

Module 2
Participant Guide

Focus on Content Standards

Section 4

Connecticut Core Standards for Mathematics



Grades 6–12

Systems of Professional Learning

Connecticut Core Standards Systems of Professional Learning

The material in this guide was developed by Public Consulting Group in collaboration with staff from the Connecticut State Department of Education and the RESC Alliance. The development team would like to specifically thank Ellen Cohn, Charlene Tate Nichols, and Jennifer Webb from the Connecticut State Department of Education; Leslie Abbatiello from ACES; and Robb Geier, Elizabeth O'Toole, and Cheryl Liebling from Public Consulting Group.

The Systems of Professional Learning project includes a series of professional learning experiences for Connecticut Core Standards District Coaches in English Language Arts, Mathematics, Humanities, Science, Technology, Engineering, Mathematics (STEM), and Student/Educator Support Staff (SESS).

Participants will have continued support for the implementation of the new standards through virtual networking opportunities and online resources to support the training of educators throughout the state of Connecticut.

Instrumental in the design and development of the Systems of Professional Learning materials from PCG were: Sharon DeCarlo, Debra Berlin, Jennifer McGregor, Judy Buck, Michelle Wade, Nora Kelley, Diane Stump, and Melissa Pierce.

Published 2014. Available online at <http://ctcorestandards.org/>



Section 4: Meeting the Expectations of the Content Standards by Teaching with Cognitively Rigorous Tasks

Video Observation Sheet

Instructions: View the video *Math Class Needs a Makeover* from TED.com. Use the space below to make notes on the video.

(The video can be found here: http://www.ted.com/talks/dan_meyer_math_curriculum_makeover.html.)

Video Notes and Observations

Revised Bloom's Taxonomy	Webb's DOK Level 1 Recall & Reproduction	Webb's DOK Level 2 Skills & Concepts	Webb's DOK Level 3 Strategic Thinking/Reasoning	Webb's DOK Level 4 Extended Thinking
Remember Retrieve knowledge from long-term memory, recognize, recall, locate, identify	<ul style="list-style-type: none"> Recall, observe, & recognize facts, principles, properties Recall/ identify conversions among representations or numbers (e.g., customary and metric measures) 			
Understand Construct meaning, clarify, paraphrase, represent, translate, illustrate, give examples, classify, categorize, summarize, generalize, infer a logical conclusion (such as from examples given), predict, compare/contrast, match like ideas, explain, construct models	<ul style="list-style-type: none"> Evaluate an expression Locate points on a grid or number on number line Solve a one-step problem Represent math relationships in words, pictures, or symbols Read, write, compare decimals in scientific notation 	<ul style="list-style-type: none"> Specify and explain relationships (e.g., non-examples/examples; cause-effect) Make and record observations Explain steps followed Summarize results or concepts Make basic inferences or logical predictions from data/observations Use models/diagrams to represent or explain mathematical concepts Make and explain estimates 	<ul style="list-style-type: none"> Use concepts to solve <u>non-routine</u> problems Explain, generalize, or connect ideas <u>using supporting evidence</u> Make <u>and justify</u> conjectures Explain thinking when more than one response is possible Explain phenomena in terms of concepts 	<ul style="list-style-type: none"> Relate mathematical or scientific concepts to other content areas, other domains, or other concepts Develop generalizations of the results obtained and the strategies used (from investigation or readings) and apply them to new problem situations
Apply Carry out or use a procedure in a given situation; carry out (apply to a familiar task), or use (apply) to an unfamiliar task	<ul style="list-style-type: none"> Follow simple procedures (recipe-type directions) Calculate, measure, apply a rule (e.g., rounding) Apply algorithm or formula (e.g., area, perimeter) Solve linear equations Make conversions among representations or numbers, or within and between customary and metric measures 	<ul style="list-style-type: none"> Select a procedure according to criteria and perform it Solve routine problem applying multiple concepts or decision points Retrieve information from a table, graph, or figure and use it solve a problem requiring multiple steps Translate between tables, graphs, words, and symbolic notations (e.g., graph data from a table) Construct models given criteria 	<ul style="list-style-type: none"> Design investigation for a specific purpose or research question Conduct a designed investigation Use concepts to solve non-routine problems <u>Use & show reasoning, planning, and evidence</u> Translate between problem & symbolic notation when not a direct translation 	<ul style="list-style-type: none"> Select or devise approach among many alternatives to solve a problem Conduct a project that specifies a problem, identifies solution paths, solves the problem, and reports results
Analyze Break into constituent parts, determine how parts relate, differentiate between relevant-irrelevant, distinguish, focus, select, organize, outline, find coherence, deconstruct	<ul style="list-style-type: none"> Retrieve information from a table or graph to answer a question Identify whether specific information is contained in graphic representations (e.g., table, graph, T-chart, diagram) Identify a pattern/trend 	<ul style="list-style-type: none"> Categorize, classify materials, data, figures based on characteristics Organize or order data Compare/ contrast figures or data Select appropriate graph and organize & display data Interpret data from a simple graph Extend a pattern 	<ul style="list-style-type: none"> Compare information within or across data sets or texts Analyze and <u>draw conclusions from data, citing evidence</u> Generalize a pattern Interpret data from complex graph Analyze similarities/differences between procedures or solutions 	<ul style="list-style-type: none"> Analyze multiple sources of evidence Analyze complex/abstract themes Gather, analyze, and evaluate information
Evaluate Make judgments based on criteria, check, detect inconsistencies or fallacies, judge, critique			<ul style="list-style-type: none"> <u>Cite evidence and develop a logical argument</u> for concepts or solutions Describe, compare, and contrast solution methods <u>Verify reasonableness of results</u> 	<ul style="list-style-type: none"> Gather, analyze, & evaluate information to draw conclusions Apply understanding in a novel way, provide argument or justification for the application
Create Reorganize elements into new patterns/structures, generate, hypothesize, design, plan, construct, produce	<ul style="list-style-type: none"> Brainstorm ideas, concepts, or perspectives related to a topic 	<ul style="list-style-type: none"> Generate conjectures or hypotheses based on observations or prior knowledge and experience 	<ul style="list-style-type: none"> Synthesize information within one data set, source, or text Formulate an original problem given a situation Develop a scientific/mathematical model for a complex situation 	<ul style="list-style-type: none"> Synthesize information across multiple sources or texts Design a mathematical model to inform and solve a practical or abstract situation

Strategies for Differentiating Cognitively Rigorous Tasks

Instructions: Use the space provided to make notes on each of the strategies presented.

<p>Scaffolding</p>	<p>Open Questions</p>
<p>Parallel Tasks</p>	<p>C-R-A</p>

