Math Methodology: Curriculum: Content and Mapping: Common Core and General Content Resources
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This section on curriculum is part 3 of the Math Methodology series on instruction, assessment, and curriculum design, which includes:

- **Part 1: Math Methodology: Instruction**
  - Instruction Essay An Introduction to Teaching Challenges, Bloom’s Taxonomy and Levels of Understanding; and Teaching Mathematics Right the First Time: Learning for Understanding
  - Instruction Resources

- **Part 2: The Role of Assessment** and resources

- **Part 3: Curriculum: Content and Mapping**

Curriculum Mapping (Page 1 of 2):

- Content and Curriculum Mapping Essay
- Curriculum Mapping Resources

Curriculum Content Resources (Page 2 of 2) on this page are in the following subsections:

- Common Core Content Resources
- General Curriculum Content Resources
Common Core Content Resources

Ensure Alignment to Common Core Standards

The Common Core State Standards (2010) address Mathematics and English Language Arts. "The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers" (CCSS Initiative Mission Statement section). Learn more about the status of the Common Core Standards in your state.

Checking for alignment to CCSS is not a perfect or easy process, as definitions of alignment vary. However, there are projects underway for vetting instructional materials.

June 1, 2011: CCSS Mathematics Curriculum Materials Analysis Project from mathedleadership.org provides a set of three tools that will assist districts in selecting mathematics curriculum materials that support implementation of the CCSSM.

- **Tool 1** looks at the treatment of key content areas in each of four grade bands (K–2, 3–5, 6–8, 9–12);
- **Tool 2** focuses on the extent to which the Standards for Mathematical Practice are embedded and integrated in the curriculum materials;
- **Tool 3** focuses on how well the mathematics curriculum materials address equity, assessment, and technology.

July 20, 2012: The writing team for the Common Core State Standards in mathematics (CCSSM) finalized a set of guidelines "to support faithful CCSSM implementation by providing criteria for materials aligned to the Common Core State Standards for Mathematics" (p. 1). While meant for publishers, the document, K-8 Publishers' Criteria for the Common Core State Standards for Mathematics, will be valuable to school districts in reviewing previously purchased materials and tools, and for educators to review their existing teacher-developed materials and to develop new materials aligned to the standards, and for providing professional development. The 24-page document, free for download, has three sections:

1. Focus, Coherence, and Rigor in the Common Core State Standards for Mathematics
2. Criteria for Materials and Tools Aligned to the Standards
3. Appendix: "The Structure is the Standards."

April 9, 2013: The High School Publishers' Criteria for the Common Core State Standards for Mathematics are provided within a 20-page document with criteria structured as follows:

1. Focus, Coherence, and Rigor in the High School Standards
2. Criteria for Materials and Tools Aligned to the High School Standards
If districts choose to purchase new materials for instruction, Julie Sarama and Douglas Clements (2013, p. 16) suggested that it is not sufficient to accept a publisher's claim that a new product is aligned to the Common Core Standards. They provided the following key questions to ask that help ensure a product meets Common Core Standards for math:

- Does the program provide appropriately rigorous and coherent mathematics instruction? Does it provide teachers and students the opportunity to understand and apply the major ideas and procedures for each grade ...
- Do the materials, tools, and digital offerings provide teachers and students a variety of ways to pursue conceptual understanding, procedural skill, and fluency?
- Does the program provide opportunities for meaningful application of the Standards for Mathematical Practice ...
- Is the curriculum built on learning progressions ... from grade to grade that help students relate grade-level concepts to prior knowledge and build a solid foundation for future learning?
- Does the program require students to engage in challenging mathematical thinking and problem solving, including academic discussions that explicitly use the specialized language of mathematics? Are there instances that prompt students to construct viable arguments and engage in real-world problem solving?
- In general, does the program go beyond programs that were available before the advent of CCSS, rather than simply stating that it is "compatible with the CCSS," without substantive change? (p. 16)

HOT: The Instructional Materials Evaluation Tool (IMET) from Achieve the Core can be used to evaluate a comprehensive K-8 or high school mathematics textbook or textbook series in print and digital format for alignment to the CCSS. It is helpful with decisions for purchasing new texts or evaluating previously purchased materials to identify necessary modifications. Per Achieve, IMET draws directly from the following documents:

- Common Core State Standards for Mathematics
- Publishers' Criteria for the Common Core State Standards for Mathematics, K-8 and High School (Spring 2013)

The EQuIP Rubric: Mathematics from Achieve the Core is a tool for evaluating lesson plans and units of instruction in K-12 mathematics for their alignment to CCSS. EQuIP stands for Educators Evaluating the Quality of Instructional Products.

The Council of the Great City Schools has a Common Core
Standards Project. It includes a Mathematics Grade-Level Instructional Materials Evaluation Tool, which is a set of K-8 rubrics designed for evaluating the quality of instructional materials and textbooks.

EdReports.org is vetting instructional textbooks for alignment to CCSS. The reviewers rely on three benchmarks: how well the series meets Common Core expectations on focus and coherence; how well the series helps learners develop conceptual and procedural skills and connects to the standards for mathematical practice; and how well the series supports student learning and engagement, including for enabling teachers to differentiate instruction and use technology (Heitin, 2014, p. 7). EdReports.org provides free web-based reports. However, see Concerns Regarding the Use of EdReports Mathematics Materials Review (2015, May 20) posted at the National Council of Teachers of Mathematics website.

The Textbook Navigator Journal for Mathematics Teachers (Nav/J) is a project from the Michigan State University Center for the Study of Curriculum designed to help teachers implement the Common Core Standards, even if they are using older texts adopted before the Common Core math standards. Per the website, 34 math textbook series are catalogued. Those who register can find out which standard a lesson covers, search specific standards for lessons in their textbooks covering those standards, and take advantage of resource materials to develop lessons covering standards that are not addressed in their textbooks (Project section). Read the background summary in the Navigator Report.

Look for rubrics that states are using for evaluating textbooks and instructional materials:

- The Nevada Department of Education Textbook and Instructional Material Evaluation Rubric Form--Mathematics.
- The Ohio Department of Education Mathematics Resource Materials Filter addresses selecting materials related to the Common Core Standards. It includes 10 categories, each with a rating scale 0-3: Critical Areas of Focus and the Content Standards Alignment, Standards for Mathematical Practice Development, Conceptual Understanding of Mathematics Development, Mathematical Accuracy, Reliability, Validity, Authority and Equity, Contextual Learning, Problem Solving and Rich Problems, Adaptability/limited use – easily able to be modified to meet the diverse needs of students, uses or situations, Assessments-Formative and Summative, Navigability and Appearance.

Achievethecore.org is gathering resources for implementing the Common Core State Standards. You'll find free resources, articles, sites, and research on this topic. Developers noted three shifts for mathematics instruction:

1. **Focus** strongly where the Standards focus
2. **Coherence:** Think across grades, and link to major topics within grades
3. **Rigor:** Require **fluency**, **application**, and **deep understanding** (Steal these Tools section).

Achievethecore.org also provides Where To Focus: Math Shifts, Key Fluencies, and Major Work of Grade. This document is of particular relevance for K-8
mathematics as it provides guidance for focusing instruction at each grade level. Content emphases are identified by major clusters, supporting clusters, and additional clusters. Achieve the Core’s section for mathematics includes Common Core exemplar tasks and assessments with explanations and supporting resources, and Common Core aligned exemplar lessons and units with supporting resources. There are also tools for planning, additional materials for understanding the math, and ready-to-use modules for professional development.

**HOT:** The Alabama Department of Education has provided a series of video clips related to the Common Core State Standards for Mathematics, which "provide additional insight into how the College and Career Ready Standards change instruction and the implications of the Standards for the classroom."

California Department of Education adopted mathematics programs in January 2014 aligned to the Common Core Standards for K-8. The list of 31 programs from major publishers can be viewed online and are grouped into three categories: basic grade-level (n=20), algebra I (n=10), and integrated math 1 (n=1). Also see details within the California 2014 Mathematics Adoption Report.

**Common Core FlipBooks:** The Kansas Association of Teachers of Math (KATM) has put together a series of "flip" books to help implement the Kansas College and Career Ready Standards for K-8 and high school mathematics. Each is a free download and is intended to help teachers understand what students must know and be able to do in relation to each standard. Sample instructional strategies and examples are included in each. Among resources used for these are the CCSS; the Arizona, Ohio, and North Carolina Departments of Education, and NCTM's Focus in Grades K-8 series.

**C-STEM** (Computing, Science, Technology, Engineering, Mathematics) is an initiative of UCDavis, which promotes "Transforming Math Education Through Computing." "By working with K-14 educators, the C-STEM Center integrates computer programming and robotics into teaching STEM subjects by creating project-based computing and robotics activities, integrated curriculum, and hands-on personalized and collaborative learning strategies aligned with Common Core State Standards (CCSS) and Career and Technical Education (CTE) Standards. This integration helps students make meaningful connections between regular STEM topics and their relevance to real-life applications as well as help develop students’ critical thinking and problem-solving skills" (About Us section). Further, the curricula for elementary, middle, and high school learners within the C-STEM Math-ICT Pathway provide "hands-on integrated learning of math and computer science with coding in Blockly and C/C++." The C-STEM Center also developed "teaching strategies, textbooks, and courseware including lesson plans, PowerPoint lessons, video lessons, group computing activities, optional robotic activities, and assessment tools" (Curriculum section). The programs C-STEM Studio and RoboBlockly are free downloads and include video tutorials.

**HOT for CCSS: Curriculum Inspirations** from the Mathematics Association of America is "a collection of resources for Middle and High School Math Teachers that demonstrate practical ways to engage students in the lively exploration of mathematics and mathematical thinking using problems from America’s longest-running and most successful mathematics competition. Developed by James Tanton, these resources include Ten Problem Solving Strategy Essays and Curriculum Bursts.” The problem solving essays "relate specific AMC test questions to Common Core State Standards Problem Solving Strategies. The Curriculum Bursts are "short essays, paired with a Curriculum Inspirations Video." These are found within individual content standards for each of the Common Core high school and middle school math strands.

**HOT for CCSS: Curriki Geometry Aligned to the CCSS-M Standards** "is a collection of resources for a high school course in Geometry. The resources are organized by Common Core State Standards for Mathematics and reflect a ninth or tenth grade course. Both teacher facing and student facing assets are included and are of various forms, e.g. text, video, and animations" (Content section description).
HOT for CCSS: Curriki PBL Geometry is a free curriculum that takes a project-based approach for learning. There are several Common Core State Standards aligned projects, each of which focuses on at least two of the eight mathematical practice standards and includes a rubric for assessing mathematical practices. Teachers can select to use all or just some of the projects. Projects can be taught in any order and include technology and Web 2.0 resources "such as videos, documents, web pages, and dynamic geometry constructions, quizzes and exam suggestions for assessment, and other tools related to the project."

You'll find:

- Selling Geometry
- Designing a Winner
- What’s Your Angle, Pythagoras?
- TED Talk: House of the Future
- The Art of Triangles
- How Random is My Life?

HOT for CCSS: Discovery Education Math Techbook for grades 6-8, and algebra 1, geometry, algebra 2, and integrated math 1, 2, 3. These digital techbooks contain game-like activities, videos, and interactives built to address the Common Core standards. The inquiry-based approach balances conceptual understanding, procedural fluency, and application to real world problems. Formative assessments are embedded and provide immediate feedback to learners.

Edmentum, formerly PLATO Learning, provides math courseware for grades 6-12 that is either aligned or built to cover 100% of the Common Core standards. High school includes algebra 1 and 2; geometry, integrated math 1, 2, and 3; precalculus, and probability & statistics. A consumer mathematics course is also available. Math courses are either enabled or optimized for use on mobile devices.

HOT for CCSS: emergent math is a blog that has some great ideas for introducing students to inquiry-based learning. Begin your exploration with A Problem Based Learning Starter Kit, posted October 30, 2013. You will also find a set of Common Core Problem Based Curriculum Maps for grades 6-11, algebra 1, geometry, and algebra 2.

HOT for CCSS: EngageNY Common Core Curriculum includes grades preK-8, and high school algebra 1, algebra 2, geometry, precalculus and advanced topics. The site includes the "Common Core Standards, curriculum and instructional resources, bilingual resources, performance tasks and assessment guidelines and materials."

HOT for CCSS: Exemplars: Problem Solving for the Common Core, K-5 is an online resource for instruction and assessment. Materials contain over 500 authentic open-ended problems, differentiated instructional tasks, summative assessments with anchor papers and scoring rationales, planning sheets for using tasks that include vocabulary, concepts, solutions and strategies for solving tasks, rubrics; and CCSSM alignments. There is a free 30-day trial. Exemplars also has other math resources for differentiated problem solving in preK-K and K-8, and problem solving for secondary grades 7-12.

HOT for CCSS: Georgia Department of Education Virtual Learning Shared Resources includes content aligned to Georgia Performance Standards and Common Core (where applicable). There are several math courses, each that also includes open education resources and teacher created material: Finance, AP Calculus BC, Coordinate Algebra, Analytic Geometry, Geometry, Advanced Algebra, Pre-Calculus. Review (video and questions) and test taking skills are included.

HOT for CCSS: Illustrative Mathematics Project is a work in progress to produce illustrative tasks that students would be expected to do related to each of the Common Core State Standards for Mathematics. Sections address illustrations for the K-8 and High School standards. The project is an initiative of the Institute for Mathematics & Education and the Bill & Melinda Gates Foundation.

Inside Mathematics, which grew out of the Noyce Foundation's Silicon Valley
Mathematics Initiative, is exemplary as "a professional resource for educators passionate about improving students' mathematics learning and performance. This site features classroom examples of innovative teaching methods and insights into student learning, tools for mathematics instruction [organized by grade level and subject] that teachers can use immediately, and video tours of the ideas and materials on the site" (Welcome section). Inside Mathematics also has CCSS materials and tasks aligned to each Common Core math standard in K-8 and high school by strands. The Ohio Department of Education also developed a Correlation of Inside Mathematics Tasks to CCSS (Common Core State Standards) as of June 2010.

Khan Academy: Common Core aligned problems also feature step-by-step solutions and videos related to problems to support learning. Problems focus on conceptual understanding, procedural fluency, and real-world application.

LearnZillion "offers a free and growing set of Math and English Language resources for grades 2-12 that have been developed by expert teachers directly from the Common Core State Standards" (About section). Free accounts are available for teachers and parents. The site was started at a public charter school in Washington, DC. Their resources are also featured in the Common-Core section at this website.

Making it Happen from the National Council of Teachers of Mathematics is a guide that "identifies and highlights the ways in which NCTM resources can support teachers as they implement and supplement the Common Core State Standards for Mathematics in their states."

Mathematics from McGraw-Hill includes textbooks aligned to CCSS. Per McGraw-Hill: "The K-8 response to CCSS has been addressed in both Math Connects and in Everyday Mathematics. For grades 9-12, the new Glencoe Common Core High School Math Series, Core Plus, and the University of Chicago School Mathematics Project are also aligned to the CCSS."

HOT for CCSS: Mathematics Common Core Toolbox has sample task items for elementary, middle, and high school from the PARCC Prototyping Project, posted by The Charles A. Dana Center at the University of Texas at Austin.

Mathematics Learning Center: Bridges in Mathematics for PK-5 is a comprehensive program for implementing the Common Core Standards via an inquiry approach to math education. Per its description, "The curriculum focuses on developing students’ deep understandings of mathematical concepts, proficiency with key skills, and ability to solve complex and novel problems. Bridges blends direct instruction, structured investigation, and open exploration." It "incorporates increasingly complex visual models, including the Number Line and Array models.” The Mathematics Learning Center also provides several free apps based on the visual models in Bridges.

OpenCurriculum has a library of resources for mathematics gathered from other sources on the web, such as lesson plans, activities, worksheets, assessments, exercises, and lectures.

Open Education Resources Commons (OER) hosts a tool (8 rubrics) that enables users to evaluate the quality of open educational instructional resources on its site. The eight rubrics pertain to degree of alignment to Common Core standards, quality of explanation of subject matter, utility of materials designed to support teaching, quality of assessment, quality of technological literacy, quality of instructional tasks and practice exercises, opportunities for deeper learning, and assurance of accessibility. OER evaluation rubrics, developed by Achieve, Inc. in collaboration with the OER Commons, are also available for download at the Achieve web site.

Pearson Education:

- CME Mathematics Common Core (2013) from Pearson Education is for "Algebra 1, Geometry, Algebra 2, and PreCalculus. The program meets the dual goals of mathematical rigor and accessibility" and features "curriculum that is designed around problem-based, student-centered tasks" (Product description).
- **enVisionmath2.0 Common Core K-5** (2015) supports print, blended, and 1:1 learning experiences. It includes "interactive learning aids, video tutorials, personalized practice, immediate feedback, built-in RtI activities in multiple modalities" and "promotes focus and coherence" (Product description).

- **enVisionmath2.0 Common Core 6-8** (2017)

**Progressions Documents for the Common Core Math Standards** from the University of Arizona Institute for Mathematics and Education (IM&E) describe the progression of topics within strands across a number of grade levels. "They can explain why standards are sequenced the way they are, point out cognitive difficulties and pedagogical solutions, and give more detail on particularly knotty areas of the mathematics. This would be useful in teacher preparation and professional development, organizing curriculum, and writing textbooks" (About this project section). Examples of such progressions include K-6 geometry, K-5 measurement and data, 6-8 statistics and probability, 6-8 expressions and equations, and more. The IM&E is supporting the CCSS in Math with a number of projects. See those at [http://ime.math.arizona.edu/commoncore/](http://ime.math.arizona.edu/commoncore/)

**HOT for CCSS:** **Redbird Learning: Mathematics**, developed by Stanford University using 25 years of research into personalized learning, "features the latest in adaptive instruction, gamification, and digital project-based learning. This K-6th grade curriculum is designed specifically to meet the requirements of Common Core (Focus, Coherence, and Rigor)." Further, "Applications appear throughout courses, in the form of contextualized problems and STEM projects." (Mathematics description section). This program can also be used with flipped or blended learning.

**TriumphLearning** produced a series of CCSS texts for K-12. For example: for grades 1-8, Readiness for the Common Core; for grades 3-8 and high school (algebra, geometry): Common Core Coach, Common Core Performance Coach, Common Core Performance Coach PARCC or SBAC Assessments, Common Core Support Coach, Waggle (individualized practice), and more. Products are available by state.

**HOT for CCSS:** **TurnOnCCMath** was developed by a research team at North Carolina State University as "a comprehensive resource to support teachers, teacher educators, professional development providers, and district and state-level curriculum experts in interpreting the CCSS-M for instructional implementation." The team identified "18 learning trajectories that unpack the K-8 Common Core State Standards for Mathematics from the standpoint of student learning, and elaborate the underlying scientific research in mathematics education." You'll find a map with an arrangement of hexagons, which "illustrates these learning trajectories, standard by standard. Clicking on a hexagon or a trajectory takes you to detailed descriptors that articulate students' progression from prior knowledge and naïve conceptions to more sophisticated mathematical concepts and reasoning." (website description)

**HOT for CCSS:** **Utah State Office of Education: Mathematics** for Secondary Mathematics includes textbooks aligned to the Common Core State Standards in Mathematics. The texts take an integrated approach and task-based approach to the study of mathematics. Also see the Mathematics Vision Project for the **Secondary I, II, and III** student textbooks and teacher editions, and the honors texts and teacher editions for those, which are freely available. There are performance tasks and "ready-set-go assignments." The series takes a multi-tasking approach to learning. That is, each task addresses more than one standard and each standard is addressed in more than one task. Tasks are sequenced using the Comprehensive Mathematics Instruction framework: develop understanding, solidify understanding, and practice understanding.
More and more districts are turning to digital resources for learning. Some are seeking to reduce expenditures for purchasing print-based textbooks, and are turning to online textbooks or are developing their own content posted in repositories for learning (e.g., within wikis and blogs). Educators are sharing resources, such as lesson plans, assessments, interactive content, websites, classroom teaching videos, and more.

Per Fletcher, Schaffhauser, and Levin (2012), there are many benefits of digital content for learning:

"Digital content can easily be kept up to date and relevant to students’ lives without the cost of reprinting or redistributing print materials such as a textbook (although digital content can be printed out when the need is there). It can be made available anytime and anywhere, both online and offline, accessible when the student, teacher, or parent needs it, whether from home, school, or another location. And digital content can be far richer and engaging, including not only text, but also high-definition graphics, video clips, animations, simulations, interactive lessons, virtual labs, and online assessments. The primary benefit of digital content is its flexibility. ... The key to realizing the flexibility benefit is open educational resources (OER)." (p. 7)

The use of OER resources is on the rise, as educators can "reuse, remix, and generally customize any OER to specific students’ needs" (Fletcher, Schaffhauser, & Levin, 2012, p. 8), thus personalizing learning.

Such "re-purposing" activities prompt questions about ensuring quality of those resources and maintaining standards in the curriculum. Pearson School CEO Peter
Cohen (cited in Schaffhauser, 2012) suggested several aspects of quality of curriculum, which publishers might be better able to address on the whole. This is not to diminish the value of content developed by teachers and shared in repositories, however. Consider:

1. Is the content appropriate and authentic?
2. Does it do what the author is trying to do in terms of teaching?
3. Is the content free of grammar and spelling errors?
4. Is graphical content present and of high quality to support learning (consider that digital content can do a better job of this over print-based content)?
5. Does the curriculum address the full scope and sequence of the subject area?
6. Has content bias been addressed (all diverse groups should be appropriately represented)?
7. Has the content of the materials teachers are using in their classrooms been correlated to the standards mandated by the state?
8. What reporting tools are available for monitoring what is being taught?
9. Is it the best use of teacher time to develop or gather content, such as required for an open education resource, or would that time be better spent working with students to improve their achievement?

David Wiley (cited in Schaffhauser, 2012, pp. 29-30) added the issue of assessments, and not just pdf files of quizzes and tests. How well does the open education resource address diagnostic assessments or mastery of content?

NCTM (2016) stated its position on Curricular Coherence and Open Education Resources:

"A coherent, well-articulated curriculum is an essential tool for guiding teacher collaboration, goal-setting, analysis of student thinking, and implementation. In a time when open educational resources are increasingly available, it is imperative that teachers be provided with curricular materials that clearly lay out well-reasoned organizations of student learning progressions with regard to mathematical content and reasoning." (p. 1)

Although there are advantages to using OER, NCTM (2016) did note risks:

- "Teachers who are provided with little or no support for setting mathematical goals and organizing resources into a coherent learning progression,
- Resources students have access to will vary widely from teacher to teacher and school to school, reinforcing inequities in situations where students who struggle are more likely to have inexperienced teachers, and
- School communities will abandon the process of vetting and adopting agreed-upon curriculum resources, creating a lack of transparency and accountability." (p. 1)

Open Education Resources

OER State Policy in K-12 Education: Benefits, Strategies, and Recommendations for Open Access, Open Sharing from iNACOL (2013), the International Association for K-12 Online Learning. The report contains seven policy recommendations and the following "key principles to consider in enabling sharing of learning materials:

1. Emphasize that materials created by state, regional, or local entities using public funds will hold an open license for sharing, collaboration, and access for all educators and students.
2. Allow states with instructional materials lists to include OER.
3. Allow instructional materials and other funding to support development, maintenance, and infrastructure for OER and technology infrastructure with flexible uses of funding." (p. 2)

The U.S. Department of Education Office of Educational Technology is encouraging states, districts, and educators to use open educational resources through its Open Education Initiative, #GoOpen (2015). The department believes such resources increase equity, help schools to save money, keep content relevant and high quality, and empower teachers to be able to "customize learning materials to meet the needs of their students without breaking copyright laws" (Open Education Initiative, Why Use Openly Licensed Educational Resources? section).

Do you need help selecting instructional materials?

The Guide to Quality Instructional Materials (2018) from the State Educational Technology Directors Association (SETDA) "provides guidance to state, district, and school level leaders in the selection of high quality instructional materials that are aligned to standards, address education goals and are accessible for all students." You'll find several state rubrics, state repositories, a comprehensive section on OER, and much more.

Do you want to create your own OER?

OpenLearn has a free course for creating open educational resources produced by The Open University. You can complete it online in about 15 hours or download it for use offline.

CT4ME has an entire section devoted to Standards, which help identify content for grade levels for states. The following additional resources address content and curriculum frameworks and open educational resources.

Amazon Inspire provides open educational resources searchable by subject, grade band, and standards (CCSS ELA, CCSS Math, and NGSS).

Curriki.org provides open-source content in multiple subjects. Content is tagged for searches. You can also search by subject, level, instructional type, file type, and special filters. This repository has several thousand resources in the math collection alone.

CK12.org open education resources for students. CK-12 creates and aggregates high quality STEM content. Multimedia elements include learning objects with text, video, audio, images, quizzes, and interactivity. This is a great sources for creating Flexbooks.
HippoCampus, a project of the Monterey Institute for Technology and Education, is a "free, public website for high school and college students that offers NROC multimedia correlated to most major textbooks." NROC is the National Repository of Online Courses for students and faculty in higher education, high school, and advanced placement. Among the full math textbooks online are Algebra (IA, IB, and Elementary) and Calculus (Introductory I and II, General I and II, AB and BC levels for advanced placement). Multimedia includes audio explanations, visuals, interactivity. Individual instructors can customize the Hippo website to better meet the needs for groups of students. Highly recommended.

Illustrated Mathematics 6-8 is a middle-school math problem-based core curriculum from Open Up Resources. Materials include unit plans, lesson plans, and assessments for teachers, and materials for students and families. There is support for ELLs and lesson-level strategies for learners with disabilities. The program is build from standards and is offered free as an Open Education Resource. Digital and print formats are available.

Learning Registry is an open database of learning resources found online "including the publisher, location, content area, standards alignment, ratings, reviews, and more" (Web site description). You can search the registry by topic, subject, or standard.

MERLOT provides peer-reviewed online teaching and learning materials in numerous categories. Education, and mathematics/statistics are among those.

Mid-continent Research for Education and Learning (McREL). In particular see the section for Resources, which includes a Compendium of Standards.

MIT OpenCourseWare program has made available free lecture notes, exams, and other resources from its entire curriculum. See Highlights for High School Students for MIT OpenCourseWare materials that are most useful for high school students and teachers.

MyMathLab from Pearson includes "ready to go" courses that create "personalized learning experiences that help each student better absorb course material, and it offers the broadest range of textbooks available for online learning and assessment in Math"--over 240 titles. Courses "come with pre-assigned assignments covering each chapter and section, along with the traditional course offering for each book." Course areas range from developmental math (basic math, prealgebra, algebra, etc.) to calculus and technical math. Use your learning management system: Blackboard Learn, Canvas, Brightspace by D2L, or Moodle.

National Assessment Governing Board sets policy for the National Assessment of Education Progress (NAEP). Testing frameworks are provided.

Ontario Ministry of Education (CA) curriculum documents.

Open Culture includes free math courses from top universities. You can download these audio and video courses ranging from algebra to calculus and statistics. Other content areas are included.

Open Education Resources Commons (OER) includes content from pre-K to graduate school: arts, business, mathematics and statistics, humanities, science and technology, and social sciences. The teaching and learning materials are freely available online for everyone to use. Examples of OER include: full courses, course modules, syllabi, lectures, homework assignments, quizzes, lab and classroom activities, pedagogical materials, games, simulations, and many more resources contained in digital media collections from around the world. The site uses Web 2.0 features (tags, ratings, comments, reviews, and social networking) to help educators in sharing their best teaching and learning practices.

OpenTextBookStore is not a publisher of open source textbooks. Rather, this is a source of publicly available open source textbooks selected because they "are really adoptable and ready to use." Within the Catalog section are math
textbooks for arithmetic (for upper level and college learners), prealgebra, algebra, precalculus, calculus, and statistics. For higher math, there are texts for linear algebra and differential equations, and a text on Math in Society.

Pennsylvania Department of Education Standards Aligned System (SAS) is a web-based digital learning library for educators to help them ensure that all students achieve. SAS contains digital assets (e.g., text, software, photos, video, graphics, music, and sound) by subject area and grade level, which are aligned to Pennsylvania academic content standards. However, educators in any state can benefit from resources identified, which include lesson plans, assessments, curriculum frameworks tied to big ideas, concepts, competencies, and essential questions; interventions, and instruction. Curriculum frameworks include the four major content areas (mathematics, science, social studies, reading-writing-speaking-listening). Learning progressions span grades K-12 and include what all students should know and be able to do through grades K-8 and by taking specific courses in grades 9-12. The math courses included are Algebra I, Algebra II, and Geometry. The collection contains content created nationally and locally.

Study.com has four free courses in math, which feature video lessons from experienced educators, transcripts of those lessons, supplementary content, quizzes, and exams: College Algebra, College Mathematics, Precalculus and Calculus. Much of the content within those is also addressed in high school courses. Learners can potentially earn college credit.

The Orange Grove: Florida's Open Educational Resource Repository contains K-12 and Higher Education resources.

Utah Education Network Open Educational Resources

References


National Council of Teachers of Mathematics. (2011). Making it happen:


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grade band and providing specific instructional strategies that align with the Common Core State Standards for Mathematics—a general overview of the five math content areas, content and curriculum maps, videos on math curriculum, instruction, and assessment; and a number of classroom resources. 4. Curricular Content for Data Science Majors. The goal of our curriculum is to repeatedly engage students in the full cycle in which we learn from data and help them acquire the skills listed in the previous section. The curriculum we have outlined is founded on an integrated set of courses that span topics in three disciplines: mathematics, computer science, and statistics. Many of these topics are covered in traditional courses found in those disciplines. To be effective they will require many iterations. Resources for faculty include notes, examples, case studies, and perhaps most important, new textbooks will be essential. 2. Engagement with Two Year Colleges and High Schools. emergent math. Skip to content. Home. Common Core Problem Based Curriculum Maps. A PrBL Pathway and Selected Blog Posts. Routines, Lessons, Problems, and Projects: an emergentmath miniserie. Routines, Lessons, Problems, and Projects: the DNA of your math classroom. Routines: the driving beat of your class. Lessons: the stuff we envision, only better. Be sure to check back often as these curriculum maps are bound to change when new cool activities are added on math blogs worldwide. I'll be adding more and more curriculum maps in due time. Also, if you have a favorite particular task that isn't here (or just comments in general), let me know in the comments! *Update 12/23/2013: Better yet, just copy and paste the link into this form!
The Common Core standards released in 2010 for English language arts and mathematics have already been adopted by dozens of states. Just how much change do these new standards represent, and what is the nature of that change? In this article, the Common Core standards are compared with current state standards and assessments and with standards in top-performing countries, as well as with reports from a sample of teachers from across the country describing their own practices. View. Show abstract. Other issues examined in this study included math assessment in general and the role of reading in math assessment. Participants were 207 fourth-grade students who were tested with math computation, math applications, and reading tests.