PBS Lesson Series

Math: Grade 1, Lesson 6, *Find the Unknown Number*

Lesson Focus: Learning to use addition and subtraction strategies to find the missing number in an equation.
Practice Focus: Students will act out or model addition and subtraction problems with counters or pictures, relate to an equation with a missing number, and then solve another problem.
Objective: Students will determine the unknown whole number in an addition or subtraction equation relating three whole numbers.
Key Vocabulary:

- **equal sign** (=)
- **equation**

TN Standards: 1.OA.D.8
Teacher Materials:

- 9 pencils
- 9 additional items to serve as counters (ex: beans, skittles, spoons, Legos, straws, etc. that might be common household items)
- Paper
- Markers
- Document Camera
- Student Practice Packet

Student Materials:

- Paper and a pencil, and a surface to write on
- Household items to serve as counters (9 items needed)

Teacher Do	Student Do
Opening: (1 min.) **Hello! Welcome to Tennessee's At Home Learning Series for math! Today's lesson is for all our 1st graders out there, though all children are welcome to tune in. This lesson is the sixth in our series.** **My name is ____ and I'm a ____ grade teacher in Tennessee schools! I'm so excited to be your teacher for this lesson! Welcome to my virtual classroom!** **If you didn't see our previous lesson, you can find it on the TN Department of Education's website at www.tn.gov/education. You can still tune in to today's lesson if you haven't seen any of our others. But, it might be more fun if you first go back and watch our other lessons since we'll be talking about things we learned previously.** **Today we will be learning about how to use addition and subtraction strategies to find the missing number in an**	Students get materials ready for the lesson: Paper Pencil Household items to serve as counters (9 items needed)

equation in mathematics! Before we get started, to participate fully in our lesson today, you will need: ● **Paper** ● **a pencil** ● **a surface to write on** ● **counters** **Ok, let's begin!**	
Intro (2 min.) **To get ready for our lesson today, let's get our workspace ready.** [Teacher models laying out paper, pencils, and options of counters, such as beans, skittles, spoons, Legos, straws, etc. that might be common household items.] **I am going to lay out some paper and pencil on my writing surface. You lay out your paper and pencil too.** [Pause] **You will also need 9 items for counters today.** **A lot of things in your home can be used for counters.** **Today, I have brought some things from my home.** [Teacher lays out items such as beans, skittles, pencils, spoons, Legos, straws, etc. that might be common household items easily found by students.] **Before we get started, I will give you a moment to find your counters to use for today's lesson on missing numbers.**	Students set up work space with needed items.
Teacher Model (10 min.) Objective #1: Review/Background/Tying to previous learning, Example(s), Guided Practice **For our first problem, let's practice finding a missing number for a sum up to 10. This will help us prepare for working with equations where there may be unknowns in any position.** [Post problem and directions as seen below] Find the missing number. 5 + _____ = 8	Objective #1: Students will be reviewing using counting on to find a missing number within 10.

Let's take a look at our first problem. The problem states, five plus some number equals 8. How can we find the missing number? [Pause] **We could use the strategy of counting on to find the missing number. Let's count on from 5. You touch your head and say 5. Then, count on with me.** [Teacher models 'holding' 5 on head and then counts on three more with fingers to land at 8] **5 . . . 6 - 7- 8.** **How many did we add to find the missing number?** [Pause] **That's right…. 3!** **Let's check our answer with a model. You can draw along with me.** **First, I will draw 5 tally marks to represent the first number in our equation…. 1-2-3-4-5.** [Teacher draws 5 using tally marks counting as he/she goes.] **Did you draw your 5 tally marks?** **Great!** **Now, let's count on using tally marks until we get to the number 8. You draw your tally marks along with me.** [Teacher touches the 5 tally marks and models counting by drawing three additional tally marks as he/she counts]. **5 …. 6 -7 - 8.** **How many tally marks did we add to find our missing number?** [Pause] **Did I hear you say 3?** **Yes! We added three tally marks to 5 in order to make 8.** **That means our missing number was 3!** **You did it!** <u>Objective 2: Explicit Instruction, Example(s), Guided Practice</u> **Now we are ready to do our second problem. I will read a problem out loud that has a missing number. Our job is to discover what that missing number is.** [Teacher post problem as written] Talia brings 9 pencils to school. She gives some to her friends. She has 3 left. How many pencils does Talia give away? 9 - _____ = 3]	Objective #2: Students will be building off of their work within 10 and utilizing subtraction to find a missing number within 10. Tying the learning together:

I am going to read the problem out loud. You read along with me. Remember, we are looking to find the missing number. [Teacher reads posted problem] **Talia brings 9 pencils to school.** **She gives some to her friends.** **She has 3 left.** **How many pencils does Talia give away?** **9 - _____ = 3** **Let's go back to the problem and see how many pencils Talia brought to school. You read the first sentence to see how many pencils Talia brought to school.** [Pause] **That's right, Talia brought 9 pencils to school.** **Let's act the problem out using our pencils/counters.** [Teacher lays out 9 pencils under document camera] **I laid out nine pencils. Now you lay out 9 counters.** **The second sentence tells us she gives some to her friends. Do you think this could be our missing number?** [Pause] **Yes! Because she gave some number away and we don't know what that number is.** **The next sentence tells us she has 3 left.** **I am going to take some pencils away until I have three left. You follow along with me and do the same with your counters.** [Teacher models removing one pencil at a time from a group of 9 pencils. Teacher places removed pencils in a new group to create a group of 6. There are now two groups represented under the document camera; one group of 3 and one group of 6.] **What did you do with your counters to show the number of pencils that were given away?** [Pause] **Does your model look like mine? I moved these** [point to new group] **pencils away to represent the pencils Talia gave to her friends.** [Teacher points to group of 3] **Talia has three pencils left. How many did she give away?** [Pause] **Let's count the pencils we gave away. Count with me.** [Teacher counts 1 - 2 - 3 - 4 - 5 - 6]	Students will listen to the teacher do a think aloud working a contextual problem modeling the thought process for a problem from the start of the problem through finding the solution.

1 - 2 - 3 - 4 - 5 – 6 **6! Talia gave away six pencils. Now we can fill in our equation because we know six is the missing number in our subtraction equation.** [Teacher fills in 6 in the blank] **Let's read the equation together.** **9 minus 6 equals 3.** **Great job!**	
Guided Practice 15 min.) [I do-Think aloud where the student works alongside the teacher] **For our next missing number problem. I want you to follow along with me.** [Teacher posts problem as written] **Talia brings 9 pencils to school.** **She gives some to her friends.** **She has 5 left.** **How many pencils does Talia give away?** **9 - _____ = 5** **Like in our last problem, we know Talia has 9 pencils. I will lay my 9 pencils here.** [Teacher lays 9 pencils down.] **What should I do next?** [Pause] **I want to find my missing number. I know Talia has five pencils left. Let's use our model to show how many pencils Talia has left.** [Teacher models taking away 4 pencils until only 5 are left in the group.] **We took away 4 pencils. 4 must be my missing number.** **I will put 4 in the subtraction equation to represent the missing number.** [We do-Teacher has intentional pauses for students to do work and then receive answers along the way] **Great! We are ready for our next problem.** [Teacher posts problem as written] **8 birds are in a nest.** **Some of the birds fly away.** **Now there are 3 birds left in the nest.** **How many birds flew away?**	Students will listen to the teacher do a think aloud working a contextual problem modeling the thought process for a problem from the start of the problem through finding the solution. Students will follow along with the teacher to model a contextual problem from the start of the problem through finding the solution.

8 - _____ = 3 **How is this problem like the last problem?** [Pause] **This problem is about birds instead of pencils. But we are still finding a missing number. This is a subtraction problem.** **How did we find the missing number in the last problem?** [Pause] **I am going to lay out 8 counters to represent the 8 birds in the nest. You lay out 8 counters.** [Pause] **What do we know about the missing number before we solve the problem?** [Pause] **That's right! We know the nest had a total of 8 birds.** **We know the missing number must be less than 8 because there were only 8 birds in the nest.** **Next, I am going to take away counters to show the number of birds that flew away. I will take away counters until there are only 3 counters left. Can you take away your counters too?** [Teacher models taking away 5 counters] **What in our model will help us find the missing number?** [Pause] **The missing number is the counters we took away. Let's count to see the number of counters we took away.** [Teacher counts aloud] **1 - 2 - 3 - 4 - 5** **That must mean that 5 birds flew away.** **Let's look at our subtraction equation again. What missing number can you write to make the subtraction equation true?** [Pause] **How do you know?** [Pause] **Yes! The missing number is 5 because we took 5 counters away from 8 counters.** [You do-Students independently working and then the teacher showing their work and answer] **For problem #3, you will be doing a missing number problem all by yourself. Follow along as I read the problem.** [Teacher posts problem as written]	Students will solve a contextual problem independently from the start of the problem through finding the solution. Teacher will share solution.

9 lions are drinking. **Some lions walk away.** **Now there are 6 lions.** **How many lions walked away?** **Use your counters to find the missing number to show how many lions walked away.** [Teacher pauses to allow students time to model on their own.] **Alright. Did you get 3 as your missing number?** **That's right. 3 Lions walked away.** **Can you write the subtraction equation to show how many lions walked away?** [Pause] [Teacher writes 9 - _____ = 6. Then 9 - 3 = 6.] **Did you get your subtraction equation to be 9 minus 3 equals 6?** **Your right! Keep up the good work!** [Additional problems if needed] [Sam has 13 pens. He gives some to his mom. He has 6 pens left. How many pens did Sam give to his mom? [8 Dogs were at the park. Some dogs ran after a cat. 2 dogs stayed at the park. How many dogs ran after the cat?]	
Independent Practice (3 min.) **Great work! Today, we reviewed how to find a missing number in a subtraction problem. I hope you're seeing some connections to our counting on strategy that we used last week! You sure did a great job!** **After the video, you will have some problems to practice on your own. Good luck and do your best! I will show you the independent practice problems now, or you can find them in the student practice for this lesson posted on our website, www.tn.gov/education.** [Teacher shows student practice page under document camera or camera zooms in on student practice page.]	

1. **Jack has 6 crayons.** **He gave some crayons to his sister.** **Now Jack has 3 crayons left.** **How many crayons did Jack give to his sister?** **6 - _____ = 3** **2.** **There are 4 rabbits in the yard.** **Some rabbits go eat.** **2 rabbits stay behind.** **How many rabbits went to eat?** **4 - _____ = 2** **3.** **8 eggs are in a basket.** **Some eggs crack.** **2 eggs did not crack.** **How many eggs in the basket are cracked?** **8 - _____ = 2**	
Closing (1 min.) **I enjoyed reviewing how to find a missing number in an equation with you! Thank you for inviting me into your home. I look forward to seeing you in our next lesson in Tennessee's At Home Learning Series! Bye!**	