#### Assessment Plan

Academic Learning Skills Center for Learning Advancement January, 2007

#### Background

ALS provides instruction in areas of reading, writing, math, learning skills and technology skills to prepare students for college level courses. In addition, ALS provides college-level courses in study skills, supplemental instruction and vocabulary. Each subject area (reading, writing, math, etc.) requires a separate assessment.

All ALS courses include outcomes stated as learner objectives, but with a limited amount of faculty time to dedicate, we agreed to focus on one subject area at a time.

Because MTH010A has grown to be the course with the greatest enrollment in ALS, faculty decided during Fall 2005 in-service to start by assessing student learning outcomes for MTH010A – Whole Numbers, Fractions and Decimals.

#### Assessing student learning outcomes – Tasks completed up to 1/2007

- Reviewed and rewrote the mission of Academic Learning Skills (See ALS website <u>http://www.lanecc.edu/als/</u>)
- Created a course map for navigating department offerings to help faculty in ALS and other departments, students, advisors see the progression of courses. (See ALS website <u>http://www.lanecc.edu/als/coursemap.htm</u>)
- Surveyed developmental math students.
- Selected same textbook as MTH020 consistency of approach and to save student resources.
- Summarized and shared MTH020 faculty/course expectations and preferences with MTH010A instructors.

#### Why start with a MTH010A assessment plan?

• The number of MTH010A sections is growing:

Year	# of sections
03-04	32
04-05	40
05-06	47

• The number of registrations in MTH010A is growing:

Year	# of registrations
03-04	586
04-05	758
05-06	827

• MTH010A FTE was 53.56 in 2005-06.

#### For Math 010A:

- Faculty developed a common packet and a set of quizzes and tests, with multiple versions, about four years ago. The quizzes and tests were revised in Spring 06, used for the first time in Fall 06 and revised again for Winter 07 to clarify, edit, correct problems and adjust quiz/test length.
- 2006-07 unit plan analyzed enrollment patterns, retention, success for MTH010A students.

#### Next steps planned:

- Survey ALS MTH010A faculty: How do instructors use the department quizzes and tests? What do they consider "mastery?" Develop other questions and collect data based on either focus group and/or written questionnaire.
- Survey MTH020 faculty perception: Are MTH010A completers arriving in MTH020 with the content skills, confidence and the study strategies to be successful in MTH020?
- With help from IRAP: Who are MTH010A students? When was the last time they took a math classes. Are they appropriately placed? Who chooses to develop math skills in non-credit ABSE or GED vs. Math 010A?

#### Constraints

Limited contract faculty time and no resources for part-time faculty participation. (For example, only 4 of 8 full-time contract faculty are working on campus Winter 07.)

Limited time to work together.

Limited resources for accessing student-level follow-up data (Do MTH010A students who earn A's in Math 010A, succeed in MTH020? Is this data available? A priority?)

#### **Overall goal**

ALS Department's goal for MTH010A students goes beyond their achievement of passing grades and mastery of isolated skills. MTH010A students should gain a deep understanding of basic math concepts as well as facility with the language of math. Deep understanding depends on clear and correct instruction coupled with the opportunity for students to go beyond algorithms and apply concepts to a variety of applications.

Facility with the language of math is depending on the use of correct terminology in all aspects of instruction, including class time, tutoring sessions, and instructors' web site information. Math is a foreign language for many of our students and it is essential that the language be spoken clearly and correctly if they are to become conversant in it, that is, if they are to be successful beyond Math 010A.

Assessment questions and changes recommended as a result of our program assessment should address these overall goals, as well.

Plan template from: http://www.lanecc.edu/inservice/fall05/Assessment%20Guide.rtf

## Part I: Determine Expectations (content to be assessed) **1. List expected learning outcomes**

MTH010A builds skills and provides tools students will need to achieve "Core Ability Outcomes" (See: <u>http://www.lanecc.edu/vanguard/GenEdOutcomes.htm</u> ) including:

"Communicate effectively:

Demonstrate understanding and use of effective and respectful listening, interpersonal, small group/collaborative and public communication skills among diverse populations.

Think critically and solve problems effectively:

- apply the scientific method, incorporating the appropriate mathematical skills or processes as needed in various problem solving contexts
- interpret, translate, and communicate quantitative information expressed in mathematical notation, graphs, charts, tables, symbols, or standard English
- interpret and make inferences from data; estimate outcomes where appropriate
- determine whether conclusions or solutions are reasonable, using inductive and deductive reasoning"

See p. 6 of Assessment Plan for MTH010A learning objectives.

## **2. Identify where expected outcomes are addressed in the curriculum.** Math 010A

#### 3. Determine methods and criteria to assess outcomes and 4. Describe level of expected performance

Instructors use a common set of quizzes and tests, but the ways they are used vary from instructor to instructor. How are quizzes and tests used? Do students have a chance to redo portions for part-credit? Re-take tests they fail or receive lower than a C? As a starting point, syllabi could be reviewed for assessment criteria similarities and differences.

# 5. Identify and collect baseline information

## Ask:

What are the characteristics of the students who do not successfully complete Math 010A? What are the characteristics of students who earn As and Bs in Math 010A?

How can we help the non-completers become completers?

How do other community colleges structure MTH010A instruction and place students? How successful are MTH010A students when they take MTH020?

How do MTH020 grades of MTH010A completers compare with students who placed directly in MTH020?

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## Part II: Determine Timing, Cohort(s), Assign Responsibility (people assignments)

#### 1. Determine whom you will assess

Identify students (at random) based on their Math placement test.

Group by common characteristics

Follow students through Math 010A

Is placement test predictive of final grade?

Do students perceive that they were placed in the correct level? (Was MTH010A too easy or too hard? Too much review?)

## 2. Establish a schedule for assessment

ALS Department staff will create a work plan that will outline tasks and set scope and timelines based on resources available.

#### 3. Determine who will interpret results

ALS department staff (faculty, classified staff, manager) and partners from other departments.

Input from IRAP and Math department.

#### <u>Part III</u>

# 1. Interpret how results will inform teaching/learning and decision-making.

Based on findings, possible actions could include:

Reexamining using modular units (tried in the past, but abandoned), providing review class to help those who used to have the skills, but are "rusty", changing way tutors are used (match tutor to section? Provide online tutoring?), explore new materials and teaching methods, request professional development, create orientation process, adjust testing/placement, offer MTH010A as part of a developmental learning community or make no change.

## Question assumptions:

Do all students who don't pass one of the three sections of the placement, need a 3-credit MTH010A to be successful in MTH020?

What are deciding factors in students' choice to take MTH010A vs. adult basic education math?

## 2. Determine how and with whom you will share interpretations.

ALS Department will determine how and with whom to share the interpretations, possibilities include:

- Share with ALS faculty via e-mail, in-person meeting, fall in-service.
- Share with math department faculty and developmental math committee
- Share with other departments where students meet math requirements early. (Science)
- Share with TRIO, Women's Program, ABSE
- Assessment plan will also be shared before the development and implementation stages as well as in the "interpretation" stage.

# 3. Decide how your program or discipline will follow-up on implemented changes.

Possible follow-up steps include:

- Repeat data gathering (survey and success/retention)
- Explore changes in success/retention
- Change course structure or delivery

Add, subtract, multiply, and divide whole numbers		
Identify characteristics of even, odd, prime, and composite numbers		
Solve real world application problems using whole numbers		
Order whole numbers using < and >		
List factors and multiples of a given number		
Compute problems using the order of operations		
Use math vocabulary		
Compute area and perimeter of rectangles using whole numbers		
FRACTIONS		
Add, subtract, multiply, and divide fractions with like and unlike denominators		
Reduce fractions		
Compare fractions using $<, >$ or =		
Convert fractions to decimals		
Solve real world problems using fractions		
Compute area and perimeter of rectangles using fractions		
Use vocabulary of fraction terms		
DECIMALS		
Add, subtract, multiply, and divide using decimals		
Identify place value in decimal numbers		
Compare decimals using <, > or =		
Convert decimals to fractions		
Solve real world application problems using decimals		
Compute area and perimeter of rectangles using decimals		
MATH STUDY SKILLS		
Selects appropriate math study strategies		
Monitors and evaluates personal confidence progress		
Utilizes appropriate math resources		