



Moving from Rote Activities to →

Rigorous Learning

Schools' traditional focus on academic knowledge has often been coupled with rote learning activities. These activities prioritize the memorization of a broad array of content knowledge at the expense of higher-order thinking like application, problem solving, and analysis. While lower-order tasks, like recalling and explaining memorized content, do build a basic foundation, learning too rarely builds on this foundation in the ways that are needed for deeper learning. But today, it is rigorous learning that will prepare young people for success now and in the future.

By making rigorous learning accessible to every child, the quality and impact of education for all young people can improve. Rigorous learning involves the use of critical thinking skills to make deep meaning of diverse, complex ideas and assessments that determine a student's ability to apply, analyze, and use their knowledge in creative ways across a range of contexts. Rigorous, higher-order thinking promotes deeper, longer-lasting learning because it involves analyzing, synthesizing, and applying one's learning. All of this helps to more meaningfully encode or embed it into long-term memory. Rigorous learning activities are also often more interesting than rote activities. As a result, learners see more value in them and are in turn more motivated and engaged.

Rigor also prepares learners for changing workforce demands. Employers now expect those they hire to have a broader range of skills, including critical thinking and problem-solving skills, which are built through rigorous learning. As a result, expanding the use of higher-order thinking skills can improve the chances of career and college success for all children and prepare learners to solve the increasingly complex challenges our society faces.

This Leaps Means...

- ▶ Learners completing high-order thinking tasks that encourage critical thinking, creativity, problem solving, and deep meaning making.
- ▶ Learners engaging in well-scaffolded, supported, and intellectually challenging grade-level work and learning experiences regardless of what skills they are working to master.
- ▶ Learners building conceptual and procedural knowledge.
- ▶ Learners engaging in productive struggle and making meaning for themselves.
- ▶ Learners using their knowledge and skills in creative ways across multiple contexts.



Inequitable, Industrial-Era Learning

Rote Activities

Learners engage in memorizing and recalling a broad array of content and are assessed primarily on their ability to recall and explain this information.

Equitable, 21st-Century Learning

Rigorous Learning

Learners use critical thinking skills to make deep meaning of diverse, complex ideas and are assessed on their ability to apply, analyze, and use their knowledge in creative ways across contexts.



Transcend's Leaps for Equitable, 21st Century Learning are informed by the [science of learning and development](#); equity in education; and [contemporary societal, political, economic, and scientific trends](#).



Rigorous Learning at MC² STEM High School

[MC² STEM High School](#) is located in Cleveland, Ohio. The school's mission is to engage and enrich all students by developing critical thinking and problem-solving skills, and empowering them to achieve their personal, academic, and community goals. MC² does this through a rigorous education in a nontraditional environment:

- ▶ **Resource-Rich Campuses Embedded with Partner Organizations** – Students attend classes at campuses embedded in business and school sites around the city—the Great Lakes Science Center, Tri-C, Cleveland State University, and various business campuses around the city. This provides students with exposure to authentic postsecondary working and learning environments and also provides them with access to amazing individuals and resources that can add rigor to their learning. Students have worked with tutors from NASA and engineers from GE Lighting.
- ▶ **Project-Based Learning Experiences** – At MC², project-based learning is innovative, rigorous, transdisciplinary, collaborative, and hands-on. Learners engage in ten-week projects called capstones. These theme-based projects focus on science, technology, engineering, and math yet also integrate all core subjects required by Ohio's state standards and map to state benchmarks.
- ▶ **Mastery Learning** – In mastery learning, students are supported to achieve “mastery” of each learning objective or topic before moving to more advanced topics. MC² seeks for all students to master material at a high-level (90% or above) before earning credit for a course. For students who need additional support, tutoring, peer monitoring, small-group discussions, and additional assignments for practice are all available.

Additional School Examples to Explore

[Long-View Micro School](#) – Long-View in Austin, Texas strives to “speak up and not down to the intellects of children.” It operates under the assumption that children have significant capacity to understand many of the complexities that are part of the world in which they live and that deep understanding derives from being a producer rather than simply being a consumer.

[Casco Bay High School for Expeditionary Learning](#) – Casco Bay is located in Portland, Maine. The school strives to prepare all students for college, career, and citizenship through rigor, relevance, and a focus on relationship. Students learn through long-term, in-depth studies of a single topic that explore compelling questions, incorporate standards, involve fieldwork, and culminate in an authentic demonstration of mastery.

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