

“Opening” Developmental Math: New Resources for New Approaches

Terri Rowenhorst
Member Services

National Repository of Online Courses (NROC)



A National Challenge

During most of the 20th century, the United States possessed peerless mathematical prowess just as measured by depth and number of mathematical specialists who practiced here also by the scale and quality of its engineering, science, and financial leadership....

International and domestic comparisons show that American students have not been succeeding in the mathematical education at a level equivalent to international

Students who complete Algebra II are more than twice as likely to graduate from college compared to students with less mathematical preparation.

The Community College Impact

Remedial education is where far too many community college students begin and end their careers. Only 31 percent of students placed into remedial math ever get to college-level work.

Tom Bailey, Community College Research Center

Just 25 percent of community college students get a certificate or an associate's degree or transfer to a four-year institution within three years of enrollment. We've got to get people across the finish line.

Martha Kanter, US Undersecretary of Education

The Gates Foundation's Postsecondary Success initiative aims to dramatically increase the number of low-income students who earn a valued postsecondary degree or credential. Since 2000, the foundation has invested nearly \$5 billion in grants and scholarships to improve opportunity in the United States by improving schools, raising college-ready graduation rates, and increasing college completion rates.

[Completion by Design](#)

Reexamining the Issues

Admissions: Entrance and Placement Exams

Student Services: Counseling, Advising, Tutoring

Academic Policies:

- Alternate Pathways to Achievement
- Credit-bearing Options
- Independent Study Options
- Competency-based models

Course Redesign:

- Reconsidering the Curriculum
- Diagnostics
- New Models of Instruction
- New Uses of Technology – Data Informed Pathways
- Maximizing Time on Task
- Providing Just-In-Time Access

New Approaches

What options has your institution explored?

- Course Redesign
- Math Emporium
- Self-paced options
- Learning Communities
- New Uses of Technologies
- Expanded Tutoring Options
- Other?

What's in Your Toolbox?

- Technology-based Tools
- Online Learning Environments
- Alternative Content Options
- **Open Educational Resources**

Open Educational Resources



Teaching, learning and research resources,

In the public domain or,

Released under a license that permits free use or re-purposing by others.

For examples, see [Creative Commons.org](https://creativecommons.org)

OERs include full courses, course materials, modules, textbooks,

Streaming videos, audio, text, software, tools, or techniques

Used to support *access to knowledge*.

Unique Among OERs



NATIONAL REPOSITORY
of ONLINE COURSES

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- What is an NROC course?
- Working with NROC
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The National Repository of Online Courses (NROC) is a growing library of high-quality online courses for students and faculty in higher education, high school and Advanced Placement®.



Play NROC video

FOR ACADEMIC INSTITUTIONS AND FACULTY



An online community of educators, designers, technologists, and administrators working together to develop high-quality online education.

FOR STUDENTS



A free, public website for high school and college students that offers NROC multimedia correlated to most major textbooks.



WHAT'S NEW IN THE REPOSITORY



AP History Lesson 63



NOAA Plate Tectonics



AP Calculus

[View Repository](#)

- Quality
- Curricular
- Media-Rich
- Flexible
- Sustainable

NROC Developmental Math—An Open Program

Goals:

- Provide institutions and students with learning activities to support an *efficient* path to credit-bearing courses
- Support multiple curricula (NROC members, AMATYC New Vision, Common Core & State Frameworks)
- Support both flexible course configurations and a collection of learning objects
- Leverage the power of digital media

Arithmetic, Beginning Algebra, Intermediate Algebra, with Geometry and Statistics Topics

Designed for students that have failed algebra or are placed by entrance exam (HS and CC, average age 28 years old)

Correlated to AMATYC New Life, broadly-adopted textbooks, and the Common Core

LO architecture: 17 Units, 51 Lessons, 116 Topics, covering 346 learning objectives

Designed for online and hybrid classroom use

Single-session formative assessment, multi-session CMS-based, pre-assessment for remediation and test-out

Rich, interactive multimedia with multiple instructional elements designed for an adult audience

NROC Mathematics Advisory Panel

Bob Currie

Rhonda Epper

Francisco Hernandez

Sally Johnstone

Judy Lowe

Steve Nelson

Susan Patrick

Stella Perez

Linda Pittenger

Steve Rheinschmidt

Myk Garn

Rachel Wise

Montana Digital Academy

Colorado Community Colleges Online

University of Hawaii

Winona State University

Chattanooga State Community College

Oregon Department of Education

iNACOL

League for Innovation

Council of Chief State School Officers

Iowa Community College Online Consortium

Southern Regional Education Board

Omaha Public Schools



Product Development

Research



Focus Groups



User	Learning Objects	Individual Courses	Integrated Curriculum
Individual Learner	• HyperCampus	• HyperCampus • MIT Licensed Modules	• MIT Licensed Pre-Assessments • Task-Based Training
Individual Instructor	• Custom HyperCampus • Live from DVD	• MIT Licensed Modules	• MIT Licensed Pre-Assessments • Task-Based Training • Integrated Class Training
Institution (MITE-Hosted)	• Blended HyperCampus	• DVD Experts • CEDMA • MIT Common Core Algebra	• Licensed Pre-Assessments • CEDMA Interoperability via DVD • CEDMA
Institution (Self-Hosted)	DVDs	DVDs	DVDs
	• DVD Services/Hosting • Individual Search	• DVD Experts • CEDMA • MIT Common Core Algebra	• CEDMA • CEDMA



Technology & Engineering



Product Design

Professional Development

Curriculum

Focus Group Participants

Albuquerque Public Schools
Anne Arundel Community College
Antioch High School
Arapahoe Community College
Arizona Western College
Atlantic Cape Community College
Baltimore City Community College
Baltimore County School District
Bates Technical College
Bellevue Community College
Black Hawk College (IA)
Borough of Manhattan Comm. College
Bronx Community College (NY)
Brookdale Community College
Brookhaven College
Broward Community College
Bucks County Community College
Community College of Aurora
CCCOOnline
Cecil County School District
Cedar Valley College
Cerro Coso Community College
Charlotte Public Schools
Chattanooga State TCC
City Colleges of Chicago District
City of Angels Schools
Cleveland State Community College
College of Southern Idaho
Columbia County Schools
Columbia State Community College
Columbus State Community College
Community College of Baltimore County
Community College of Philadelphia
Contra Costa College (CA)
Cornish College
Cuyahoga Community College

Daley College
De Anza College
DeAnza Community College
Delta College
Denver School of Science and Technology
Denver West Prep
Des Moines Area Community College
Diablo Valley College
Digital Harbor High School
Durham Technical Community College
Eastfield College (Dallas CCCD)
Edmonds Community College
El Centro College (Dallas CCCD)
Front Range Community College
Green River Community College
Grosse Pointe
Grossmont College
Harold Washington College
Highline Community College
Hillsborough Community College
Holyoke Community College
Howard Community College
Hudson Valley Community College
Indian Hills Community College
Iowa Community College Online Consortium
Iowa Department of Education
Iowa Lakes Community College
Iowa Western Community College
Jemez Valley School District
John A Logan College
Johnson County Community College
Kennedy-King College
Kirkwood Community College
Lakeshore College
Landmark College
Lansing Community College
Lansing Public Schools

Leech Lake Tribal College
Los Angeles Harbor College
Los Medanos Community College
Lowell High School
Luzerne County Community College
Malcolm X College
Maple Valley
Maricopa Community Colleges
Maryland Virtual School
McLennan Community College
Mesa Community College (Phoenix)
Mesa Middle School
Michigan Virtual School
Middle Tennessee State U
Montgomery College-Germantown
Montgomery College-Rockville
Moraine Valley Community College
Motlow State Community College
Mountain View College
Nashville State Community College
NE Technical College
North Carolina Community College System
North Seattle Community College
Northwest Iowa Community College
Northwest-Shoals Community College
Oakton Community College
Omaha Public Schools
Pellissippi State TCC
Pennsylvania Highlands Community College
Pierce College
Pikes Peak Community College
Pima Community College (Tucson, AZ)
Portland Community College
Prairie View College
Prince George's Community College
Pueblo Community College
Queensborough Community College (NY)

Red Rocks Community College
Reedley College
Renton Technical College
Richland College
Roosevelt High School
Salt Lake Community College
San Diego CC District Office
San Diego City College
San Diego Mesa College
San Diego Miramar
San Jacinto College
San Jacinto College (TX)
Scottsdale Community College
Seattle Central Community College
Sinclair Community College
South Seattle Community College
Southgate High School
Southwestern College
Southwestern Community College
St. Johns County School District
St. Louis Community College
Tarrant County - South Campus
Terra Community College
Tennessee Board of Regents
Tennessee Department of Education
Triton College
Truman College
Tulsa Community College, West Campus
Union County College
University High School
Valencia Community College East
Volunteer State Community College
Wake Technical Community College
West Shore Community College
Whatcom Community College, WA
Williamston High School
Wright College
WVCT College

*Financially Disadvantaged Target Institutions

Findings of Focus Groups



Administrators and Faculty

Professional development is essential for supporting and improving teacher success

Few instructors and institutions are satisfied with existing teaching method or digital product

Existing digital products: 1. too expensive, 2. inflexible curricula, and 3. proprietary management system

High value placed on flexibility, affordability, multiple pathways for learners



Findings of Focus Groups

Students

Keep it simple: struggling students and English language learners value simplicity

Real-world examples and application are a key to engagement

Puzzles, animations, simple illustrations, and problem sets are important

Humor, esoteric example, and idioms trip-up or confuse struggling students especially English language learners

Students appreciate and identify with the presenters and real work examples



NROC Developmental Math—An Open Program

Topic areas: arithmetic, beginning algebra, intermediate algebra, including geometry and statistics topics per AMATYC

Instructional elements:

At the topic level (116 Topics):

- warm-up (text)
- presentation (video, audio, animation, and graphics)
- worked examples (audio and graphics)
- problems (interactive text)
- review (text)
- text tab (online textbook)

At the unit level (17 Units):

- virtual tutor (interactive video, graphics, text)
- project (text and graphics)
- puzzles (game-based, interactive animation, graphics)

346 explicit learning objectives to allow fine-grained assessment.

Adapt in your LMS of choice

1 Unit 1 - Whole Numbers

Lesson 1: Introduction to Whole Numbers

[!\[\]\(1ac7c971e7df5bf204fbb84fd617a50a_img.jpg\) Learning Objectives](#)

[!\[\]\(397cc4c04b5e7ea225dbaa029a5dee1f_img.jpg\) Topic 1: Place Value and Names for Whole Numbers](#)

[!\[\]\(115eff7009a76771e6b7adb966005e4c_img.jpg\) Topic 2: Rounding Whole Numbers](#)

[!\[\]\(a6eac08c103efb51b40f958fe35f07bb_img.jpg\) Topic 3: Comparing Whole Numbers](#)

Lesson 2: Adding and Subtracting Whole Numbers

[!\[\]\(11b47853efe756d31c268612c0cc4217_img.jpg\) Learning Objectives](#)

[!\[\]\(9f63f5ec98cc2eddf66038fdc55c1091_img.jpg\) Topic 1: Adding Whole Numbers and Applications](#)

[!\[\]\(a5ce6bf60513915c4be97f191363167f_img.jpg\) Topic 2: Subtracting Whole Numbers and Applications](#)

[!\[\]\(aaf00827f03a5235835203c37180dc74_img.jpg\) Topic 3: Estimation](#)

Lesson 3: Multiplying and Dividing Whole Numbers

[!\[\]\(e088a60aba18ad7619b846dde34cd067_img.jpg\) Learning Objectives](#)

[!\[\]\(bcd86b3e3f0edc430a942a7aafcccb17_img.jpg\) Topic 1: Multiplying Whole Numbers and Applications](#)

[!\[\]\(8ea5b969742211724a7ce52e1ecf90fc_img.jpg\) Topic 2: Dividing Whole Numbers and Applications](#)

Lesson 4: Properties of Whole Numbers

[!\[\]\(646a0208e347b1bb57cd3819f48da9ae_img.jpg\) Learning Objectives](#)

[!\[\]\(6d82067ba813a23a033bfcf9dd3cfe39_img.jpg\) Topic 1: Properties and Laws of Whole Numbers](#)

[!\[\]\(8666c9b3547f1b159cfa188cdad63d82_img.jpg\) Topic 2: The Distributive Property](#)

Lesson 5: Exponents, Square Roots, and the Order of Operations

[!\[\]\(e650a7aa535299f0c1d7d7d24a694c95_img.jpg\) Learning Objectives](#)

[!\[\]\(93c02a4c5e106c1ff858f3309b288264_img.jpg\) Topic 1: Understanding Exponents and Square Roots](#)

[!\[\]\(7349b8cb1ec6d06b56c460cf745b37fb_img.jpg\) Topic 2: Order of Operations](#)

[!\[\]\(2cc16dd33438b13a81598d17a56fea4b_img.jpg\) Tutor Sim: Shopping for Office Supplies](#)

[!\[\]\(d1513eef10ce41ae76608bb328dac51c_img.jpg\) Puzzle: Which Comes First?](#)

[!\[\]\(4102444c0aeaaf6e4038c23b4ce06c64_img.jpg\) Team Project: Open for Business](#)

[!\[\]\(ba31bd4dbf21a2d5e0146f80062e0fb6_img.jpg\) Unit 1 Glossary](#)

Unit 1 Quiz - not available in this preview

Solving Multi-Step Equations

Topic Text

Topic Home

Warm Up

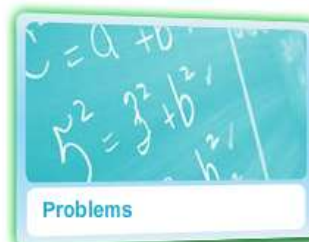
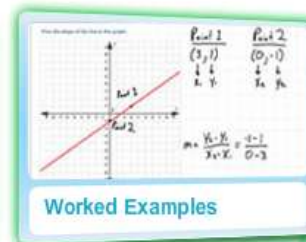
Presentation

Worked Examples

Problems

Review

Solving Multi-Step Equations



Upon completion of this topic, you will be able to:

- Simplify algebraic equations using the Properties of Equality and the Distributive Property to clear parentheses and fractions.

The **topic home page** orients learners to the objective and activities they may use to master the concepts and procedures within the topic. Students may work through the elements in order, jump to the elements assigned by their teacher, or to those elements they have discovered to be the best starting place for their personal learning approach.

Solving Multi-Step Equations

Topic Text

Topic Home

Warm Up

Presentation

Worked Examples

Problems

Review

Answer these questions to see if you are ready for this topic.
Click submit to check each answer.

Which of the following will isolate the variable in the expression $\frac{1}{3}x + 9$?

- Add 9, then divide by 3.
- Multiply by 3, then add 9.
- Divide by 3, then add 9.
- Subtract 9, then multiply by 3.

Select the best answer.

Correct. By subtracting 9 first, you are performing the inverse of +9, resulting in the expression $\frac{1}{3}x$. By multiplying by 3, you are performing the inverse of dividing by 3, and completely isolating the variable x .

1 2

Submit

Next

Warm-ups provide pre-assessment to test prior knowledge and recommend review.

Intercepts of Linear Equations

Topic Text

Topic Home

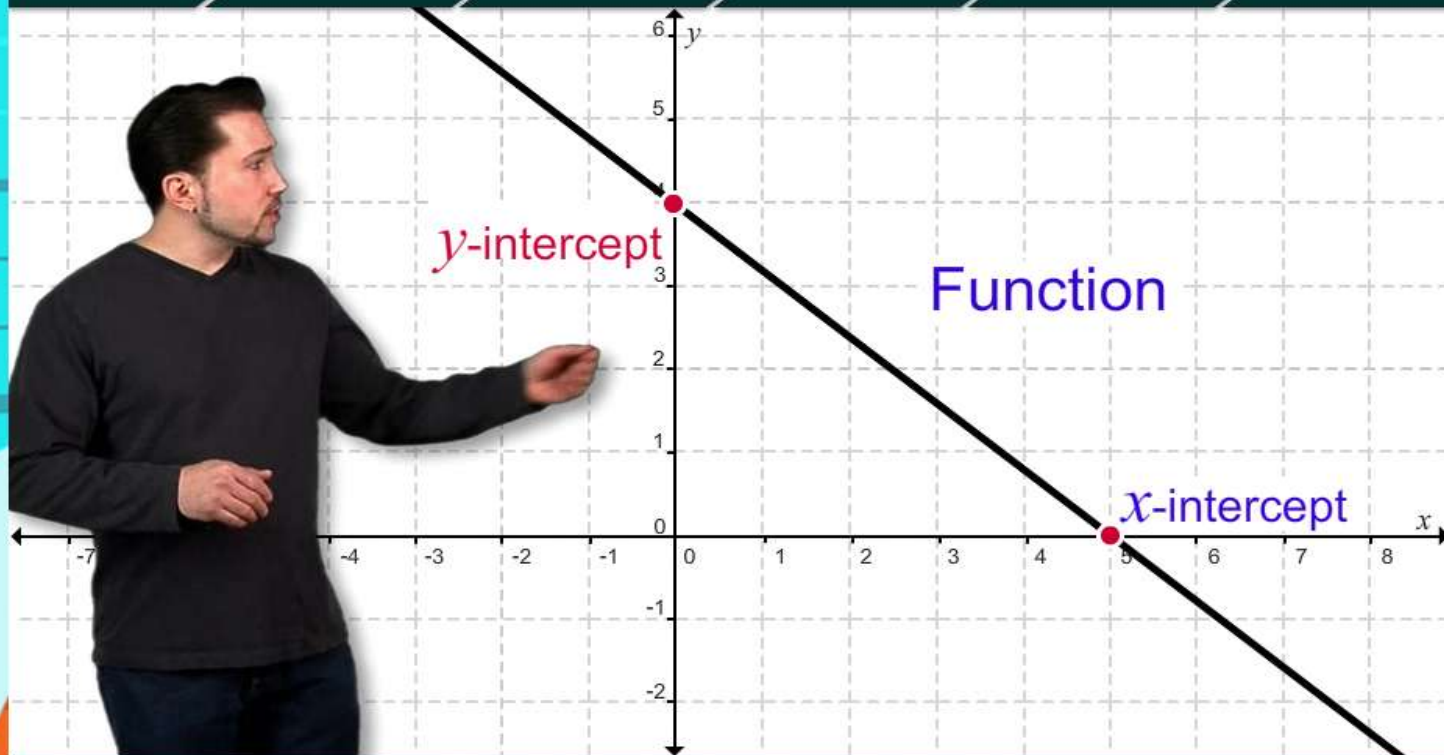
Warm Up

Presentation

Worked Examples

Problems

Review



4:37



Presentations offer a media-rich conceptual introduction to the topic with illustrated examples, and real-world applications. Different presenters appear throughout the course to appeal to different students.

HELP

LINEAR FUNCTIONS

Topic Home > Warm Up > Presentation > **Worked Examples** > Problems > Review

Topic Text

A photo finishing store charges customers a rate of \$0.29 per photo to print pictures. For new customers, the store offers a one-time discount of \$3.00.

Write a function representing the amount that a new customer would have to pay to have x number of photos printed.

$$y = 0.29x - 3$$

new customer would pay $y = \begin{cases} 0.29x - 3 & \text{if } x > 10 \\ 0 & \text{otherwise} \end{cases}$

Presented by the Khan Academy

1 | 2 ▶ 0:01

Worked examples have been created by Salman Khan of **Khan Academy** (www.khanacademy.org). Sal walks students through step-by-step examples (2-4 per topic) pointing out recommended strategies and procedures while writing the problems on the virtual blackboard. Careful use of color helps students see important information as they work through each problem.

Graphing Equations in Slope Intercept Form

Topic Text

Topic Home

Warm Up

Presentation

Worked Examples

Practice

Review

Practice what you just learned by working out the answers to these questions.
Click submit to check each answer.

What is the y -intercept of the line with equation $y = -3x + 5$?

- (0, -5)
- (0, 5)
- (0, 3)
- (0, -3)

Select the best answer.

Correct. The y -intercept of the line with equation $y = mx + b$ is the point $(0, b)$, so the answer is $(0, 5)$.

1 2 3 4 5 6

Submit

Next

Practice problems - symbolic and word - are designed in adaptive sets, and offer students immediate feedback. Problems may be one of nine different types and include manipulatives

Graphing Equations in Slope Intercept Form

Topic Text

Topic Home

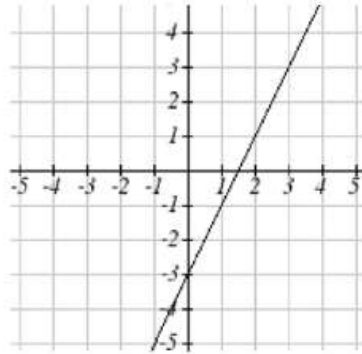
Warm Up

Presentation

Worked Examples

Problems

Review



Which of the following is the equation of the line shown above?

- $y = -2x + 3$
- $y = 3x - 2$
- $y = 2x - 3$
- $y = -3x + 2$

Select the best answer.



Previous

Submit

Next

Review offers the learner an opportunity to self-test their understanding prior to moving to the next topic.

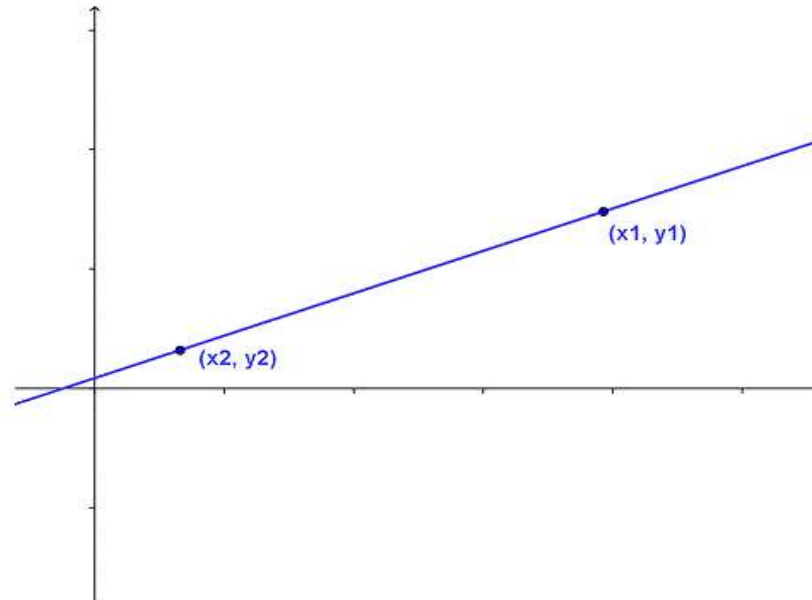
Point Slope Form

One type of linear equation is the point slope form, which gives the equation of a line if you know the slope of the line and a point on the line. The point slope form of a linear equation is written as $(y - y_1) = m(x - x_1)$. In this equation, m is the slope of the line and (x_1, y_1) is a point on the line.

Let's look at where this point-slope formula comes from. Here's the definition of slope:

slope

the ratio of the vertical and horizontal changes between two points on a surface or a line



The slope of the line is "rise over run." That's the vertical change between the two points (the difference in the y -coordinates) divided by the horizontal change over the same segment (the difference in the x -coordinates). This can be written as $m = \frac{y_2 - y_1}{x_2 - x_1}$. This equation is

An integrated textbook provides comprehensive coverage of topics with additional explanations, manipulatives and examples. These pages may be printed per topic, or as a complete textbook for off-line studying and note-taking.

◆ Tutoring Session : Solving Equations and Inequalities

Progress: 



How much fencing would she need to purchase for the kennel if the length is 522 feet and the width is 256 feet?



Answer 1
1,556 feet

Answer 2
778 feet

Answer 3
133,632 feet

Continue

Tutor simulations offer students directed guidance in problem solving. These simulations allow students to work step-by-step through a problem which requires them to understand and use the math from an entire unit. The tutor provides feedback and hints based on the options students select at each stage of the activity.

Project-Based Learning Activity

Analyze and Graph Linear Equations, Functions and Relations

Project Title

What can you do for your community?

Introduction

Community service projects allow you to apply the lessons you have learned in the classroom to real-life situations and experiences. They also allow you to raise money for those in need in your community, or help with an environmental cause. Community projects are also a good way to learn how to work with a team to accomplish a project. For ideas about projects you might pursue in your community visit these Web sites:

- <http://www.epa.gov/teachers/community-svc-projects.htm>
- <http://www.groundwater.org/ta/serviceproject.html>
- <http://www.okcareertech.org/health/HOSA/CommunServIdeas.htm>

Task

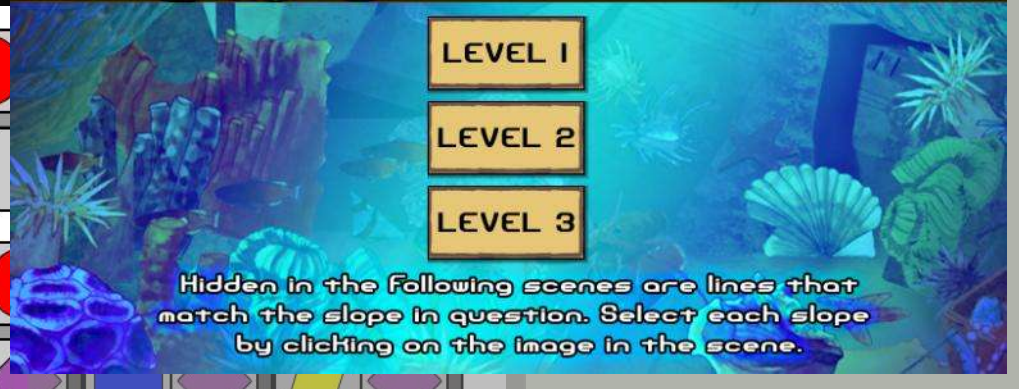
For this project you will need to decide what service project you would do for your community. You may do this project alone, but it will be most rewarding to form a small team to figure out how to accomplish your project. The project can be anything that you feel is important, but for the purposes of this activity, it should be a project that requires you to raise money for a cause. You will decide how much money you want to raise, then you will design a budget for the community service project of your choice. This should include a detailed breakdown of your costs, projected income, and a timeline showing when you expect to reach your target for the amount of money you have decided to raise.

Instructions

Write a brief description of your project, then add information about the money you will raise by solving the following problems:

- 1 First problem:
 - How much money do you need to raise for your community service project? Explain why this amount of money is necessary.

Projects are unit-level, collaborative assignments in the project-based learning tradition to **solve real-world problems**. Each project provides a multi-step problem, basic instructions and guidance, and a list of resources for students to explore.



Score: 0

Score: 0

1/10 Questions

Drawing upon research on games and learning, each unit includes a **Puzzle** which give learners a chance to play with and reinforce math concepts in a fun, no-fault environment.

Professional Development

Multiple Delivery Pathways

Free, asynchronous

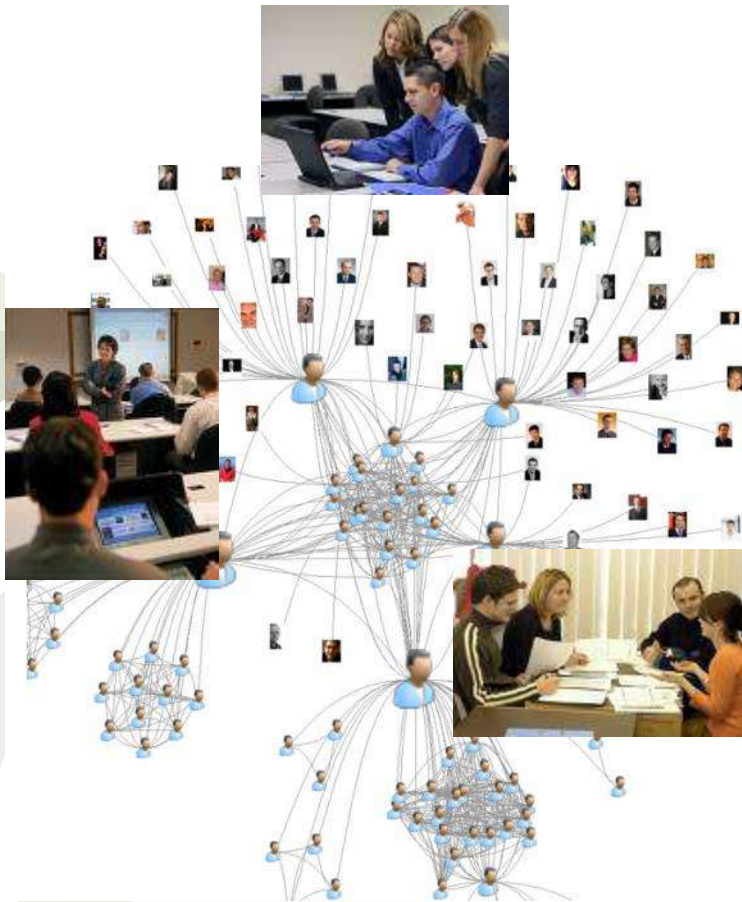
- Online, on-demand mini-modules
- Downloadable group lesson-study modules
- Online PD social network

Fee, synchronous

- Live and recorded training online webinars
- Live and recorded customized in-service webinars

Fee, staff training on-site

- Partner-led PD workshop series
- Partner-designed customized PD workshops



Developmental Math

Arithmetic (beta) – Spring 2011

Beginning Algebra – Summer 2011

Intermediate Algebra – Winter 2011-12

Statistics and Geometry – Summer 2012

Spanish closed captions coming in 2012 in cooperation with the University of Guadalajara

Next Steps:

Fall 2011 Pilot Diverse Use Cases with Members

2011 Network Members



* Sustaining Members

Academy School District 20 Online (CO)

Alabama ACCESS (DOE)

Albuquerque Public Schools (NM)

All Saints Day School (CA)

Anaheim Union High School District (CA)

Arizona Department of Education

Bambugare Network (Sub-Saharan Africa)

Bishop O'Dowd High School

Bethel Covenant College (Uganda)

California State University at Fullerton

Catholic School K12 Virtual

Chattanooga State Tech. & Comm. College (TN)

Chesterfield School District (VA)

CORE (China)

Colorado Community Colleges Online

Colorado Online Learning

CUDI (Mexico)

Culver City Unified School District

eMINTS/Missouri

Exeter Public Schools (CA)

Florida Distance Learning Consortium

Forest Charter School

Georgia Virtual School (DOE)

GLBTQ Online High School (MN)

Global Literacy Foundation (AZ)

Greenville County Virtual School (SC)

Grossmont Union High School (CA)

Gwinnett County Online Campus (GA)

Kentucky Statewide Consortium (statewide)

Hudson Schools of Technology (NJ)

Idaho Digital Learning Academy

IDEAL-New Mexico

Illinois Virtual School (DOE)

Indian Prairie School District #204 (IL)

Iowa Community Colleges Online Consortium

Iowa AEA Consortium

Joliet Junior College

Los Angeles Unified School District

Louisiana Virtual School

Lubbock Independent School District Online (TX)

Maryland State Department of Education

Mason City School District (OH)

Michigan Virtual High School

Mid-Hudson Regional BOCES Consortium (NY)

Minnesota Learning Commons (statewide P-20)

Minneapolis Public Schools Online

Mississippi Virtual School (DOE)

Missouri Dept. of Elem. and Secondary Education

Montana Digital Academy

Montana State University at Billings

Montgomery County Public Schools (VA)

Myron B. Thompson Academy (HI)

National Association of Beginning Teachers

Niles Township High School District (IL)

Nebraska: Partnerships for Innovation (statewide)

New York City Department of Education

North Carolina Community College System

North Dakota Center for Distance Education

North Salinas High School (CA)

Northwest Area Education Agency (IA)

Odyssey Charter Schools (NV)

Oregon Department of Education

Open High School of Utah (NV)

Palmetto State e-Cadamy

Placer Union High School District

Prince Georges County Public School (MD)

Portland State University

RAI Online Charter School

Riverside Unified School District (CA)

SAI Tech

Salish Kootenai College (MT)

San Diego County Office of Education

San Jose Education Foundation (CA)

San Luis Obispo County Board of Education (CA)

Santa Barbara County Education Office

School District of the Chathams (NJ)

Sierra Vista High School (CA)

South Carolina Virtual School (DOE)

Tulare County Office of Education (CA)

University of Alaska at Fairbanks

University of California, Irvine

University System of Georgia Board of Regents

Universidad de Guadalajara (MX)

Utah Electronic High School

University of Texas El Paso

University of Texas at Brownsville

University of Texas at Dallas

Valley Christian School (CA)

Virtual Virginia (DOE)

West Virginia DOE

Whitfield County School District (GA)

Partner Advisors:

Council of Chief State Supervisors and Officers (CCSSO)

Southern Regional Education Board (SREB)

Updates at www.NROCMath.org

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K12 MATH

HIGHER ED MATH

PROJECT NEWS

CONTACT US



PARTICIPATE

ADDITIONAL INFO:

"Students have a very low tolerance for being taught something they think they already know...this will let students move at their own pace and move ahead if they're ready, or review if they are behind."

—Focus Group Participant,
Tennessee Board of Regents

Developmental Math—An Open Program

NROC's Developmental Math Program is designed to be used with students striving to meet college entrance requirements. The program has pre- and post-assessment features that help 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.

[Download a Fact Sheet](#)

Approach

Contents

Contributors

More Information

CONTENTS

This program includes eighteen units comprised of 55 lessons and 122 topics. Flexible modules address concepts and skills for Arithmetic, Beginning Algebra and Intermediate Algebra, including basic Geometry and Statistics topics. Download a full [Table of Contents](#).

Arithmetic (available Spring 2011)

Beginning Algebra (available Summer 2011)

Intermediate Algebra (available Winter 2012)

Geometry and Statistics topics (available Summer 2012)

Thanks for your interest!

Terri Rowenhorst

NROC Member Services

membership@montereyinstitute.org

For project updates or more information, visit

www.NROCMath.org

