

**CORRELATION
of
the 10 UNDERSTANDING MATH PLUS PROGRAMS
with
OHIO ACADEMIC CONTENT STANDARDS**

Grade 8

Note: a. The Understanding Math PLUS series of programs consist of 10 programs written for Kindergarten to 10th Grade.

The 10 programs are:

Understanding Fractions	Understanding Whole Numbers and Integers
Understanding Probability	Understanding Percent
Understanding Exponents	Understanding Equations
Understanding Algebra	Understanding Graphing
Understanding Numeration	
Understanding Measurement and Geometry	

Note: b. The Understanding Numeration software for K to 3 is set up so that the teacher selects items in the following order:
Concept .. from 5 concepts .. Counting, Comparing & Ordering, Place Value, Operations and Problem Solving.

Skill .. chosen from the list of specific learning expectations

Level .. indicates the levels of development for Kindergarten to 3rd grade.

Level	Upper Range of Number
A	10
B	20
C	100
D	1000

Lesson .. 250 lessons are sequenced to build understanding of concepts.

A detailed Lesson Synopsis on the website www.neufeldmath.com to assist the teacher by stating the lesson contents but also by giving lesson suggestions.

Worksheet .. off computer worksheets are selected from the CD by a code.

Note: c. The remaining 9 Understanding Math programs for 4th to 10th grade are set up so that they can be used in a variety of teaching and learning environments ranging from a teacher centered approach with 1 computer to a student centered lab approach. The lessons can also be used in remediation, tutorial, intervention, resource, fast-tracking.

Each topic has:

..an interactive concept introduction, usually with a variety of graphic approaches.

..a number of particular examples

..practice questions with random questions but particular feedback

..a topic test with random questions and tracking

..off computer worksheets selected from the website .. www.neufeldmath.com

Content Standards:

Number, Numbers Sense, and Operations

Standard

1. Use scientific notation to express large numbers and small numbers between 0 and 1.
2. Recognize that natural numbers, whole numbers, integers, rational numbers and irrational numbers are subsets of the real number system.
3. Apply order of operations to simplify expressions and perform computations involving integer exponents and radicals.
4. Explain and use the inverse and identity properties and use inverse relationships (addition/subtraction, multiplication/division, squaring/square roots) in problem solving situations.
5. Determine when an estimate is sufficient and when an exact answer is needed in problem situations, and evaluate estimates in relation to actual answers; e.g., very close, less than, greater than.

Neufeld Learning Systems Inc. July 2005

Source: http://www.ode.state.oh.us/academic_content_standards/District_Alignment_Tool/default.asp

Understanding Math PLUS Program and Lessons

MAT+ Understanding Exponents

Topic 4: Scientific Notation

Why Use Scientific Notation?

Scientific Notation for Large Numbers

Introduction

Chart

The Rule

The Rule

The Steps

Scientific Notation for Small Numbers

Introduction

Chart

The Steps

Examples

1. Number Question
2. Park Question
3. Sun Question
4. Kitchen Question

MAT+ Understanding Whole Numbers and Integers

Topic 9: Order of Operations

Order in Addition

Trials 1,2

Conclusion

Examples 1,2

Order in Multiplication

Trials 1,2

Conclusion

Examples 1,2

Why use Order of Operations?

BEDMAS

Example Questions

Examples 1 through 10

Word Problems

Shipping

Babysitting

Garbage

MAT+ Understanding Exponents

Topic 1: The Meaning of Exponents

Examples – Order of Operation

Examples 1,2,3,4

6. Estimate, compute and solve problems involving rational numbers, including ratio, proportion and percent, and judge the reasonableness of solutions.

MAT+ Understanding Percent

Topic 4: Ratios and Proportions

Ratios in the News

What is a Ratio

Examples

1. Fraction Strip
2. Balls
3. Students
4. Gears

Writing Ratios

Concept

Examples 1,2,3,4

What is Proportion?

Proportions

Example 1

Example 2- Lemonade

Example 3 – Marbles

Example 4 – Trout

Example 5 – Tree Height

Example 6 – Map

Example 7 – Scale Drawing

Ratios and Your Body

Golden Ratios

Measuring Your Body

Topic 6: Problems Involving Percent

In This Topic

Steps in Solving Problems

Finding the Whole

Recall Proportion

School Population: Method 1 – Using

Proportion; Method 2 –

Grades Problem: Method 1 – Using

Proportion; Method 2

Bike Sale: Method 1 – Using Proportion;

Method 2

Finding the Percent

Theatre problem

Car problem

Percent of a Number

Earnings Problem

Nickel Ore

Percents Greater than 100%

Number problem

Pencil Problem

Mental Calculation

Number Problem

Tipping

Percent Change

Interest

Tree Problem

Percent Markup

MAT+ Understanding Exponents

Topic 5: Square Root

Squaring Numbers

Square Roots

7. Find the square root of perfect squares, and approximate the square root of non-perfect squares as consecutive integers between which the root lies; e.g., $\sqrt{130}$ is between 11 and 12.

8. Add, subtract, multiply, divide and compare numbers written in scientific notation.

MAT+ Understanding Exponents

Topic 4: Scientific Notation

Examples

1. Number Question
2. Park Question
3. Sun Question
4. Kitchen Question