Diocese of Wheeling-Charleston

Unit Planner

Name of Teacher: **Maggie Williams**	Grade Level: **4**
Subject Area: **Math**	Cross Curricular Opportunities: **Science** **Religion**
Unit Title: **Fractions in Our World**	Estimated Duration of Unit: **2 weeks**

Overview of Unit: **Students will be studying fractions and various ways in which they can be found in our world. The unit begins with a Flocabulary video and various note-taking skills will be found throughout. Students will be discussing in small groups and then as a whole group using conversation prompts (speech bubbles) found within the room. They will be comparing and contrasting their thoughts versus other groups on strategies and understanding(s) of fractions. Using the skills and knowledge of fractions, students will design their own kites and create a table that shows how their colors are fractions to the kite as a whole. Students will also compare the formed fractions from their individual kites by simplifying fractions and putting them in order from least to greatest. Based on a student's individual whole (their kite) fractions will be different and will lead to a conversation, both small group and whole group, of how what the whole is can change our understanding of a fraction.**

Forms of Text (non fiction/fiction):
- **Interactive Notebook (Class Notebook & Individual Notebooks)**
- **Template of Fraction Kites (TPT Resource: Link provided below)**
- **McGraw- Hill My Math Volume 2**
- **Flocabulary Account (multiple videos used/shown/studied)**
- **Vocabulary Cards and Wall**
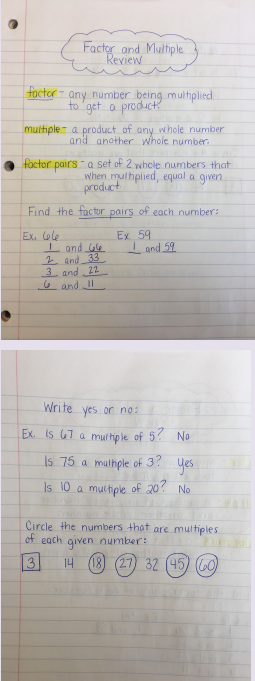- **Conversation Starter Bubbles (example & pictures below)**
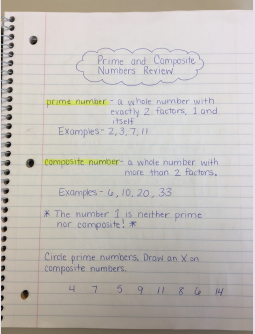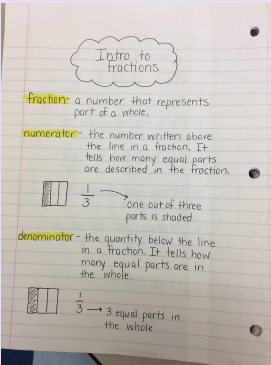
Teaching Strategies:
- **Think, Pair, Share**
- **Whole Group Instruction**
- **Small Group Instruction**
- **Interactive Notebook & Note-Taking**
- **Brainstorming**
- **Vocab Word Cards Wall**
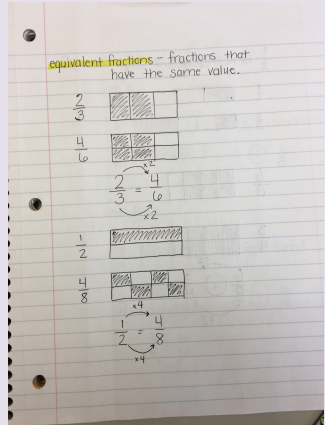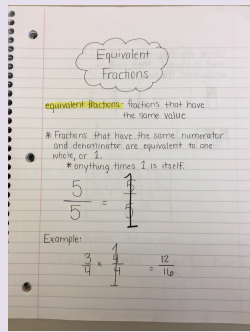- **Project-Based Learning**
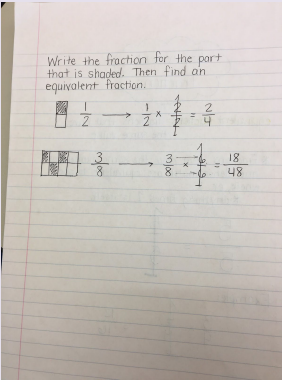
Catholic Identity Connections:
- **4.I.19: Everyone in the Church shares in Christ's role as priest, prophet, and king.** *(We are a fraction of the Church and play an important role)*
- **4.I.20: The Church includes a great diversity of members.** *(We all contribute to the Church as a whole)*
- **4.III.19: Respect for the dignity of the human person requires respect for the rights that come from one's dignity as creature. These rights are prior to society and have to be recognized by society.** *(During conversations, we are to respect all thoughts and ideas that are shared and show that all students and their ideas are valued and respected.)*
- **4.III.21: The Great Commandment teaches us to love God above all else and to love our neighbor as ourselves.** *(During conversations and working with classmates, students are called to treat others and their ideas with respect.*
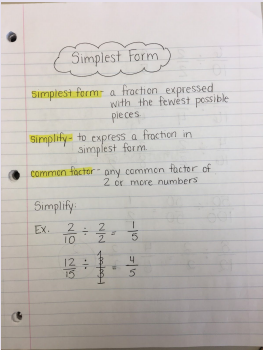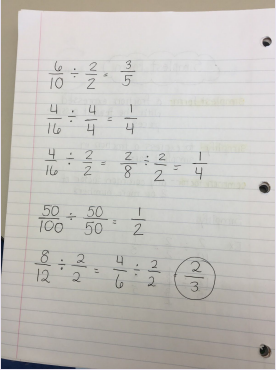
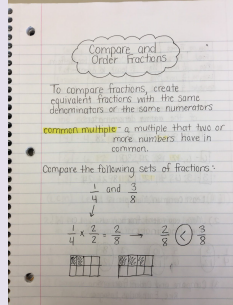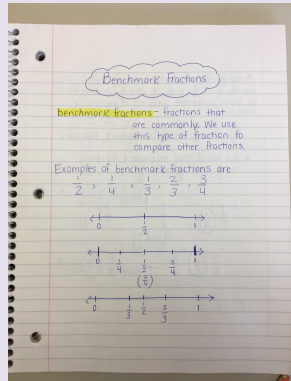|				
Assessment (authentic/published - summative/formative): **Students will be assessed for understanding formatively throughout the unit based on oral questioning, think pair share, and reflecting on their contribution to these discussions. Students will also be assessed on each lesson with problems and their ability to solve and find/learn from their mistakes through their corrections. They will also be assessed on their note-taking skills and reference to these notes during various lessons. Students will be assessed on the accuracy and precision of their Fraction Kites at the end of this unit.**				
Standard Number	Standards	Description of Activity	Resources	Date of Completion
M.4.OA.4	**Find all factor pairs for a whole number in the range 1-100, recognize that a whole number is a multiple of each of its factors, determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number and determine whether a given whole number in the range of 1-100 is prime or composite.**	<u>**Review of Factors and Multiples:**</u> **Students will be looking back in their interactive notebook and also building on their knowledge of factors and multiples. Using the vocabulary cards, students will add to their interactive notebooks and continue with their note-taking skills (highlighting vocab words, definitions, titles, subtitles, examples, etc.):** 	• **SmartBoard** • **Computer** • **Elmo Projector** • **Class Notebook** • **Individual Interactive Notebooks** • **Vocabulary Cards** • **Flocabulary Account & Video:** https://www.flocabulary.com/unit/factors/	Day 1
M.4.OA.4	**Find all factor pairs for a whole number in the range 1-100, recognize that a whole number is a multiple of each of its factors, determine whether a given whole number in the range 1-100 is a multiple of a given**	<u>**Prime and Composite Number Review:**</u> **Students will be looking back in their interactive notebook and also building on their knowledge of prime & composite numbers. Using the vocabulary cards, students will add to their interactive notebooks and**	• **SmartBoard** • **Computer** • **Elmo Projector** • **Class Notebook**	Day 2

	one-digit number and determine whether a given whole number in the range of 1-100 is prime or composite.	continue with their note-taking skills (highlighting vocab words, definitions, titles, subtitles, examples, etc.) 	● Individual Interactive Notebooks ● Vocabulary Cards	
M.4.NF.3	Understand a fraction a/b with a> 1 as a sum of fractions	**Flocabulary Video and Opening Notes** Students will create a basis for their overall understanding of fractions in this lesson. After watching the Flocabulary Video on Fractions, students will add to their interactive notebook. As students take notes in their own notebook, the teacher will add notes to the class notebook which is projected on the SmartBoard using the Elmo. This helps students follow and know what the expectations are within their notebook. 	● SmartBoard ● Computer ● Elmo Projector ● Class Notebook ● Individual Interactive Notebooks ● Flocabulary Account and Video: https://www.flocabulary.com/unit/fractions/ ● Vocabulary Cards	Day 3

M.4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use the same principle to recognize and generate equivalent fractions	**Equivalent Fractions Notes:** Students will be defining equivalent fractions through a basic definition, examples, and various ways of finding an equivalent fraction. While creating a model is one of these ways, the mathematical process is emphasized for accuracy. 	● SmartBoard ● Computer ● Elmo Projector ● Class Notebook ● Individual Interactive Notebooks ● Vocabulary Cards	Day 4

M.4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use the same principle to recognize and generate equivalent fractions	**Modeling Fractions & Fraction Tiles** Using the fraction tiles pictured below, students will explore what fractions are equivalent and which ones are not. Once all unit fractions are assembled and referencing the red 1 whole, students can trace/draw the unit fraction tiles into their notebooks. 	**Fraction Model Tiles** **Interactive Notebook** **Elmo Projector** **Class Notebook**	Day 5
M.4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use the same principle	**Simplifying Fractions** Students will use their interactive notebooks to expand on their knowledge of simplifying through definitions, examples, and various strategies.	**SmartBoard** **Computer** **Elmo Projector** **Class Notebook** **Individual Interactive Notebooks**	Days 6-7

			• Vocabulary Cards	
	to recognize and generate equivalent fractions			
M.4.NF.2	Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½, recognize that comparisons are only valid when the two fractions refer to the same whole and record the results of comparisons with symbols > , < or =, and justify the conclusions.	**Compare & Order Fractions** Students will use their interactive notebooks to expand on their knowledge of comparing and ordering fractions through definitions, examples, and various strategies.	• SmartBoard • Computer • Elmo Projector • Class Notebook • Individual Interactive Notebooks • Vocabulary Cards	Day 8

M.4.NF.2	Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½, recognize that comparisons are only valid when the two fractions refer to the same whole and record the results of comparisons with symbols > , < or =, and justify the conclusions.	**Benchmark Fractions** Students will use their interactive notebooks to expand on their knowledge of benchmark fractions through definitions, examples, and various strategies. 	● SmartBoard ● Computer ● Elmo Projector ● Class Notebook ● Individual Interactive Notebooks ● Vocabulary Cards	Day 9
M.4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use the same principle to recognize and generate equivalent fractions	**Planning & Designing of Fraction Kites** Students will each get a copy of the fraction kites. For this first day, students will plan on what their whole will be. They will be referencing arrays and must have at least a 5 x 5 array (25 total parts of the whole kite) Students then will plan their design and must have exactly 5 colors chosen. This ensures that they will have multiple fractions to work with and compare.	● TPT Resource: https://www.teacherspayteachers.com/Product/Fraction-Kite-Activity-Colour-and-Cut-Activity-Fly-your-fractions-spring-craft-3035782 ○ Copies for each student ○ Have model ready to be	Day 10

			shown to students	
M.4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use the same principle to recognize and generate equivalent fractions	**Fractions within Fraction Kites Table and Assembly** Students will assemble their fraction kites and complete the table based on their design. Students will start with the fraction based on the number of squares of a certain color and then simplify within the last column of the table. 	- colored pencils - glue - black construction paper - pencil	Day 11-12
M.4.NF.2	Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½, recognize that comparisons are only valid when the two fractions refer to the same whole and record the results of comparisons with symbols > , < or =, and justify the conclusions.			
M.4.NF.1	Explain why a fraction a/b is equivalent to a fraction (n x a)/(n x b) by using visual fraction models, with attention to how the number and size of parts differ even though the two fractions themselves are the same size and use the same principle to recognize and generate equivalent fractions	**Think Pair Share on Partner Fraction Kites** Students will start by working with only a partner and talk about their fraction kites, both comparing and contrasting features/parts of the kites. Questions that can be answered on paper or through Google Classroom and submitted: - What is similar/different about the whole of your kite and your partners kite? - Do you have similar fractions? If so, which ones? - Do you have different fractions? If so, which ones? - How does your whole affect the fraction size? - How does simplifying help you compare fractions? - How does the whole that a fraction is referencing affect the fraction?	- individual fraction kites - notebooks - Chromebooks - questions to guide conversations	Day 13
M.4.NF.2	Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½, recognize that comparisons are only valid when the two fractions refer to the same whole and record the results of comparisons with symbols > , < or =, and justify the conclusions.			

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M.4.NF.2	Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as ½, recognize that comparisons are only valid when the two fractions refer to the same whole and record the results of comparisons with symbols > , < or =, and justify the conclusions.	● What are ideas that stuck out to you? ● Which of these ideas is one that you agree with? Disagree with? ● After our class discussion, how would you say that a whole affects how much a fraction is?		

Differentiated Instruction Opportunities/Overview: Discussion questions can be differentiated based on the level of the learner and their needs. Questions can be answered on paper, verbally, and on a Chromebook to ensure that all students have a way of explaining their thinking in the best possible way.

Cross Curricular Opportunities level: **Science**

Standard Number	Standards	Description of Activity	Resources	Date
SC.O.4.1.06	**Students will support statements with facts found through research from various sources, including technology**	**Students will reference their notebook and various resources that can be proved appropriate for the age level. Students can back up their ideas and conceptual understanding with printed facts and discussions.**	● **Chromebooks** ● **paper & pencil** ● **notebooks** ● **Fraction Kite project**	**Day 13-14**
SC.O.4.1.11	**Students will interpret data presented in a table, graph, or diagram, and use it to answer questions and make decisions**	**Students will use their own graph and table within their fraction kite project to help answer questions within their partner group and whole class discussion.**	● **Chromebooks** ● **paper & pencil** ● **notebooks** ● **Fraction Kite project**	**Day 13-14**

Teaching Strategies Checklist

Writing	
	Paragraph
	Essay (narratives, fairy tales, realistic fiction)
X	Summary
	Research
	Detailed answers (text supported)
X	Notes (note taking skills, outlines)
X	Complete sentences
Reading	
	Informational text
	Lexile
	Complex literature
X	Speaking
X	Listening
X	Varied strategies and instructional methods
X	Critical thinking in whole class discussion
X	Student led activities
Technology	
X	Smartboard
X	Computers
	iPads
X	Powerpoint, Elmo etc.
Differentiated Instruction	
X	Used multiple resources
X	Domain Vocabulary
X	Cross-Curricular
X	Collaborative engagement (meaningful feedback)
X	Higher level learning and teaching
Assessment	

X	Project based
	Writing prompt
	Portfolio
X	Observation
X	Quiz
	Technology based
	Test
	Student created test
	Presentation
	Journal
X	Think, pair, share
	Summary
X	Oral questioning
	Analogy
	Powerpoint, or movie maker

Authenticity	
X	Various activities
	Inquiry, research and evidence
X	Evidence of time management and planning
X	Problem solving strategies

Summary of Unit:
This is a unit in which students will combine their art and math skills and build on their understandings of fractions, comparing fractions, ordering fractions, simplifying, and wholes of fractions. They will use note-taking skills to enhance their overall conceptual understanding and to also create a foundation for a project that will further their understanding and dive deeper into why the whole that a fraction is referencing is important. This is a unit that will last about 2 weeks but can be easily modified to support the individual student. While students will begin with individual work, they will be leading towards whole group discussions and think, pair, share exercises that will allow them to compare and contrast different ideas and learn from each other. These discussions will reference speech bubbles that give a template/encouragement on how students can respond to other thoughts and ideas (I disagree with _____ because, I learned that, I predict that, etc.) The unit concludes with a art piece that a student can reference and call their own while deepening their understanding of fractions and their role in our world.