

**Jefferson County Public Schools. Louisville, KY.  
Connected Math Alignment with Understanding Math.  
Grade 6**

**September 2003**

**CCG Unit Topic: Recognizing Factors**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 2. The Multiplication Table

Multiplication Table: Instructions

Multiplication Table: Patterns, Practice 1, Practice 2

**Connected Math Topic:**

**Prime Time**

**CCG Unit Topic: Recognizing Multiples**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 2. The Multiplication Table

Multiplication Table: Instructions

Multiplication Table: Patter, Practice 1, Practice 2

**Connected Math Topic:**

**Prime Time**

**CCG Unit Topic: Finding Factor Pairs**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 3. Equivalent Fractions

Comparison of Fractions

Equivalent Fractions in a Multiplication Table

One

Equivalent Fractions .. The Pattern

Example Questions – Examples 1,2,3

Greatest Common Factor – 12 and 18; 30 and 40

Simplifying Fractions; Method 1, Method 2

Memory Game

Practice Questions; Topic Test

**Connected Math Topic:**

**Prime Time**

**Determining Prime Factorization**

**Connected Math Topic:**

**Prime Time**

**Using Multiplicative Structure of Numbers** .....

**Connected Math Topic:**

**Prime Time**

**CCG Unit Topic: Collecting, Organizing and Analyzing Data**

**Understanding Math Topic:**

**Understanding Graphing**

Topic 2. Statistics

Data .. What is it?

An Introduction .. Examples of Data

Examples 1 through 6  
 A Summary: Examples  
 Statistics .. What is it?  
 Collecting Data  
 Presenting Data  
 Stem and Leaf Diagram: Example 1, 2  
 Bar Graph: Example 1,2  
 Histogram: Example 1,2  
 Line Graph : Example 1,2  
 Circle or Pie Graphs : Example 1,2  
 Scatter Plot: Example 1,2  
 Measure of Central Tendency  
     Introduction; The Mean Average; The Median Average; The Mode  
     Summary  
 Box and Whisker Plot  
     Concepts; Examples 1,2  
 Misleading Statistics  
     Examples 1,2  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Data About Us**

**CCG Unit Topic: Representing Data**

**Understanding Math Topic:**

**Understanding Graphing**

Topic 1. Reading and Sketching Graphs

In This Topic  
 Graphs Without a Scale  
     Concept .. Age and Weight  
     Examples 1 through 13  
 Graphs with a Scale  
     Concept .. Distance and Time  
     Examples 1 through 8  
 Discrete Data  
 Continuous Data  
 Extrapolation  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Data About Us**

**CCG Unit Topic: Using Centers of Measure**

**Understanding Math Topic:**

**Understanding Graphing**

Topic 2. Statistics

Data .. What is it?  
 An Introduction .. Examples of Data  
     Examples 1 through 6  
     A Summary: Examples  
 Statistics .. What is it?  
 Collecting Data  
 Presenting Data  
 Stem and Leaf Diagram: Example 1, 2  
 Bar Graph: Example 1,2  
 Histogram: Example 1,2  
 Line Graph : Example 1,2

Circle or Pie Graphs : Example 1,2  
 Scatter Plot: Example 1,2  
 Measure of Central Tendency  
   Introduction; The Mean Average; The Median Average; The Mode  
   Summary  
 Box and Whisker Plot  
   Concepts; Examples 1,2  
 Misleading Statistics  
   Examples 1,2  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Data About Us**

**CCG Unit Topic: Identifying Fractions**

**Understanding Math Unit Topic:**

**Understanding Fractions**

Topic 1. The Meaning of Fractions

Fraction in the News  
 Introduction .. THINK, WRITE, SAY  
   Squares – Balls – Examples  
 Parts of a Fraction  
 Fraction of a Gas Tank  
 Fraction of a Hub Cap  
 Fraction Strips – Concepts 1,2,3,4  
 Comparison of Fractions  
 Fractions on a Number Line  
 Pattern Blocks – Examples 1,2,3,4  
 The Clock  
 Fractions of Odd Shapes  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Bits and Pieces I**

**CCG Unit Topic: Comparing Fractions**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 3. Equivalent Fractions

Comparison of Fractions  
 Equivalent Fractions in a Multiplication Table  
 One  
 Equivalent Fractions .. The Pattern  
 Example Questions – Examples 1,2,3  
 Greatest Common Factor – 12 and 18; 30 and 40  
 Simplifying Fractions; Method 1, Method 2  
 Memory Game  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Bits and Pieces I**

**CCG Unit Topic: Relating Fractions to Decimals**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 13: Fractions and Decimals

Compare Fractions; Method 1, Method 2  
 Fractions to Decimals  
 Repeating Decimals

An Example  
 How to Write Them  
 Decimals to Fractions  
 Place Value; Examples 1 through 5  
 Rounding: Examples 1,2  
 My Day  
 Fraction to Decimal .. Division Table  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Bits and Pieces I**

**CCG Unit Topic: Using Percent**

**Understanding Math Topic:**

**Understanding Percent**

Topic 1. The Meaning of Percent

In This Topic  
 Percent in the News  
 Percent Means...  
 Introductory Examples: 1 – School; 2 – Money  
 Examples 1 through 5  
 Making Sense of Percent  
 1. Weather  
 2. Red Squares  
 3. Blue Squares  
 4. Green Blocks  
 5. Ruler  
 Estimating Percent  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Bits and Pieces I**

**CCG Unit Topic: Estimating with Fractions**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 1. The Meaning of Fractions

Fraction in the News  
 Introduction .. THINK, WRITE, SAY  
 Squares – Balls – Examples  
 Parts of a Fraction  
 Fraction of a Gas Tank  
 Fraction of a Hub Cap  
 Fraction Strips – Concepts 1,2,3,4  
 Comparison of Fractions  
 Fractions on a Number Line  
 Pattern Blocks – Examples 1,2,3,4  
 The Clock  
 Fractions of Odd Shapes  
 Practice Questions; Topic Test

**CCG Unit Topic: Adding and Subtracting Fractions**

**Understanding Math Topic:**

**Understanding Fractions**

Topic 7. Adding Fractions

Pattern Blocks  
 Hexagon 1, Hexagon 2, Hexagon3, Summary  
 Fraction Strips - Concepts 1,2

Percent Strips - Examples 1, 2  
 Decimal Strips - Examples 1, 2  
 The Clock - Examples 1, 2  
 Adding Fractions on a Number Line  
 Examples 1, 2, 3  
 The Lowest Common Denominator  
 Examples 1, 2  
 Word Problems  
 Alexander's Friends, Eating Candy, Goal Scoring, Walk  
 Fraction Card Game  
 Practice Questions; Topic Test

**Topic 8. Subtracting Fractions**

Pattern blocks  
 Hexagon 1, Hexagon 2, Hexagon 3, Summary  
 The Clock - Examples 1, 2  
 Fractions Strips - Concepts 1, 2  
 Percent Strips - Examples 1, 2  
 Decimal Strips - Examples 1, 2  
 Subtracting Fractions on a Number Line  
 Examples 1, 2, 3  
 The Lowest Common Denominator  
 Examples 1, 2  
 Word Problems  
 Petro and Alex Race, Wash Cars, Planting a Garden  
 Practice Questions; Topic Test

***CCG Unit Topic: Multiplying & Dividing Fractions***  
***Understanding Math Topic:***

**Understanding Fractions**

**Topic 9. Multiplying Fractions**

Pattern Blocks  
 Hexagon 1, Hexagon 2, Hexagon 3, Summary  
 Fractions Strips – Concepts 1,2  
 Word Problems  
 Boris' Money, Maria's Trip  
 A Summary  
 The Meaning of "OF"  
 Order in Multiplying  
 Examples 1,2  
 Multiplying Fractions with Large Numbers  
 Examples 1, 2  
 Multiplying Many Fractions  
 Examples 1, 2  
 Practice Questions; Topic Test

**Topic 10. Dividing Fractions**

Understanding Division  
 Examples with Diagrams  
 Soda Pop, Ice Cream, Shape 1, Shape 2  
 Patterns from Examples  
 Another Explanation  
 Examples 1,2  
 Examples without Diagrams  
 Numerical Examples 1,2; Central High School  
 Practice Questions; Topic Test

**CCG Unit Topic: Computing with Decimals****Understanding Math Topic:****Understanding Fractions****Topic 5. Percents .. Fraction .. Decimal**

- Expressing a Percent as a Fraction
  - Introduction without Graphics; Introduction with Graphics
  - Expressing a Fraction in Simplest Form
  - Examples
  - The Watering Can
- Expressing a Percent as a Decimal
  - Introduction and 3 Examples
- Number Line #1
- Decimal Strips - Concepts 1,2,3
- Expressing a Decimal as a Percent
  - Examples 1,2,3
  - Summary and Patterns
  - % Nitrogen in the Air
  - Batting Averages
- Expressing a Fraction as a Percent
  - An Example: Method 1, Method 2
  - Lightning Example
- Number Line #2
- Chart
- Practice Questions; Topic Test

**CCG Unit Topic: Tiling with Polygons Building Polygons****Understanding Math Topic:****Understanding Measurement and Geometry****Topic 2. Perimeter and Area of Polygons**

- Walk Around a Polygon
  - Joan Walks
  - Length of the Metal Strip
  - Find the Perimeter
- Amount of Surface
  - The Driveway – An Introduction to Area
  - Area – Estimation
  - Area of a Rectangle
    - The Concept
    - Example 1,2
  - Area of a Parallelogram
    - The Concept
    - Examples 1,2
- Problems Section
  - Length of Fence
  - Area of a Wall
  - The Tablecloth
- Practice Questions; Topic Test

**Connected Math Topic:****Shapes and Designs**

**Measuring Angles****CCG Unit Topic: Exploring Polygon Properties****Understanding Math Topic:****Understanding Measurement and Geometry****Topic 5. Angles and their Measure**

Lines and Rays  
 Angles... An Introduction  
 The Degree  
 Classify Angles  
 Acute, Right, Obtuse, Straight  
 Perpendicular lines  
 Complementary, Supplementary  
 Measuring Angles  
 Practice Questions; Topic Test

**CCG Unit Topic: Recognizing Angles & Shape Relations****Understanding Math Topic:****Understanding Measurement and Geometry****Topic 4. Solids .. Volume and Surface Area**

Classifying solids  
 A Solid is ...  
 Recall Polygons  
 A Polyhedron is ...  
 A Prism is ...  
 Some Special Prisms  
 A Pyramid is ...  
 Some Special Pyramids  
 A Cylinder is ... A Cone is...Platonic Solids  
 Surface Area of a Solid  
 The Concept  
 Surface Area of a Pyramid  
 Surface Area of a Cylinder  
 Surface Area of a Sphere  
 Volume of a Solid  
 The Concept  
 Volume of a Prism: Example 1, Example 2  
 Volume of a Cylinder  
 Volume of a Pyramid  
 Volume of a Cone  
 Volume of a Sphere  
 Summary  
 Practice Questions & Topic Test

**Connected Math Topic:****Shapes and Designs****CCG Unit Topic: Measuring Perimeter and Area****Understanding Math Topic:****Understanding Measurement and Geometry****Topic 2. Perimeter and Area of Polygons**

Walk Around a Polygon  
 Joan Walks  
 Length of the Metal Strip  
 Find the Perimeter  
 Amount of Surface

The Driveway – An Introduction to Area  
 Area – Estimation  
 Area of a Rectangle  
   The Concept  
   Example 1,2  
 Area of a Parallelogram  
   The Concept  
   Examples 1,2  
 Problems Section  
   Length of Fence  
   Area of a Wall  
   The Tablecloth  
 Practice Questions; Topic Test

***Connected Math Topic:***

**Covering and Surrounding**

***CCG Unit Topic: Exploring Constant Area, Changing Perimeter***

***Understanding Math Topic:***

**Understanding Graphing**

Topic 4. Transformations

What is a Transformation?  
 Introduction to Common Transformations  
 Translations  
   Object to Image; We Say, We Write; Translations Mapping Rule  
   Examples  
 Reflections  
   Object to Image; We Say, We Write; Reflection Mapping Rule  
 Rotations  
   Object to Image; We Say, We Write; Rotation Mapping Rule  
   Examples  
 Dilatations  
   Object to Image; We Say, We Write; Dilatation Mapping Rule  
   Examples  
 Practice Questions; Topic Test

***Connected Math Topic:***

**Covering and Surrounding**

***CCG Unit Topic: Measuring Parallelograms, Measuring Triangles***

***Understanding Math Topic:***

**Understanding Measurement and Geometry**

Topic 2. Perimeter and Area of Polygons

Walk Around a Polygon  
   Joan Walks  
   Length of the Metal Strip  
   Find the Perimeter  
 Amount of Surface  
   The Driveway – An Introduction to Area  
   Area – Estimation  
   Area of a Rectangle  
     The Concept  
     Example 1,2  
   Area of a Parallelogram  
     The Concept  
     Examples 1,2  
 Problems Section

Length of Fence  
 Area of a Wall  
 The Tablecloth  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Covering and Surrounding**

**CCG Unit Topic: Exploring Circles**

**Understanding Math Topic:**

**Understanding Measurement and Geometry**

Topic 3. The Circle

PI ... A Special Number  
 Circumference of a Circle  
 Circumference  
 Example 1, Example 2  
 Circumference of a Circle  
 Circumference  
 Ex. 1 – Ogg; Ex.2 – The Well  
 Ex. 3 – The Rolling Coin; Ex. 4 – The Semi-Circle  
 Area of a Circle  
 Recall Area  
 Area Exploration #1  
 Area Exploration #2  
 Example 1  
 Example 2  
 Practice Questions; Topic Test

**Connected Math Topic:**

**Covering and Surrounding**

**CCG Unit Topic: Develop the Concept of Variables**

**Understanding Math Topic:**

**Understanding Equations**

Topic 1. Tiles, Balances and Equations

Definitions  
 Introduction, Summary Part 1, Summary Part 2  
 The Meaning of "Solving an Equation"  
 Solve by Systematic Trials  
 Recall Tile Concepts (from 'Understanding Algebra' program)  
 Balances .. An Introduction  
 Tiles, Balances and Equations  
 Practice Questions; Topic Test

**CCG Unit Topic: Understanding Patterns, Relations & Functions**

**Understanding Math Topic:**

**Understanding Equations**

Topic 6. Solving Linear Equations

In This Topic  
 The Meaning of a Linear System  
 The Meaning of Solving a Linear System  
 Solve a Linear System by Graphing  
 Examples 1,2 – Intersecting Lines  
 Examples 3,4 – Intersecting Lines involving Fractions  
 Example 5 – Parallel Lines  
 Example 6 – Coincidental Lines  
 Solve a Linear System by Substitution

Examples 1,2 – Intersecting Lines  
 Examples 3,4 – Intersecting Lines involving Fractions  
 Example 5 – Parallel Lines  
 Example 6 – Coincidental Lines  
 Solve a Linear System by Elimination  
 Examples 1,2 – Intersecting Lines  
 Examples 3,4 – Intersecting Lines involving Fractions  
 Example 5 – Parallel Lines  
 Example 6 – Coincidental Lines  
 Solve a Linear System by Comparison  
 Examples 1,2 – Intersecting Lines  
 Examples 3,4 – Intersecting Lines involving Fractions  
 Example 5 – Parallel Lines  
 Example 6 – Coincidental Lines  
 Solve Problems Using Linear Systems  
 Example 1; Beginning a Question; Draw a Graph  
 Example 2; Beginning a Question; Draw Graph  
 Practice Questions; Topic Test

**CCG Unit Topic: Develop the Concept of Balance**

**Understanding Math Topic:**

**Understanding Equations**

**Topic 1. Tiles, Balances and Equations**

Definitions

Introduction, Summary Part 1, Summary Part 2

The Meaning of "Solving an Equation"

Solve by Systematic Trials

Recall Tile Concepts (from 'Understanding Algebra' program)

Balances .. An Introduction

Tiles, Balances and Equations

Practice Questions; Topic Test

**CCG Unit Topic: Developing an Understanding of Probability**

**Understanding Math Topic:**

**Understanding Probability**

**Topic 1. What's Possible**

The Language of Chance

Possible Outcomes .. What are They?

Possible Outcomes .. Examples

1. Coin
2. Picking 1 Ball
3. Picking 1 Balls
4. Eye Test
5. Coin & Die
6. Travel
7. Rabbits
8. Forest

Practice Questions; Topic Test

**Connected Math Topic:**

**How Likely Is It?**

**CCG Unit Topic: Determining Experimental Probabilities**

**Understanding Math Topic:**

**Understanding Probability**

**Topic 2: What's the Chance?**

Probability...

What is it?  
 Introductions 1; Introduction 2  
 Probability Examples  
 1. Coin Toss  
 2. Picking One Ball  
 3. Picking Two Balls  
 4. Travel Example  
 5. Number Example  
 6. Rabbit Example  
 7. Mailing letters  
 8. Forest  
 The Probability Scale  
 Examples; Summary; Followup  
 Soccer Example  
 Experimental Probability  
 Introduction; Examples 1,2  
 Practice Questions; Topic Test

**Connected Math Topic:**

**How Likely Is It?**

**CCG Unit Topic: Determining Theoretical Probabilities**

**Understanding Math Topic:**

**Understanding Probability**

Topic 3. Dice Probabilities

Roll One Die  
 Your Experiment  
 Computer's Experiment  
 Theoretical Probability  
 Patterns  
 Summary  
 Roll Two Dice  
 Your Experiment  
 Computer's Experiment  
 Theoretical Probability  
 Patterns  
 Summary  
 Practice Questions; Topic Test

**Connected Math Topic:**

**How Likely Is It?**

**CCG Unit Topic: Developing Understanding of Randomness**

**Understanding Math Topic:**

**Understanding Probability**

Topic 7.Independent Events

What Are They?  
 Examples:  
 1. Toss 2 Coins  
 2. Replacing Marbles  
 Probability  
 1. Coin and Die  
 2. Replacing Marbles  
 3. Letter Tiles  
 Patterns & Summary  
 1. Summary  
 2. Spinner  
 3. Cards

Practice Questions; Topic Test

*Connected Math Topic:*

**How Likely Is It?**