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**STRATEGIES/ACTIVITIES THAT DIFFERENTIATE PROCESS**

**Pass the Word – Variation #1** - Students form a circle. The teacher chooses a category and asks students to think of four words that could fit into that category. Students hand the ball to the person on their right. As the ball is passed around the circle to a student, he/she calls out a word to fit the category. NOTE: the last person to receive the ball has the hardest job because he/she cannot repeat any words that have been previously spoken. The activity is timed to determine how long it takes the class to complete passing the ball around the circle. If a student has trouble voicing a word that has not already been called, the person on either side may help him/her.

**Variation #2** - A verbal student steps into the middle of the circle.

He/she calls out as many words as possible to fit the category while the class acts as a timer, quickly passing the ball completely around the circle. Another student or the teacher counts the number of responses generated.

**Variation #3** - A student or the teacher controls the ball by standing in the middle. This student randomly tosses the ball to anyone in the circle. When the person in the circle catches the ball, he/she calls out a word in the category. The ball is then thrown back to the student in the center who generates another word and throws the ball to a new person in the circle. The student in the center generates every other response.

**Variation #4** - Paired association

**Expert Game** - two or more participants - Two students assume the role of experts and speak to the audience by alternating one word at a time between them. They are experts in a field chosen by the audience or teacher. The students then answer questions in that field posed by the audience, speaking alternately one word at a time.

**Vocabulary Variation - Vocab Master** - Three to five students create a sentence correctly using the given vocabulary word. The sentence is formed by each student contributing one word at a time.

**Mathematics Variation - Math Roulette or Math All Around** - This is a timed activity with teams of five students. Each team is given 5 basic math facts. They must state the problem and its answer, with each student only offering one word of the problem. Student 5 always gives the answer. As soon as the answer is given, Student 5 runs down and becomes Student 1. In this way, all students will give one of the answers. If the answer is incorrect, another team member may call "time out". The team huddles and the correct answer is given to the person who gave the incorrect number. The team must then restate the problem correctly. Each team is timed as to how long it takes to generate five problems, including the time outs. The team with the lowest time wins.

An open-ended variation of this activity is for the team members to start with a given value and create five different number sentences that have the given value as the answer. One-variable equation can also be solved using the 5-member team format.

**Value Lines/Split and Slide.** Students line up according to where they stand on a given value issue that is raised in a piece of literature. Students who feel strongly about the issue on either side will line up at opposite ends of the value line, while those with moderated feelings line up in between. To engage students in productive discussion, split the line in half and have students slide down to determine a partner. This will be modeled during the workshop. Partners then discuss two issues. They first explain to each other why they took the position that they did on the value line. Next, they find one area concerning the topic under discussion on which they can reach consensus.

**Structured Think-Pair-Share** - Class is divided into partner groups. The most verbal of the two is designated Person A and the other becomes Person B. Present the content and/or question to be discussed. Person A talks for one minute (shorter for primary students), discussing the content/question. Person B only listens and cannot speak during the minute. At the end of a minute, Person B will respond and talk for a minute, using one of the following response starters: "I really liked what you said about..." or "What you said reminds me of..." or "Another way to look at this is..." or "Here's what I heard you say...". The two partners will then be given another minute in which both of them can talk to clarify and bring closure to the conversation.

**Rock/Scissors/Paper Math** – This will be explained during the session.

**Partner Basic Facts Finger Math** – This will be explained during the session

## **GROUPING FOR TIERED ASSIGNMENTS**

**LOWER READINESS** – Students who are not ready to make sense of the day's lesson, for whatever reason.

**MIDDLE READINESS** – Students who are ready to make sense of the day's lesson.

**HIGH READINESS** – Students who have already previously mastered the day's lesson and are ready to move beyond it.

## Tiered Assignments

Tiered assignments assist the classroom teacher in differentiating content. When implementing the use of tiered assignments, the whole class studies the same concept, but students pursue and respond to the information and skills at different levels. Tiered assignments are based on student readiness and result in students either working together in small groups, in pairs, or individually to complete tasks that are based on their readiness levels. This means that Teachers using tiered assignments first identify the objectives that they need to teach and then find a way to assess students' current grasp of those objectives. The teacher designs the student response, or end product, at three varying degrees of difficulty. Based upon either a preassessment instrument or on-going evaluation that has taken place during the course of study, the teacher determines which students will participate at any given level of the assignment.

One of the benefits of tiered assignments is that they allow students to present their end products or findings to the rest of the class, none of whom have been working on what the given group is presenting. This format allows each group to maintain its own individual self-worth, as the other groups will have different tasks on which to report.

Design or find one activity that addresses the objectives. This activity is the basis for the other "tiers" so it should be a good one. This means that it should clearly address the objectives, that is should be age-appropriate and respectful of students' abilities, and that it should be engaging. It's a good idea to aim to the middle or high groups with this first activity as that will help to ensure that your expectations for all your tiers will be high. Starting the planning process with the lowest tier in mind often results in low expectations for all tiers. The enjoyment level of the assignments should also vary. The lower-ability groups should have what is perceived as the "fun" assignment just as often as the higher-ability groups.

Tiered assignments are ultimately the backbone of the differentiated classroom. They allow teachers to respond to the fact that some students enter our classrooms with vast amounts of prior knowledge while others are sorely lacking in information and skills. And yet, we need to find a way to challenge them all.

## Elementary Math Tiered Assignment: Addition and Subtraction of Whole Numbers

### Tier One (lower readiness)

Students working at this tier will be assigned to either a partner or small group no larger than four at the teacher's discretion. Both collaborative and independent work is utilized in this tier.

Each partner team or small group is given a deck of playing cards. The numbered cards are assigned the value of the card. Face cards have the following values:

Jack = 11

Queen = 12

King = 13

Ace = either 1 or 14, depending upon the readiness of the group

Students shuffle the deck of cards and deal out five cards per student. The remaining cards are placed in a pile face down. Each student writes down the value of the five cards in his/her hand, adds these five values using pencil and paper, and records the sum. The players take turns drawing a new card from the pile in front of them. Each player has the option of adding or subtracting the card's value from the sum already recorded from the opening hand of five cards. The goal is to reach a given value as closely as possible. The teacher must set this value, depending upon the number of students in each group and their readiness in working with larger numbers. The teacher also has the option of determining how long this activity continues. Students can be told to keep playing until all the cards have been drawn from the pile, or the teacher can tell students to draw five more cards after the initial hand is dealt. Again, this is determined by how many students are playing together. The winning student is the one who chooses addition or subtraction wisely to come closest to the pre-determined value set by the teacher. After a student has won, cards can be reshuffled and students may play another round if time permits. At the end of class, students give the teacher the papers where they have performed their pencil and paper calculations and these can be used for assessment.

### Tier Two (higher readiness)

Students assigned to this tier will be working independently.

Starting with A = 1, students are asked to write down the alphabet and assign a numerical value to each letter in sequential order. Each student should complete this task with Z = 26.

After they have listed a one-to-one correspondence with letters and numbers, students select ten of their classmates, who can be working in any of the three tiers, and add the value of their first and last names using pencil and paper. For example, if a student were named Ann Smith, the numerical value of her name would be:

A N N S M I T H

$1 + 14 + 14 + 19 + 13 + 9 + 20 + 8 = 98$  Students would be expected to line up these values vertically before adding.

Once students have calculated the numerical value of ten names, they are given a pre-determined numerical goal, such as 175. The teacher may set this goal at any value. Students, through trial and error methods, must determine which two of the ten student name values can be added or subtracted to come closest to the given numerical goal. The winning student is the one who chooses addition or subtraction wisely to come closest to the pre-determined value set by the teacher. At the end of class, students give the teacher the papers where they have performed their pencil and paper calculations and these can be used for assessment.

## **RAFT Activities**

RAFT activities can be great fun to design and complete. Once teachers learn about this strategy, they often find themselves using it again and again. RAFT is an acronym for ROLE, AUDIENCE, FORMAT, and TOPIC. When designing these activities, teachers must consider the roles they want their students to assume, the audiences that students should address, the formats (most often written) that students' work can take, and the topics students must respond to. As with tiered assignments, when designing RAFT activities, teachers should first be clear about their objectives.

The great thing about RAFT activities is that they allow for a great deal of creativity, for both teachers and students, while providing many avenues for differentiation. A teacher might want to address student readiness differences by differentiating the abstractness of the role students will take on or the complexity or open-endedness of the topic they will address. On the other hand, she might choose to respond to learning profile differences in her classroom by coming up with a variety of different formats for students' products. For example, a letter or speech draws on verbal/linguistic intelligence while a top-ten list or timeline draws on mathematical/logical skills. RAFT assignments can also be used as part of other strategies for differentiation. For instance, they can be used as tiered assignments and as options on Think-Tac-Toes or as Complex Instruction tasks.

RAFT activities can be used in all subject areas and at all grade levels to encourage students to apply and analyze information and understandings that they've mastered or are mastering. And these activities can be either teacher assigned or student selected depending on how they are differentiated. It's important to keep in mind that when RAFT activities are differentiated based on student readiness they should be assigned by the teacher. However, students can certainly be allowed to choose the activity they want to work on when the activities have been differentiated based on student learning profile or interest. Probably the most difficult part of creating effective RAFT activities is ensuring that they are linked to previously-identified objectives. However, this challenge is outweighed by the fact that teachers often enjoy creating these highly-engaging activities.

### Elementary Math RAFT: Fractions

ROLE	AUDIENCE	FORMAT	TOPIC
A large pizza (you get to pick the toppings)	Person who bought the pizza	Drawings of the pizza	Five different ways you can cut me into pieces (the pieces must be the same size on each individual pizza)
Numerator	Denominator	A friendly email	It's a good thing we are best friends because it takes both of us to name a fraction
A non-equivalent fraction	An equivalent fraction	An unfriendly email	What makes you think you are so special?
The fraction $\frac{1}{4}$	The fraction $\frac{1}{12}$	Story board	Why I'm a larger amount than you are
The fraction $\frac{1}{3}$	An advice columnist (like Dear Abby)	Letter asking for help	Why can't I ever be a part of the whole number family?
Student	Teacher	Pattern blocks	Look at all the ways I can represent fractions using this set of blocks!
The fraction $\frac{1}{2}$	People watching the Dave Letterman TV show	Top Ten List	The top ten equivalent fractions that name my same amount
Fractions	Math students	Brochure	Ways your lives would be different if we didn't exist

## Think-Tac-Toes

Of all the strategies we share with teachers, Think-Tac-Toes usually spark the greatest interest. While tiered assignments are fundamental to a differentiated classroom and allow for a great deal of teacher “control,” many teachers seem most drawn to Think-Tac-Toes. And students like them, too, because they provide students with a great deal of choice. Think-Tac-Toes are basically a form of learning contracts. When designed well, they invite students to work in ways that are based on their learning profiles and interests and that focus on important knowledge, understandings, and skills. They make very effective assessments at the end of a unit, and teachers often use them in addition to more formal assessments.

Typically, Think-Tac-Toes are created in three by three grids, providing nine possible tasks. Students select a given number of tasks to complete, but three tasks is generally the goal. It’s up to the teacher to decide if students need to connect the tasks in rows, columns, or diagonally. A great way to “tighten up” a Think-Tac-Toe is to make each row focus on a particular objective or aspect of the content and then ask students to choose a task from each row.

Because students make choices based on their learning profiles and interests in the tasks to be completed on a Think-Tac-Toe, it’s important to keep the readiness levels of the tasks fairly similar. If students find that some tasks appear simpler than others, they may choose those tasks and avoid more challenging tasks that might be appropriate for them. Teachers wanting to address readiness while using Think-Tac-Toes should be prepared to tier them, thus creating two or more Think-Tac-Toes and then assigning the appropriate ones to the students needing them (see the Tiered Literature Think-Tac-Toes provided in Chapter 4). This allows teachers to provide students with choice while ensuring that they are being adequately challenged. As with any strategy for differentiation, it’s important to maintain focus on the objectives – something that can be difficult to do during the process of creating a variety of tasks.

## Elementary Math Think-Tac-Toe: Probability

<p>Select a novel of your choice and turn to a random page. Tally the number of times each of the five vowels in the alphabet appears on the page. Record your data on a line plot. Add up the totals for each vowel. Report to the class the vowel that appeared most often and the one that appeared least often. If you were a player on “Wheel of Fortune”, what advice does this survey give you?</p>	<p>Examine the ten pictures of crowds provided by your teacher. In each picture, count the number of people who are wearing glasses. Organize this data by listing the numbers from smallest to largest. Calculate the range, mean, median, and mode for the data collected.</p>	<p>Conduct a survey of the students in your classroom to record their eye color, brown, blue, hazel, green, or gray. Design a chart to collect and record the data, then express the probability of each eye color occurring as a fraction. Based on this data, predict the number of students with each eye color in other classes your size. Collect data from several other classes in your school and compare the results to your predictions.</p>
<p>Conduct a survey of the students in your classroom to record the number of letters in their first and last names. Organize the data by listing the numbers from smallest to largest. Calculate the range, mean, median, and mode for the data collected.</p>	<p>Theoretically, tossing a coin gives you a <math>\frac{1}{2}</math> chance of tossing a head or a tail. Test this probability. Toss a coin 100 times and record whether you tossed a head or a tail. Determine the probability of your experiment. How close were you to the theoretical probability?</p>	<p>Roll the dice 100 times and record how many times you roll each number 2-12. Express the probability of rolling each of the numbers as fractions. Which number occurred most often and which occurred least often? How would you predict board game makers would use this information when designing the rules of their games?</p>
<p>For one week (seven days), record the temperature at the exact same time each day. You may choose the time. Record your data on a line graph, with the day on one axis and the temperature on the other. Use your data to predict what the temperature will be for that time on the next day after you stop your recording.</p>	<p>Using a deck of playing cards, conduct an experiment to determine the probability of drawing a face card (Jack, Queen, or King) from the deck? Shuffle the cards 50 different times and have a partner or yourself draw one card after each shuffle. Record the number of times a face card is drawn and calculate your probability of drawing a face card.</p>	<p>Conduct a survey of the students in your class to record their favorite after school activity. The six choices given are: visiting/playing with friends, playing sports, using computers, watching TV, reading a book, or communicating with friends using a phone, email, etc. Before collecting the data, predict which activity you believe will receive the most votes. After your finish the survey, record the data on a chart and construct a bar graph to display the results. How close was your prediction?</p>