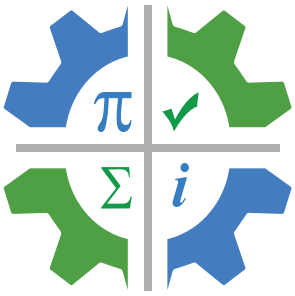


CURRICULUM ENGINE

A revolutionary, intelligent curriculum editing & design platform

On-Demand Curriculum for a Dynamic World

Executive Summary

Educational leaders and school districts are in a never-ending quest to improve student outcomes. While most ideas and initiatives are well intended and promising, they are seldom implemented with sufficient support for and consideration of teachers, and are difficult to sustain. Importantly, even when new resources are made available to reflect the latest research or standards, they rarely suit the needs of a given district or set of teachers well. Too often, teachers are left to fend for themselves when it comes to filling gaps or determining how to help all students be their best. Moreover, while everyone recognizes that each student is different, few seem to acknowledge that each teacher is different, too. When every teacher is expected to teach in the same way, with the same set of tools, in an environment of rapid change, it's tough.

In particular, the need to improve the level of mathematics instruction is widespread and recognized. Only 26 percent of 12th graders in the U.S. are proficient in math, for example, and the U.S. ranks 27th in the world in math performance. As one way to address this deficit and respond to a dynamic environment, millions of free online learning resources have been made available to teachers. But as state and district standards and requirements change and new needs emerge, teachers can be overwhelmed with the task of repeatedly seeking out, sorting through, and vetting these resources to fill gaps and/or enhance instruction. Further, district leaders and teachers must trust that these resources are appropriately aligned, accessible, and effective.

In short, districts and teachers have had two choices: to trust that all teachers have the time, inclination, and experience to spend hours each week working this all out for themselves, or to foist the latest and greatest "one size fits all" resources on them and trust that every teacher will implement those resources with fidelity and enthusiasm.

Finally, a third option gives educators the flexibility and freedom they require. The patent pending Curriculum Engine™ (CE) offers a revolutionary approach to providing school districts and teachers the resources and tools they need to teach effectively.

The Curriculum Engine™ addresses the persistent need for tailored and dynamic mathematics curriculum by embedding the intelligence of expert curriculum developers in the cloud. The Curriculum Engine's **Virtual Curriculum Department** provides districts and schools with the unlimited capacity to design and build courses that align with state and district requirements and meet their current needs. The CE's rich repository of high-quality, peer-reviewed instructional components also allows teachers to edit and enhance existing courses and share their own favorites.

The Curriculum Engine™ integrates subject-centered, problem-centered, and learner-centered principles in developing a customized curriculum and is unique in its ability to track student engagement and performance, and the efficacy of course content. The Curriculum Engine™ gives district leaders and teachers the freedom to personalize their courses and lessons topic by topic, while minimizing the labor-intensive task of finding and organizing resources appropriate for the needs of every classroom, topic, and student. It allows teachers to do their best work, every day.

The Curriculum Engine Difference

As a boutique publisher of tailored, customized math resources, **Walch Education, the developer of the Curriculum Engine™, has helped the nation's largest school districts build authentically aligned, tailored courses and content.** It has shown that "purpose-built" dynamic courses enable districts and teachers to be more confident and effective and help improve student outcomes. Inspired by this work, and encouraged by its district partners, Walch has developed a cloud-based platform that empowers school districts and teachers to do it themselves. This platform gives them the ability to easily edit, build, and deploy aligned and tailored educational courses of study. The foundation of the

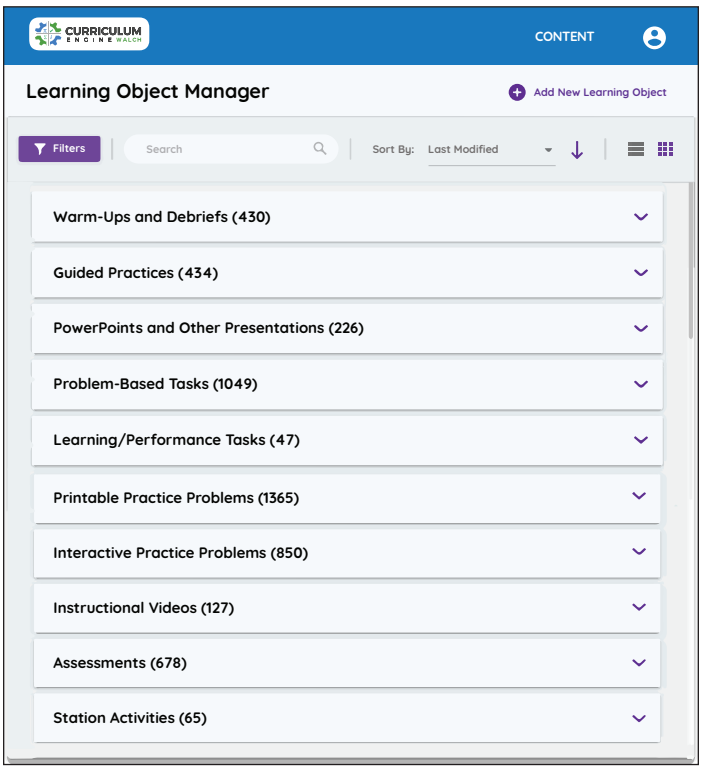
THE NEED TO IMPROVE THE LEVEL OF MATHEMATICS INSTRUCTION IS WIDESPREAD AND RECOGNIZED.

Curriculum Engine™ is a dynamic Learning Object Repository, including thousands of components created by Walch Education, Open Educational Resources (OERs), and resources developed by districts that can be identified and accessed and coherently assembled to meet changing needs.

The CE's course building functionality includes a variety of tools, algorithms, and embedded knowledge that essentially mimics the knowledge of a group of expert curriculum developers. Just as TurboTax® makes tax preparation more accurate and efficient for tax preparers and individuals, the CE enables high quality and rapid development of purpose-built curriculum on demand.

The CE's Learning Object Repository is organized to facilitate ready access to familiar instructional components and allows users to filter and arrange those components, and add their own.

Learning Object Types



What district leaders are saying:

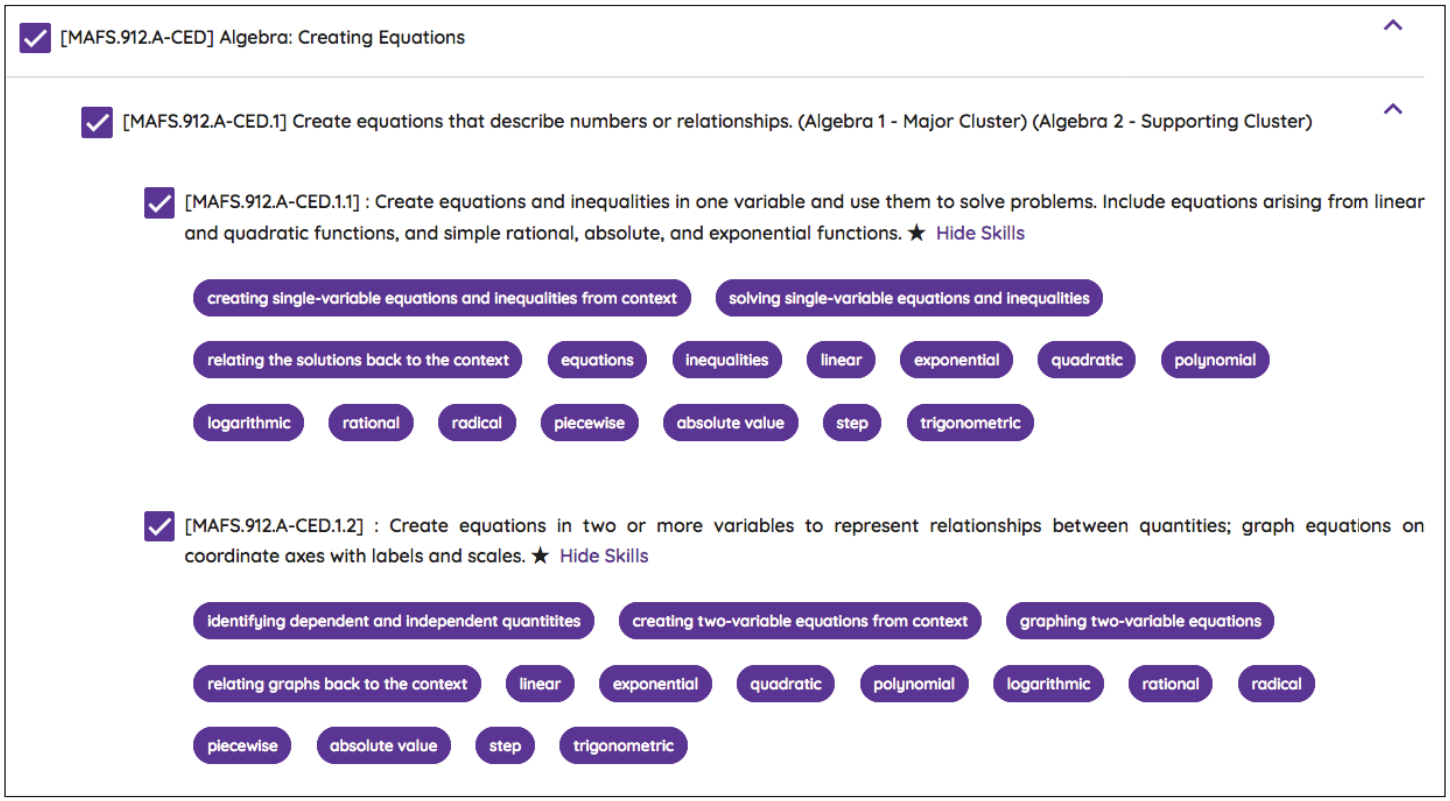
"This is just what I need for content and credit recovery, so I can address each students' needs at the moment."

Critically, each learning object in the system, whether it is content from Walch, an OER, or content from a district, can be described in a granular fashion. Standards have been unpacked to expose their underlying skills and content.

The course builder leads educators through a simple step-by-step process for designing and specifying a course. S/he indicates course length, instructional objectives (standards and skills), and lesson structures, among other things, and the CE pulls from the object repository and assembles a course instantaneously. S/he can then edit and rearrange the course as needed and use or share it at once.

The Course Builder: a simple 4-step process for designing and assembling a course

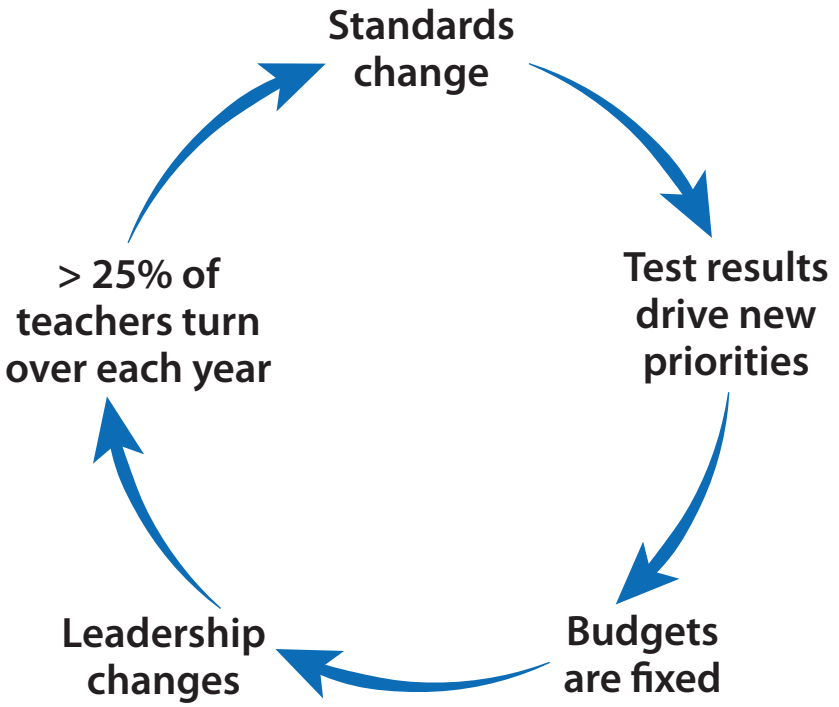
Unpacked Standards and Skills



What district leaders are saying:

"It's impossible to find one set of materials that will work for all math teachers and students in our schools. What we need is an easy way to edit and add to what we already have so the teachers have everything in one place."

Districts Are Constantly in Flux



Curriculum design and development take a minimum of 12 to 18 months.

Change is constant, and responding to change is challenging. Diverse and changing state standards and tests, student demographics, instructional philosophies, teacher training, and other factors drive a persistent need for tailored and flexible curriculum.

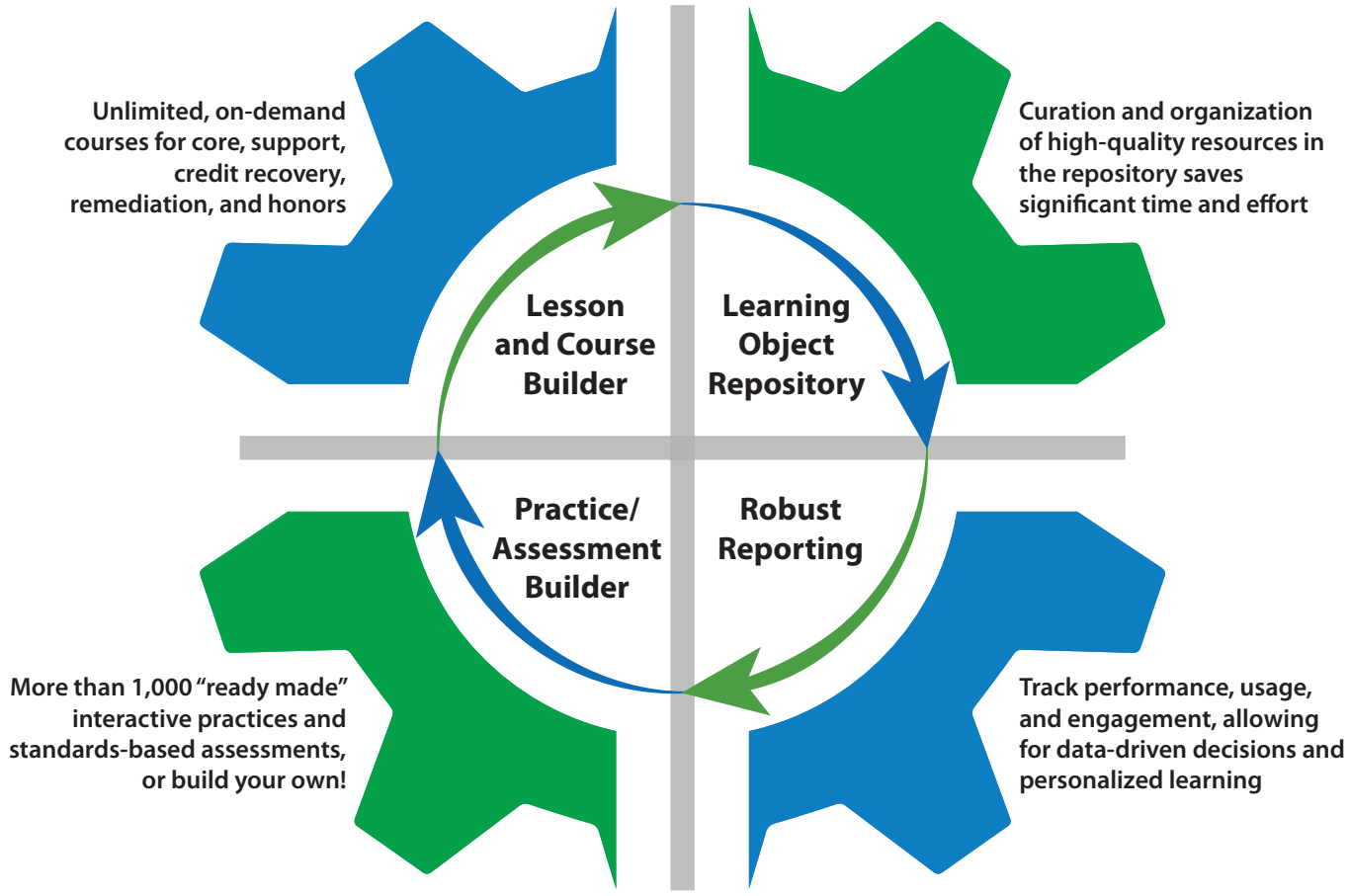
The Curriculum Engine™ is the first fully capable, dynamic publishing environment for high school math. The Curriculum Engine™ platform comes with complete, aligned courses for high school math, so it's immediately ready to use. And the CE's course builder allows users to identify resources and define and create new purpose-built courses on demand.

What teachers are saying:

"If the resources I have available to me don't fit the needs of my classes, I usually end up creating them myself rather than trying to find an exact fit online. I often wish we had the ability to edit our resources so I wouldn't have to start from scratch."

The Curriculum Engine at a Glance

Key Components of the CE



The Curriculum Engine™ platform offers flexibility for districts and teachers.

Each learning object is described with:

- ✔ Standard(s) addressed
- ✔ Instructional targets or foci
- ✔ Instructional time required (classroom or outside classroom)
- ✔ Depth of knowledge
- ✔ Difficulty level
- ✔ Required prerequisites
- ✔ Components of rigor (conceptual, application, procedural)

- The Curriculum Engine™ comes with authentic aligned courses for easy adoption.
- The Curriculum Engine™ platform works with leading Learning Management and Student Information Systems.
- The Curriculum Engine™ **empowers districts and teachers** to edit, author, and deliver high-quality courses on demand.

Conclusion

In the important quest to improve the teaching and learning of mathematics, the teacher has been an afterthought. Standards change, new instructional practices are implemented, new needs emerge, and every teacher is different, yet all teachers are expected to make do with a static, "one size fits all" set of resources and tools. When districts do try to take control of this situation, they face the reality that curriculum development is very difficult and time consuming. Districts and teachers must write their own resources and/or triage the wealth of online educational resources available to match them to their needs and then organize and distribute them so that they are usable and coherent. And when new needs arise, or things change, they need to do it all over again!

The Curriculum Engine™ addresses this persistent need for tailored and dynamic mathematics curriculum. Its intelligent curriculum-editing and design platform gives administrators and classroom teachers the ability to author and tailor a curriculum to meet their needs. The CE's **Curriculum Department in the Cloud** takes the guesswork out of selecting aligned, vetted, and effective course content. With the CE, teachers can instantly access readily available resources based on standards and skills, instructional approach, DOK, time expected, and other factors. The CE offers an ever-growing repository of items and the ability to track student engagement and correlate instruction with performance. Districts can easily employ the Curriculum Engine™ as a standalone tool or in concert with leading learning management and student information systems.

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Company Information

Walch Education is a leading developer and publisher of high school math technologies, curriculum, and resources aligned to the Common Core and selected state and district standards. Walch Education offers a variety of supplemental middle school, high school, and adult educational materials. Located in Portland, Maine, Walch publishes materials that are used in classrooms throughout the United States and around the world. The Curriculum Engine™ is a product of Walch Education.

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