

“Math Works”

For further information contact...



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2008 - 2009 IDEA CATALOG OF EXCELLENCE

■ PROGRAM OVERVIEW

The purpose of this program is to motivate my students and inspire them to enjoy math. Each math chapter is associated with an occupation, complete with props and costumes for both my students and me. Throughout the school year, my students get to pretend to be math spy kids, race car drivers, and construction workers, just to name a few. This helps them get excited about math, and since each unit has a new theme, the students never get bored! Rewards and incentives are also built into the program to encourage students to excel and to pay attention to learn more. Instead of just listening to a math lesson, they get to experience a whole new world!

One of the students' favorite themes is the 'math spy kids' unit. In this unit, students are supposed to learn several addition and subtraction strategies, such as 'counting on', 'making 10 to add 9', etc. Before I started using '**Math Works**', my students had a very hard time remembering these strategies. However, when the strategies are presented as the 'secret weapons' they will need as math spy kids to defeat the 'enemy' (the math problem they're solving), students hang on my every word! Themes include: Understanding Addition & Subtraction/Fact Strategies for Addition and Subtraction - **Math Spy kids**, Place Value to 100 and Money -

race car drivers, Mental Math: Addition & Subtraction, Two-Digit Addition, and Two-Digit Subtraction - **scuba divers**, Geometry & Fractions - **chefs in training**, Time, Data, & Graphs - **firefighters**, Measurement & Probability - **construction workers**, Numbers to 1,000- **astronauts**, Understanding Multiplication & Division - **Hollywood stars**.

This program has been used in my second grade, regular education classroom. However, it would be easily adaptable to use in any primary grade or ESE classroom. Please see the "Materials Budget" for specific materials needed.

■ OVERALL VALUE

Would you like to see your students' faces light up when it's time for a math lesson? Are your students self-motivated and enthusiastic learners? This program will make your students want to get involved in your lessons and understand the math concepts necessary to be high achievers in the classroom and in real life! By connecting math skills to occupations they are interested in, students are easily able to learn new skills and retain new information.

■ LESSON PLAN TITLES

- Math Spy Kids
- Race Car Drivers

■ MATERIALS

Materials for this program include bulletin board sets, rewards for students, and props for the teacher and students to wear. The most important part of this project is the teacher's ability and willingness to be creative and dramatic. No special equipment is needed, which makes this program very flexible for any teacher to adapt. Please refer to the materials list for specific suggestions.

■ ABOUT THE DEVELOPER

Heather Watkins has a B.S. in Early Childhood Education from Troy University. She taught kindergarten for 2 years before moving to second grade, which she has taught for the last 6 years at Caldwell Elementary in Polk County.

She enjoys spending time with her family, as well as reading and scrapbooking.



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Theme Details



All units include bulletin boards that illustrate the unit, along with essential questions and vocabulary words. Students earn a reward at the end of each unit if they receive an “A” on the chapter test. My unit themes are as follows:

- ◆ Understanding Addition & Subtraction/Fact Strategies for Addition and Subtraction:

Math Spy kids

Each day, students learn a new ‘secret weapon’ to use against their enemy, the unsolved math problem. They are encouraged to wear a pair of sunglasses from home. I also wear sunglasses while teaching this unit.

- ◆ Place Value to 100 and Money:

Race car drivers

Each student has a race car cut out (on materials list) with a number on it, which is used throughout the unit to compare numbers, learn place value, find the closest ten, etc. I also put the race cars on the bulletin board the day after a quiz, in the order they finished the race (students who got a 100 tied for first place, etc.). Since only the student knows their particular number, they are not embarrassed, but simply motivated to finish stronger on the next quiz. Students are allowed to wear a baseball cap from home during math. I wear a hat, along with a racing jacket. While working on any practice problems, we listen to the “Cars” Soundtrack.

- ◆ Mental Math: Addition & Subtraction, Two-Digit Addition, and Two-Digit Subtraction:

Scuba divers

Students are ready to dive into learning how to regroup. Students are encouraged to bring a pair of goggles from home to wear during math lessons.

- ◆ Geometry & Fractions:

Chefs in training

During this unit, we tie geometry concepts to real life through food. Students learn the names of the geometric solids by thinking of foods that are the same shape. The bulletin board is simply a red and white checked tablecloth titled “Geometry Picnic”. Vocabulary words are posted, and students create food-inspired pictures to illustrate each word. I wear a chef’s hat to conduct math lessons, and students are enrolled in ‘chef school’, where they also don chef hats for math. While we work, we listen to the “What’s Cooking?” CD.

- ◆ Time, Data, and Graphs:

Firefighters

Students wear plastic fire hats (as do I) as we battle two obstacles: telling time, and reading graphs. I try to relate as much of the lesson as possible to firefighting each day. We talk about what firefighters are doing at various times of the day, and make graphs as firefighters.

- ◆ Measurement & Probability:

Construction workers

Students enjoy measuring things in this chapter as we relate their jobs to construction workers. We wear hard hats and measure very carefully!

- ◆ Numbers to 1,000:

Astronauts

Students zoom into the thousands place on their giant rocket ship. With a little bit of Tang to fuel their engines, they’re off to explore place value!

- ◆ Understanding Multiplication & Division:

Hollywood stars

Multiplication and division don’t seem quite so daunting when you’re wearing hats and sparkling spectacles. A bulletin board with the infamous ‘Hollywood’ hills, along with a red carpet, lets starlets know they’re in the right place!



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Lesson Plan No 1: Math Spy Kids



■ **SUBJECTS COVERED**

Mathematics

■ **GRADES**

Kindergarten-three

■ **OBJECTIVES**

- ✓ Students will use doubles facts to learn doubles-plus-1 facts.

■ **SUNSHINE STATE STANDARDS**

MA.2.A.2.2

Add and subtract multi-digit whole numbers through three digits with fluency by using a variety of strategies.

■ **MATERIALS**

- sunglasses (1 pair per student)
- math spy kids bulletin board with vocabulary words posted

■ **DIRECTIONS**

1. Teacher will ask students if they are ready to go to the Math Spy Kids training center (their seats). Once students have donned their sunglasses and are focused on the teacher (also wearing sunglasses), the teacher will review the two secret weapons they have already learned: Counting On, and Doubles.
2. Once students have reviewed, they will get to learn a new secret weapon: Doubles + 1. The teacher will explain what this term means, illustrating it with two lines of students—one line with four students, the other with 3. The teacher will then present a problem on the board, such as $5+6=$. The teacher will demonstrate how to use the new secret weapon. Students will then take turns solving practice problems on the board. Students will use the manipulative kit to show practice problems.
3. Students will then move on to the workbook page for additional practice, using the Kagan strategy ‘Find Someone Who’ to complete the front of the worksheet. Students will complete the back of the worksheet on their own, which will be checked by the teacher when done for accuracy.

■ **ASSESSMENT / EVALUATION**

See attached rubric for more information.



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Lesson Plan No 2: Race Car Drivers



■ **SUBJECTS COVERED**

Mathematics

■ **GRADES**

Kindergarten-three

■ **OBJECTIVES**

- ✓ Students will compare numbers using the greater-than, less-than, and equal-to symbols.

■ **SUNSHINE STATE STANDARDS**

MA.2.A.1.3

Compare and order multi-digit numbers

■ **MATERIALS**

- race car cut out with a number written on it (one per student)
- racing theme bulletin board and room decorations
- baseball cap and sunglasses (each student brings them from home)

■ **DIRECTIONS**

1. Students will hear the first few seconds of the song “Life is a Highway” (from “Cars” CD), which will cue them to go to their seats and get their hats and sunglasses on. Once students are ready, the teacher will review the other skills learned in this unit over the last few days, including key vocabulary words.
2. Students will each be given half of a pipe cleaner. They will be instructed to fold it in half to make a > shape. The teacher will draw a < shape on the board and label it “less than”. The teacher will explain what this term means, then ask students to name a number that is less than 100. The same will be done for “> greater than”. The teacher will also explain what “equal-to” means.
3. Students will be asked to work with their shoulder partner, and, using their pipe cleaners and their own race car cut-out with their number on it, create a number sentence, such as $78 < 90$. The teacher will walk around and check for understanding. Students will repeat the activity, this time with their face partner.
4. Students will use their numbered race cars and their pipe cleaner symbols to participate in the Kagan “Mix-Freeze-Group” strategy. Teacher will check for acquisition of knowledge.
5. Students will work on some practice problems at their desk to practice this new skill.

■ **ASSESSMENT / EVALUATION**

See attached rubric for more information.



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Lesson Plans Materials Budget



Materials Budget

SUPPLIER	ITEM DESCRIPTION	COST	QTY	TOTAL COST
Oriental Trading	Click pen necklaces - 1 dozen	3.95	2	7.90
	Checkered pennant banner	7.95	1	7.95
	Black & white checkered racing flags 6x4 - 6 dozen	6.95	1	6.95
	Sparkling Specs - 1 dozen	9.95	2	19.90
	Gangster Hats - 1 dozen	7.95	2	15.90
	Chef hats - 1 dozen	4.95	2	9.90
	Child's Construction hats - 1 dozen	5.95	2	11.90
Schoolhouse/ Teacher's Exchange	"On Track with Good Behavior" bulletin board set (Carson Dellosa)	9.99	1	9.99
	Colorful Cut-outs 'Race Cars' (Carson Dellosa)	4.99	1	4.99
	'Race Cars' shape stickers 120 ct. (Carson Dellosa)	1.99	1	1.99
	Black and white checkered border	3.99	1	3.99
	'Fire Station' job chart bulletin board set (Trend)	8.99	1	8.99
	'Construction' bulletin board set (Carson Dellosa)	9.99	1	9.99
	'Kids At Work' border trim (Carson Dellosa)	3.99	1	3.99
	'Great Work' award tags (Carson Dellosa)	4.99	1	4.99
	'Big Rocket Ship' bulletin board set (Frank Schaffer)	9.99	1	9.99
	'Star: Kid-drawn' award tags (Carson Dellosa)	4.99	1	4.99
	'Stars: kid-drawn' shape stickers (Carson Dellosa)	1.99	1	1.99
	Solar system border	2.99	1	2.99
	'Gold Star' cut-outs (Creative Teaching Press)	3.99	1	3.99
	'Dive Into Learning' bulletin board set (Carson Dellosa)	9.99	1	9.99
	'Fish' shape stickers 120 count (Carson Dellosa)	1.99	1	1.99
	'Fish and Waves' pop-apart border (Carson Dellosa)	3.99	1	3.99
	Pizza Fractions poster (Carson Dellosa)	1.99	1	1.99
Wal-mart	"Cars" CD- original sound track	14.88	1	14.88
	Red & white checked tablecloth	2.00	1	2.00
	'Ratatouille- What's Cooking' CD	10.88	1	10.88
Local fire dept	Plastic fire hats and sticker badges	Free		Free
Teacher's Name <u><i>Heather Watkins</i></u> School: <u><i>Caldwell Elem. School</i></u>		Subtotal		\$198.99
		Tax		
		Shipping		
		TOTAL BUDGET AMOUNT		\$198.99



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Rubric



Assessment for: comparing numbers using $<$, $>$, and $=$

	Beginning (needs teacher intervention)	Developing (needs monitoring)	Accomplished (needs to be challenged)
Students will compare numbers using $<$, $>$, and $=$	Students can complete number sentences involving $<=>$ with 50% accuracy	Students can complete number sentences involving $<=>$ with 75% accuracy	Students can quickly complete number sentences involving $<=>$ with 100% accuracy

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Additional Information (cont.)



Business Name

is an official

Race car driver

Congratulations on an excellent race!

Signature _____ Date _____



**Certificate of
Amazing
Culinary-Math
Achievement**

This certificate is awarded to
Name of Recipient _____

For earning an “A” on the chapter test!!!

Master Math Chef _____ Date _____

