Around the World

**Introduction:**

The Around the World unit is a rational number boot camp with a spin. The students travel to different countries to embark on a journey of learning and fun. This unit is critical in the curriculum because it lays the foundation for all the other units. It prepares the students to deal with rational numbers in all situations. We learn to write 0 and 1 as fractions to understand the “one” in any situation. We discuss operations with rational numbers that are included in other assessments. Students learn that rational numbers are always involved in everyday life. We discuss decimals when we want to use money; fractions are an essential part of measuring while cooking, and building. It is vital that they learn to deal with all these numbers in order to successfully live and function in any daily act of life. Once this unit is complete it is then spiraled into every subsequent unit.

The use of rational numbers connects to any discipline in education. Students will need to read and interpret what fractions and decimals look like in both standard as well as written forms. Exploring the use of rational numbers in other cultures in order to understand how number system came to existence will be vital in the process of understanding and applying these tool into daily life. Lastly students will need to demonstrate mastery of number sense and operations with rational numbers.

**Interdisciplinary Connection:**

Students must be able to

1. **M6N1. Students will understand the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems*.***
2. **M6P1. Students will solve problems (using appropriate technology).**
3. **ELA6R1 The student demonstrates comprehension and shows evidence of a warranted and responsible explanation of a variety text.**
4. **ELA6R2 The student understands and acquires new vocabulary and uses it correctly in reading and writing.**
5. **S6CS3. Students will use computation and estimation skills**
6. **Sixth grade students study Latin America, Canada, Europe, and Australia. The goal of this two year course is to acquaint middle school students with the world in which they live.**

**Goals:**

In this unit students will learn to:

1. Compute operations with rational numbers
2. Build positive relationships
3. Respect others and their opinions
4. Communicative skills
5. Solve real-world application problems

**Subject Matter Content:**

1. What are Rational Numbers
   1. Writing whole numbers as fractions
   2. Mixed Numbers
      1. Convert to improper fractions
2. Operations with Rational Numbers
   1. Adding and Subtracting
      1. Fraction
         1. LCD
      2. Decimals
         1. Line up decimal and place values
3. Art Around the World
   1. Culture and acceptance of all
      1. World Map activity: Distribute to students a copy of a world map. (You can download and/ use the world map provided ) On the world map, have students color in the area of their culture and post a label including the name of the culture.

## Poemetry

### Introduction

This lesson allows students to break away from the traditional view of math class and affords the opportunity to express their feelings about math and rational numbers. The strategy was acquired in a Content Area Literacy Integration conference administered to 6th grade teachers. This conference discussed the importance of reading and literacy in all content areas. I want the students give me their feelings without fear of humiliation or judgment. They are creative and there is no right or wrong answer. This is an innovative way to get feedback from the student about their ability and feelings and bring in the views of students in different cultures.

### Outcomes

Upon successful completion of this lesson, the students will be able to:

* Communicate thoughts of rational numbers
* Be creative
* Use technology

### Standards

ELA6W3: The student uses research and technology to support writing

1. uses  organizational features of electronic text

ELA6LSV2: The student listens and views various forms of text and media in order to gather and share information, persuade others, and express and understand ideas.

M6P3: Student will communicate mathematically.

1. organize and consolidate their mathematical thinking through communication
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

### Resources

**Off-line:**

* Math Poetry: Linking Language and Math in a Fresh Way
* Marvelous Math: A Book of Poems
* Instructional Video

**Online:**

* <http://mathstory.com/Poems/Mathpoemspage.html>
* <http://www.tooter4kids.com/classroom/math_poems.htm>

**Integration of Technology**

Using Word or any Word Processor or PowerPoint students will create their poem to represent their feelings of rational numbers.

How the technology will be integrated (How a student centered approach will be taken to the integration.), the students will use laptops to access the internet and use the resources provided to gather ideas and research the poems they must create. The students will view the instructional video to see what type of final product should be submitted.

A description of the artifacts the students will produce. The PowerPoint presentation will have the poem that is innovative, creative, fun, and representative of each student and their view of the math concept. The presentation must have a slide for each verse of the poem and an illustration that is appropriate.

### Materials

* Laptops for research and production
* Microsoft Word or PowerPoint
* Printer access
* Wireless Connection

### Process

 The students will be given a laptop, as the instructor, our job is to guide the students only. The instructor will provide the students with a handout that details the websites and textbooks for use on this assignment.

1. Brainstorming: 15 mins
   1. Students are given time to brainstorm ideas as the facilitator we move around and guide students only. The student is in control of their thoughts and should be held accountable to express how they feel.
   2. The instructional video should be viewed as a reference and the poem website used to understand the message the poem should portray.
2. Activity: 45 mins
   1. This time is used to create the poem and design a slide of Word document. The presentation of the poem should reflect who each student is as a person and portray the feeling as well.

### Assessment

1. The students will create a PowerPoint presentation that has the verses of the poem on a separate slide with appropriate illustration to portray the feeling of the verse and poem. To grade the assignment a rubric will be used to assess originality, graphics, and grammar. The teacher created the rubric but can be adapted to a class project.

### Extensions/Modifications

To assess literacy in the content area the teacher can extend the poemetry unit to have the students define a key concept in mathematics in a poem, comic strip, etc. The students would take on the role of a math topic (i.e. the decimal) and explain the role of the decimal in a creative first person narrative. Once this is complete the students would create a video of the poem or comic strip to present.

***Around the World with Rational Numbers***

**Introduction:**

In this lesson the students learn to write whole numbers as fractions. Students must understand the concept of a whole and what a whole looks like as a fraction. This will allow the students to deal with a variety of numbers in all forms and how to solve problems in any situation. We use manipulatives to move around and discover how parts make a whole and what it looks like in fraction form. This topic represents a different place on the map to tie in the culture aspect of the unit.

**Outcomes:**

Upon completion of this unit the students will be able to

* Writing whole numbers as fraction (including 1 and 0)
* Converting mixed numbers into improper fractions

**Standards:**

1. **M6N1. Students will understand the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems*.***
   1. **Solve problems that include fractions, decimals, and percents.**

**Resources:**

Online: CoolMath.com: students will see a lesson with examples of how to write whole numbers as fractions and will be given problems to work after each lesson.

**Integration of Technology**

Smart Technology, SmartBoard: interactive white board, Senteo Clicker system

The SmartBoard is used in delivery of instruction. This interactive board allows students to move and arrange the shaped and pieces to see how the parts make wholes. The Smart Technology resources are used to create the examples used in instruction. The Senteo clicker system is used to quickly assess student achievement of the goals. The system simultaneously gives feedback to the instructor with graphs and breakdown of responses.

### Materials

The students will use the clicker response system to answer an assessment question at the end of the activity.

### Process

**1. How to say the denominators (10 mins)**

Write some fractions on the board and ask students how to say the denominator part:

3/5 (fifths) "if 5 is the denominator what will we say? Continue with ... 1/4 2/3 1/2 then 4/1 ask, "*What do we say when 1 is the denominator? What does it mean?"*

Discuss what the denominator means. Give the example of cutting a pizza into fifths, fourths, thirds, halves, and ... what's next - wholes.

Point out that a 1 as denominator means WHOLEs. This is a whole number.

*How would we write 5 wholes as a fraction?*  Continue in this fashion with oral questioning.

**2. Zero and one as fractions (10 mins)**

*Now let's discuss the numerator and its function.*

Show the file "zero and one as fractions". Have students use the Fill Tool to fill in the appropriate amount of squares according to what fraction is being asked. For example, 3/5: they would fill in 3 of the squares.

Emphasize the meaning of the numerator and denominator.

Ask a student to fill in the whole thing (1) *What is the fraction?*

*Now fill in zero of them? What is the numerator and denominator?*

Do this several times emphasizing how to write 1 and 0 as fractions.

**3. Converting Mixed numbers to improper fractions (10 mins)**

Use direct instruction to show how to make this conversion.

Use the rapid fire slide to reinforce the necessary steps

Students will create a poster with the steps for converting mixed numbers into improper fractions that will be kept in their notebooks

**Preparation:**

Reserve laptop carts to ensure students will have access to computers to complete the poster to place in their notebooks.

Students will need to have a world map to locate the culture origin.

### Assessment

**4. Senteo Student Response Test (15 mins)**

Students will demonstrate mastery on the formative quiz given on the student response senteo system. This technology generates feedback to the teacher instantly. The students will work out the problems on paper and submit the answers via clicker response.

**Preparation:** The teacher will input the test into the senteo test bank

***1st Stop Giza, Egypt***

### Introduction

This lesson reinforces adding things of “like” kind. The students will need this skill to complete future lessons with algebra and higher education. It is this lesson teaches the students to find a common denominator now that they understand what a denominator is. This topic is important because the students will use fractions to measure, cook, and buy products. It is an essential part of their living and functioning in society.

### Outcomes

Upon successful completion of this lesson, the students will be able to:

* Solve problems involving decimals and other rational numbers
* Understand place value
* Use technology

### Standards

**M6N1.** Students will understand the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems*.*

f. Use fractions, decimals, and percents interchangeably.

g. Solve problems involving fractions, decimals, and percents.

**M6P3:** Student will communicate mathematically.

1. organize and consolidate their mathematical thinking through communication
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

### Resources

**Off-line:**

* Connected Mathemtics 2: Additional Practice and Skills Workbook

**Online:**

* <Http://www.coolmath4kids.com>

**Integration of Technology**

Using Word Smartboard for students to come up and actively participate.

How the technology will be integrated (How a student centered approach will be taken to the integration.), the students will be able to come to the board to use the board to play against one another on the common denominator game.

### Materials

* Internet to access website for help
* Around the World Unit File
  + In this Smartboard file, the paper clip on the left side of the board houses the attachments. The last page in this section titled Rational Number Instruction are the pages of instruction.

### Process

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|  | **Completed** |
| ***Adding/Subtracting Fractions*** |  |

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| Create a Rational Number booklet  **Pacing:** 65 minutes |

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| **1.** | **Warm up** (5 minutes) |  | **Targeted Resources** |
|  | Making equivalent fractions |  |  |

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| **2.** | **Rational Number Booklet** (20 minutes) |  | **Targeted Resources** |
|  | Guide students in creating a booklet to use for creating an instruction booklet for the operations with fractions and decimal numbers. The booklet can contain from 8 to 15 pages and include the topics that are covered in this unit. The topics can either be limited to the 4 operations on fractions and decimals (8 pages) or include all of the other topics as well.  TODAY: 1) create the booklet  2) write the headings for each page in the order you deem appropriate  3) Fill in the page for Adding and subtracting fractions (do this after the direct instruction lesson). |  |  |

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| **3.** | **Direct Instruction - adding/subtracting fractions** (20 minutes) |  | **Targeted Resources** |
|  | Follow the lesson in the Instructional file. Have students use the practice problems for entries in their booklet. Allow for guided practice and individual practice with peer tutors if available.  Students should make sure their names are on their booklet and turn them in. |  |  |

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| **4.** | **Ticket out the door** (10 minutes) |  | **Targeted Resources** |
|  | Do the fact practice with four addition problems. |  |  |

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| **5.** | **MYP Connection** (10 minutes) |  | **Targeted Resources** |
|  | Giza, Egypt is the country we are visiting. This city is famous for the pyramids.  Have some photos of the pyramids ready to show the students. Point out the Nile river as well. |  |  |

### Assessment

A variety of formative quizzes included in the Unit file will be used to assess the mastery of each topic. The teacher has created these assessments. A final Summative quiz is given to assess the mastery of each topic studied.

### Extensions/Modifications

The students can create a flip book in PowerPoint for this unit to keep track of notes taken in class. I generally have students cut out a front and back cover in the shape of a sandal foot to create a booklet titled Flipping through Fractions and Decimals. It gives the students an opportunity to cut, color, and design a unique “notebook” for this unit.

## Next Stop Ghana, Africa with Decimals

### Introduction

This lesson reinforces the place value standard that will be a foundational skill for sixth grade and onward. Knowledge of decimals allows students deal with money which is an everyday part of life and a skill that will make them better citizens. It is important to hone these skills as the students cannot function in society without them.

### Outcomes

Upon successful completion of this lesson, the students will be able to:

* Solve problems involving decimals and other rational numbers
* Understand place value
* Use technology

### Standards

**M6N1.** Students will understand the meaning of the four arithmetic operations as related to positive rational numbers and will use these concepts to solve problems*.*

f. Use fractions, decimals, and percents interchangeably.

g. Solve problems involving fractions, decimals, and percents.

**M6P3:** Student will communicate mathematically.

1. organize and consolidate their mathematical thinking through communication
2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others.

### Resources

**Off-line:**

* Connected Mathemtics 2: Additional Practice and Skills Workbook
* Guide to creating an email account

**Online:**

* <Http://www.coolmath4kids.com>

**Integration of Technology**

Using Word Smartboard for students to come up and actively participate.

How the technology will be integrated (How a student centered approach will be taken to the integration.), the students will be able to come to the board to use the place value chart as a guide to solve problems involving decimals.

Students will submit an explanation of two types of decimal addition and subtraction problems electronically to the teacher.

### Materials

* Internet to access website for help
* Around the World Unit File
* Video connection to display video in class

### Process

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|  | **Completed** |
| ***Rational Number Booklet: Adding/Subtracting Decimals*** |  |

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| adding/subtracting decimals  **Pacing:** 85 minutes |

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| **1.** | **warm up** (10 minutes) |  | **Targeted Resources** |
|  | fraction warm up from "start your engines" |  |  |

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| **2.** | **homework check** (10 minutes) |  | **Targeted Resources** |
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| **3.** | **Adding/subtracting decimals - booklet** (15 minutes) |  | **Targeted Resources** |
|  | Use the instructional file to guide students through examples of adding/subtracting decimals to add to their booklet. Students should write the examples in their booklet.  Emphasize the similarity between adding/subtracting fractions and decimals.  *The denominators must be the same number.*  *We align the whole numbers together and align the fractions together* (in decimal numbers, the decimal point separates the whole numbers from the fractional parts, so they must be lined up in order to do so). |  |  |

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| **4.** | **Individual practice** (25 minutes) |  | **Targeted Resources** |
|  | Provide individual practice for adding and subtracting decimals and fractions. |  |  |

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| **5.** | **Homework** (10 minutes) |  | **Targeted Resources** |
|  | page 82 in the workbook - even numbered problems  An explanation of how to solve decimal addition and subtraction problems # 3 and # 12 must be submitted electronically to the teacher by 11:59 pm on the assigned night. |  |  |

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| **6.** | **MYP connection** (15 minutes) |  | **Targeted Resources** |
|  | This skill is located in the country of Ghana in Africa. When President Obama visited Africa, he went to Ghana instead of his father's country of Kenya. Show where these countries are located and discuss why he did not visit Kenya. His reason centers on the efforts Ghana is taking to have a democratic process in electing its government. Kenya, on the other hand, still has much unrest and violence. There is a video attached with President Obama discussing this. Play a few minutes of his response for the students. |  |  |

### Assessment

A variety of formative quizzes included in the Unit file will be used to assess the mastery of each topic. The teacher has created these assessments. A final Summative quiz is given to assess the mastery of each topic studied.