Grade Level/Course: Kindergarten /1st Grade
Lesson/Unit Plan Name: Fluency to Five (Kindergarten)/Fluency to Ten (1st grade)
Rationale/Lesson Abstract: Kindergarten and First Grade students need hands-on/concrete experiences to understand addition and subtraction concepts. Students will use multiple methods to build fluency and decompose numbers up to 5 (up to 10 for 1st grade).
Timeframe: Five (or more) 20-30 minute whole class or small group mini-lessons/centers.
Common Core Standard(s): K.OA.3: Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or an equation. K.OA.5: Fluently add and subtract within 5. 1.OA.6: Add and subtract within 20, demonstrating fluency for addition and subtraction within 10.

Instructional Resources/Materials:

Activity 1 - Literature with 5 or 10 as an anchor number (see suggested list in activity). Optional: finger puppets, flannel board pieces, individual white boards.

Activity 2 - Pipe Cleaners (1 per child in various colors) and pony beads (up to 10 of the same color for each child).

Activity 3 - Brown sheet or butcher paper, paper bowls (1 per pair can be brown or painted brown), counting bears (5 or more bears of the same color per pair).

Activity 4 - Large Number Line 0-10, frog (or other stuffed animal), individual number lines 0-10*, dice labeled with +/- sign on it (+, +, +, -, -, -), dice labeled with numbers or dots (1,1,1,2 2,3), toy frogs or counters, addition cards, subtraction cards.

Activity 5 - Ten Frames Cards (0-10 with dots)*

*Included at end of lesson.

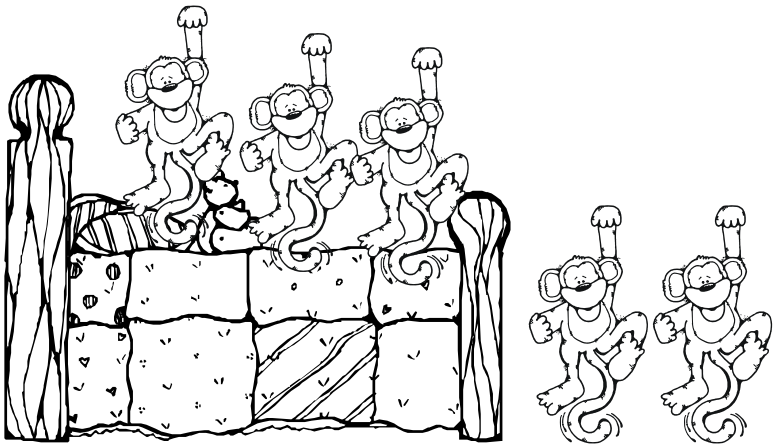
Activities/Lessons:

Activity 1/Math Warm Up – Literature with 5 as the total (or 10 for 1st grade) can be used to help build fluency and number combinations. Use one of the stories listed below each day to start your math lesson. You can use flannel boards, finger puppets, drawings, smart board graphics, or student actors to enhance the story. Start by writing the number sentences on the board as you read through the story. You can then also call up students to write the number sentence for you or each student can have their own white board to write the number sentences as you read.

For example when reading the story, *5 Little Monkeys Jumping on the Bed,* discuss the number combination of monkeys on the bed and monkeys off of the bed.

"There are 4 monkeys jumping on the bed and 1 monkey off of the bed so we can say 4 + 1 = 5 monkeys altogether." Have students use their fingers to model this also.

"Now there are 3 monkeys on the bed and 2 monkeys off of the bed. How could we say this as an addition number sentence?"



3 + 2 = 5

"*3 + 2 = 5 (choral response).*" "We still have 5 monkeys altogether."

"Could we also say this as a subtraction number sentence?"

"We had 5 monkeys to start and how many have fallen off of the bed?"

"2 (choral response)." "So 5 – 2 leaves how many left on the bed?"

"3 (choral response)." Again have students use fingers to reinforce.

When writing the number sentences some students will start to notice patterns of the numbers. Make sure to write the number sentences sometimes with the total number first. For example, 5 = 3 + 2.

Suggested Titles/Fingerplays for "5"

5 Little Monkeys Jumping on the Bed

5 Little Monkeys Swinging from the Tree

5 Little Ducks

5 Green and Speckled Frogs

Suggested Titles for "10"

Mouse Count, Ellen Stoll Walsh

Ten Puppies, Lynn Reiser

Ten Little Fish, Audrey Wood

Ten Little Butterflies, Melanie Gerth

Activity 2 – Addition/Subtraction Bracelets

Each child will get one pipe cleaner and count out pony beads (all the same color) for the number you are working on. Kindergartens can work on numbers 3, 4, and 5 initially to build fluency up to 5 and then continue on up to 10. First graders can work on any number up to 10 to build fluency.

"Today we are going to make bracelets that will help us as we practice addition and subtraction."

"We are going to work on the number 3 today so everyone is going to get one pipe cleaner and count out 3 beads to put on their bracelet. Make sure you choose different colored beads than your pipe cleaner and all your beads need to be the same color."

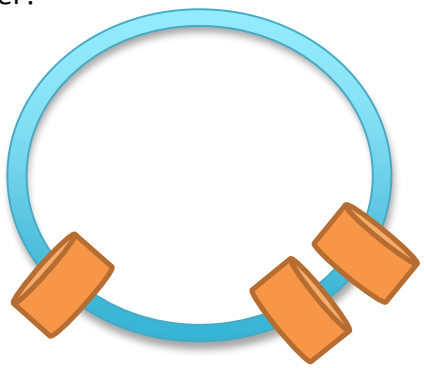
Model for students how you count out 3 beads and slide them on your pipe cleaner as you count them. It is important that students count out their own beads (do not pre-count for them).

"I have a blue pipe cleaner and I will use orange beads, watch as I count 1, 2, 3 as I put the beads on my bracelet. Now I am going to count again just to make sure that I have 3."

Have students build their bracelets with 3 beads. Once everyone has their beads on you can twist the ends to make it a circle (bracelet) or leave it straight and fold up the ends so the beads won't slide off. It often works best for students to hold the bracelets or place on their desk while acting out the stories below.

“Let’s use our bracelets now to tell some stories. Let’s pretend that these beads are all fish, one fish likes to swim alone and the other two swim together.”

Pull one of your beads over to the side (model for students). “Now we have 1 fish and 2 fish, but how many do we still have altogether?”



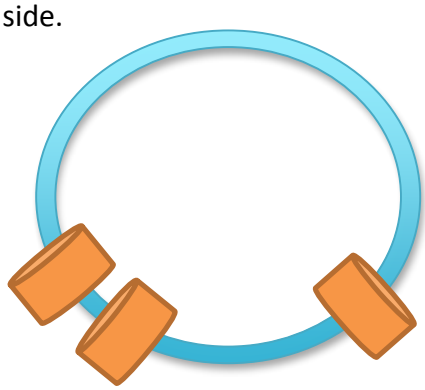
1 fish + 2 fish = 3 fish

or 1 + 2 = 3

“3 (choral response).”

“Yes, because 1 + 2 = 3, everyone say the addition number sentence with me 1 + 2 = 3.”

“What if one of the fish in the group of 2 decides to swim over to other side?” Pull one bead from the group of 2 over to the other side.

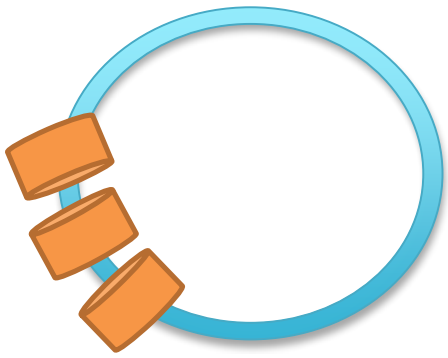


2 fish + 1 fish = 3 fish

or 2 + 1 = 3

“Now how many do we have on this side, (point to the side with 2), and this other side (point to the side with 1)? How many fish altogether? Yes we have 2 and 1 which we could say as 2 + 1 = 3.”

“Now all the fish are going to swim over to one side. How many fish are there?”



3 fish + 0 fish = 3 fish

or 3 + 0 = 3

“3 (choral response).”

“And how many are left on the other side?

“0 (choral response).”

“And how many do we have altogether?”

“3 (choral response).”

“So we could say 3 + 0 = 3. What if we switched our bracelet around and said the 0 side first and then the side with 3 fish? Is it still 3 altogether?” Have students flip bracelets over.

“We used our bracelets to make addition number sentences, but we can also use them to make subtraction number sentences. Let’s pretend these are butterflies this time. There were 3 butterflies and one decided to fly away.” Make one bead “fly” away to the other side.

“Now how many butterflies are left?”

“2 (choral response).”

“We could say this as 3 - 1 = 2.”

Continue with other subtraction combinations and stories. Students can also come up with their own stories to use as a class or individually along with the bracelets.

Variations:

Put a small label on the pipe cleaner where students can write the number you are working on, in the example above they would write the number "3". Students would then have a bracelet labeled for each number.

Students could also have only one bracelet that you can add a bead to as you work on new number combinations.

Activity 3 – Bears in the Cave

Introduce the cave by discussing what bears like to do in the winter? They like to hibernate!

"Today I have a cave that we are going to have some bears hide in."

Show students a large sheet/blanket or you can use a large piece of butcher paper to make a cave students can hide behind while you hold it up. Start with 3 students standing next to the cave.

"These students are going to pretend they are bears today. Before they hide we have to know how many bears we have so let's count together 1,2,3."

"Some of the bears are going to hide in my cave and the rest of you are going to try and figure out how many are in my cave by looking at the number of bears that are outside of the cave. Your job is to close your eyes and keep them closed until I say, "Bears in the Cave"! Once I say, "Bears in the Cave" you can open your eyes and show me on your fingers how many bears are hiding in the cave."

Have students close their eyes and have 2 of your bears hide in the cave while 1 bear stands next to it.

"Bears in the Cave!" "You can open your eyes, but remember show me on your fingers how many are in the cave."

Check fingers of students to see if they are able to figure out how many are in the cave. Call on a student showing 2 fingers.

"I see you think there are 2 in the cave, can you tell me why you think there are 2?"

Student may respond, "*I see 1 bear, so I know there must be 2."* You may need to follow up with, "And how many bears did we start with? "*3*". So you are saying that 1 bear out of the cave + 2 bears in the cave = 3?"

"OK, Let's check!" Lift up the cave and show the bears hiding.

"Yes, there were two bears and we can say 1 + 2 = 3."

Have students model on fingers: 1 finger on one hand and two on the other bringing together to make a total of 3.

"Could we also switch it (have students cross hands over each other) and say 2 bears in the cave + 1 bear out of the cave = 3?"

"Yes (choral response)!"

You can also ask if anyone can give you a subtraction number sentence to go along with our bears. Have students use their fingers to model.

"How many bears did we start with? "*3*" (show 3 fingers)." "How many bears were hiding in the cave "2" (put down 2), so that leaves 1 bear outside of the cave 3 - 2 = 1."

Repeat this with 1 or 2 other combinations for 3. Continue to prompt students to tell you how they know the number of bears in the cave and explain their thinking. You may need to assist in summarizing thinking and putting it into a number sentence.

Once students have done a few for combinations for 3, have 4 new students come up and repeat for combinations for 4. It is important to count the "bears" with the students in the beginning so they know they are looking for the number of bears in the cave that make a total of 4 bears. Make sure to do one example of all bears in the cave (4), or no (0) bears in the cave. Discuss what the addition or subtraction sentences would be for these combinations.

After acting out 3 and 4 you can partner students up and have them do this activity with a paper bowl (optional - painted brown) and plastic bears (5 is suggested). Students will take turns either hiding the bears or closing their eyes until their partner says, "Bears in the Cave!" Once they open their eyes they can say how many bears are in the cave. Remind students that the bears either need to be in the cave or on the desk/table. They can't hide bears in their hand or under the desk!

Model for students how they can use their fingers to help them if they are not sure how many bears are in the cave.

"I know there are five bears (show 5 fingers), and I see 2 bears out of the cave (put down 2 fingers), so there must be 1,2,3 (count the rest of your fingers), 3 bears in the cave!"

Students should also say the addition or subtraction number sentence that could go along with the bears hiding. 2 + 3 = 5 or 5 – 3 = 2.

Variation:

This can be done with all numbers up to 10.

Activity 4 – Adding and Subtracting on the Number Line

A number line 0 - 10 can be used for students to gain a better understanding of adding and subtracting. Before specifically working with facts 0 - 5 (or 0 - 10) students can explore the number line and which direction we make jumps when adding or subtracting.

Using a large number line and stuffed animal frog (or other animal) show students a large dice that is labeled with the "+" sign and "-" sign (3 of each). Also show students a dice that has dots 1-3 on it (1,1,1,2,2 and 3).

"Today we are going to help Froggy jump forward and backward on the number line using these two dice. When the dice lands on the "+" sign we are going to add more jumps and Froggy will hop forward toward the number 10. When we land on the "-" sign we are going to take jumps away from Froggy and he will turn around and jump backward on the number line toward the number 0."

"Let's first start Froggy on the number 5. Count with me as Froggy makes 5 jumps to get to the number 5. 1,2,3,4,5! Froggy is now on the number 5."

"Now let's roll the dice and see what side it lands on first." Roll dice.

"What side did it land on?"

"The plus sign" (choral response).

"So which way is Froggy going to jump?"

Responses may be *"up the number line, toward 10, to bigger numbers."*

"So let's make sure Froggy is facing the way he is going to jump. Should he be facing the 10 or the 0?"

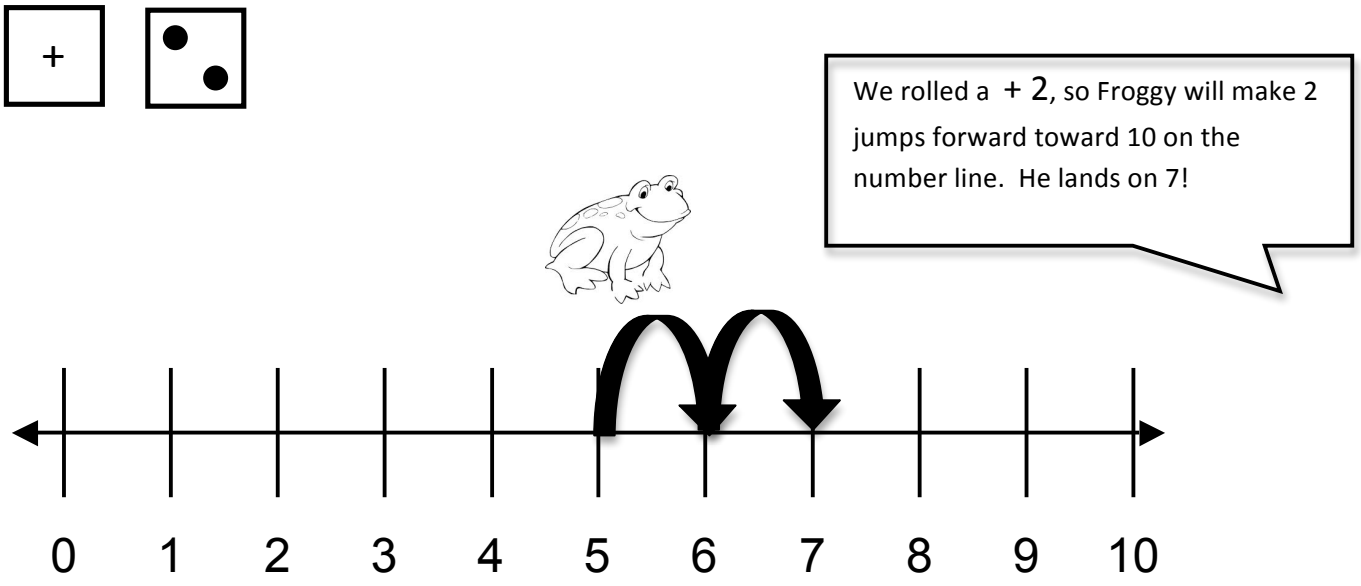
"*10 (choral response).*"

"Now we can roll the other dice to see how many jumps he is going to make." Dice lands on two dots.

"So Froggy will make two jumps toward 10. Count with me 1, 2. What number did Froggy land on?"

"7 (choral response)."

"Let's show that on our fingers, 5 plus 2 more equals 7. So Froggy is on the number 7."



"Now let's roll the dice again."

Roll the dice and it lands on the "-" sign.

"What sign is this?"

"*The minus sign (choral response).*"

"Which direction will Froggy jump?"

Possible responses, *"He will hop backwards, he will hop towards 0."*

"OK let's turn Froggy around so he is facing the 0 because the minus sign tells us we are going to take away jumps and go backwards on the number line. Now we are ready to roll the dice to see how many jumps towards 0 he will make."

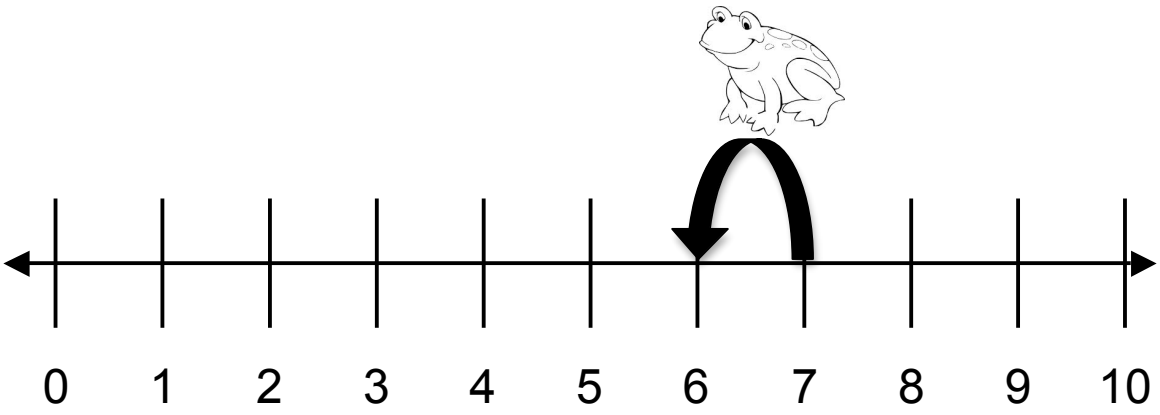
Roll dice and it lands on 1.

"Count with me as we jump backwards on the number line, "1". What number is Froggy on now?"

"6 (choral response)."

"Yes let's look at that on our fingers, Froggy was on 7 (hold up 7 fingers), and we took away one jump (put one finger down), and he is now on 6. 7 – 1 = 6."

We rolled a - 1 so Froggy needs to turn around to jump backwards towards 0. He makes 1 jump back and lands on 6.



Repeat this several times whole class reviewing with choral response which direction Froggy should face when you roll a "+ or –" sign. Students can point the direction he will jump and also tell you which number he is hopping towards, 0 or 10. You can make the goal to get to 10 or back to 0 to "win the game".

If you end up rolling a number that is more than then number of jumps Froggy can make you can say "impossible" and roll again (Froggy is on 8 and you roll + 3). Discuss why Froggy can't make that many jumps on the number line we have. You can also ask questions such as, "How many more jumps do we need to get to 10", or "If we are on the number 8 do I need a "+" or a "–" roll to get to 10."

Students can then use individual number lines and a small frog or counter to follow along making the jumps with you. Or you can also make individual dice for pairs to play the game together sharing a number line.

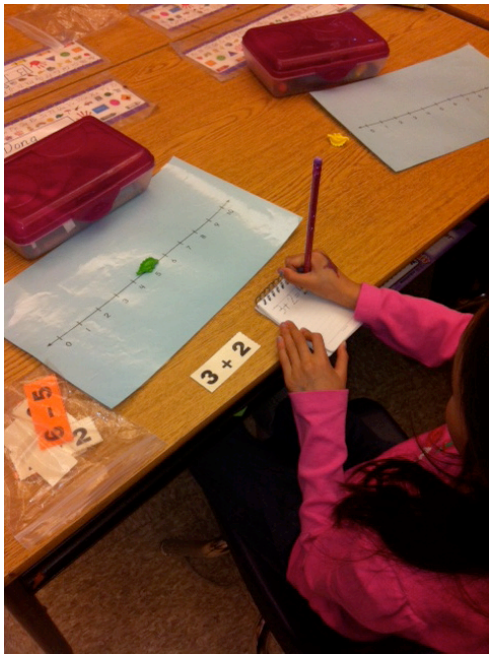
Once students have had lots of experience jumping forward and backward on the number line with the + and – sign, you can use number sentences for making jumps to build fluency with facts to 5. Show students a number sentence card 3 + 2. Demonstrate how Froggy will make 3 jumps and then the plus sign tells Froggy to face the 10 still and make 2 more jumps. "What number does Froggy land on? 5!"

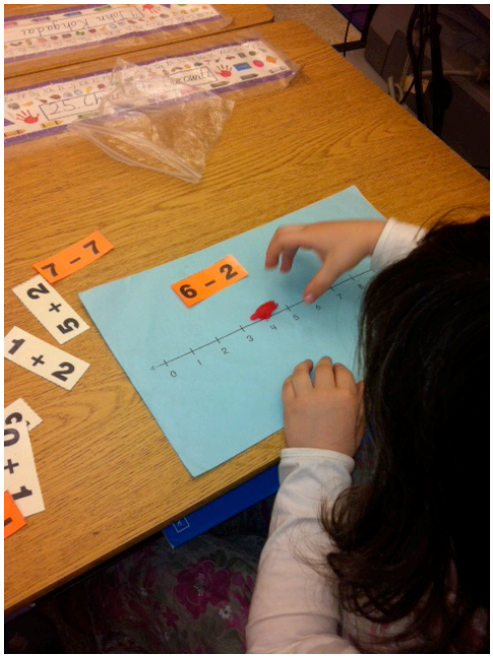
Now show students a subtraction number sentence 5 - 1. Demonstrate how Froggy will make 5 jumps and then the "-" sign tells Froggy to turn around and make jumps backwards toward 0 or take away jumps. "Jump backwards one jump and what does Froggy land on? 4! Yes, 5 - 1 = 4."

Repeat with several cards again pointing out that the "+" sign tells Froggy to keep jumping towards 10 as we are adding more and the "– " tells him to turn around and jump backwards toward 0 as we are

taking away jumps. Some students may start to notice that we don't really have to make the jumps for the first number, we can just count on or count back from that number. So if we have the number sentence 2 + 2 we can start Froggy on 2 or if we have 4 - 1 we can start Froggy on 4. But many students will still need to make those first jumps.

Students can now work independently with a bag of number sentences, a frog (or counter), and number line. You may want to photocopy addition number sentences on one colored paper and subtraction sentences on another. Students should say the number sentences and answers when they make the jumps. 5 - 3 = 2.





Activity 5 – Make 5! (or any other number)

Students are each given a 10 frame dot card with 0,1,2,3,4 or 5 dots. Their job is to find another student that has a card that when added to their card equals 5. You will need to make sure you have pairs of cards for the number of students in your class (0 and 5, 1 and 4, 3 and 2). 4 sets of 0-5 cards gives you 24 cards.

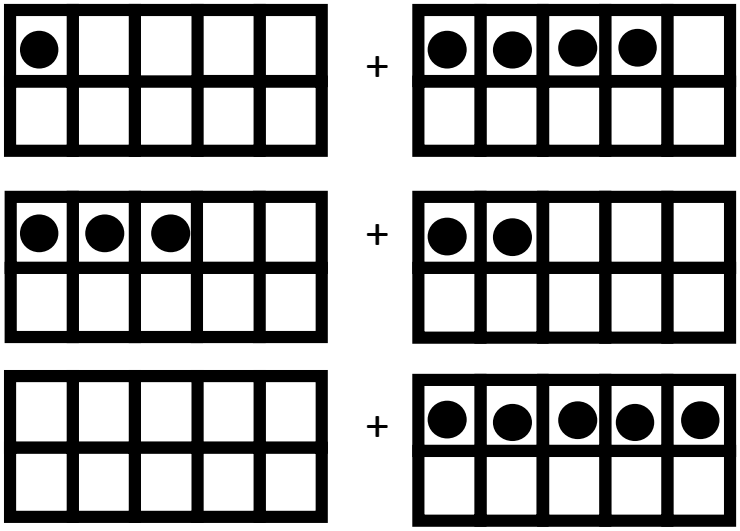
Once students have found a partner that has a number that when added to theirs equals five they can sit down next to their partner.

After all partners have been found you can call them up to display in a pocket chart saying the addition sentence when they come up. "0 + 5 = 5, 1 + 4 = 5, 2 + 3 = 5."

Ask students if we can switch the order of the pairs of ten frames and still get the same total.

"Here we have 2 + 3 what if I switched it around and did 3 + 2. Is it still 5?"

Make 5!



Variations:

Hide cards around room and give each student a card. They need to find the card in the room that makes 5 with their card.

Students can play a memory game with 2 sets of cards (0 - 5 = 12 cards) making matches to total 5. Students should say the number sentence when they make a match "3 + 2 = 5."

Students can play "Go Fish" with 2-3 sets of cards. Start with 3 cards each and the rest in the pond. "I have 1 do you have 4?" If they get a match again they say the number sentence "1 + 4 = 5 or 5 = 1 + 4."

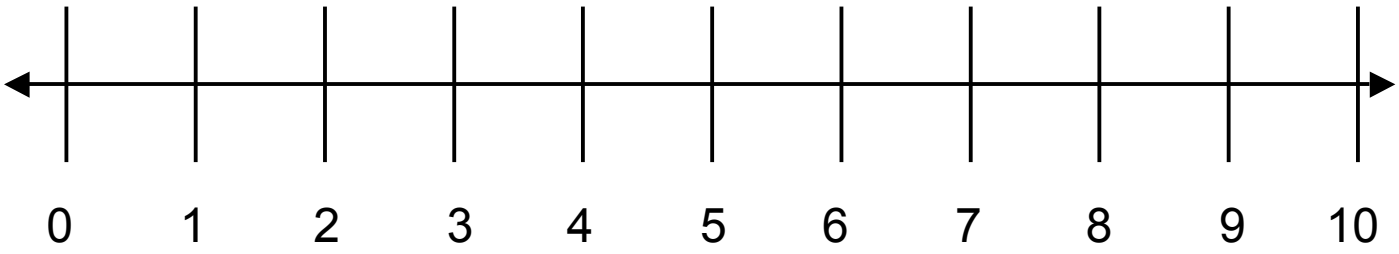
Say the subtraction number sentence instead for the above activities, "5 - 1= 4."

Play all the above with numeral cards if they are ready to move on to the abstract.

Make other numbers the target – Make 6! Make 10! (For even numbers you will need to make additional cards for the doubles (for 6 you would need two "3 cards").

Assessment

Student work and observational notes can be used as formative assessment for these activities. For Activity 3, students can make drawings of bears in the cave and out of the cave and write a number sentence to go along with it. For Activity 4 students can record the number sentence on a white board or paper after they make the jumps on the number line. For Activity 5, students could make a book with ten frames totaling 5 (or another number) glued on each page to show mastery.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