Intensive English Mathematics

ESL 180 Math

0 credit
5 days per week; 1 year
Taught in English

This is a ***required course for IE grade students*** in the CAT program only. Mathematics is a universal language that has roots in all cultures. Math gives students the opportunity to understand their world through the use of logic, critical thinking and creativity. This course seeks to demonstrate that all students can enjoy success in mathematics. In addition, it attempts to develop an appreciation within students for the elegance, power and usefulness of mathematics. This course prepares students for success in a 7th grade English based mathematics curriculum. Emphasis will be placed on English vocabulary related to mathematic themes and problem solving. Students will apply what they learn to the solution of real world applications. When appropriate, technology will be incorporated in the learning process. Areas of study include: number theory, fractions, decimals, algebra, geometry, integers, ratios and proportions, statistics and probability."

Duran, Elva, et al. Access ESL Math. Great Source Education Group: Wilmington: Massachusetts, 2005 Edition.
Workbook: Duran, Elva, et al. Access ESL Math Practice Book. Great Source Education Group: Wilmington, Massachusetts, 2005 Edition.

Prerequisite: NONE

Benchmark Code –Subject: Intensive English Mathematics = IEM
Strand 1: Number Concepts
Strand 2: Patterns, Relations, and Algebra
Strand 3: Geometry
Strand 4: Probability and Statistics
Strand 5: Measurements

Code: Subject.Grade#.Strand#.Standard#. Benchmark#
Example: IEM.1.4.3 – Intensive English Mathematics, Strand 1, Standard 4, Benchmark 3

Strand 1: Number Concepts

Standard 1: Integers, Fractions, Mixed Numbers, Decimals, and Percent: The student engages in problem solving, communicating, reasoning, connecting, and representing.	
Benchmark Code	Benchmark
IEM.1.1.1	The student will recall names of place value from billions to thousandths.
IEM..1.1.2	The student will convert, compare, order, estimate, and round up among integers, fractions, mixed numbers, decimals, and percents.
IEM.1.1.3	The student will understand the concept of fractions as a ratio of whole numbers, as parts of unit wholes, as parts of a collection, and as locations on the number line.
IEM.1.1.4	The student will find and position integers, fractions, mixed numbers, and decimals (both positive and negative) on the number line.

IEM.1.1.5	The student will use ratios to solve proportions and determine common equivalent fractions, improper fractions, mixed numbers, decimals, and percents.
IEM.1.1.6	The student will identify, order, and rewrite integers (including negative integers), and positive fractions, mixed numbers, decimals, and percents.
IEM.1.1.7	The student will practice, manipulate, classify, and calculate number theory concepts including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2, 3, 4, 5, 6, 9, and 10 to the solution of problems.
IEM.1.1.8	The student will express an understanding of the properties of arithmetic operations on rational numbers including exponents.
IEM.1.1.9	The student will translate arithmetic symbols to word phrases and use the Order of Operations to evaluate expressions.
IEM.1.1.10	The student will accurately apply addition, subtraction, multiplication, and division (with double-digit divisors) whole numbers and positive decimals.
IEM.1.1.11	The student will accurately add, subtract, multiply, and divide positive fractions and mixed numbers. The student will simplify fractions.
IEM.1.1.12	The student will calculate different types of percents like tip, tax, commission, and discount.
IEM.1.1.13	The student will identify and graph points on a coordinate plane.
Standard 2: Problem-Solving: The student solves problems using different strategies.	
Benchmark Code	Benchmark
IEM.1.2.1	The student will solve basic mathematical operations without the assistance of visual counting, calculator, or pencil and paper.
IEM.1.2.2	The student will use manipulatives to demonstrate other manners of calculation.
IEM.1.2.3	The student will calculate basic operations with multiple integers by regrouping.
IEM.1.2.4	The student will recognize information and questions in word problems in order to solve them.
IEM.1.2.5	The student will solve word problems by guessing, checking, and revising.

Strand 2: Patterns, Relations, and Algebra	
Standard 1: Patterns: The student represents and generalizes a variety of patterns.	
Benchmark Code	Benchmark
IEM.2.1.1	The student will analyze and determine the rules for extending symbolic, arithmetic, and geometric patterns and progressions.
Standard 2: Relations: The student generates equivalent forms of simple algebraic expressions.	
Benchmark Code	Benchmark
IEM.2.2.1	The student will demonstrate an understanding of the inverse relationship of addition and subtraction.
IEM.2.2.2	The student will demonstrate an understanding of the inverse relationship of multiplication and division.
Standard 3: Algebra: The student uses symbolic algebra to represent situations and solve problems.	
Benchmark Code	Benchmark
IEM.2.3.1	The student will rewrite word phrases into algebraic expressions based on patterns.
IEM.2.3.2	The student will use the properties of equality and balancing to solve equations.
Strand 3: Geometry	
Standard 1: Lines and Angles: Students describe, classify, and understand relationships among types of two-dimensional objects using their properties.	
Benchmark Code	Benchmark
IEM.3.1.1	The student will identify relationships among points, lines, and planes, e.g., intersecting, parallel, perpendicular.
IEM.3.1.2	The student will predict, describe, and perform transformations on two-dimensional shapes, e.g., translations, rotations, and reflections.
Standard 2: Measurement: The student develops strategies to determine measurements of different geometric figures.	
Benchmark Code	Benchmark
IEM.3.2.1	The student will apply the concepts of perimeter and area to the solution of problems. The student will apply formulas where appropriate.
IEM.3.2.3	The student will identify, measure, and describe circles and the relationships of the radius, diameter, circumference, and area (e.g., d = 2r) and use the concepts to solve problems.
IEM.3.2.4	The student will find volume and surface area of a variety of rectangular prisms.
Strand 4: Probability and Statistics	
Standard 1: Probability: The student uses a basic understanding of probability to make and test conjectures.	
Benchmark Code	Benchmark
IEM.4.1.1	The student will use tree diagrams and other models (e.g., lists and tables) to

	represent possible or actual outcomes of trials. The student will analyze the outcomes.
IEM.4.1.2	The student will predict the probability of outcomes of simple experiments (e.g., tossing a coin, rolling a die) and test the predictions. The student will use appropriate ratios between 0 and 1 to represent the probability of the outcome and associate the probability with the likelihood of the event.
Standard 2: Statistics: The student records data using tables and analyze it by constructing plots and graphs.	
Benchmark Code	Benchmark
IEM.4.2.1	The student will describe and compare data sets using tables, plots, and different statistics.
IEM.4.2.2	The student will construct and interpret different plots and graphs.