MATH ESSENTIALS UNIT 1
Place Value

Name _____ Date _____

PURPOSE
Learn about the place value system and
how to round whole numbers.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by the instructor.

ESTIMATED TIME: 4 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps, or *Math Essentials, Unit 1 Place Value,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 1 Place Value,* Establishing a Routine.   ____ ____

B. BASICS OF THE PLACE VALUE SYSTEM

1. READ: Chapter The Place Value System up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   7 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   17 problems ☐ missed

   Instructor pass.   ____ ____

C. PLACE VALUES FOR LARGER NUMBERS

1. READ: Chapter Place Values for Larger Numbers up to Exercise 2.   _____

2. ACTIVITY: Do Exercise 2.   23 problems ☐ missed

If you missed more than 2 problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.   33 problems ☐ missed

Instructor pass.   ____ ____

D. ROUNDING NUMBERS

1. READ: Chapters Rounding Numbers, and More About Rounding Numbers up to Exercise 3.   _____

2. ACTIVITY: Do Exercise 3.   13 problems ☐ missed

If you missed more than 2 problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.   26 problems ☐ missed

Instructor pass.   ____ ____

E. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   11 problems ☐ missed

Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.

ADDITIONAL RESOURCES
Exam and answers

MATH ESSENTIALS UNIT 2
Division

Name _____ Date _____

PURPOSE

Learn to divide whole numbers and find averages.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 15 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps, or *Math Essentials, Unit 2 Division,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 2 Division,* Establishing a Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. DIVISION BASICS

1. READ: Chapter Division up to Exercise 1. Use real place value blocks to do the place value block demonstrations as you read them.   _____

2. ACTIVITY: Do Exercise 1.   14 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   18 problems ☐ missed   _____

3. READ: Chapter More About Dividing up to Exercise 2. Use real place value blocks to do the place value block demonstrations as you read them.   _____

4. ACTIVITY: Do Exercise 2.   7 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   13 problems ☐ missed   _____

5. READ: Chapter Two-Digit Divisors up to Exercise 3.   _____

6. ACTIVITY: Do Exercise 3.   4 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   5 problems ☐ missed

   Instructor pass.   ____ ____

C. ESTIMATING QUOTIENTS

1. READ: Chapter Estimating Quotients up to Exercise 4.   _____

2. ACTIVITY: Do Exercise 4.   10 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   12 problems ☐ missed   _____

D. ZEROS IN DIVIDING AND THREE-DIGIT DIVISORS

1. READ: Chapter Zeros in the Quotient up to Exercise 5.
   Do the steps for yourself on paper where it says to do that.   _____

2. ACTIVITY: Do Exercise 5.   7 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   10 problems ☐ missed   _____

3. READ: Chapter Three-Digit Divisors up to Exercise 6.   _____

4. ACTIVITY: Do Exercise 6.   7 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   10 problems ☐ missed

   Instructor pass.   ____ ____

5. READ: Chapter Zero and Dividing up to Exercise 7   _____

6. ACTIVITY: Do Exercise 7.   11 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   11 problems ☐ missed   _____

E. AVERAGES

1. READ: Chapter Averages up to Exercise 8.   _____

2. ACTIVITY: Exercise 8.   8 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   7 problems ☐ missed

    Instructor pass.   ____ ____

F. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   10 problems ☐ missed

    Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.

ADDITIONAL RESOURCES
Exam and answers

Word Problems: Whole Numbers

Name _____ Date _____

PURPOSE

Practice solving word problems with addition,
subtraction, multiplication and division.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 3 Word Problems: Whole Numbers,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 3 Word Problems: Whole Numbers,*
    Establishing a Routine.   ____ ____

B. WORD PROBLEMS: WHOLE NUMBERS

1. READ: Chapter Some Math Definitions up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   10 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   7 problems ☐ missed   _____

3. ACTIVITY: Do Exercise 2.   7 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   6 problems ☐ missed

    Instructor pass.   ____ ____

4. ACTIVITY: Do Exercise 3.   11 problems   ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   10 problems   ☐ missed   _____

5. ACTIVITY: Do Exercise 4.   13 problems   ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   11 problems   ☐ missed

   Instructor pass.   ____ ____

6. ACTIVITY: Do Exercise 5.   10 problems   ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   10 problems   ☐ missed   _____

7. ACTIVITY: Do Exercise 6.   15 problems   ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   13 problems   ☐ missed

   Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

Fractions: Adding & Subtracting

Name _____ Date _____

PURPOSE

Learn to add and subtract fractions and mixed numbers.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 15 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials Unit 4 Fractions: Adding & Subtracting,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1.   READ: *Math Essentials, Unit 4 Fractions: Adding & Subtracting,*
     Establishing a Routine.   ____ ____

2.   ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. FRACTIONS

1.   READ: Chapter Fractions.   _____

2.   ACTIVITY: Do Fractions: Adding and Subtracting Worksheet,
     attached to the back of this learning guide.
     Exercises.   18 problems ☐ missed   _____

C. WRITING FRACTIONS IN THE SIMPLEST WAY

1.   READ: Chapter Equivalent Fractions and Lowest Terms up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1. 30 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercise. 35 problems ☐ missed

   Instructor pass. ____ ____

D. COMPARING FRACTIONS

1. READ: Chapter Comparing Fractions—Common Denominators up to Exercise 2. _____

2. ACTIVITY: Do Exercise 2. 26 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises. 30 problems ☐ missed _____

E. ADDING AND SUBTRACTING FRACTIONS AND MIXED NUMBERS

1. READ: Chapter Adding and Subtracting Fractions up to Exercise 3. _____

2. ACTIVITY: Do Exercise 3. 20 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises. 27 problems ☐ missed _____

3. READ: Chapter Adding and Subtracting Mixed Numbers up to Exercise 4. Do the steps for yourself on paper where it says to do that. _____

4. ACTIVITY: Do Exercise 4. 24 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises. 32 problems ☐ missed

   Instructor pass. ____ ____

F.   FINAL ACTIVITY

1.   ACTIVITY: Do Final Unit Exercises.   7 problems ☐ missed

   Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.
ADDITIONAL RESOURCES
Exam and answers

FRACTIONS: ADDING AND SUBTRACTING WORKSHEET

Name _____ Date started _____

For each drawing below, show the fraction by making a circle around the fraction in the drawing. The first four have been done for you.

1. $\frac{1}{2}$ of the pizzas

2. $\frac{1}{2}$ of the pizza

3. $\frac{1}{4}$ of the footballs

4. $\frac{1}{4}$ of the cup
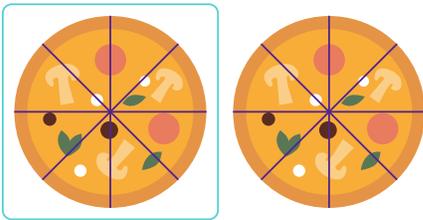
5. $\frac{5}{8}$ of the tennis balls

6. $\frac{5}{8}$ of the pizza
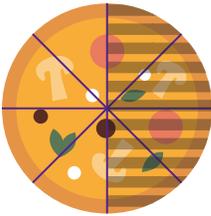
7. $\frac{2}{6}$ of the basketballs

8. $\frac{5}{6}$ of the bowling pins
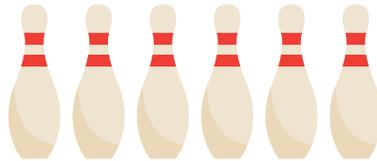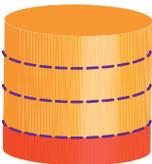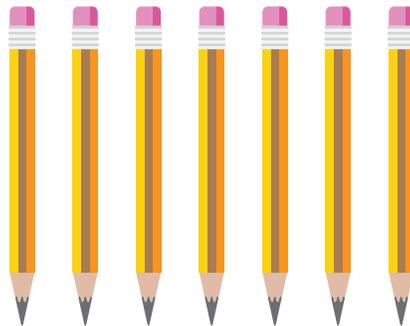
9. $\frac{2}{7}$ of the pencils

10. $\frac{5}{12}$ of the pencils
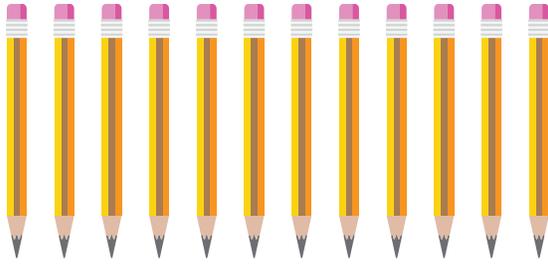
*Show by shading in the fractions:*

11. $\frac{2}{3}$ of the paper
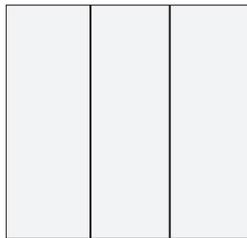
12. $\frac{3}{6}$ of the paper
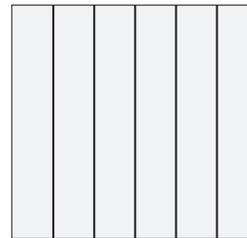
For each picture below, write down the numerator and the denominator of the fraction shown.

13. In the drawing below, what fraction is the shaded part? _____
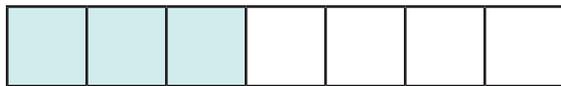
14. In the drawing above, what fraction is the unshaded part? _____

15. In the drawing below, what fraction is the circled part? _____

16. In the drawing above, what fraction is the uncircled part? _____

17. In the drawing below, what fraction is the shaded part? _____
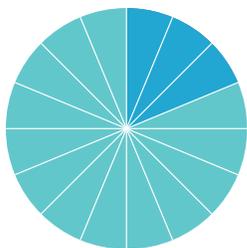
18. In the drawing above, what fraction is the unshaded part? _____

MATH ESSENTIALS UNIT 5
Fractions: Multiplying & Dividing

Name _____ Date _____

PURPOSE

Learn to do problems involving multiplying and
dividing fractions and mixed numbers.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials Unit 5 Fractions: Multiplying & Dividing,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 5 Fractions: Multiplying & Dividing,*
    Establishing a Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. MULTIPLYING FRACTIONS AND MIXED NUMBERS

1. READ: Chapter Finding a Fraction up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   17 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   20 problems ☐ missed   _____

3. READ: Chapter Multiplying Mixed Numbers up to Exercise 2.   _____

4. ACTIVITY: Do Exercise 2. 15 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises. 20 problems ☐ missed

Instructor pass. ____ ____

C. DIVIDING FRACTIONS AND MIXED NUMBERS

1. READ: Chapter Dividing by a Fraction up to Exercise 3. _____

2. ACTIVITY: Do Exercise 3. 20 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises. 21 problems ☐ missed _____

3. READ: Chapter More About Dividing by Fractions up to Exercise 4. _____

4. ACTIVITY:

a) Draw a picture to solve the following problem:

A ribbon is $6\frac{1}{2}$ feet long.

How many $1\frac{1}{4}$-foot-long pieces can be cut from the $6\frac{1}{2}$ feet?

How much ribbon will be left over?

b) Now show how you would solve the same problem using math.
Instructor pass. ____ ____

5. ACTIVITY: Do Exercise 4. 15 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises. 19 problems ☐ missed

Instructor pass. ____ ____

D. FINAL ACTIVITY

1.   ACTIVITY: Do Final Unit Exercises.   5 problems ☐ missed

   Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.
ADDITIONAL RESOURCES
Exam and answers

Word Problems: Fractions

Name _____ Date _____

PURPOSE

Practice solving word problems with addition, subtraction, multiplication and division of fractions and mixed numbers.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials Unit 6 Word Problems: Fractions,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 6 Word Problems: Fractions,* Establishing a
    Routine.   ____ ____

B. WORD PROBLEMS: FRACTIONS

1. READ: Chapter Some Math Definitions for Fractions to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   8 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   12 problems ☐ missed   _____

3. ACTIVITY: Do Exercise 2.   13 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   19 problems ☐ missed

    Instructor pass.   ____ ____

4. ACTIVITY: Do Exercise 3.   15 problems [ ] missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   21 problems [ ] missed   _____

5. READ: Exercise 4 Introduction.   _____

6. ACTIVITY: Do Exercise 4.   8 problems [ ] missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   14 problems [ ] missed

   Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

MATH ESSENTIALS UNIT 7
Decimals

Name _____ Date _____

PURPOSE

Learn to do problems with addition,
subtraction, multiplication and division of decimals.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 15 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials Unit 7 Decimals,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 7 Decimals*, Establishing a Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. BASICS OF DECIMALS

1. READ: Chapter Writing Fractions Using the Place Value System up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   36 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   51 problems ☐ missed   _____

3. READ: Chapter Thousandths and Ten-Thousandths up to Exercise 2.   _____

4. ACTIVITY: Do Exercise 2.   40 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.   55 problems ☐ missed

Instructor pass.   ____ ____

C. ADDING AND SUBTRACTING DECIMALS

1. READ: Chapter Adding and Subtracting Decimals up to Exercise 3.   _____

2. ACTIVITY: Do Exercise 3.   21 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.   32 problems ☐ missed

Instructor pass.   ____ ____

D. MULTIPLYING DECIMALS

1. READ: Chapter Multiplying Decimals up to Exercise 4.   _____

2. ACTIVITY: Do Exercise 4.   14 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.   19 problems ☐ missed

Instructor pass.   ____ ____

E. DIVIDING DECIMALS

1. READ: Chapter Multiplying or Dividing Decimals by 10, 100, 1,000 and So On up to Exercise 5   _____

2. ACTIVITY: Do Exercise 5.   28 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.   30 problems ☐ missed

Instructor pass.   ____ ____

3. READ: Chapter Dividing Decimals, section "Dividing a Decimal by a Whole Number." _____

4. ACTIVITY: Do Exercise Dividing a Decimal by a Whole Number. _____

5. READ: section "Dividing a Whole Number." _____

6. ACTIVITY: Do Exercise Dividing a Whole Number. _____

7. READ: section "Dividing a Decimal by a Decimal." _____

8. ACTIVITY: Do Exercise Dividing a Decimal by a Decimal. _____

9. ACTIVITY: Do Exercise 6.   12 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   17 problems ☐ missed

    Instructor pass. _____ - _____

10. READ: Chapter Rounding Decimals up to Exercise 7. _____

11. ACTIVITY: Do Exercise 7.   16 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   19 problems ☐ missed _____

F. MORE ABOUT FRACTIONS AND DECIMALS

1. READ: Chapter Changing Decimals and Fractions up to Exercise 8. _____

2. ACTIVITY: Do Exercise 8.   10 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   15 problems ☐ missed _____

3. READ: Chapter Repeating Decimals up to Exercise 9. _____

4. ACTIVITY: Do Exercise 9.   8 problems ☐ missed

   If you missed any problems, or if you need or want more practice,
   do Additional Exercises.

   Additional Exercises.   10 problems ☐ missed

   Instructor pass.   ____ ____

G. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   25 problems ☐ missed

   Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how
to use them.
ADDITIONAL RESOURCES
Exam and answers

MATH ESSENTIALS UNIT 8
Metric Measurement

Name _____ Date _____

PURPOSE

Learn to do metric measurements of length, weight and liquid
volume and to convert from one metric unit to another.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where
there are two sign-off lines, get the step checked and initialed on the second line by another
student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 8 Metric Measurement,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1.   READ: *Math Essentials, Unit 8 Metric Measurement,* Establishing a Routine.   ____ ____

2.   ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. WAYS TO MEASURE THINGS

1.   READ: Chapter Ways to Measure Things.   _____

C. MEASURING LENGTH

1.   READ: Chapter Measuring Length in Metric Units up to Exercise 1
     and do what it says.   _____

2.   ACTIVITY: Do Exercise 1.   21 problems ☐ missed

     If you missed any problems, or if you need or want more practice,
     do Additional Exercises.

     Additional Exercises.   24 problems ☐ missed   ____ ____

3. READ: Chapter Changing from One Metric Unit to Another
   up to Exercise 2.   _____

4. ACTIVITY: Do Exercise 2.   53 problems ☐ missed

   If you missed any problems, or if you need or want more practice,
   do Additional Exercises.

   Additional Exercises.   67 problems ☐ missed   ____ ____

D. MEASURING WEIGHT

1. READ: Chapter Measuring Weight in Metric Units up to Exercise 3.   _____

2. ACTIVITY: Do Exercise 3.

   If you need or want more practice, do Additional Exercises.

   Additional Exercises.   _____

3. ACTIVITY: Do Exercise 4.   26 problems ☐ missed

   If you missed any problems, or if you need or want more practice,
   do Additional Exercises.

   Additional Exercises.   42 problems ☐ missed

   Instructor pass.   ____ ____

E. MEASURING LIQUID VOLUME

1. READ: Chapter Measuring Liquid Volume in Metric Units up
   to Exercise 5.   _____

2. ACTIVITY: Do Exercise 5.

   If you need or want more practice, do Additional Exercises.

   Additional Exercises.   _____

3. ACTIVITY: Do Exercise 6.   19 problems ☐ missed

   If you missed any problems, or if you need or want more practice,
   do Additional Exercises.

   Additional Exercises.   26 problems ☐ missed   _____

F. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   10 problems ☐ missed

    Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

MATH ESSENTIALS UNIT 9
Customary Measurement

Name _____ Date _____

PURPOSE

Learn to do customary measurements of length, weight and
liquid volume and to convert from one customary unit to another.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 9 Customary Measurement,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 9 Customary Measurement,* Establishing a
    Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. WAYS TO MEASURE THINGS

1. READ: If you haven't already, read Chapter Ways to Measure Things.   _____

C. MEASURING LENGTH

1. READ: Chapter Measuring Length in Customary Units up to
    Exercise 1 and do what it says.   _____

2. ACTIVITY: Do Exercise 1.   29 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   27 problems ☐ missed   ____ ____

3. READ: Chapter Changing from One Customary Unit of Length to Another up to Exercise 2.   _____

4. ACTIVITY: Do Exercise 2.   30 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises

    Additional Exercises.   31 problems ☐ missed

    Instructor pass.   ____ ____

D. MEASURING WEIGHT

1. READ: Chapter Measuring Weight in Customary Units up to Exercise 3.   _____

2. ACTIVITY: Do Exercise 3.

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   _____

3. ACTIVITY: Do Exercise 4.   18 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   21 problems ☐ missed

    Instructor pass.   ____ ____

E. MEASURING LIQUID VOLUME

1. READ: Chapter Measuring Liquid Volume in Customary Units up to Exercise 5.   _____

2. ACTIVITY: Do Exercise 5

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   _____

3. ACTIVITY: Do Exercise 6.　　　15 problems ☐ missed

If you missed any problems, or if you need or want more practice, do Additional Exercises.

Additional Exercises.　　　15 problems ☐ missed

Instructor pass.　　　　　　　　　　　　　　　____ ____

F. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.　10 problems ☐ missed

Instructor pass.　　　　　　　　　　　　　　　____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

MATH ESSENTIALS UNIT 10
Positive and Negative Numbers

Name _____ Date _____

PURPOSE

Learn to add, subtract, multiply and
divide positive and negative numbers rapidly.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 10 Positive and Negative Numbers,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 10 Positive and Negative Numbers,*
    Establishing a Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. INTRODUCTION TO POSITIVE AND NEGATIVE NUMBERS

1. READ: Chapter Introduction to Positive and Negative Numbers up to
    Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   13 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   18 problems ☐ missed   _____

C. ADDING INTEGERS

1. READ: Chapter Adding Positive Integers up to Exercise 2. _____

2. ACTIVITY: Do Exercise 2.   10 problems ☐ missed

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   14 problems ☐ missed   ____ ____

3. ACTIVITY: Do Exercise 3 Parts A and B.

    Part A.   _____

    Part B.   ____ ____

4. READ: Chapter Adding Negative Integers up to Exercise 4. _____

5. ACTIVITY: Do Exercise 4.

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   ____ ____

6. ACTIVITY: Do Exercise 5 Parts A and B.

    Part A.   _____

    Part B.   ____ ____

D. SUBTRACTING INTEGERS

1. READ: Chapter Subtracting Positive Integers up to Exercise 6. _____

2. ACTIVITY: Do Exercise 6.

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   ____ ____

3. ACTIVITY: Do Exercise 7 Parts A and B.

    Part A.   _____

    Part B.   ____ ____

4. READ: Chapter Subtracting Negative Integers up to Exercise 8. _____

5. ACTIVITY: Do Exercise 8.

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   _____ _____

6. READ: Chapter More About Adding and Subtracting Integers up to
    Exercise 9.   _____

7. ACTIVITY: Do Exercise 9.

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   _____ _____

8. ACTIVITY: Do Exercise 10 Parts A and B.

    Part A.   _____
    Part B.   _____ _____

E. MULTIPLYING INTEGERS

1. READ: Chapter Multiplying Positive and Negative Integers up to
    Exercise 11.   _____

2. ACTIVITY: Do Exercise 11.

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   _____

3. ACTIVITY: Do Exercise 12 Parts A and B.

    Part A.   _____
    Part B   _____ _____

F. DIVIDING INTEGERS

1. READ: Chapter Dividing Positive and Negative Integers up to Exercise 13.   _____

2. ACTIVITY: Do Exercise 13.

    If you need or want more practice, do Additional Exercises.

    Additional Exercises.   _____

G. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.

    Part A.   _____

    Part B. **Instructor pass.**   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

 Examiner _____ Date_____

MATH ESSENTIALS UNIT 11
Simple Algebra

Name _____ Date _____

PURPOSE

Learn to use simple algebra to solve problems.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 12 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 11 Simple Algebra,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 11 Simple Algebra,* Establishing a Routine. ____ ____

2. ACTIVITY: Do the Review Exercise. **Instructor pass.** ____ ____

B. INTRODUCTION TO ALGEBRA

1. READ: Chapters Introduction to Algebra, and Variables and Expressions up to Exercise 1. _____

2. ACTIVITY: Do Exercise 1. 10 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises. 10 problems ☐ missed

   Instructor pass. ____ ____

C. SOLVING EQUATIONS

1. READ: Chapter Addition and Subtraction Equations up to Exercise 2. _____

2. ACTIVITY: Do Exercise 2.   10 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   11 problems ☐ missed _____

3. READ: Chapter Showing Multiplication and Division in Algebra up to Exercise 3. _____

4. ACTIVITY: Do Exercise 3.   20 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   22 problems ☐ missed _____

5. READ: Chapter Multiplication and Division Equations up to Exercise 4. _____

6. ACTIVITY: Do Exercise 4.   10 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   11 problems ☐ missed _____

7. READ: Chapter Solving Equations in Algebra up to Exercise 5. _____

8. ACTIVITY: Do Exercise 5.   10 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   10 problems ☐ missed

    Instructor pass.   ____ ____

D. WORD PROBLEMS

1. READ: Chapter Using Simple Algebra to Solve Word Problems up to Exercise 6. _____

2. ACTIVITY: Do Exercise 6.   5 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   6 problems ☐ missed

   Instructor pass.   _____ _____

E. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   19 problems ☐ missed

   Instructor pass.   _____ _____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.

ADDITIONAL RESOURCES
Exam and answers

MATH ESSENTIALS UNIT 12
Ratio, Proportion and Percent

Name _____ Date _____

PURPOSE

Learn about ratios, proportions
and percent and how to use them.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 15 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 12 Ratio, Proportion and Percent,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 12 Ratio, Proportion and Percent,*
   Establishing a Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. RATIO

1. READ: Chapter Ratio up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   4 problems ☐ missed

   If you missed any problems, or if you need or want more practice,
   do Additional Exercises.

   Additional Exercises.   4 problems ☐ missed   _____

3. READ: Chapter Equal Ratios up to Exercise 2.   _____

4. ACTIVITY: Do Exercise 2.   9 problems ☐ missed

    If you missed more than 1 problem, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   14 problems ☐ missed

    Instructor pass.   ____ ____

C. PROPORTION

1. READ: Chapter Proportion up to Exercise 3.   _____

2. ACTIVITY: Show your supervisor

    a) proportion ___

    b) cross products ___

    Instructor pass.   ____ ____

3. ACTIVITY: Do Exercise 3.   13 problems ☐ missed

    If you missed more than 2 problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   13 problems ☐ missed   _____

4. READ: Chapter Common Uses of Ratios and Proportions up to Exercise 4.   _____

5. ACTIVITY: Make a scale drawing of a class table with a few things on the table. Decide on a ratio between the size of the actual table and the size of your drawing. Write your scale on your drawing.   _____

6. ACTIVITY: Do Exercise 4.   7 problems ☐ missed

    If you missed more than 1 problem, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   7 problems ☐ missed

    Instructor pass.   ____ ____

D. PERCENT

1. READ: Chapter Percent up to Exercise 5.   _____

2. ACTIVITY:

    a) Show how to change a fraction to a percent. ___

    b) Show how to change a decimal to a percent. ___   ____ ____

3. ACTIVITY: Do Exercise 5.   27 problems ☐ missed

    If you missed more than 3 problems, or if you need or want more
    practice, do Additional Exercises.

    Additional Exercises.   34 problems ☐ missed   _____

4. READ: Chapter Finding a Percent of a Number up to Exercise 6.

5. ACTIVITY: Show two different ways to find the answer: If you know
    that 15 is 30% of some number, how do you find what number?   ____ ____

6. ACTIVITY: Do Exercise 6.   21 problems ☐ missed

    If you missed more than 2 problems, or if you need or want more
    practice, do Additional Exercises.

    Additional Exercises.   22 problems ☐ missed   _____

7. READ: Chapter Common Uses of Percent up to Exercise 7.   _____

8. ACTIVITY: Do Exercise 7.   15 problems ☐ missed

    If you missed more than 1 problem, or if you need or want more
    practice, do Additional Exercises.

    Additional Exercises.   20 problems ☐ missed   _____

9. READ: Chapter Borrowing Money up to Exercise 8.   _____

10. ACTIVITY: Do Exercise 8.   12 problems ☐ missed

    If you missed more than 1 problem, or if you need or want more
    practice, do Additional Exercises.

    Additional Exercises.   15 problems ☐ missed   _____

11. READ: Chapter Percent of Increase and Decrease up to Exercise 9.   _____

12. ACTIVITY: Do Exercise 9.   7 problems [ ] missed

   If you missed more than 1 problem, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   9 problems [ ] missed

   Instructor pass.   ____ ____

E. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   9 problems [ ] missed

   Instructor pass.   ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

 Examiner _____ Date_____

FOR FACULTY

NOTE
Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.
ADDITIONAL RESOURCES
Exam and answers

MATH ESSENTIALS UNIT 13
Simple Geometry

Name _____ Date _____

PURPOSE
Learn about simple geometry and how to use it.

HOW TO DO THIS COURSE: Do the steps in order. Initial and date each when done. Where there are two sign-off lines, get the step checked and initialed on the second line by another student, or if stated, by the instructor.

ESTIMATED TIME: 15 hours

BOOKS:
Math Essentials, Finding & Filling the Gaps or *Math Essentials, Unit 13 Simple Geometry,* Heron Books
Math Essentials, Exercise Answers, Heron Books

A. GETTING STARTED

1. READ: *Math Essentials, Unit 13 Simple Geometry,* Establishing a Routine.   ____ ____

2. ACTIVITY: Do Review Exercise. **Instructor pass.**   ____ ____

B. LINES AND FLAT SHAPES

1. READ: Chapter Lines and Angles up to Exercise 1.   _____

2. ACTIVITY: Do Exercise 1.   12 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   19 problems ☐ missed   _____

3. READ: Chapter Flat Shapes up to Exercise 2.   _____

4. ACTIVITY: Do Exercise 2.   10 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   10 problems ☐ missed   _____

5. READ: Chapter Circles up to Exercise 3.   _____

6. ACTIVITY: Do Exercise 3.   8 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   9 problems ☐ missed   _____

7. READ: Chapter Flat Shapes—Plane Geometry up to Exercise 4.
    Do the activities in the chapter as you read.   _____

8. ACTIVITY: Do Exercise 4.   8 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   10 problems ☐ missed   _____

9. READ: Chapter Special Lines up to Exercise 5.   _____

10. ACTIVITY: Do Exercise 5.   2 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   2 problems ☐ missed

    Instructor pass.   ____ ____

C. EXPONENTS

1. READ: Chapter Definition of Exponent up to Exercise 6.   _____

2. ACTIVITY: Do Exercise 6.   22 problems ☐ missed

    If you missed any problems, or if you need or want more practice,
    do Additional Exercises.

    Additional Exercises.   26 problems ☐ missed

    Instructor pass.   ____ ____

D. AREA

1. READ: Chapter Area up to Exercise 7.   _____

2. ACTIVITY: Do Exercise 7.   6 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   7 problems ☐ missed   _____

3. READ: Chapter Area of a Triangle up to Exercise 8.   _____

4. ACTIVITY: Do Exercise 8.   6 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   7 problems ☐ missed   _____

5. READ: Chapter Areas of Other Shapes up to Exercise 9.   _____

6. ACTIVITY: Do Exercise 9.   8 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   10 problems ☐ missed   _____

E. THREE-DIMENSIONAL SHAPES

1. READ: Chapter Surface Area up to Exercise 10.   _____

2. ACTIVITY: Do Exercise 10.   6 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   6 problems ☐ missed   _____

3. READ: Chapter Calculating Volume up to Exercise 11.   _____

4. ACTIVITY: Do Exercise 11.   8 problems ☐ missed

    If you missed any problems, or if you need or want more practice, do Additional Exercises.

    Additional Exercises.   8 problems ☐ missed

    Instructor pass.   ____ ____

F. SQUARE ROOTS AND RIGHT TRIANGLES

1. READ: Chapter Square Roots up to Exercise 12. Do the activities in the chapter as you come to them. _____

2. ACTIVITY: Do Exercise 12.   12 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   15 problems ☐ missed _____

3. READ: Chapter Right Triangles up to Exercise 13. _____

4. ACTIVITY: Do Exercise 13.   6 problems ☐ missed

   If you missed any problems, or if you need or want more practice, do Additional Exercises.

   Additional Exercises.   7 problems ☐ missed

   Instructor pass. ____ ____

G. FINAL ACTIVITY

1. ACTIVITY: Do Final Unit Exercises.   13 problems ☐ missed

   Instructor pass. ____ ____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date_____

The student has completed the steps of this course and knows and can apply what was studied.

Instructor_____ Date_____

The student has passed the exam for this course.

Examiner _____ Date_____

FOR FACULTY

NOTE

Math Essentials, Instructor Manual includes a full list of program materials, where to get them and how to use them.

ADDITIONAL RESOURCES

Exam and answers