



Using a Curriculum Map: How to Plan Instruction

Overview

What is a curriculum map?

A curriculum map is a plan for how a teacher will teach a specific course. Curriculum maps address the major ideas and projects that drive a class, in order to help a teacher plan out a basic schedule for units, activities and assessments. Curriculum maps are not meant to be an exhaustive list of every class topic, which would take a large amount of time and energy to complete. Rather, they are meant to be used to answer basic questions about sequencing, pacing, and unit planning that can then be used to plan lessons effectively and efficiently throughout the course.

Curriculum maps cover a wide range of important curricular activities. Typically, they attempt to:

- create a "snapshot" of the plan for educational activities of a specific course
- capture the content, skills, and assessments throughout the course
- organize information into an easily accessed visual that presents a timeline of instruction

Why use a curriculum map?

The purpose of creating and using curriculum maps is to help teachers pace the year to ensure all the standards within a course will be covered. Curriculum maps offer a sequence for delivering content and provide a clear scope for what *must* be taught to *all* students, based on course standards.

- Mapping curriculum enables teachers to assure that they allocate sufficient time to cover each standard and objective.
- As teachers stand back and analyze a curriculum map, teaching strategies become clearer. The teacher is better able to create a balance between teacher-directed concepts and student-generated investigations. The teacher is also able to plan proactively for activities that might take advance notice (like scheduling a guest speaker or ordering laboratory materials) and allow preparation time for longer research projects.
- Curriculum mapping can also facilitate assessment planning. Periodic self-assessment and assessment using rubrics promotes awareness of strengths and areas for improvement. Students learn the language and process of setting, recording, and evaluating goals.

Curriculum Map Development

What is the process for creating a curriculum map?

The process for creating a curriculum map starts with identifying the knowledge and skills inherent within the course standards, grouping them into units of instruction, and setting objectives that will drive lesson plan development. Once concepts are organized in the curriculum map, teaching activities and assessments can be added. Let's take a look at an example from the course Principles of Engineering and Technology. We can take the information we created in the *Knowledge and Skills: How to Unpack a Standard* worksheet, combine it with the information we created in the *Strong Objectives: How to Write Aligned, Specific and Measurable Statements* worksheet, and start to fill out the curriculum map tool.



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Step One: Set-up Tool

Start by inserting the “Course Name” and appropriate “Grade” information for the course in the header of the curriculum map tool. You can then look at the [course description document](#) and scroll down the standards to find the thematic concepts that serve as headings for groups of standards. These group headers can serve as an initial organization of units. Place these bolded titles into the “Unit Title” column to get started. Units can be tweaked later if necessary to better organize activities.

Principles of Engineering and Technology

Engineering Design Process

- 6) There are different versions of the engineering design process. For example, examine the following framework endorsed by the International Technology and Engineering Educators Association (ITEEA):
- Identify the problem
 - Identify criteria and specify constraints
 - Brainstorm possible solutions
 - Research and generate ideas
 - Explore alternative solutions
 - Select an approach
 - Write a design proposal
 - Develop a model or prototype
 - Test and evaluate
 - Refine and improve
 - Create or make a product
 - Communicate results
- Citing this framework or other variations as approved by the instructor, compare and contrast what is involved at each step of the engineering design process. Explain why it is an iterative process and always involves refinement. (TN Reading 3, 4, 5; TN Writing 2, 4, 9)
- 7) In teams, evaluate an existing large-scale engineering design using the engineering design process. Produce a report on the chosen design, and assume the role of the engineering design team that produced the design. Document constraints that may have been faced by the design team, criteria for measuring the effectiveness of the design, and progress through each step of the engineering design process. Create and deliver a presentation appropriate for a career and technical student organization (CTSO) event. (TN Reading 3, 4, 5, 7; TN Writing 2, 4, 9)

Unit Title	Time/Length
Engineering Design Process	

Course Description Document: Standards

Curriculum Map Tool, First Column

Step Two: Transfer Course Content

The next step is to take the standards and the knowledge and skills within each standard that you have worked to break down and input them into the appropriate columns in the curriculum map tool. Refer back to the *Knowledge and Skills: How to Unpack and Standard* worksheet for more information. Below is our example from unpacking standard 7 into knowledge and skills. Remember, knowledge is what a student should know and skills are what a student should be able to do.



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Step Three: Transfer Strong Objectives and Estimate Timing

The next step is to take the strong objective statements that you have been crafted based on the knowledge and skills and input them into the appropriate column in the curriculum map tool. Refer back to the *Strong Objectives: How to Write Aligned, Specific and Measurable Statements* worksheet for more information. Continuing with our example based on the knowledge and skills for Principles of Engineering and Technology, below is an example of objectives aligned to the standard. Based off of the objectives, fill in the second column (time/length). Since there are multiple strong objectives in our example, we are anticipating this instruction to take five days. *Important to note: the objectives provided are written for the standard, not for a single day of instruction. Some objectives may take several days of instruction to cover.* Based on your objectives, estimate the time you believe you will need to spend with your students.

Principles of Engineering and Technology

Students will be able to (SWBAT)	Objective
SWBAT	<ul style="list-style-type: none"> Research design teams of well-known innovations and define the various roles of team members. Create a graphic representation of the steps in the engineering design process, outlining what is involved. As a class, discuss how and why constraints and criteria are used to evaluate a design solution. Research and identify common innovations like the telephone and write a description of the engineering design process that may have led to designing the cell phone. Read a case study of a major design problem, such as raising the shipwrecked Costa Concordia. Then, identify and explain the engineering design process steps in an oral presentation to the class.

Time/Length
5 days

Objective(s)
<ul style="list-style-type: none"> Research design teams of well-known innovations and define the various roles of team members. Create a graphic representation of the steps in the engineering design process, outlining what is involved. As a class, discuss how and why constraints and criteria are used to evaluate a design solution. Research and identify common innovations like the telephone and write a description of the engineering design process that may have led to designing the cell phone.

Strong Objectives Worksheet

Curriculum Map Tool, Second and Sixth Columns



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Step Four: Plan Instructional Activities and Assessments

Once you have inputted your knowledge, skills, and objectives, you can start to plan for what instructional activities you will use to complete your objectives. If you've written strong objectives statements, many will already include aligned activities that you should be using to increase student understanding. You can also review the reference standards (found at the end of the [course description document](#) in the *Standards Alignment Notes* section) for additional ideas for activities. Enter aligned activities into the appropriate column in the curriculum map tool. These do not have to be completed lessons, they will, however, give you a strong guide for developing individual lesson plans at a later date.

It is important to also think about how you will be assessing your students' learning during this step. Formative assessments (activities to diagnose student understanding and inform ongoing instruction) should be included in the "Activities" column, as they will serve as important day-to-day actions with your students. Culminating summative assessment activities should be included in the "Assessments" column. Don't be worried if you feel you have duplication. Good teachers often plan backwards and use similar authentic activities throughout their teaching to ensure students are prepared for the summative test.

In planning assessments for your "Assessment" column, make sure you are able to answer the question: "How will I know my students have mastered this material?" As you envision a proficient student, what should that student be able to know and do upon completion of the unit? Make sure the assessment is as authentic as possible. Sometimes a multiple-choice exam might be the easiest way to assess, but if you need to know if a student can physical demonstrate a technical skill, paper-and-pencil might not be the best option. See the example below for how a Principles of Engineering and Technology teacher planned out activities.

Principles of Engineering and Technology

Major Instructional Activities	Assessment(s)
<p>Students write their own definitions of the engineering design process using evidence from text and simpler but still accurate terms.</p> <p>Oral Questions during the class discussion promoting responses from research.</p> <p>Exit Slip/One Minute Essay on design criteria for the ideal school locker.</p> <p>Analogy Prompt Questions (Example: Design constraints are like boundaries because you must work within them while developing a solution to a problem.)</p> <p>Teacher observation of students discussing and evaluating an engineering design solution.</p> <p>Student Self-Assessment after the completion of a team written report.</p>	<p>Teacher Created Summative Exam (multiple choice and essay)</p> <p>Written Report of the Engineering Design Evaluation</p> <p>Oral Presentation of the Engineering Design Evaluation</p> <p>Expanded Research Project Topics could include:</p> <ul style="list-style-type: none"> • Raising the shipwrecked Costa Concordia • Space Shuttle Challenger Disaster (1986) • Designing the Grand Canyon Skywalk (2003-2007)

Curriculum Map Tool, Seventh and Eighth Columns



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Bridge to Practice

It's your turn!

Follow the four-step process outlined above with a course of your choosing using the curriculum map tool on the following pages.

- **Step 1:** Set up the tool by noting the name of the course and the current grade level in the header. Next, input names of basic units in the "Unit Title" column by transferring standard group headers from the course description document.
- **Step 2:** Transfer course content you created using the *Knowledge and Skills: How to Unpack and Standard* worksheet by completing the "Standards," "Knowledge," and "Skills" columns.
- **Step 3:** Transfer strong objectives you created using the *Strong Objectives: How to Write Aligned, Specific and Measurable Statements* worksheet into the "Objective(s)" column and then estimate how long it will take you to complete the objectives and enter that number into the "Time/Length" column.
- **Step 4:** Using the content already included, plan activities to deliver course content and meet objectives and assessments to measure student learning. Input lesson activities and formative assessment items into the "Major Instructional Activities" column and input summative assessments into the "Assessment" column.

Continue to add the rest of the standards and information into the map until you have finished inputting all of the content in your chosen course.

You're done!

The mapping is complete! This curriculum map will serve as your plan for teaching this course. From here, you can take this information and turn it into smaller lesson plans for your day-to-day teaching and/or pacing guides to work with other teachers in your program or district. This map should be correlated with your school calendar to plan effectively for instructional days across the semester or year (such as typical school-based interruptions, breaks, and testing windows).

Questions about this process or need assistance? Please contact CTE.Questions@tn.gov

Curriculum Map

Course Name: _____

Grade: _____

Unit Title	Time/Length	Course Content: Knowledge and Skills			Major Instructional Activities	Assessment(s)
		Standard(s)	Knowledge	Skills	Objective(s)	

Curriculum Map

Course Name: _____

Grade: _____

Unit Title	Time/Length	Course Content: Knowledge and Skills			Major Instructional Activities	Assessment(s)
		Standard(s)	Knowledge	Skills	Objective(s)	

Curriculum Map

Course Name: _____

Grade: _____

Unit Title	Time/Length	Course Content: Knowledge and Skills			Major Instructional Activities	Assessment(s)
		Standard(s)	Knowledge	Skills	Objective(s)	

Curriculum Map

Course Name: _____

Grade: _____

Unit Title	Time/Length	Course Content: Knowledge and Skills			Major Instructional Activities	Assessment(s)
		Standard(s)	Knowledge	Skills	Objective(s)	

Curriculum Map

Course Name: _____

Grade: _____

Unit Title	Time/Length	Course Content: Knowledge and Skills			Major Instructional Activities	Assessment(s)
		Standard(s)	Knowledge	Skills	Objective(s)	