Notes	
Comprehensive Assessment System	Items to follow up with on site:

Structural Elements of RTI	Items to follow up with on site:

Instructional Elements of RTI	Items to follow up with on site:

Instruction and Intervention Inventory

Question	Reading	Mathematics
What core instructional materials are used in your school?	Elementary: Secondary:	Elementary: Secondary:
What standardized intervention programs are currently available at the Tier 2 level in your school?	Elementary: Secondary:	Elementary: Secondary:
What standardized intervention programs and/or replacement core programs are currently available at the Tier 3 level in your school?	Elementary: Secondary:	Elementary: Secondary:

How does your school currently differentiate Tier 2 from Tier 3 intervention?

Note: *Before adapting or intensifying an intervention, always consider whether the current intervention program has been implemented with fidelity, and for a sufficient amount of time.*

Possible Quantitative Strategies (Try First)

- ☐ Increase the length of intervention sessions
- ☐ Increase the number of intervention sessions per week
- ☐ Decrease the group size
- ☐ Increase the total number of sessions
- ☐ Decrease the heterogeneity of group (group student with others of a closer performance level)
- ☐ Consider an intervention setting with fewer distractions
- ☐ _____
- ☐ _____
- ☐ _____

1. Possible Qualitative Strategies (Try Next)

Elements of Explicit Instruction

- ☐ Use precise, simple language to teach key concepts or procedures.
- ☐ Model new concepts with examples and "think aloud" as you work through steps
- ☐ Fade steps from examples, so that students gradually assume responsibility for completing more and more steps.
- ☐ Break tasks into smaller steps, compared to less intensive levels of instruction/intervention.
- ☐ Break behavior goals into small chunks or steps
- ☐ Provide concrete learning opportunities (including role play and use of manipulatives).
- ☐ Have students explain new concepts, in their own words, incorporating the important terms you have taught.
- ☐ Use explicit instruction and modeling with repetition to teach a concept or demonstrate the steps in a process.
- ☐ When introducing a concept, provide worked examples and show the steps in writing.
- ☐ Present a completed work example. Explain why the step is important, have the student complete that step, and explain its importance.
- ☐ _____
- ☐ _____

Building Fluency through Practice

- ☐ Once students can complete entire examples and explain their work, incorporate fluency building activities to develop automaticity of skills.
- ☐ Once students can fluently produce correct work, move to a new concept. Provide ongoing practice opportunities to facilitate skill maintenance.
- ☐ Increase opportunities for student response and practice through unison choral responding, peer activities, and opportunities for the student to perform with adult feedback.
- ☐ _____
- ☐ _____

Error Correction

- ☐ Provide immediate and explicit error correction when mistakes are made, and have the student repeat the correct response before moving on. Provide repeated opportunities to correctly practice the step.
- ☐ Increase the frequency of error correction and corrective feedback.
- ☐ _____
- ☐ _____

Other

- ☐ Change to an interventionist with more expertise such as a reading specialist, behavior specialist, social worker, or special education teacher, depending on the student's needs.
- ☐ _____
- ☐ _____

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Ask Clarifying Questions to Create a Hypothesis to Guide Intervention Changes

Question Bank

Purpose: The team should ask clarifying questions in order to analyze the data and develop a hypothesis to guide future intervention planning (e.g., skill deficit, function of behavior). The following questions may be used to help prompt discussion with your team.

Consider the Tier 2 intervention

- Did the student receive a secondary intervention?
    - Was the Tier 2 intervention evidence-based?
    - Was the Tier 2 intervention an appropriate fit for the student, given skill deficits and/or function of behavior?
    - Was the intervention delivered with fidelity? (Did any factors prevent the student from receiving the intervention as intended?)
    - How frequently and by whom was it delivered?

Consider student needs and background information

- Does the student have an IEP? Is the student an English language learner?
    - If so, be sure the team is aware of the student's accommodations and present levels of performance.
- Has the teacher communicated with the student's previous teachers and parents to get a better sense of his/her performance?
- What previous interventions or supports has the student received? How has he/she responded to these interventions or supports?
- Does the data warrant a referral to special education, given the district's policies?

Consider contributing behavioral factors

- What does the team believe the student is trying to accomplish with the behavior? (What is the function of the behavior?)
    - Avoid or escape something (e.g., difficult task or social interaction)
    - Gain or obtain something (e.g., attention or stimuli)
- Is the student motivated or engaged in the current intervention?
- What motivates or engages the student?

Consider contributing academic factors

- What specific skill deficits may be contributing to problem?
- Are the academic tasks on the right level for the student?
- Are progress monitoring data being collected at the appropriate level, or is the assessment too difficult?

Consider other contributing factors

- What other factors may be contributing to the problem? (Home life, health, vision, hearing, absences, behavior, etc.)
- Are behavioral and academic struggles related?
- What conditions affect the problem? For instance, does the problem occur in a particular setting or at a certain time of day?

Alaska Mathematics Standards Vocabulary Word List

Grade 4

Operations and Algebraic Thinking	
add	To combine; put together two or more quantities.
addend	Any number being added.
additive comparison	Problems that ask how much more (or less) one amount is than another.
area	The measure, in square units, of the inside of a plane figure.
area model	A model of multiplication that shows each place value product.
common factor	Any common factor of two or more numbers.
common multiple	Any common multiple of two or more numbers.
compatible numbers	Numbers that are easy to compute mentally and are close in value to the actual numbers. Compatible numbers can be used when estimating.
compose	To put together smaller numbers to make larger numbers.
composite number	A number greater than 0 that has more than two different factors.
counting number	A whole number that can be used to count a set of objects. Counting numbers do not include 0. (e.g., 1, 2, 3, 4…)
decompose	To separate a number into 2 or more parts.
difference	The amount that remains after one quantity is subtracted from another.
digit	Any of the symbols 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9. (also known as base-ten numerals)
divide	To separate into equal groups and find the number in each group or the number of groups.
dividend	A number that is divided by another number.
divisible	A number is divisible by another number if the quotient is a counting number without a remainder.
divisor	The number by which another number is divided.
equal	Having the same value.

Alaska Mathematics Standards
Math Tasks
Grade 4

Fraction Clues

Content Standard

4.NF.3. Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions (e.g., by using a visual fraction model).
Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1+ 1 + 1/8 = 8/8 + 8/8 + 1/8.
c. Add and subtract mixed numbers with like denominators (e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction).

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics. Students draw pictures using dot cards, number lines, picture cards, and counters to represent and compare quantities or sets.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure. Students will use tally marks to represent benchmarks (5, 10) of counting.
8. Look for and express regularity in repeated reasoning.

Task Description

In addition to determining the fraction of a set, and determining the set when given a fraction, students will now have to also find equivalent fractions.

Materials:

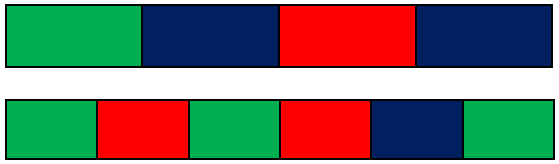
- Colored tiles
- Fraction Clues recording sheet
- Crayons or colored pencils

****Please see link below for recording sheet (pg. 118):**
http://tinyurl.com/MathTasks-Grade4-Unit4

In this task students will use what they have learned about adding and subtracting fractions, using equivalent fractions and multiplying a fraction by a whole number to give another student clues about the fraction strip they created. There is a lot of emphasis on communicating mathematically in this task.

Comments

To introduce this activity display these two fraction bars made from Color Tiles.



Ask students to find out what portion of the whole a tile in the first bar represents and what portion of the whole a tile in the second bar represents. Students should be able to determine that each tile in the first bar represents 1/4 of the whole and each tile in the second bar represents 1/6 of the whole.

Ask students to explain what fractional part each color represents in each fraction bar. Give the following set of fraction clues that describe one of the fraction bars. Stop after each clue and ask children which fraction bar is the solution and how they know.
● The fraction bar is one-half green
● The fraction bar is one-third red
● The fraction is one-sixth blue
Many children will not need all three clues to determine the solution however they should be comfortable arguing and verifying their answers and they may need all three clues to conclude that the solution is the second bar.

Part 2 is a much more challenging version where students create fraction bars with any number of tiles, requiring students to use different denominators, such as 6, 8, 10, and 12. This allows students to develop other strategies for determining the denominator, for example a student may be forced to find a common denominator or they may figure out on their own that the largest denominator must refer to the total number of tiles.

If available, students can glue die-cut red, yellow, blue and green squares.

Task Directions
Students will follow directions below from the Fraction Clues activity sheet.
● Obtain a set of colored tiles.
● Work with a partner to make a fraction bar and record it on their activity sheet.
● Write at least 3 clues that describe your fraction bar
● Exchange only your clues with another group
● Represent your answer with a number sentences (for example: if you have 10 tiles and 1/2 are red then write the number sentence 10/2 = 10 x 1/2 which is 5 tiles)
● Attempt to build another group's fraction bar as they attempt to build yours.
● Discuss results with each other.

Number Talk:
Several number talk strategies can assist students in finding equivalent fractions. Repeated addition (multiplication) and subtraction (division) are strategies that many students may choose to use.

Strategy: Division: Repeated Subtraction or Sharing/Dealing Out
In this strategy, the student associates the divisor with the number of groups between which the whole is being shared. Possible ways to make this explicit are suggested in the example that follows using the problem 12/2:

- If students share their strategy as 12 -2, -2, -2, -2, -2, -2
- Scaffold to multiplication with 3 x 2 = 6, 3 x 2 = 6
  So…6 x 2 = 12
  So…12/2 = 6

Repeated Subtraction affords an excellent vehicle for discussing efficiency: Is it more efficient to subtract 2s or to multiply a group of 2? Is there a way we can build on something we know, such as 3 x 2, to make this problem more efficient? Each situation offers opportunities to help students think flexibly, fluently, and efficiently.

Below is a Repeated Subtraction or Sharing/Dealing Out Number Talks for you to try with your students.

10/2 14/2 25/5

For additional number talks and information about this strategy, please see *Number Talks* by Sherry Parrish.

Background Knowledge/Common Misconceptions:

Students think that it does not matter which model to use when finding the sum or difference of fractions. They may represent one fraction with a rectangle and the other fraction with a circle. They need to know that the models need to represent the same whole. In addition students have a tendency to add both the numerator and denominator when using different operations with fractions as opposed to just adding numerators.

Students need practice with open-ended activities that allow them to design their own problems and then assess one another. This activity also makes students use mathematical language, verify answers, and work collaboratively with another student. This activity offers students a concrete way to see equivalent fractions. This activity also helps build the "guess and check" strategy as each student tries to build the fraction bar based on the set of clues.

This activity is also valuable because students start to realize that a different number of tiles in a different fraction bar can still be represented by the same fraction.

For example:

3 tiles

4 tiles

In the first bar three yellow tiles represent 1/2 and in the second bar four tiles represent 1/2. Students will gain further understanding that the number of tiles being used (numerator) is always dependent on its relationship to the total number of tiles (denominator). Before asking students to work on this task, be sure students are able to:

- identify the number of equal pieces needed to cover one whole as the denominator
- show equivalent fractions with an area model
- record on the student sheet equivalent fractions or fraction sets (either by coloring or gluing die cut squares)
- write an equation which shows the clues and verify their answer.

Formative Assessment Questions:

- What clues did you write to describe your fraction bar?
- Have you found all of the possible equivalent fractions? How do you know?
- Were you able to build the fraction bar based on the clues? If not, why?
- Could you change any of your clues?
- What number sentence can describe the tiles in your bar?

Differentiation:

Extension

● Once students have completed the task above, this lesson can be extended to have two pairs of students combine their fraction bars to make a larger fraction bar, then continue the activity writing clues for another group to solve.

● Students could also be encourage to work with larger fraction bars as well as write more clues for determining those fraction bars. Most color tiles only have red, blue, green and yellow tiles, so the activity will never have more than four fractions to represent.

● Often the clue with the largest denominator tells you how many tiles can be used. However, students could be challenged to use only 2 clues and therefore force them into situations where they need to find common denominators. For example my fractions are 1/4 red and 1/3 green. They will then need to build several bars that have 12 or 24 tiles.

Intervention

● If necessary students could begin this activity with a smaller set, such as using only four tiles.

● If students are struggling, they could attempt with activity with only three colors instead of using all four colored tiles.

Vocabulary:

Equivalent Fraction
Numerator
Denominator
Unit Fraction
Fraction Bar
Number Sentence

References:

Parrish, Sherry. Number Talks: Helping Children Build Mental Math and Computation Strategies, Grades K 5. Sausalito: Math Solutions Publications, 2010