating a Showing Evidence project from an existing project

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12. Click **Project Ideas.**

    Note: The difference between *Unit Plans* and *Project Ideas* is that *Unit Plans* have a complete Unit Plan (with detailed procedures, standards, assessment plan, and so on) and some of the associated materials needed to implement the unit (such as assessments; student thinking tool project sample, presentations, publications, and/or Web sites; teacher resources to facilitate the unit; and so on). *Project Ideas* provide a summary of the unit and a sample of a student team's project.

13. Review the short description under each project idea's title and note the project approach used in many of the projects. Click any project titles of interest for more detail.

    Note: Not all units are project-based.

14. If you see any projects that you may want to use in your own classroom in the future, add them to your Teacher Workspace.

15. Use any remaining time to review **Unit Plans** and **Project Ideas** for any of the thinking tools.

16. Identify and note any interesting project ideas in the samples you review:

Step 5: Viewing Additional Project Ideas

1. View Sample Project Descriptions, Questions, and Prompts in Appendix C.03.

2. Read through the descriptions and tool prompts.

3. Identify and note any interesting uses of the thinking tools in the samples you review and share with a partner:

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Step 6: Expanding a Unit to Use a Project-Approach to Learning

For this step, you will be grouped into teams of three to four teachers each.

In this activity, you read a scenario of a short unit about the moon for a 6th grade classroom. In small groups, expand the teacher-centered unit into a student-centered, project-based unit.

Classroom #1

In this unit, students learn about moon exploration. They compare the characteristics of the moon to those of the Earth.

Standards:

- Students will understand basic concepts about the Earth and space.

Target:

- Relate the features of the Earth-moon system

Target Indicators:

- Compare the surface features of the Earth to those of the moon
- List some major events in the exploration of the moon

Classroom Activities:

1. The teacher will show students pictures of the Earth's moon. A discussion will occur about what the students know about moon exploration. The teacher will write the events up on the board. The students will use the textbook and other library books to find other events and the dates they occurred to put up on the board and complete a timeline of moon exploration.
2. Students will read Chapter 3 of their Science textbook together as a class. At critical points during the reading, the teacher will stop and have the students write down different characteristics they find about the moon. When they are finished reading, the teacher will have the students compare and contrast the characteristics of the moon and the Earth in a Venn diagram.
3. The students will be given a quiz to determine what they learned about moon exploration and the characteristics of the moon.

Classroom #2

1. What is the real-world role of the students? _____

_____

_____

_____

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Be prepared to share your space project ideas with the whole group

2. What is the project scenario? _____

3. Besides the current unit you are considering to develop in this course, what are some other units that could benefit from a project approach? How would you turn them into a project-based unit? Share your ideas with a partner.

Unit	Project Approach Idea

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Activity 3: Considering a Project Idea for Your Unit

Well-designed projects tie content goals, real-world contexts, and enduring ideas together. Projects that incorporate authentic tasks help students find answers to important questions in meaningful ways.

> *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 and Schunk, 1996).*
>
> National Research Council, *How People Learn*

Projects can vary widely in subject matter and scope, and can be delivered at a wide range of grade levels. Projects grow out of challenging questions that cannot be answered by rote learning. Projects serve specific, significant educational goals; they are not diversions or add-ons to the "real" curriculum.

Classrooms that use projects encompass 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 supports learning, and throughout project work, multiple types of assessment are embedded to ensure that students produce high-quality work.

Step 1: Reviewing the Project Rubric

Refer to the rubric on the following page as you develop your unit in the following modules. Highlight unit characteristics that are important to you and especially consider the highest rated column for the *Project-Approach to Learning* row as you consider your project priorities in the next step.

Note: A copy of the Project Rubric is available in the *Assessment* folder on the Curriculum Resource CD.

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Designing Standards-Based Projects

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 students do addresses standards and objectives.	My Unit Plan shows that very little of the work students do 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 of these skills.	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 final products or performances.	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.	In my unit, my students use technology to understand important content concepts and develop content specific skills.	In my unit, my students use technology to explore content concepts.	In my unit, my students' use of technology is superficially related to content.

You will be delving deeply into Curriculum-Framing Questions in the next module. The main focus of the third trait above—*Instructional design incorporates Curriculum-Framing Questions*—is that you will use open-ended questions to target important, enduring ideas in their discipline.

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4	3	2	1
Thinking Tools support 21st century skills.			
The use of thinking tool(s) creatively develops students' research, higher-order thinking, collaboration, and communication skills.	The use of thinking tool(s) develops students' research, higher-order thinking, and/or communication skills.	The use of the thinking tool(s) only moderately develops students' research, higher-order thinking, collaboration, or communication skills.	The use of the thinking tool(s) does not develop students' research, higher-order thinking, collaboration, or communication skills.
Technology integration meets student and classroom needs.			
In my unit, my students use technology that is appropriate for all ability levels and interests, providing challenging experiences that build technology 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 us it, the technology is often inappropriate for their ability levels or interests.
The technology used 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 process.
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 most of the five assessment purposes.	In my unit students are assessed infrequently and in traditional ways to meet some assessment purposes.	Students are assessed in traditional ways at the end of the unit.

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Step 2: Identifying Your Project Priorities

Now that you have identified the thinking skills and standards you want to target in your classroom, as well as looked at a variety of projects for ideas, identify the project characteristics you also want to target. From the list of project characteristics on pages 2.09 and 2.10, what are the priorities you want to focus on in your unit? What elements of project design do you want to include in your unit? Brainstorm some ideas using the following checklist. This is just an initial look at the big picture for your unit.

Note: If you prefer to type your answers, open **Project Characteristics** in the *Unit Assessment* folder on the Curriculum Resource CD.

Project Characteristics	Ideas for How to Include This Characteristic in My Project
Students are at the center of the learning process. I am interested in including: ☐ Open-ended, authentic tasks ☐ Decisions that can be made by students ☐ Flexibility in order to apply students' interests ☐ Provisions for students to have some control over decisions about how they complete project tasks ☐ Collaborative groups for at least a portion of the unit	
Project work aligns with standards and is central to the curriculum. I am interested in targeting: ☐ A core area of my curriculum ☐ National and/or local standards ☐ Multiple methods of assessment and appropriate demonstrations of learning	
Projects are driven by Curriculum-Framing Questions. I am interested in using: ☐ An Essential Question that will include big and enduring ideas that cross many disciplines ☐ An Essential Question that will cross multiple units or my whole year ☐ Open-ended questions to help focus my unit on important concepts	

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Project Characteristics	Ideas for How to Include This Characteristic in My Project
Projects involve ongoing and multiple types of assessment. I am interested in including: ☐ Multiple checks for understanding using varied assessment methods throughout the unit ☐ Models and guidelines for students to know what is high-quality work, using resources such as rubrics, checklists, and/or samples of student work ☐ Opportunities for reflection, feedback, and adjustment	
The project has real-world connections. I am interested in involving: ☐ Relevancy to students' lives ☐ Community or outside experts who provide a context for learning ☐ Problem solving of real-world issues (community, national, or world) ☐ An authentic audience for student work ☐ Community resources, experts in the field of study, or communication through technology	
Students demonstrate knowledge through a product or performance. I am interested in having the project culminate with students demonstrating their learning through: ☐ Presentations ☐ Proposals ☐ Written documents ☐ Constructed displays ☐ Demonstrations or performances ☐ Simulated events, such as a mock trial ☐ Other: _____	

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Designing Standards-Based Projects

Project Characteristics	Ideas for How to Include This Characteristic in My Project
Technology supports and enhances student learning. I am interested in having my students use technology for: ☐ Research ☐ Creation of final products ☐ Simulations ☐ Conceptual development ☐ Communication ☐ Critical thinking ☐ Problem solving ☐ Other: _____	_____ _____ _____ _____ _____ _____ _____ _____ _____
Thinking skills are integral to project work. I would like my students to use metacognitive and cognitive thinking skills, such as: ☐ Analysis of data ☐ Collaboration ☐ Evaluation of information ☐ Self-monitoring	_____ _____ _____ _____ _____
Instructional strategies are varied and support multiple learning styles. I am interested in including: ☐ A range of instructional strategies ☐ Curricular material that is accessible to all students and provides opportunities for every student to succeed ☐ Instruction that will include such strategies as: ☐ Cooperative grouping ☐ Teacher feedback ☐ Graphic organizers ☐ Peer feedback	_____ _____ _____ _____ _____ _____ _____ _____ _____

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Activity 4: Sharing Project Ideas for Your Unit

During the course, the option of using a wiki is available so that you can see the evolution of your ideas throughout the unit development process. Outline in a wiki, or discuss in small groups, your ideas for a project that incorporates the use of one or more thinking tools. Refine the brainstormed list that you identified in the previous checklist. Don't worry if your unit ideas are still somewhat foggy at this point. You will refine your ideas throughout the following modules. Use the questions below as a starting point for thinking through your ideas.

- What real-world connections are you considering?
- What would be the role of the students?
- What project scenario are you considering?

Working in small groups, discuss each other's ideas. If using a wiki, share your wiki pages and provide feedback on the ideas. Use this time to see if you would like to partner with another teacher in the creation of a unit.

1. Open the wiki site URL for this course and save it in your favorites.
2. Create a new account and write the URL and login information on Overview page vi.
3. Create a wiki page with your name in the title.
4. Type a brief summary of your ideas for an overall project. Include:
   - Your subject and grade level
   - The topic of the unit
   - The project idea—the real-world connections, role of the student, and a general idea of the overall project
   - Concerns, questions, and desired feedback

5. Save your wiki page.

6. Share your wiki page in a small group and, if needed, note any feedback directly on your page.

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

- Teaching Tools, Seeing Reason Tool Group 2

Activity 5: Supporting Thinking

Considering your work with standards and standards-based projects, think about any additional factors you might want to add to your map. What makes you really think—coming from a teacher's perspective? Use the *Help Guide* for technical assistance, if necessary.

1. With your partner, open *Seeing Reason* from your Favorites. (**www.intel.com/education/seeingreason**)
2. Log on to the Student Workspace with the student login used in Module 1.

   Note: Your login information may be written on Overview vi.
3. Add more factors to your map, but this time from the perspective of a teacher.
4. Assign a different color to these factors than the color used in Module 1.
5. Add the causal relationships between the factors.

Remember to save your map into your portfolio at the end of the activity.

6. When you are done adding your factors and relationships, save the current version into your Portfolio.
7. Discuss with the class how your understanding of standards-based project planning has changed in this module.

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Extension Activity: Harnessing the Power of Project-Based Learning

The following resources are available to you for self-study or as an optional extension within your course.

For additional information about project-based learning, read Harnessing the Power of Project-Based Learning and Planning Projects, which are available on the Curriculum Resource CD.

1. Start the Curriculum Resource CD and open the *Project-Based Learning* folder.
2. Open and read **Harnessing the Power of Project-Based Learning** for an overview and look at the benefits and challenges of project-based learning.
3. Open and read **Planning Projects** to clarify misconceptions around projects and view some project ideas.
4. What ideas did these two articles provide that could help projects be more successful in your classroom?

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References

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Covey, S. (1990). *The 7 habits of highly effective people: Powerful lessons in personal change* (1st edition). New York: Simon & Schuster.

Thomas, J. W. (1998). *Project-based learning: Overview*. Novato, CA: Buck Institute for Education.

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Module 2 Summary

Use this summary to review this module's main points and check for understanding.

Review the central ideas in this module and the plans or materials you created to help improve student learning.

Module 2 Key Points:

- 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:
  - Determining specific learning goals (from standards and higher-order thinking skills)
  - Developing Curriculum-Framing Questions
  - Making an assessment plan
  - Designing activities

Accomplishments:

- Identified standards for my unit
- Set up my Teacher Workspace at the Intel® Education Web site
- Explore a possible project-approach for my unit and determined the priorities for my project
- Considered additional positive and negative influences that affect thinking—from the perspective of a teacher

In the following modules, we build on these concepts as we discuss ways we can support and encourage higher-order thinking skills through the use of standards-based projects.

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Notes

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