Lesson 1

Today's Activities:

1. MOBYS (begins on lesson 4)
2. Lesson
   adding with manipulatives, "more", number line
3. Pirate Problems

MATERIALS

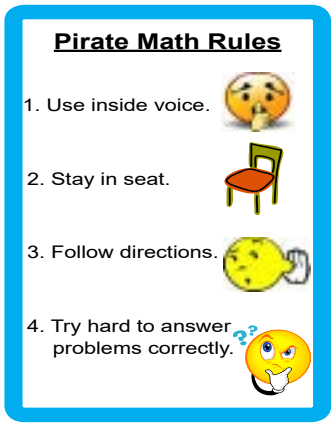
Posters:
Pirate Math Rules

Worksheets:
PM 1-A, PM 1-B, PM 1-C, PM 1-D, PM 1-E, PM 1-F, PP1

Folders:
Attendance Log, Behavior Log, Treasure Map

Materials:
Math Circle, Beans, Number Line, Timer, Stickers, Prizes

Please note: Throughout each session, the student has repeated opportunities to earn checkmarks for his/her Treasure Map. These are awarded for being on task and for solving math problems correctly. Use the Attendance Log to know how long to set the timer and which problems/parts of problems are worth checkmarks (if answered correctly). Award checkmarks throughout the lesson as indicated by the Attendance Log.



TUTOR LESSON

My name is _____. This year, we'll work on math word problems. We'll work hard to get better in math.

Display Pirate Math Rules poster. **Before we get started, let's talk about some rules. This poster** (point to rules poster) **shows us the rules for how to behave when we work together. Look at our first rule** (point)**. It says, "Use inside voice." Look at the picture that goes with this rule** (point to first picture)**. Why is this** (point) **a good picture to remind us about using inside voices?** *(Student.)*
You're right. We'll work in the (library/hallway)**, so we have to be quiet and use our inside voices. Always use your inside**

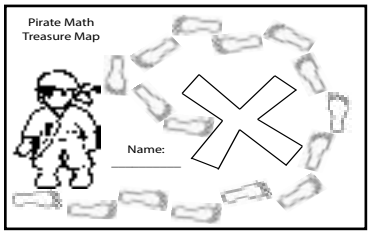
voice. That's our first rule. Here's the next rule (point to second rule)**. It says, "Stay in seat." Look at the picture that goes with this rule** (point to second picture)**. Why is this a good picture to remind us to stay in our seats?** *(Student.)*

Good job! The chair reminds us that when we work together, we must stay in our seats. Let's look at the next rule (point)**. This rule says "Follow directions." Why is this a good picture to remind us to follow directions** (point to third picture)**?** *(Student.)*

Yes. The picture reminds us to listen and follow directions. This is a very important rule.

We have one more rule (point to fourth rule)**. This last rule says, "Try hard to answer problems correctly." Look at this picture** (point to fourth picture)**. Do you see the question marks here** (point)**? What do you think this person is doing?** *(Student.)*

Yes, she/he's thinking. She/He's trying really hard to answer math problems correctly. That's our last rule. When we work together, you must try your hardest to answer math problems correctly. If you follow these rules, we'll have fun and learn a lot about math!



When we work on math problems together, we'll play Pirate Math. Just like a pirate, you'll have a Treasure Map. (Display Treasure Map.)

This Treasure Map has places for stickers (point to spots where stickers go)**. When you earn enough stickers to land on the "X," you get a prize from the treasure chest!** (Display treasure chest.)

We keep track of how many stickers you earn by making checkmarks on this paper. (Show student Behavior Log with his/her name written on top.) **During the lesson, you have lots of chances to earn checkmarks. Each time you earn a checkmark, I make a check right here** (point)**. At the end of the lesson, you count up your checks for the day and put that number of stickers on your Treasure Map** (point)**.**

So, if you earn 5 checkmarks, how many stickers do you get? *(Student.)*

That's right! You get 5 stickers for your Treasure Map. And what happens when you have enough stickers to land on the big "X" on the map? *(Student.)*

Exactly! You get to pick a prize from the treasure chest (point)**. After you get a prize, I give you a new Treasure Map so you can start working on your next prize.**

I like the way you're following our Pirate Math rules right now. You're using your inside voice (point to rules on poster)**, staying seated, and following my directions. So, you earn one check for your Treasure Map!** (Write a check for the student on the Behavior Log.)

Here's one way you can earn checkmarks. This is a timer. Listen to it beep. (Show student timer and make it beep.) **Whenever my timer beeps, I look to see if you're following the Pirate Math rules. What are the Pirate Math rules?** *(Student.)*

That's right. You have to use your inside voice, stay in your seat, follow directions, and try hard to answer problems correctly. When my timer beeps, if you're following our Pirate Math rules, you get a checkmark for your Treasure Map. BUT, if you're NOT following our rules, I won't give you a checkmark. So, when the timer beeps, you MUST be following our rules.

The timer will beep every once in a while during Pirate Math. Make sure the timer catches you following the Pirate Math rules the whole time.

So what's the first way you can earn checks for your Treasure Map? *(Student.)*

Right, by following the Pirate Math rules. Here's another way you can earn checks: By doing math problems <u>correctly</u>. This is different than just trying hard. To earn more checkmarks, you need <u>correct</u> <u>answers</u>. At the end of our lesson, you'll have a chance to work some problems on your own. When you get certain problems correct, you get a check for your Treasure Map. You won't know ahead of time which problem earns you a check. I'll tell you after you finish. So, you must work hard on every problem. What's the second way you can earn checks for your Treasure Map? *(Student.)*

Yes. By doing math problems correctly. You can earn checkmarks two ways. What's the first way to earn checks? *(Student.)*

That's right, by following the Pirate Math rules. What's the second way to earn checks? *(Student.)*

Yes, by doing math problems correctly.

Remember, at the end of the lesson, you count the number of checks you earn and put that number of stickers on your Treasure Map. Once you get to the 'X' on the Treasure Map, you pick a prize! (Show treasure chest.)

ACTIVITY 1: MEET OR BEAT YOUR SCORE

SKIP (Begins on Lesson 4.)

ACTIVITY 2: LESSON

Set timer for 5 min, without student noticing. When timer goes off, award checkmark as appropriate. Repeat 2 more times.

Let's start our lesson. Today, let's learn about counting and the signs we use to solve math problems.

****PLEASE NOTE:** When talking about every number sentence, read and work the number sentence from left to right. When referring to the sides of a number sentence, "this" side is the left side and "that" side is the right side. Always point to each side from left to right when referring to the sides.

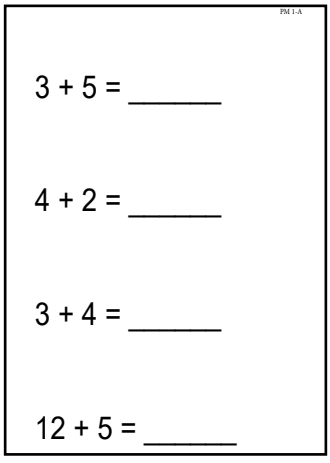
4 + 5 = 9
("this side") ("that side")

The equal (=) sign should be called the "equal" sign, not the "equals" sign.

Concept of Adding with Beans

Display PM 1-A worksheet. Display beans and Math Circle. Tutor uses worksheet as a reference for addition items, only.

Today, we'll use beans to help us count. When we use the beans, we slide them one at a time into the Math Circle, like this. (Demonstrate for student.) **Now you try. Show me how to slide the beans, one at a time, into the circle.** *(Student.)* **Great job! We don't throw the beans, put them in our mouths, or play with them. We only use them to help us count.** (If during the lesson the student picks up the beans or tries to play with them, remind them by saying, "Remember, we slide the beans one at a time with our finger…")


PM 1-A

3 + 5 = _____

4 + 2 = _____

3 + 4 = _____

12 + 5 = _____

Look at this problem (point to 3 + 5 = __)**. It says 3 + 5 = __. Let's show this problem using beans. I'll put 3 beans in the circle. 1, 2, 3** (count while sliding them in, one at a time)**. You add 5 more beans to the circle.** *(Student.)* **Good. Now how many beans do we have in the circle?** *(Student.)* **That's right. Now we have 8 beans** (write 8 on the blank)**. Which is bigger: the 3 we started with** (point to 3 in problem) **or the 8 we ended up with** (point to 8 in problem)**?** *(Student.)*

Yes, 8 is bigger than 3. When you start with 3 beans (point to original 3 beans) **and add 5 more** (point to the 5 added beans)**, you end up with more. We just added! 3 plus 5 equals 8. Every time you add, you get a bigger number than you started with. 8 is bigger than 3. 8 is <u>more</u> than 3.** (Repeat with 4 + 2 = __. Throughout, ask the student the same questions to keep the student engaged and to check for understanding.)

Meaning of Adding: More

When we add numbers together, do we end up with <u>more</u> or <u>less</u> than the number we start with? *(Student.)* **Yes. When we add numbers together, we end up with <u>more</u> than we start with. We end up with a bigger number.**

Look at this problem again (point to 3 + 5 = __)**. Let's say I had 3 dolls. Then I get 5 more dolls at my birthday party. After my birthday party, I have more dolls than I started with. Any time I add, I end up with <u>more</u> than I start with.**

Let's say I had 4 apples (point to 4 in 4 + 2 = __)**. Then I get 2 more apples** (point to 2) **at the grocery store. Do I end up with <u>more</u> or <u>less</u> than I start with?** *(Student.)* **That's right, I end up with more. Anytime I add, I end up with <u>more</u> than I start with** (work through two other problems on page)**.**

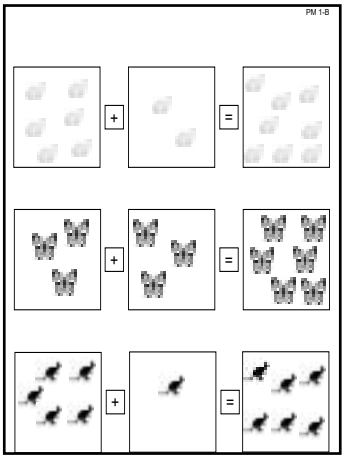
<u>Using Number Line to Add</u>

Let's look at the number line to practice adding. (Display Number Line.) **Put your finger on 5. To add more to 5, do you move your finger toward the bigger numbers or toward the smaller numbers?** *(Student.)* **That's right. Why do you move toward the bigger numbers?** *(Student.)* **Good. You move toward the bigger numbers because when you add, you always end up with a bigger number than you start with.**

Let's say I start with 3 dolls. Where should you put your finger on the number line? *(Student.)* **Yes, put your finger on 3. Now, I get 5 more dolls at my birthday party. Which way should you move your finger?** *(Student.)* **That's right, move your finger toward the bigger numbers. I started with 3 dolls and then I got 5 more dolls. So I move my finger 5 places toward the bigger numbers, like this.** (Move finger from 3 to 8, counting each space out loud.)

Does this make more dolls or less dolls than I started with? *(Student.)* **Right, I end up with more dolls. How many dolls do I end up with?** *(Student.)* **Right. I start with 3 dolls. I add 5 more dolls. I end up with 8 dolls. Now you show me how you do that on the number line.** *(Student.)* **Good work!**

Now, let's say I start with 4 apples. Where should you put your finger on the number line? *(Student.)* **Yes, put your finger on 4. Now, I get 2 more apples at the grocery store. Which way should you move your finger?** *(Student.)* **That's right, move your finger toward the bigger numbers. I got 2 more apples, so move your finger 2 places toward the bigger numbers on the number line. Does that make more apples or less apples than I started with?** *(Student.)* **Right, I end up with more apples. How many apples do I end up with?** *(Student.)* **Right, I start with 4 apples. I add 2 more apples. I end up with 6 apples. Great!** (work through two other problems on page)**.**



<u>Generating Cover Stories and Stating Number Sentences with Adding</u>

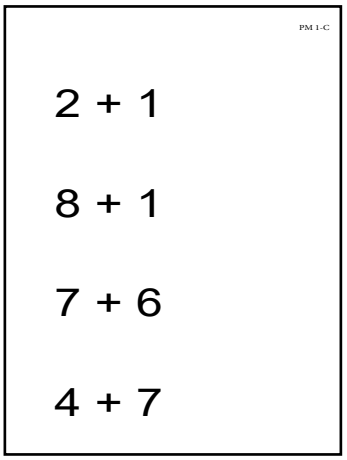
Display PM 1-B worksheet. **Look at these pictures. How many turtles are in the start box?** *(Student.)* **That's right, there are 6 turtles in the start box** (write 6 below the box)**. The next box shows how many we're adding. How many are we adding?** *(Student.)* **Correct, the picture shows we're adding 2 more turtles** (write 2 below the box)**. Now look at**

the end box. How many do we end up with? *(Student.)* **That's right, there are 8 in the end box** (write 8 below the box)**. This picture shows 6 plus 2 more makes a <u>total</u> of 8.**

I'll tell you a story that goes with these pictures! 6 turtles were sunbathing (point to first box)**. 2 more turtles joined them** (point)**. Then, there were 8 turtles sunbathing** (point)**. 6 plus 2 makes 8. We can also say 6 plus 2 <u>equals</u> 8. My story is about the numbers in the pictures. It makes sense. Now let's say the problem together.** *(Student.)* **6 plus 2 equals 8. Great! Let's try some more.** (Repeat with butterflies and kangaroos.)

<u>Meaning and Terminology of +</u>

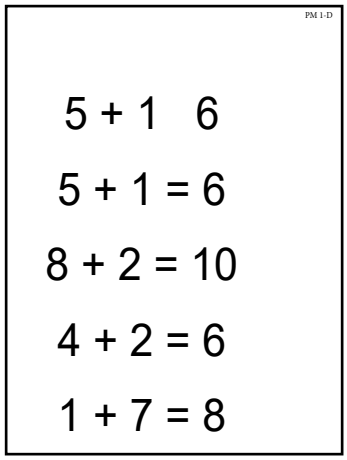
Display PM 1-C worksheet. **This is a plus sign** (point)**. A plus sign tells us to add. This problem says 2 plus 1** (point to each number/symbol as you read)**. The problem tells me to add 2 and 1. When I add 2 plus 1, will I end up with <u>more</u> or <u>less</u> than I start with?** *(Student.)*



That's right, I'll end up with more. Here's our number line (display number line)**. Put your finger on the number we start with** (*Student: points to 2*)**. Good, now when you add 1, which way do you move your finger?** *(Student.)* **That's right, move your finger toward the bigger numbers. How many do you end up with?** *(Student.)*

Right. 2 plus 1 equals 3 (with pencil, write in = 3 after the problem)**. Now, tell me a story that goes with this problem: 2 plus 1 equals 3. Remember, a good story has to be about these numbers, and it has to make sense.** *(Student.)* **Good!** (Continue to use the number line and help student make up a story with 8 + 1, 7 + 6, 4 + 7.)

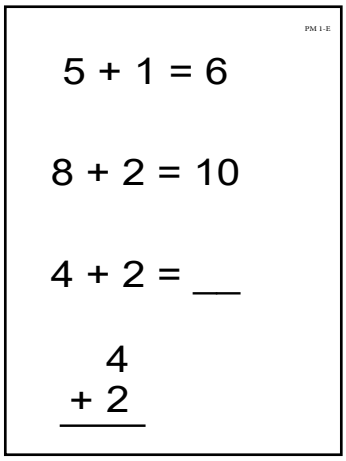
<u>Meaning and Terminology of = and Bottom Line</u>



Display PM 1-D worksheet. **In math, when we solve an adding or subtracting problem, we put an equal sign before our answer. I write 5 + 1 <u>=</u> 6** (point)**. We need the equal sign to tell us that this side** (point) **<u>is the same as</u>, or equal to, that side** (point)**. Equal means <u>the same as</u>. So when I say 5 + 1 = 6, I'm saying 5 + 1, on this side** (point)**, is the same as 6, on that other side** (point)**. The equal sign tells us that the amount on this side** (point) **of the equal sign is the same as the amount on that side** (point) **of the equal sign. What does "equal" mean?** *(Student.)* **Right, equal means the same as.**

This problem says 8 + 2 = 10. The equal sign tells us that 8 + 2 is the same as, what? *(Student.)* **Right! 8 + 2 is the same as 10.** (Repeat with 4 + 2 = 6, 1 + 7 = 8.)

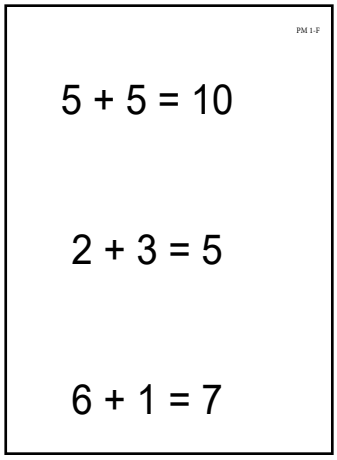
Display PM 1-E worksheet. **5 + 1 equals 6** (point) **is called a <u>number sentence</u>. Just like**



8 + 2 equals 10 (point) **is called a number sentence. When we answer math problems like this** (point to horizontally written problem)**, we write our answer after the equal sign, like this** (fill in blank)**. When we put our answer after the equal sign, our number sentence is complete.**

Let me show you. This says 4 + 2 = blank (point)**. We need to make this side, 4 + 2, equal to a number on that side, where the blank is** (point)**. My job is to figure out what number goes in the blank. That number will tell me how many 4 plus 2 equals. It will make this side** (point) **the same as that side** (point)**. So 4** (hold up 4 fingers) **plus 2** (hold up 2 more fingers) **equals how many?** *(Student.)* **Right. The answer is 6. So, I write 6 in the blank. The number sentence is now complete. It tells me that 4 plus 2 equals 6. This side** (point) **is the same as that side** (point)**.**

This problem (point) **is written across the paper. Sometimes problems are written down the paper, like this** (point)**. When we answer math problems that are written down the paper like this** (point to vertically-written problem)**, we write our answer below the line like this** (fill in blank)**. This line** (point) **is like an equal sign. It also means the same as.**



This says 4 + 2 = blank (show problem written vertically)**. My job is to figure out what number goes below this line. 4** (hold up 4 fingers) **+ 2** (hold up 2 more fingers) **more equals how many?** *(Student.)* **Right. The answer is 6. So, I write 6 here. This problem now tells me that 4 + 2 = 6. When a math problem is written down the paper like this, the bottom line is an equal sign. It means "the same as." What do we call this little line** (point)**? Yes. It's an equal sign. What does the equal sign mean?** *(Student.)* **Right, equal means the same as.**

Display PM 1-F worksheet. **Look at these problems. These problems are written across the paper** (horizontally)**. Rewrite each so it goes down the paper** (vertically)**. I'll show you what I mean** (demonstrate by writing 5 + 5 = 10 vertically to the right of the problem)**. Now you try the others. After you rewrite the problem, read it to me.** *(Student.)*

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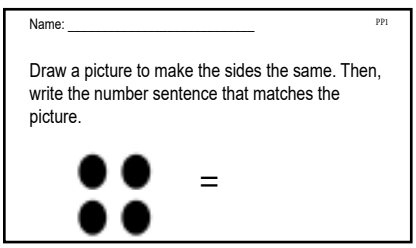

ACTIVITY 3: PIRATE PROBLEMS

The last activity we do every day is practice what we learned. We call these practice problems "Pirate Problems." You can earn another checkmark by answering Pirate Problems correctly!

Display PP1. **Look at this problem** (point)**. Follow along as I read it. "Draw a picture to make the sides the same. Then, write the number sentence that matches the picture."**

What do we do first? *(Student.)*

Yes. The first sentence says to draw a picture to make the sides the same. How many dots are on this side of the equal sign (point)**?** *(Student.)*

Are there any dots on that side? *(Student.)* **How many dots should we draw on that side of the equal sign** (point) **to make both sides the same?** *(Student.)*

Great. Go ahead and draw four dots. *(Student.)*

We haven't finished the problem. The next sentence says, "Write the number sentence that matches the picture." Think about what the equal sign means. What's a good number sentence to write for the picture? Be sure to use the same numbers as in your picture. *(Student.)*

That's great! 4 equals 4. Nice work. You earn another checkmark! (Add checkmark to Behavior Log.)

Tutoring Session Wrap-Up

Let's count the number of checks you earned today and put the stickers on your Treasure Map. Remember, once you have enough stickers to land on the "X" on the map, you pick a prize from the treasure chest!

If student has not earned any checks:
You did not earn checks today, but tomorrow, you'll have another chance to earn checks and stickers. When my timer beeps, if you're following our Pirate Math rules, you get a checkmark. If you're answering problems correctly, you'll get a checkmark. At the end of our lesson, you'll get a sticker for every checkmark you've earned.

Good work for today! Let's walk quietly in the hallway on our way back to class.