

Developmental Math—An Open Program

Developed by: Monterey Institute for Technology and Education, with generous funding from The Bill and Melinda Gates Foundation



Project Goal: To help dramatically increase the number of students meeting the current required standards that open the door to desirable post-secondary educational programs and career opportunities.

Curricular Sequence

Delivered freely online, this topically-organized program offers flexible modules which address concepts and skills taught in the usual developmental math sequence of **Arithmetic, Beginning and Intermediate Algebra with topics in Geometry and Statistics**. The program heeds the call for “21st century” mathematics, acknowledging that traditional curriculum may not best prepare learners for modern occupations or to be well-informed citizens, as suggested by national common core standards and AMATYC’s proposal for a new developmental mathematics.

Learner Centered Experience

This project is designed to deliver an **adaptable, learner-centered experience**, informed by historic and current learning theory, research in mathematics education, and recent findings in learning, technology, and media. The program has pre- and post-assessment features that direct students to the content needed to close their proficiency gaps, and offers **video, audio, interactive simulations, puzzles, and other instructional approaches** that engage a variety of learning styles and attitudes.

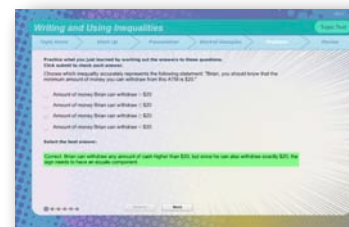
“Portfolio of Learning”

This curriculum integrates multiple modes of learning - **conceptual, procedural, problem-solving, project based, peer-based, simple games, and assessment** - to open the door to mathematical reasoning and critical thinking to a broad range of learners. The learning object architecture allows institutions, instructors and students to adapt the content to different program and learner needs.

Media-Rich and Diverse

Learning objects include dynamic **audio and video presentations, active and collaborative learning activities, problem sets, self-tests, and formative and summative assessment**. Students work through activities in a sequence that leverages their own successful learning strategies while building 21st century skills. Components include:

- Warm-ups:** a series of problems to assess prior knowledge and recommend review.
- Presentations:** a rich-media presentation of the topic concept with illustrated examples.
- Worked Examples:** narrated step-by-step presentations of a problem solved.
- Practice Problems:** symbolic and word, designed in adaptive sets, offer students immediate feedback.
- Text:** an integrated textbook provides comprehensive coverage of topics with additional explanations, manipulatives and examples. .
- Review:** self-test understanding prior to moving to the next topic.
- Projects:** collaborative assignment in the project-based learning tradition to solve real-world problems.
- Tutoring Simulation:** offers students directed guidance in problem solving.
- Puzzles:** give learners a chance to practice what they have learned in a fun, no-fault environment.
- Assessment:** formative and summative assessment designed to guide a learner's progress.



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To register for regular updates or provide feedback on this project, visit us at:
NROCmath.org