**Fraction Frenzy Grades 7/8
Compiled by Lise Grimwood & Vera C. Teschow, 2015**

**Overall Curriculum Expectations**

**Grade 7**

* Represent, compare and order numbers
* Demonstrate an understanding of addition and subtraction of fractions, and apply a variety of computational strategies to solve problems involving decimal numbers
* Demonstrate an understanding of proportional relationships using percent, ratio, and rate

**Grade 8**

* represent, compare and order equivalent representations of numbers
* Solve problems involving whole numbers, decimal numbers, fractions, and integers, using a variety of computational strategies
* Solve problems by using proportional reasoning in a variety of meaningful contexts

**Specific Expectations**

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| --- | --- |
| **Grade 7** | **Grade 8** |
| * Add and subtract fractions with simple like and unlike denominators, using a variety of tools
* determine the relationships among fractions, decimals, percents and ratios
* represent, compare, and order fractions, and decimals to hundredths
* Divide whole numbers by simple fractions and by decimal numbers to hundredths, using concrete materials
* Use a variety of mental strategies to solve problems involving the addition and subtraction of fractions and decimals
* demonstrate the relationship between the repeated addition of fractions and the multiplication of that fraction by a whole number
* Solve problems involving the multiplication and division of decimal numbers to thousandths by one-digit whole numbers, using a variety of tools (later)
* Use estimation when solving problems involving operations with whole numbers, decimals, and percents, to help judge the reasonableness of a solution
 | * translate between equivalent forms of a number
* Solve problems involving addition, subtraction, multiplication, and division with simple fractions
* solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools
* represent the multiplication and division of fractions, using a variety of tools and strategies
* use estimation when solving problems involving operations with whole numbers decimals, percents, integers, and fractions, to help judge the reasonableness of a solution
* solve problems involving percents expressed to one decimal place (e.g.,12.5%) and whole-number percents greater than 100 (e.g., 115%) -- Meg's real estate problem?
* solve problems involving proportion
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**Relevant Vocabulary**

|  |  |  |
| --- | --- | --- |
| * common
* decimal place
* denominator
* equivalent
* eighth
 | * fifth
* half
* hundredth
* lowest common
* numerator
 | * proportion
* thousandth
* quarter
* ratio
* repeating decimal
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**Learning Goal**

I will understand that fractions can represent parts of wholes, parts of sets, parts of measures, division or ratios. I will see that there are many ways to represent fractions and different procedures for computing with fractions, just as with whole numbers.

**Student Success Criteria**

|  |  |
| --- | --- |
| **Grade 7** |  |
| * I can show fractions, decimals & percents in different ways.
* I accurately compare and order fractions, decimals and percents. (i.e. I can tell which one is bigger or smaller, or if two or more are equal in value)
* I know what a *hundredth* and a *thousandth* are, and how they are different from a hundred and a thousand.
* I can accurately add and subtract fractions using a variety of tools and strategies *including mental math* (e.g. doing it in my head).
* I can accurately multiply by a whole number to show repeated addition of fractions.
* I use estimation when solving problems involving fractions, whole numbers, decimals and percents, to help judge if my solution is reasonable. (e.g. I ask "Does it make sense?" and can prove that it does!)
* I can use concrete materials to show how to accurately divide whole numbers by simple fractions and decimal numbers.
 | * I can **translate** fractions into decimals, ratios & percents.
* I accurately **compare and order** fractions, decimals and percents. (i.e. I can tell which one is bigger or smaller, or if two or more are equal in value)
* I can show clearly how to **multiply** fractions in more than one way.
* I can show clearly how to **divide** fractions in more than one way.
* I accurately solve problems involving **addition, subtraction, multiplication and division** of fractions.
* I use **estimation** when solving problems involving fractions, whole numbers, decimals, rates and percents, to help judge if my solution is **reasonable**. (e.g. I ask "Does it make sense?" and can prove that it does!)
* I understand and accurately solve problems involving **proportion**.
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**Proposed Order of "Lessons"**

1. Review of ratio/percent, Part 1
	* Brain Pop videos and choice of 2 follow up activities
2. Review of ratio/percent, Part 2
	* Gr 7 - big bear lesson https://tapintoteenminds.com/real-world-tasks/grade7/
	* Gr 8 - houses/real estate lesson - sell big or go home (Frost)
3. Jo Boaler paper folding (need square paper):

<http://youcubed.stanford.edu/task/paper-folding-fun/> - Show your steps using flipagram (byod approach)

1. Passports (Double Period)
* Learning Goal/Success Criteria
* Kahoot "What do you Remember?"
* review of expectations/guidelines
1. Centers (4-5 days)
* individual & small group conferences & meetings/passport check ins
* homework sheet 1
* Kahoot #2
1. Quiz 1: Show what you know so far
2. Centers (4-5 days),
* individual & small group conferences & meetings (Quiz 1 follow up)
* mangoes problem (in groups - Classflow)
* homework sheet 2
* passport check ins
* Growth mindset exit ticket (in passport)
1. Quiz 2: Show what you know so far
2. Centers (1-2 days),
* individual & small group conferences & meetings (Quiz 2 follow up)
* passport check
1. Intro Culminating Task: "All About Fractions: Digital Portfolio" - based on what needs to be shown still!!!
2. https://tapintoteenminds.com/real-world-tasks/grade7/
	* Gas problem
3. https://tapintoteenminds.com/real-world-tasks/grade7/
	* Big Cheques - ASSESS?
4. Time to work on Culminating Task (3 days)

**Additional Resources to use when working with Students:**

* Tasks/Questions to check understanding:
	+ Divide 3 by ½ using fraction strips
	+ Divide 4 by 0.8 using estimation and base ten blocks
	+ Use red, blue and green snap cubes. Make a set of snap cubes with these two ratios: red: blue = 5:6 and blue:green = 3:4. How many different ways can you do this? Record each way you find.
* Use pattern blocks to solve each of the area fraction puzzles below. Draw each solution on pattern block paper. Label each colour with its fraction of the whole shape.

1. Build a parallelogram with an area that is  green,  blue, and  red.

2. Build a parallelogram with an area that is green, yellow,  red, and blue.

3. Build a trapezoid with an area that is  green and red.

4. Rebuild each of the puzzles above in a different way.

5. Explain why it is not possible to build a parallelogram with an area that is one-half yellow, one-third green, and one-quarter blue.

* tangrams for fractions - area model
* Base 10 blocks for decimals
* ppt from summer - ordering fractions
* Gap Closing student booklet
* Laurie Watson's worksheets
* lessons and stuff in "remediation" folder
* Kahn Academy: Converting decimals, fractions & percents
	+ https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/percent-intro-pre-alg/v/representing-a-number-as-a-decimal-percent-and-fraction
	+ https://www.khanacademy.org/math/pre-algebra/decimals-pre-alg/percent-intro-pre-alg/v/converting-decimals-to-percents-ex-1
* BrainPop (watch movie and complete 2 of the 3 activities)
	+ Gr 7 - Ratios: https://www.brainpop.com/math/ratioproportionandpercent/ratios/
	+ Gr 8 - Percents: https://www.brainpop.com/math/ratioproportionandpercent/percents/