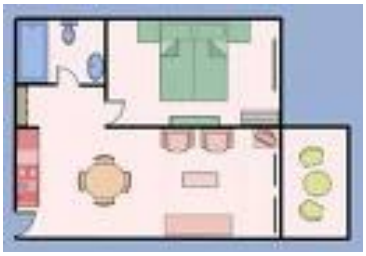
Bedroom Redecoration Project

Instructional Unit Resource Guide
Based on Principles of Universal Design and Differentiated Instruction




Project Title: Bedroom Redecoration Project
Grade Level/Subject: 6th Grade Math
Focus: Operations with decimals, measurement and problem solving
Author Names: Sue Diefenbach, Donna Hosier, Kim Huffman, Hayley Etzler and Shelley Crozier
School: Prince Chapman Academy/East Allen County Schools

Message to the Reader/Teacher

The teachers involved in this project teach at Prince Chapman Academy which is a part of East Allen County Schools. The math teacher in our group is Sue Diefenbach. The rest of us contributed ideas for the unit. Sue has been teaching for 8 years, before that she worked in the private sector. She is currently teaching four classes of sixth grade math and one class of reading. Sue's private sector jobs included being a systems engineer for IBM and a contract software programmer. Sue has found the new technology exciting and challenging.

Our school has a diverse population which includes a large number of ESL students. We were looking for a project that would develop some real world concepts for our students as well as get them engaged in the learning process.
This unit was designed for the sixth grade math classes. It was taught in the first part of the second trimester. The unit lasted approximately four weeks. The major focus of the lesson is operations with decimals, measurement and problem solving were also taught. The students were involved in selecting new paint and carpet for their bedrooms. They used decimals while finding the floor and wall area of their rooms, how much paint and carpet they would need, the cost of each item and the sales tax, and kept a check register and wrote checks for their purchases. The students gained knowledge of the math content as well as a greater awareness of math use in both everyday life and in future career choices.

Sue's email address is sdiefenbach@eacs.k12.in.us

The school's mailing address is 4808 E. Paulding Road, Fort Wayne, IN. 46816

Standards

Computation
6.2 Students solve problems involving addition, subtraction, multiplication, and division of integers. They solve problems involving fractions, decimals, ratios, proportions, and percentages.
6.2.3 Multiply and divide decimals.
6.2.8 Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.
6.2.9 Use estimation to decide whether answers are reasonable in decimal problems.
6.2.10 Use mental arithmetic to add or subtract simple fractions and decimals.

Measurement
6.5 Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems. They calculate with temperatures and money, and choose appropriate units of measure in other areas.
6.5.1 Select and apply appropriate standard units and tools to measure length, area, volume, weight, time, temperature, and the size of angles.
6.5.8 Use strategies to find the surface area and volume of right prisms and cylinders using appropriate units.
6.5.10 Add, subtract, multiply, and divide with money in decimal notation.

Problem Solving
6.7 Students make decisions about how to approach problems and communicate their ideas.
6.7.2 Make and justify mathematical conjectures based on a general description of a mathematical question or problem.
6.7.3 Decide when and how to break a problem into simpler parts.
6.7.4 Apply strategies and results from simpler problems to solve more complex problems.
6.7.5 Express solutions clearly and logically by using the appropriate mathematical terms and notation. Support solutions with evidence in both verbal and symbolic work.
6.7.6 Recognize the relative advantages of exact and approximate solutions to problems and give answers to a specified degree of accuracy.
6.7.9 Make precise calculations and check the validity of the results in the context of the problem.
6.7.11 Note the method of finding the solution and show a conceptual understanding of the method by solving similar problems.

More information about standards can be found at:
http://dc.doe.in.gov/Standards/AcademicStandards/StandardSearch.aspx

Planning Pyramid

What should students know?

Some students will know - After this unit, some students will know how to calculate sales tax for their purchases.

Most students will know - After this unit, most students will understand how to find the number of gallons of paint needed by solving a simpler problem or dividing total area by number of square feet the paint will cover. Most students will also know how to keep a check register in order to keep track of their checking account balances.

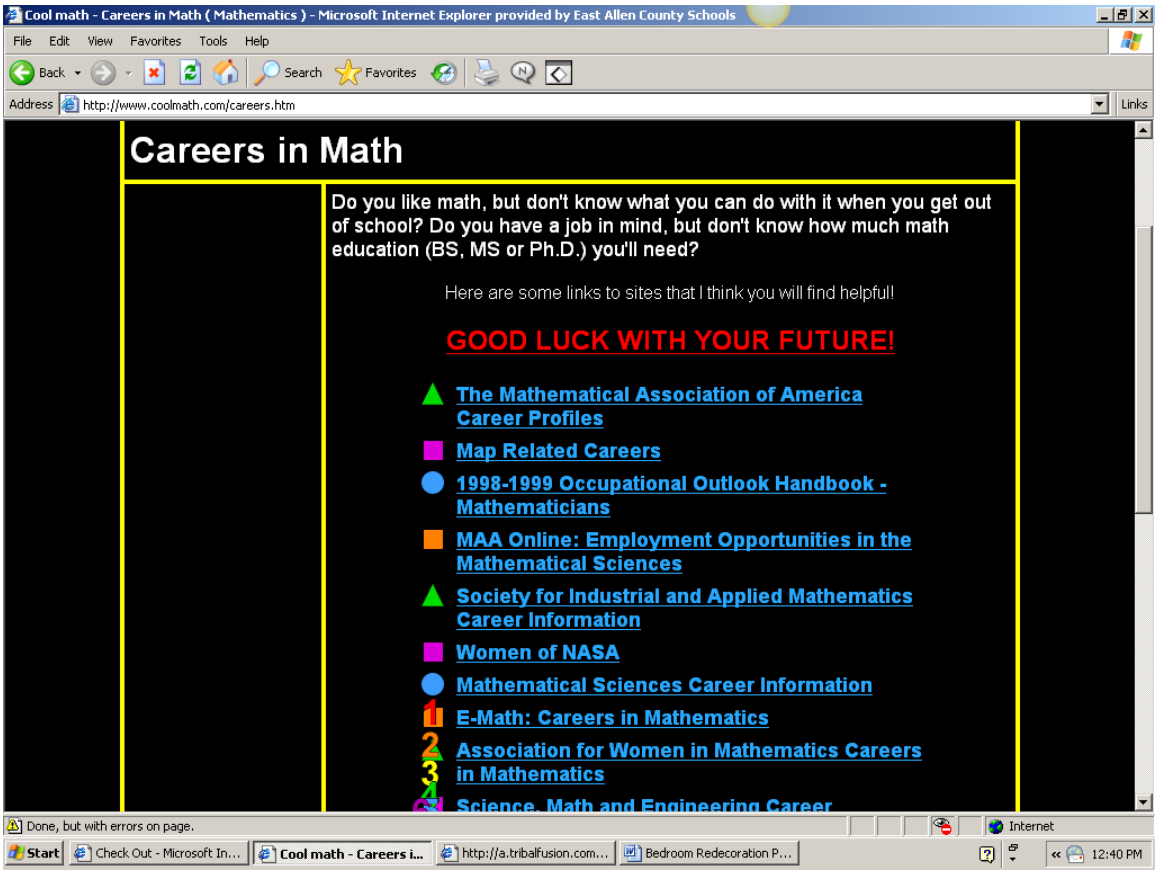
All students will know - After this unit, all students will be able to measure the length and width of a room, and the length and height of walls. All students will understand how to find area by multiplying length x width. They will be able to use this information to calculate total cost by multiplying area x cost per square foot. All students will also know how to write a check to pay for their purchases.

Teacher Library

The following materials and resources will be useful to teachers.

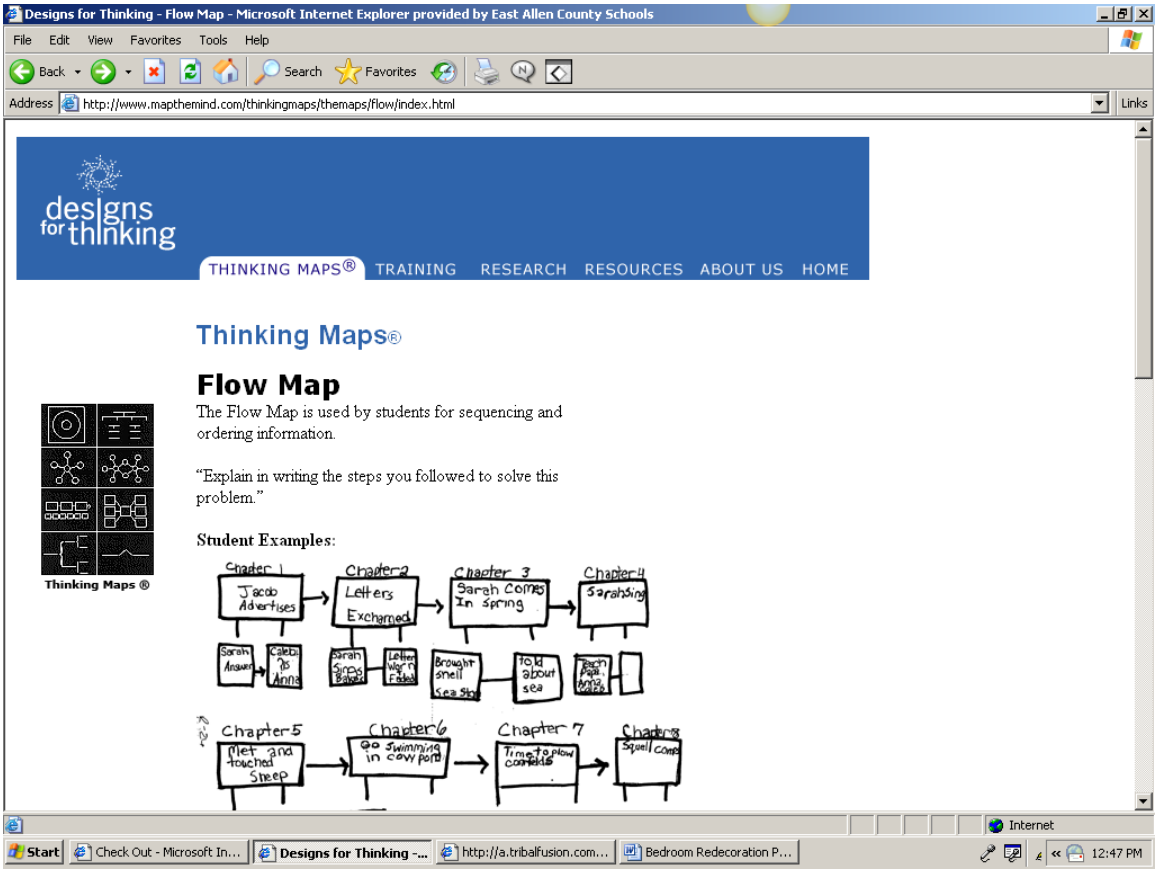
Cool Math -- Careers http://www.coolmath.com/careers.htm

This site gives information about the many careers that use math. It provides links to sites that provide career profiles, descriptions of careers and much more.



Designs for Thinking:
http://www.mapthemind.com/thinkingmaps/themaps/flow/index.html

This website shows how to create thinking maps. It includes brace maps, bridge maps, bubble maps, circle maps, double-bubble maps, flow maps, multi-flow maps, and tree maps.



Clustering, front-end estimation, area, sales tax, check book, check register, balancing (check book), scale, measurement, square feet, frame of reference.

The following forms were provided for the students use during the project:
Flooring cost

Name _____ Date _____

Bedroom Redecoration Worksheet Period _____

Floor

Length: _____

Width: _____

Area:
(Length x Width) _____ sq. ft.

Show your work here:

Carpet

Cost per Square Foot: $ _____

Area x Cost per sq. ft.
= Cost of Carpet $ _____
(Round to nearest hundredth)

Sales Tax:
(Cost of Carpet x .07) $ _____
(Round to nearest hundredth)

Total Carpet Cost:
Cost + Sales Tax $ _____

Show your work here:

Paint Cost

Walls and Ceiling

Height of Walls _____ ft.

Area of Walls:

Length x Height: _____ sq. ft.

Length x Height: _____ sq. ft.

Width x Height: _____ sq. ft.

Width x Height: _____ sq. ft.

Area of Ceiling
(Same as Area of Floor) _____ sq. ft.

Total Area:
Area of Walls + Ceiling _____ sq. ft.

Show your work here:

Paint

Cost per gallon: $19.89

1 gallon will cover 350 square feet of walls and ceiling.

I will need: _____ gallons

# of gallons x cost per gallon = paint cost $ _____
(Round to nearest hundredth)

Sales Tax:
(Cost of Paint x .07) $ _____
(Round to nearest hundredth)

Total Paint Cost:
Cost + Sales Tax $ _____

Show your work here:

Checks

_____
_____
_____

Check #_____

Date_____

Pay to the
Order of_____

_____Dollars

Bank of CMSE
For_____

_____

_____
_____
_____

Check #_____

Date_____

Pay to the
Order of_____

_____Dollars

Bank of CMSE
For_____

_____

_____
_____
_____

Check #_____

Date_____

Pay to the
Order of_____

_____Dollars

Bank of CMSE
For_____

_____

Check Register

Check. #	Date	Deposit or Check	Debit	Credit	Balance

Check. #	Date	Deposit or Check	Debit	Credit	Balance

Check. #	Date	Deposit or Check	Debit	Credit	Balance

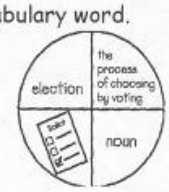
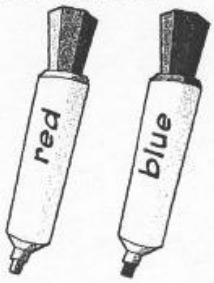
Vocabulary Activity

Name _____ Date _____

SUPER VOCABULARY CONTRACT

Period _____

Complete the activity in the center. Choose 2 other activities to make a Tic-Tac-Toe.

Triangle spell each of your vocabulary words. a an ang angl angle	Write a synonym or antonym for each vocabulary word. multiplication division (antonym)	Write 2 fractions for each vocabulary word. For the first fraction show the number of vowels in the word compared to the total number of letters. For the second fraction, show the number of consonants compared to the total number of letters. word vowels consonants evaluate 5/8 3/8
Write a hint that will help you remember the meaning of each word. evaluate There is **valu** in **evaluate**.	Draw a circle and divide it into fourths. In the sections, write a spelling word, write its definition, write its part of speech, and draw a sketch to show what it means. Repeat for each vocabulary word. 	Write each vocabulary word using blue for the consonants and red for the vowels. 
Outline a shape with each vocabulary word. 	Write each vocabulary word and the numbers you would press to text it to a friend. (No abbreviations allowed!)  comfortable 26636782253	Write each vocabulary word on a different notecard or sticky note. Post them around your house where you will see them. On the day before the test, bring your notes to school with a parent signature. 

Learner Activities

Introduction

Community Builder

Students will listen to a Career Presentation made by an Interior Designer and/or Art Department member. Topics covered will include description of career and how decimals are used in the career.
(Technology: Flip-video to video tape the presentation.)

Concept Development

Newspaper Activity

Where do we use decimals? Students will make a **circle map** of where we use decimals. Frame of reference: where have I used decimals (add, subtract, multiply, divide)?

Vocabulary Development

Introduce vocabulary and have students enter information in their with composition books. (Technology: document camera)
Reinforce with students doing dancing definitions.

Skill Development

Students will complete daily DOM Warm-ups reflecting finding area, adding and subtracting decimals and skills currently being studied. ISTEP Review, Vocabulary and Math Facts will also be included.
(Technology: Mimio board, clickers, document camera)

Introduce the Text

Students will learn or review the following math concepts: Decimals: Representing, Comparing, Ordering, Estimating, Adding, Subtracting, Multiplying, Dividing, Measuring.
(Technology: Mimio board, document camera)

Mediate for Mastery

Students will complete a Sample Redecoration Project worksheet using classroom length and width measurements. If further clarification is required, students will solve a simpler problem with a smaller scale as part of a group project using whole numbers.
(Technology: Document Camera)

Teacher Reflection

What was right?
What can be improved?

Release the Lesson

Students will complete independent work. They will complete the project forms, collect their data and artifacts, then assemble and present their poster.
(Technology: Document Camera, mimio board)

Review

What have we learned so far? Students will create a multi-flow map showing the redecoration process that was used.

Student Reflection

3-2-1

Students will respond to the following items:
3 things I have learned.
2 things I still have questions about.
1 thing I'm going to do to answer my questions.

Concept Confirmation

Circle map (from Concept Development): What real-world decimal applications have we learned? What new items can you now add to your circle map?

Assessment

Vocabulary will be assessed by using one of the following: a crossword puzzle, tic-tac-toe chart or inventory using the classroom clickers. (Technology: Clickers, mimio board).

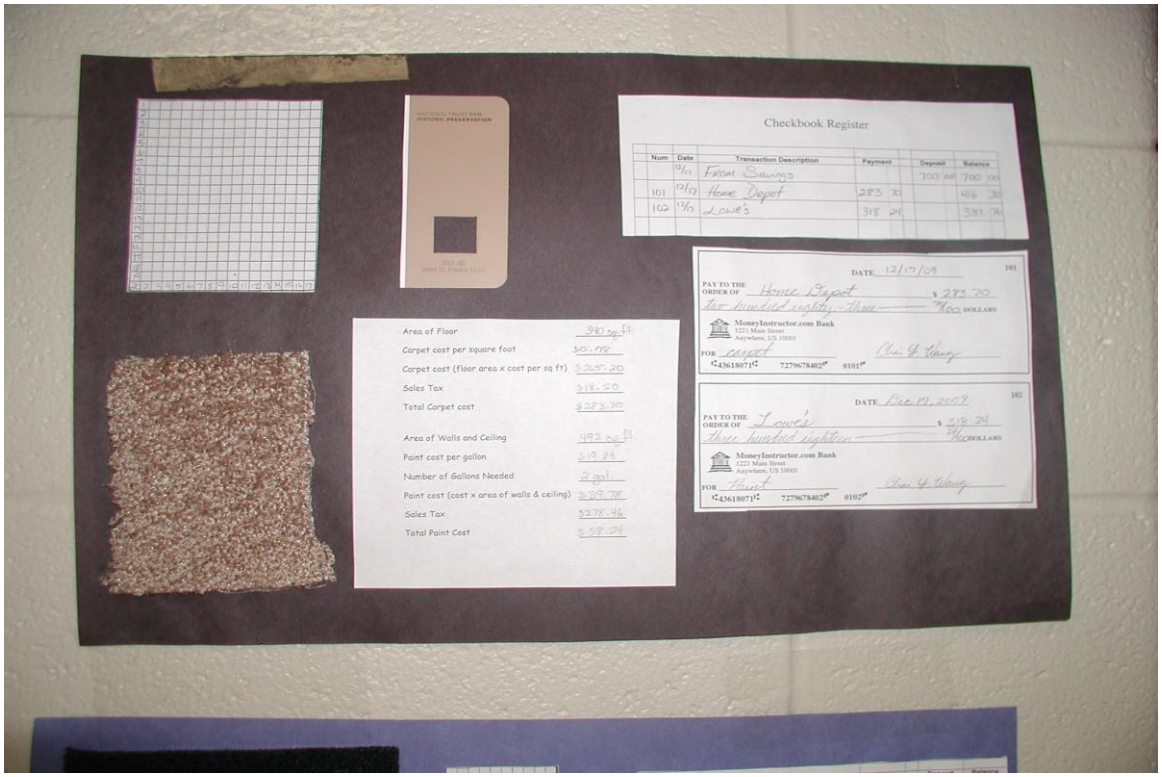
The final assessment for the project will be the completion of student posters. The following rubric will be used to assess students.

Name _____ Period _____

Rubric Bedroom Redecoration Project

	Possible	Actual
Bedroom Redecoration Worksheet	20	_____
Poster		
Floor Plan	2	_____
Recap	3	_____
Carpet sample	1	_____
Paint sample	1	_____
Check Register	6	_____
Checks written to Home Depot & Lowes	2	_____
Neatness	5	_____
Total:	40	_____
Grade:		_____

Sample of finished project:



Modifications
Planning for Academic Diversity

For **students that cannot read at grade level**...

http://www.readplease.com
Read and Write Gold

If a student has **difficulty comprehending the material**...

http://www.sparknotes.com
Read and Write Gold

If students have **difficulty mastering the vocabulary** of the unit, some suggestions include...

http://www.enchantedlearning.com/Dictionary.html
http://www.webster.com/
http://www.visualthesaurus.com
Read and Write Gold
http://www.alphadictionary.com/index.shtml

If you have students who **need the instructional materials in a language other than English**...

http://babelfish.altavista.com
Interpreter

If you have students who have **difficulty with handwriting**, (either speed or accuracy), then...

http://www.idictate.com
Read and Write Gold
http://www.inspriration.com

If you have **students who need additional challenge**, then...

Search Google or TrackStar for enrichment activities
Math Text Book web site http://go.hrw.com/gopages/ma/msm1_07.html

For students who have **difficulty with the calculating activities** in this unit, try…

http://www.webmath.com
http://mathforum.org/dr.math/

If your unit **requires students to conduct research**, you might want to...

Use the NewsTracker http://my.yahoo.com
Use the Google Toolbar http://toolbar.google.com/
Use a simplified search engine http://yahooligans.yahoo.com/

Modifications: Planning for Academic Diversity

LEARNING BARRIER	POSSIBLE SOLUTIONS	WEB RESOURCES
Student cannot read at grade level.	Summarize information Record important information Read and Write Gold	http://www.readplease.com
Student has difficulty comprehending the material.	Have students complete a simplified example of unit. Read and Write Gold	http://www.sparknotes.com http://go.hrw.com/gopages/ma/msm1_07.html
Student has difficulty mastering the vocabulary of the unit.	Students will complete the Super Vocabulary contract. (Tic-Tac-Toe)	www.dictionary.com/ http://www.alphadictionary.com/index.shtml http://www.enchantedlearning.com/Dictionary.html http://www.webster.com/ http://www.visualthesaurus.com
Student has difficulty with handwriting (speed or accuracy).	Read and Write Gold Record their responses using the flip video.	http://www.idictate.com http://www.inspriration.com
Student has difficulty with calculating activities.	Students will use the formula note sheet. The use of a calculator and/or a multiplication table.	http://www.webmath.com http://mathforum.org/dr.math/ http://go.hrw.com/gopages/ma/msm1_07.html

Student needs help with conducting research.	Read and Write Gold The use of a local research format.	http://my.yahoo.com http://toolbar.google.com/ http://yahooligans.yahoo.com/
Student needs the instructional material in a language other than English.	Read and Write Gold Interpreter on staff and ESL teachers are available.	http://go.hrw.com/gopages/ma/msm1_07.html
Student needs additional challenge.	Create a shadow box to practice all skills by measuring for decoration of an entire room. Students will use ratios to make model to scale.	http://go.hrw.com/gopages/ma/msm1_07.html