Kindergarten
Adding and Subtracting
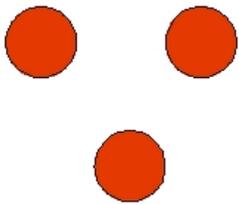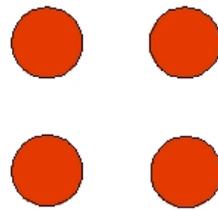
North Carolina Department of Public Instruction

Overview

  The implementation of the Common Core State Standards in Mathematics (CCSSM) is both an exciting and anxious time for teachers around the country. Part of the excitement is the CCSS inclusion of both the Content Standards and the Standards for Mathematical Practice. The Standards for Mathematical Practice provide a foundation for the process skills that all K-12 students should be developing during every lesson.

Overview of the Units

  The purpose of this unit is to provide teachers with a set of lessons that are standards-based and align with the CCSS Content Standards and Standards for Mathematical Practice. By standards-based, we mean that students are learning mathematics by exploring mathematically-rich tasks and sharing strategies, ideas, and approaches with one another. During these lessons, the teacher's role is to truly facilitate learning by posing a task, asking questions that guide students' understanding, and assess students' mathematical understanding.

  The phases of each lesson are:

- **Engage-** Students open the lesson by engaging in a brief activity to build upon students' prior knowledge.
- **Explore-** Students explore a mathematically rich task or activity that includes the main mathematical goals. During this phase, the teacher may model how to play a game or do an activity, but should not model or over teach strategies or procedures.
- **Explain-** Students discuss strategies and mathematical ideas from the Explore phase. The teacher may teach content and emphasize concepts or strategies here.
- **Elaborate-** Students complete a follow-up activity or task that extends their work from Explore and the discussion of concepts in Explain.
- **Evaluation of Students**
  - o **Formative Assessment-** How can the teacher assess students during the lesson?
  - o **Summative Assessment-** How can the teacher assess students' work after the lesson?

Resources on the Common Core

  This unit is only a starting resource as teachers begin implementing the CCSS and the Standards for Mathematical Practice. The North Carolina Department of Public Instruction has also written Unpacking Documents available at http://www.ncpublicschools.org/acre/standards/support-tools/ . These unpacking documents provide specific descriptions of each standard as well as examples.

  This project was directed by Dr. Drew Polly at UNC Charlotte. Educators who collaborated to create these documents are Gail Cotton, Ryan Dougherty, Tricia Esseck, Marta Garcia, Tery Gunter, and Kayonna Pitchford along with the DPI staff.

Mathematical Goals

By the end of this unit, students will:

- Use objects and pictures to represent real-world situations that involve joining (addition) and removal (subtraction).
- Accurately solve real-world addition and subtraction problems.
- Explore the addition and subtraction symbols while solving real-world problems.
- Communicate their strategies used while solving addition and subtraction problems.

When to teach this Unit

This unit has been designed to introduce the concept of joining (addition) and separating (subtraction) in the context of word problems. This unit should be introduced during the second half of the school year after students have developed skills related to counting a set of objects (K.CC standards).

Ways to modify or add onto this Unit

This unit was created to address the Common Core Standards that focus on problem solving with addition and subtraction situation with the numbers 0 through 5. Further, the lessons in this unit focus exclusively on students' work with manipulatives. There are various ways that teachers can modify these lessons.

Incorporate Drawings and Pictorial Representations

The Grade Level Standards in Kindergarten call for students to represent (K.OA.1) and solve (K.OA.2) addition and subtraction problems using objects, fingers, and drawings. In this unit we limit students work only to concrete objects. When students are ready they can solve problems like the ones in this unit with objects, and also record their work with drawings. The process of having students use drawings should progress from: 1) using only concrete objects, 2) using concrete objects and drawing a representation, and then 3) representing a problem with only a drawing.

Use Numbers 0 to 10

This unit includes problems that use the numbers 0 through 5. Standard K.OA.2 asks students to solve tasks with the numbers 0 through 10. These lessons are introducing the concepts of representing and solving addition and subtraction problems, and we have limited the problems to only go to 5 in order to focus more on the process of representing and solving problems with smaller numbers. When students are comfortable solving problems with these smaller numbers, the problems can be altered to include numbers through 10.

Problem Types

Based on Glossary, Table 1 in the Common Core (end of this document) and the recommendations of the Common Core authors, this unit is limited to include only *Add To Result Unknown, Take From Result Unknown, Put Together/Take Apart Total Unknown and Put Together/Take Apart Addend Unknown Problems*. The Common Core authors have recommended that these problem types be mastered by the end of the Kindergarten year. We recommend that you limit yourself to these four problem types until students have mastered how to represent and solve each of them.

Lessons in the Unit

Lesson	Title and Description
1	**One More Animal:** Students build a set and find one or two more than that number. **Materials:** Whole class: number cards, counters, ten frame Station 1: number cards, counters, ten frame Station 2: number cards (0-9), counters or cubes Station 3: pom-poms, hoops Station 4: cubes Station 5: paper plate with a line drawn down the center, counters Recording sheets for Stations 3, 4, and 5
2	**Birds on the Tree:** Students begin solving *Result Unknown Add To* problems involving birds landing on a tree. **Materials:** Whole class: tree work mats, counters, number cubes marked 1, 2 and 3, large picture cards Station 1: number cards, counters, ten frame Station 2: small picture cards, number cubes (1-3), tree work mat, counters Station 3: pom-poms, hoops Station 4: cubes Station 5: paper plate with a line drawn down the center, counters Recording sheets for Stations 3, 4, and 5
3	**Ducks on the Pond:** Students create and solve *Result Unknown Add To* problems. **Materials:** Whole class: work mat, counters, large story cards Station 1: number cards, counters, ten frame Station 2: small picture cards, number cubes (1-3), tree work mat, counters Station 3: picture cards, counters, work mat Station 4: cubes Station 5: paper plate with a line drawn down the center, counters Recording sheets for Stations 3, 4, and 5
4	**Running Dogs**: Students build a set and find one or two less than that number. **Materials:** Whole class: number cubes (0-2), counters, work mat Station 1: number cards, counters, ten frame Station 2: small picture cards, number cubes (1-3), tree work mat, counters Station 3: picture cards, counters, work mat Station 4: number cubes (0-2), counters, work mat Station 5: paper plate with line down the middle, beans
5	**Going Inside**: Students solve *Result Unknown Take From* problems. **Materials:** Whole class: number cards (0-5), counters, ten frame Station 1: number cards, counters, ten frame Station 2: tiles Station 3: picture cards, counters, work mat Station 4: number cubes (0-2), counters, work mat Station 5: number cards, cubes

6	**Sharing Toys:** Students solve Students solve *Result Unknown Take From* problems. **Materials:** Whole class: number cubes (0-2), counters, work mat Station 1: number cards, counters, ten frame Station 2: tiles Station 3: number cubes (0-2), counters, work mat Station 4: picture cards, counters, work mat Station 5: cubes	
7	**How Many More?:** Students solve *Addend Unknown Put Together* problems. **Materials:** Whole class: number cube, five frame Station 1: number cards, counters, ten frame Station 2: tiles Station 3: number cube, five frame Station 4: picture cards, counters, work mat Station 5: cubes	
8	**Sides of a Coin:** Students solve *Addend Unknown Put Together* problems **Materials:** Whole class: coins, recording sheet Station 1: number cards, counters, ten frame Station 2: tiles Station 3: number cube, five frame Station 4: picture cards, counters, work mat Station 5: cubes	

Common Core State Standards

This unit focuses on the following Common Core Standards:

Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.

K.OA.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

K.OA.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.

K.OA.5 Fluently add and subtract within 5.

Count to tell the number of objects.

K.CCC.5 Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.

Kindergarten Addition and Subtraction Problem-Types (see full table at the end of this document)

This unit focuses on the following Addition and Subtraction situations:

	Result Unknown	Change Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$ **(K)**	
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$ **(K)**	
	Total Unknown	**Both Addends Unknown**
Put Together/ Take Apart[3]	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$ **(K)**	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$ **(K)**

K: Problem types to be mastered by the end of the Kindergarten year.

[3]Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.

Emphasized Standards for Mathematical Practice

In this unit all of the Standards for Mathematical Practice are addressed.
1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Lesson 1: One More Animal
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Determine the missing part • Explain how they found the missing part
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	join, more, fewer
Materials	Whole class: number cards, counters, ten frame Station 1: number cards (0-5), counters, ten frame Station 2: number cards (0-9), counters or cubes Station 3: pom-poms, hoops Station 4: cubes Station 5: paper plate with a line drawn down the center, counters Recording sheets for Stations 3, 4, and 5

Tasks in the Lesson

Engage	3-5 minutes

During whole group time, pull a number card (0-5) and use it in as your start number in your problem.
Tell the following story to the class.
There were __ cats on the grass. 1 more cat came. How many cats are there now?

Show a Ten Frame to the students and say:
Let's use a Ten Frame to help us.

The teacher should say:
__ cats were sitting on the grass. Who can put counters on the five frame to show the cats?

So, some more cats came. Do we know how many cats came?
Who can show that with counters?

How can we find out how many cats we have now?

Ask students to share their strategies.
As students give their strategies, it is acceptable to allow many students to share their strategies, even if they are the same.

After asking students to share strategies, ask students to share their solution. Again, it is acceptable for many students to share their solution.
The teacher might say: *How many cats walked there? Does anyone have a different solution?*

Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

The teacher then asks students: *How can we solve this problem?*
Possible responses:
I counted the counters.
I knew that __ and 1 is ___.
I started at __ and counted one more in my head to get __.

The teacher finishes the problem by placing __ counters of a different color on the Five Frame.
How can we use counters to help us solve this problem?

Explore and Explain	10-12 minutes

Give each student a Five Frame and counters.
Pull a number card and use that number as the start number in your problem.
Tell the story:
There are __ dogs in the park. 1 more dog ran there. How many dogs are there now?
Students will use the counters and Five Frame to solve the problem.

The teacher will ask students to share their solution and strategies.
Possible responses:
I knew that __ and 1 is ___.
I started at __ and counted one more in my head to get __.

Continue this with 2-3 more examples. The teacher should keep asking students questions to check for understanding.

Elaborate	30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:
Station 1: One or Two More Animals
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will determine how many there will be if there will be one more animal came. Students can also find "two more" if they need enrichment. No recording is needed at this station. Students continue to select different number cards.

Station 2: Make the set
Students pull a number card (0-9) and use counters to make a set that matches the number. For an extension, students can see if they can figure out what 1 more is mentally.

Station 3: Pom-pom Toss
Students will toss pom-poms at a hoop on the floor. Students will count how many landed inside the hoop and how many landed outside the hoop. Students record their solutions on the sheet.

Station 4: Snap It
Students make a tower of cubes and place it behind their back. While their tower is behind their back, they snap it and bring one part of the tower in front so they can see it. Students determine how many cubes are still behind their back. They check their solution and record their results.

Station 5: Walk the line
Students will spill beans or counters onto a paper plate that has a line drawn down the center. Students will count the number of counters on the left and on the right and record their results.

Evaluation of Students

Formative:
At Stations 1 and 2:
Do students accurately place the correct number of counters out?
Are students able to join two sets and correctly identify the total?

At Station 3:
What strategies are students using to determine one more?
Do they count on mentally? Do they add a counter and count all of the counters?

At Stations 4-5:
Can students accurately determine the various parts and the whole while working?
What strategies are students using to determine the various parts? (e.g., counting all, counting on, fluently identifying parts)

Plans for Individual Differences

Extension: The number of objects at each station can be increased.
For the whole class activity, these tasks can be done by using number cards (0-9) and a ten frame.
The focus is still adding a counter and finding what number is 1 more than the start number.

Intervention: If students are struggling, have students only work with the numbers 3 or 4 in work stations. If students are struggling with the whole class activity, only use the numbers 1, 2, and 3 as your start number until students demonstrate an understanding of the process of finding 1 more.

Picture Cards 0-5

0	**0**	**0**
1 ☆	**1** ☆	**1** ☆
2 ☆☆	**2** ☆☆	**2** ☆☆
3 ☆☆☆	**3** ☆☆☆	**3** ☆☆☆
4 ☆☆☆☆	**4** ☆☆☆☆	**4** ☆☆☆☆
5 ☆☆☆☆☆	**5** ☆☆☆☆☆	**5** ☆☆☆☆☆

Ten Frame

Ten Frame

0	0	0
1 ☆	1 ☆	1 ☆
2 ☆☆	2 ☆☆	2 ☆☆
3 ☆☆☆	3 ☆☆	3 ☆ ☆☆ ☆
4 ☆☆	4 ☆☆	4 ☆☆ ☆☆ ☆☆
5 ☆☆	5	5

6	6	6
☆☆☆☆☆	☆☆☆☆☆	☆☆☆☆☆
7	7	7
☆☆☆☆☆☆	☆☆☆☆☆☆	☆☆☆☆☆☆
8	8	8
☆☆☆☆☆☆☆	☆☆☆☆☆☆☆	☆☆☆☆☆☆☆
9	9	9
☆☆☆☆☆☆☆☆	☆☆☆☆☆☆☆☆	☆☆☆☆☆☆☆☆
10	10	10
☆☆☆☆☆☆☆☆☆☆	☆☆☆☆☆☆☆☆☆☆	☆☆☆☆☆☆☆☆☆☆

Snap It!

I started with_____cubes.

Cubes I see	Cubes hidden

Walk the Line

I started with____beans.

Beans on the left	Beans on the right

Pom Pom Toss

I threw_____pom poms.

Pom Poms Inside	Pom Poms Outside

Lesson 2: Birds on the Tree
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Join two groups of objects • Find the total quantity after joining two groups of objects • Explain their process of joining two groups of objects to find the quantity
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 4. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	join
Materials	Whole class: tree work mats, counters, number cubes marked 1, 2 and 3, large picture cards Station 1: number cards, counters, ten frame Station 2: small picture cards, number cubes (1-3), tree work mat, counters Station 3: pom-poms, hoops Station 4: cubes Station 5: paper plate with a line drawn down the center, counters Recording sheets for Stations 3, 4, and 5

Tasks in the Lesson

<table>
<tr><td>Engage</td><td>3-5 minutes</td></tr>
</table>

During whole group time, read the following story off Picture Card A and show it to students:
There were 2 birds sitting in the tree.
The teacher will roll a number cube marked 1, 2, and 3
Suddenly __ more birds flew onto the tree. How many birds are on the tree now?

Ask students to come act out the story. The teacher might say:
Let's think about this problem. We have a tree. Here is our tree (points to the ground). We need two birds (calls 2 students to come and stand in front of the class. The teacher continues by asking __ more students to stand up but in a separate group from the first two students.)

The teacher can then ask the class, "How many students are on the tree now?"
As students give their solutions, it is acceptable to allow many students to share their solution, even if they all say the same solution.
The teacher might say:
How many birds are in the tree? Does anyone have a different solution?

Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

The teacher then asks students: *How can we find out how many birds are in the tree?*
Possible responses:
We can count the number of students (birds). I know that I start at 2 and then count on __ more.
I know that 2 and __ is __.

<table>
<tr><td>Explore and Explain</td><td>10-12 minutes</td></tr>
</table>

Pass out counters and tree work mats to every student.
I'm going to tell you a story. Use your counters and tree mat to solve the story problem.
Read the following story off Picture Card B:
There were 3 birds on the tree.
The teacher rolls the number cube.
__ more birds flew on the tree. How many birds are on the tree now?

Allow students to use their counters and tree mat however they want in order to represent the problem.
As students are working, observe:
- Do students place the correct number of counters on the tree?
- Can students tell you the total number of counters?
- Could any students immediately put counters out without modeling the problem?

After students have had a few minutes to model the problem, ask students:
How many birds are on the tree?

As students share their solution, ask students to share their strategies. Possible responses:
I put 2 counters on the tree and then I put __ counter(s) on the tree. Then I counted them.
There were 2 counters on the tree.
I knew that __ more is __.
I knew that 2 and __ is __.

Ask students to clear their work mat to get ready for a new story problem.
Read the following story off Picture Card C and show the card to students:
3 birds are on the tree. The teacher rolls the number cube.
__ more birds flew on the tree. How many birds are on the tree now?
Allow students to use their counters and tree mat however they want in order to represent the problem.
As students are working, observe:

- Do students place the correct number of counters on the tree?
- Can students tell you the total number of counters?
- Could any students immediately put counters out without modeling the problem?

After students have had a few minutes to model the problem, ask students:
How many birds are on the tree?
As students share their solution, follow up with students to share their strategies.
Possible responses:
I put 3 counters on the tree and I counted.
I put 3 counters on a tree and then counted on.
I knew that 3 and __ is __.

Tell students to clear their work mat and get ready for another story problem.
This time, choose a student to read the story card to the class. Follow the process above to have students act out and solve the problem. Do this with Picture Cards D, E, and F.

Elaborate	30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.
These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student. Stations 2, 3, 4, and 5 should be introduced prior to this lesson.

Here is an overview of the five stations:
Station 1: One or Two More Animals
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will determine how many there will be if there will be one more animal came. Students can also find "two more" if they need enrichment. No recording is needed at this station. Students continue to select different number cards.

Station 2: Adding to a Picture
Students will select a Picture Card and make the picture with counters. Students will roll a number cube marked 1, 2, and 3. Students will add that many counters to their picture. Students will determine how many total counters they have. No recording is needed at this station. Students continue to select different story cards.

Station 3: Pom-pom Toss
Students will toss pom-poms at a hoop on the floor. Students will count how many landed inside the hoop and how many landed outside the hoop. Students record their solutions on the sheet.

Station 4: Snap It
Students make a tower of cubes and place it behind their back. While their tower is behind their back, they snap it and bring one part of the tower in front so they can see it. Students determine how many cubes are still behind their back and record their results.

Station 5: Walk the line
Students will spill beans or counters onto a paper plate that has a line drawn down the center. Students will count the number of counters on the left and on the right and record their results.

Evaluation of Students

Formative: As students are working at Station 1:

Do students accurately place the correct number of counters out?

Are students able to join two sets and correctly identify the total?

At Stations 2-5:

Can students accurately determine the various parts and the whole while working?

What strategies are students using to determine the various parts? (e.g., counting all, counting on, fluently identifying parts)

Plans for Individual Differences

Intervention: For struggling students, only work with combinations to 3 and 4.

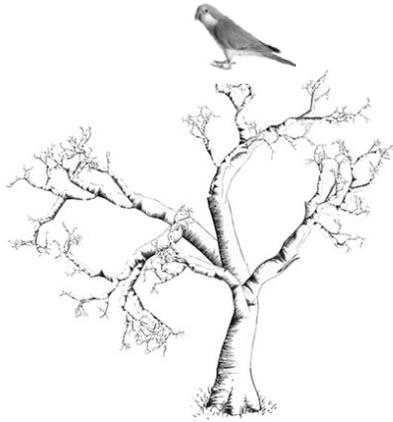Extension: The number of objects at each station can be increased.

Birds on a Tree- Picture Card A
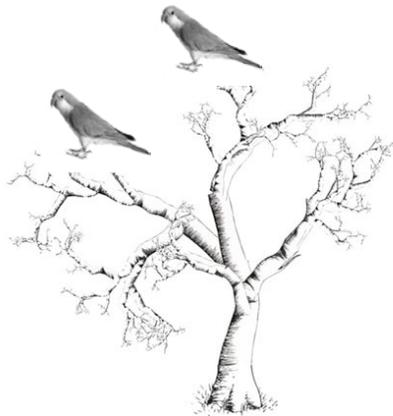
Blank Tree Work Mat for Students

Picture Card C

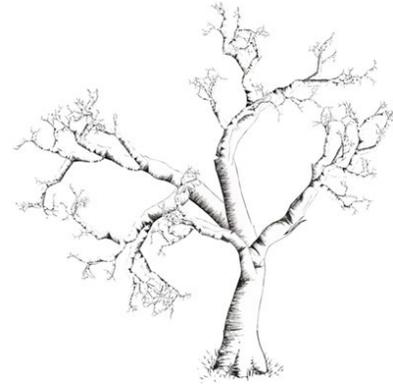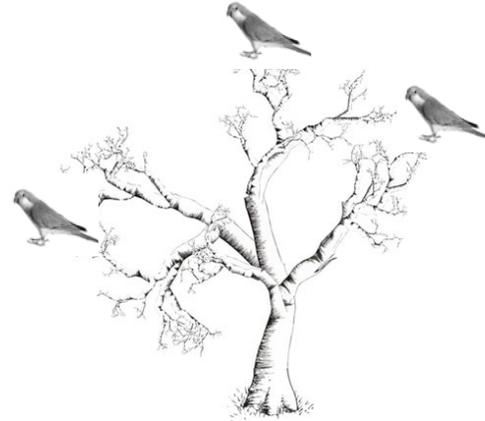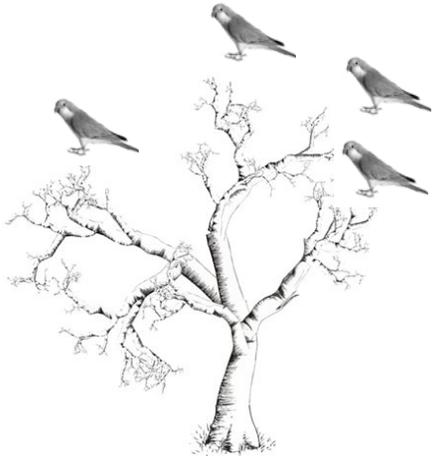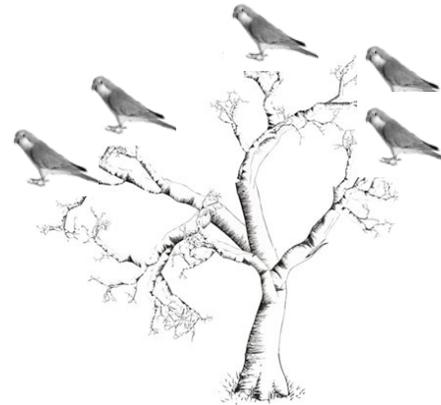Picture Card D

Picture Card E

Picture Card F

Picture Card G	Picture Card H
Picture Card I	Picture Card J

Lesson 3: Ducks in the Pond
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Join two groups of objects • Find the total quantity after joining two groups of objects • Explain their process of joining two groups of objects to find the quantity
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	join
Materials	Whole class: work mat, counters, large story cards Whole class: work mat, counters, large story cards Station 1: number cards, counters, ten frame Station 2: small picture cards, number cubes (1-3), tree work mat, counters Station 3: picture cards, counters, work mat Station 4: cubes Station 5: paper plate with a line drawn down the center, counters Recording sheets for Stations 3, 4, and 5

Tasks in the Lesson

Engage	3-5 minutes

During whole group time, show Picture Card K to the entire class and model the activity.

The teacher asks students, "What do you see on the card?"
Possible responses:
I see ducks. I see water.

The teacher says:
Let's see if I can come up with a story problem for this picture for you to solve. There are 2 dark ducks and 1 white duck. How many ducks are on the water?

As students give their solutions, it is acceptable to allow many students to share their solution, even if they all say "3."

The teacher may ask: *How many ducks are in the water? Does anyone have a different solution?*

Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

The teacher then asks students: *How can we find out how many ducks are in the water?*
Possible responses:
We can count the number of ducks.
I know that 1 more than 2 is 3.
I know that 2 and 1 is 3.

Explore and Explain	10-12 minutes

Give each student a work mat and counters.

Show Picture Card L to the entire class.
Have students recreate the picture using counters.

The teacher will make up a story to go with the picture card, using the same problem structure, such as:
There are 3 ducks on the water and 1 duck on the shore. How many ducks are there in all?

The teacher will ask:
How many ducks are on the water?

As students give their solutions, it is acceptable to allow many students to share their solution, even if they all say "5."
The teacher might say:
How many ducks are on the water?
Does anyone have a different idea?

Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

The teacher then asks students: *How can we find out how many ducks are on the water?*

Possible responses:
We can count the number of ducks.
I know that 1 more than 4 is 5.
I know that 1 and 4 is 5.

The teacher will repeat this process with Picture Card M. This time, the students will create a story to go with the picture cards.

Elaborate	30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:

Station 1: One or Two More Animals
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will determine how many there will be if there will be one more animal came. Students can also find "two more" if they need enrichment. No recording is needed at this station. Students continue to select different number cards.

Station 2: Adding to a Picture
Students will select a Picture Card and make the picture with counters. Students will roll a number cube marked 1, 2, and 3. Students will add that many counters to their picture. Students will determine how many total counters they have. No recording is needed at this station. Students continue to select different story cards.

Station 3: Ducks on a Pond
Students will select a Picture Card and create an Addition story about the ducks in the picture. Students will ask a question and count the ducks to solve the problem. No recording is needed at this station. Students continue to select different story cards.

Station 4: Snap It
Students make a tower of cubes and place it behind their back. While their tower is behind their back, they snap it and bring one part of the tower in front so they can see it. Students determine how many cubes are behind their back and record their results.

Station 5: Walk the line
Students will spill beans or counters onto a paper plate that has a line drawn down the center. Students will count the number of counters on the left and on the right and record their results.

Evaluation of Students

Formative: As students are working at Stations 1 and 2:
Do students accurately place the correct number of counters out?
Are students able to join two sets and correctly identify the total?

At Stations 3-5:
Can students accurately determine the various parts and the whole while working?
What strategies are students using to determine the various parts? (e.g., counting all, counting on, fluently identifying parts)
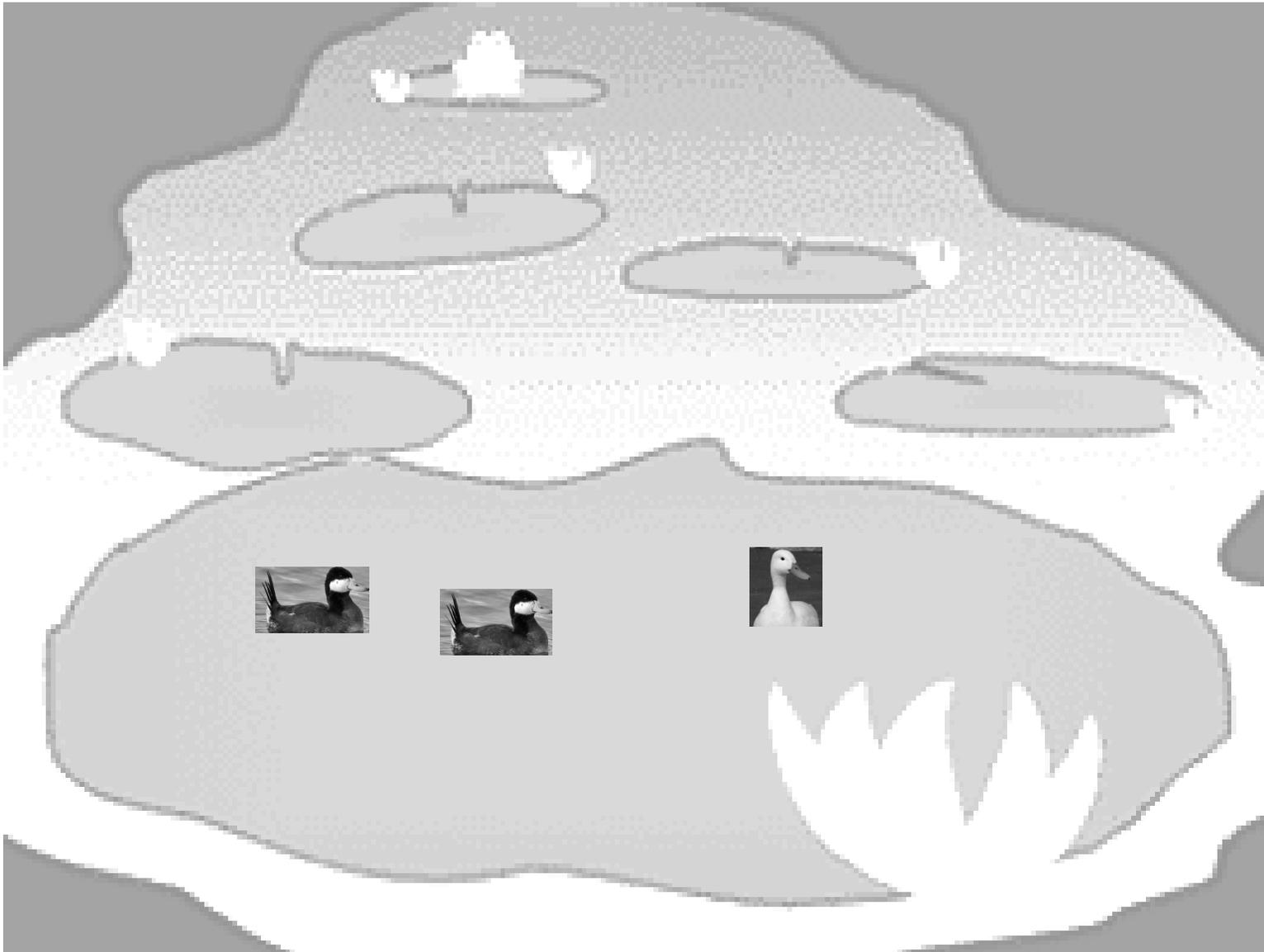
Plans for Individual Differences

Extension: The number of objects at each station can be increased.

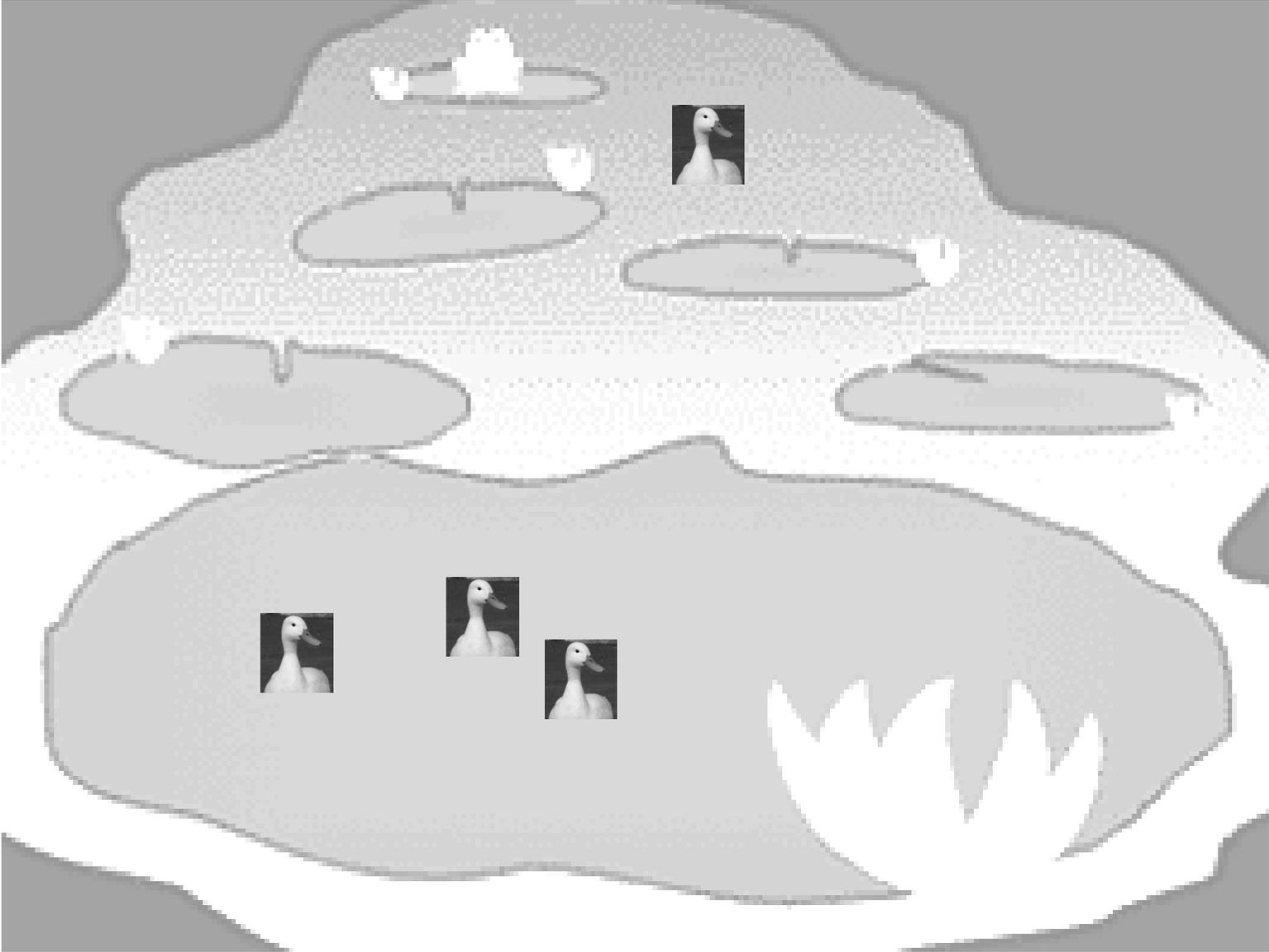Intervention: If students are struggling, have students only work with the number 3 or 4.
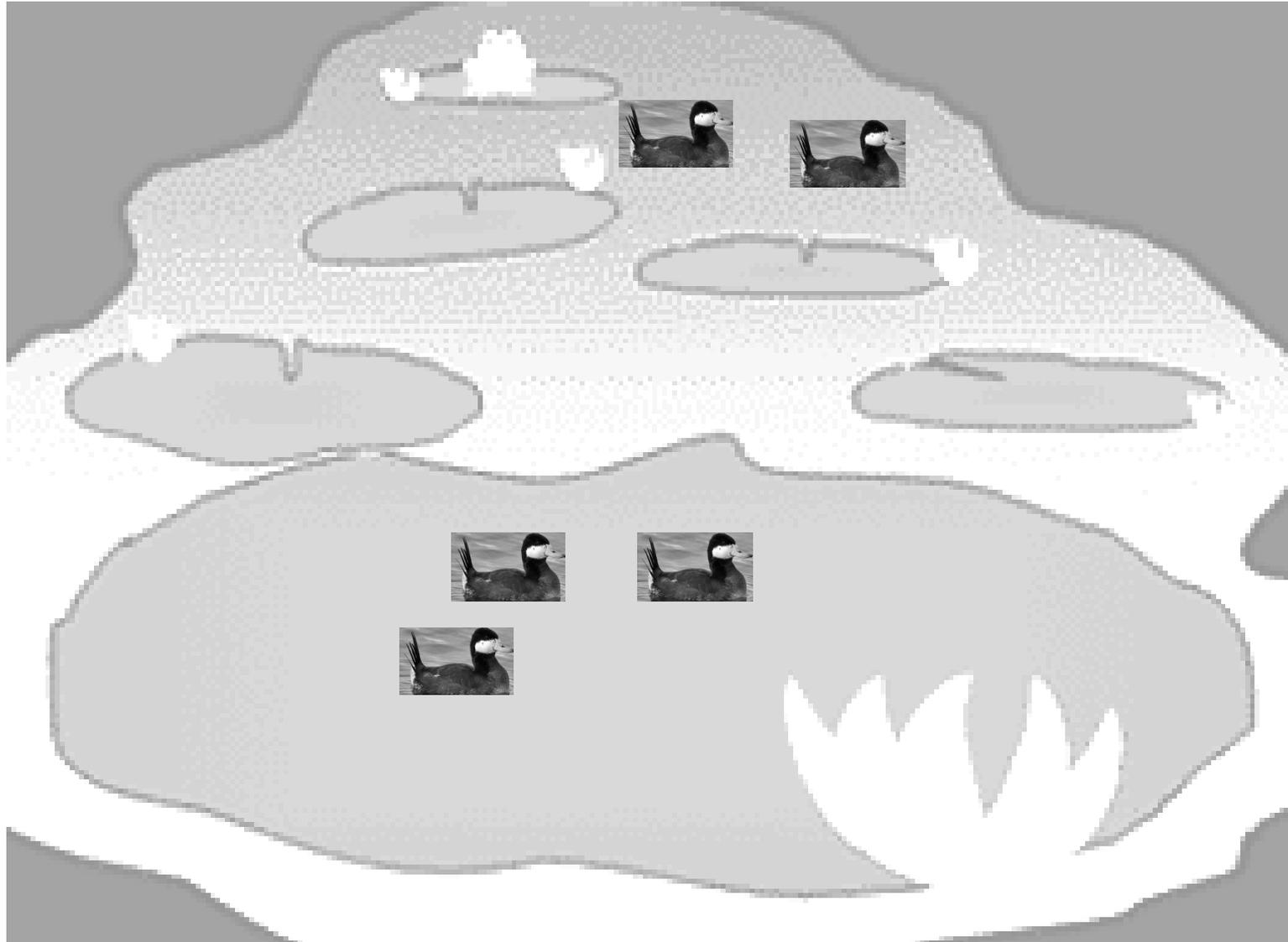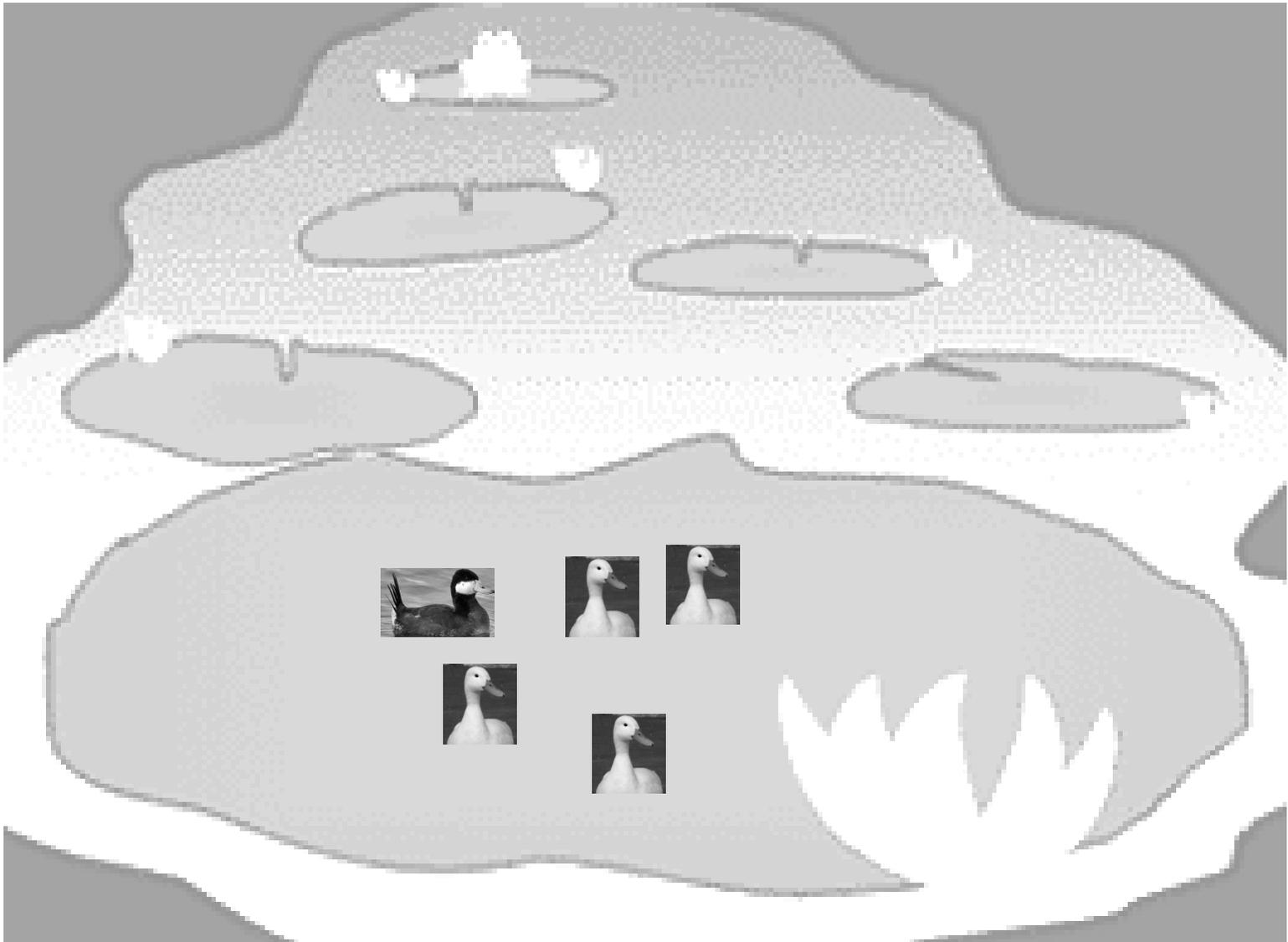
Ducks on the Pond- Picture Card K

Ducks on the Pond- Picture Card L

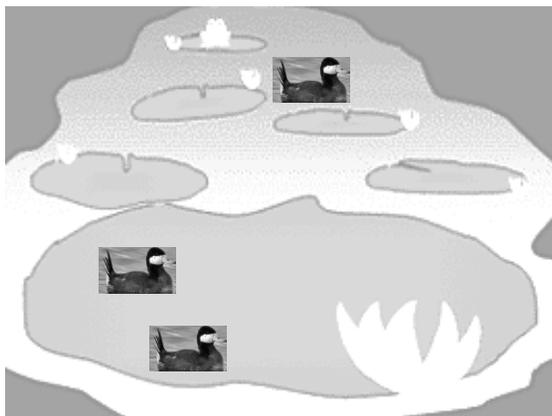# Ducks on the Pond- Picture Card M

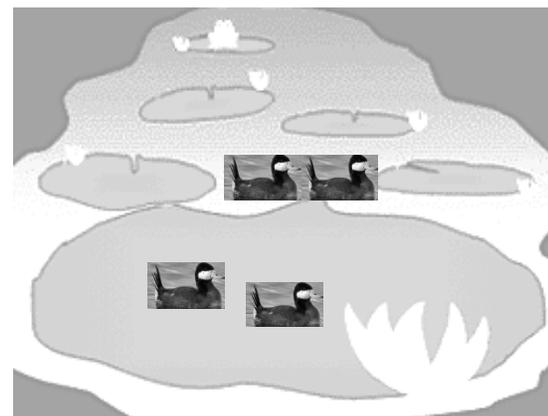| Picture Card O	Picture Card P
Picture Card Q	**Picture Card R**
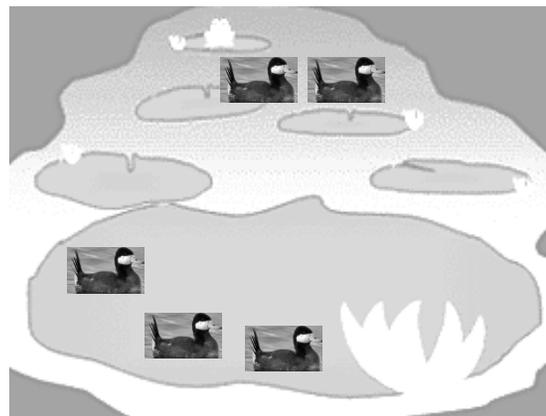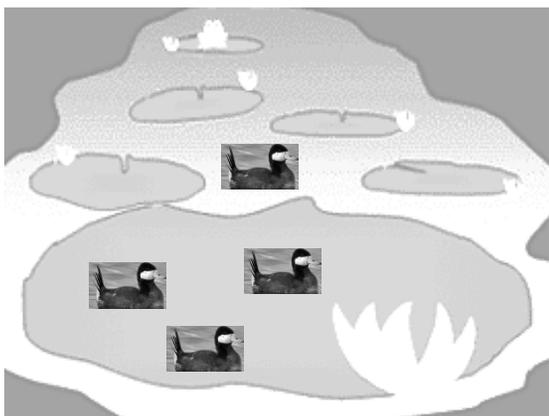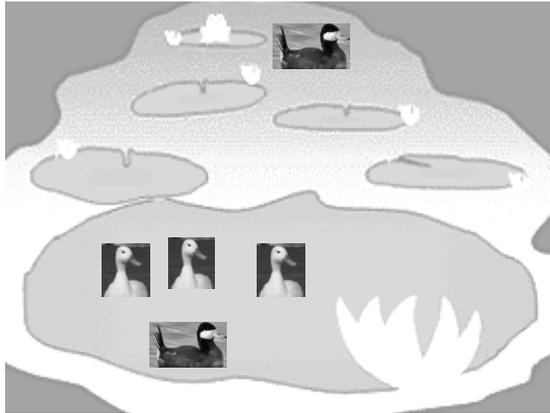
Picture Card	Picture Card T
Picture Card U	Picture Card V
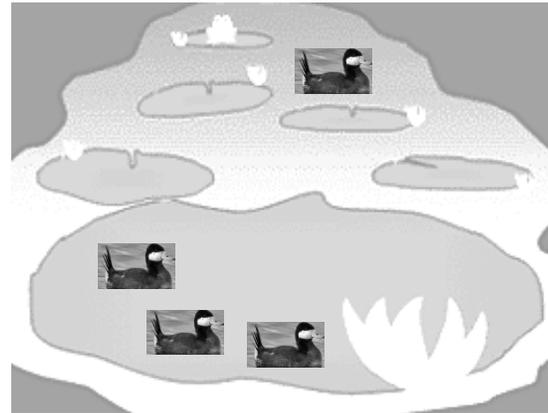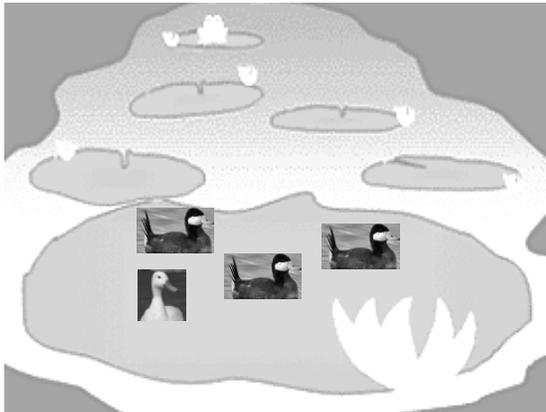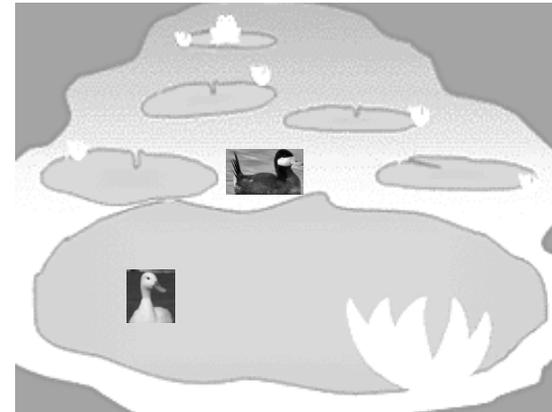
Lesson 4: One Less Dog
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Model and solve a subtraction, result unknown problem • Explain their strategies for solving the problem
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	fewer, more, remove
Materials	Whole class: number cubes (0-2), counters, work mat Stations: Station 1: number cubes (0-2), work mat, counters Station 2: picture cards, counters, work mat Station 3: number cards, ten frame, counters Station 4: cubes Station 5: paper plate with line down the middle, beans

Tasks in the Lesson

Engage	7-10 minutes

During whole group time, roll a number cube (1-6) and use that as your start number.
Tell the following story to the class:
There are __ dogs in the park. 1 dog went home. How many dogs are there now?

Use questions to begin the problem solving process.
Who can retell the story to the class?
What is our story about? (dogs in the park).
How many dogs were in the park? (students respond)

Represent the dogs by having students stand up.
What happened in our story? (1 dog went home)
How can we show that? (have 1 student sit down or move)

Some students may want to have 1 more student stand up. If this happens you may have to ask students, *What will happen to the number of dogs if 1 runs away?*

How many dogs are there now?
Allow many students to respond even if they have the same solution.

What did we have to do to solve this problem?
Use this question to reinforce to students the idea that after the action of the problem (removing people), the remaining people need to be counted in order to solve the problem.

Use the same problem and support students through the process of using counters or cubes in a Ten Frame to solve the problem.
How many dogs were there in the park? Put counters on the ten frame to match the number of dogs.
What happened next? (1 dog ran away).
Ask a student to change the Ten Frame to match the action of 1 dog running away.

How do we figure out how many dogs are in the park? (We need to count the counters that are left).
Ask students to share their solution.

Explore and Explain	10-12 minutes

Give each student a ten frame and counters. Roll the number cube to determine the start number. The teacher will tell the story:
There are __ dogs in the park. 1 dog ran away.

Allow students to solve the problem.
Ask students to share their solutions and their strategies.
As students give their solutions, it is acceptable to allow many students to share their solution, even if they all have the same solution. Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

Possible responses, for the story: "There are 4 dogs in the park. 1 dog ran away. How many dogs are in the park?"
I put out 4 counters, I took away 1. Then I counted what was left. There were 3 left, so there were 3 dogs in the park now.
I used 4 counters. I counted back and said 3 next. I landed on 3 so there are 3 dogs in the park now
I counted from 1 and said 2, 3 and 4. I said 3 numbers, so there are still 3 students on the playground.
I knew that 3 comes right before 4 when I count. So there are 3 dogs in the park now.
I knew that 1 less than 4 is 3. So there are 3 dogs in the park now.

Elaborate	30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:
Station 1: One Less Dog
Students will roll a number cube, build the number with counters and find one less than their number. No recording is needed at this station. Students continue this process.

Station 2: How Many in the Picture?
Students will select a Picture Card and recreate the picture with counters.
Students will create a story to match the Picture Card. Students will determine how many total counters they have. No recording is needed at this station. Students continue to select different story cards.

Station 3: One More Animal
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will add one more counter and count the total. No recording is needed at this station. Students continue to select different number cards.

Station 4: Snap It
Students will make a train of 3, 4, or 5 cubes and hold it behind their back. Students will snap of a few cubes and count them while holding the rest behind their back. Students will figure out how many cubes are behind their back.

Station 5: Tile Pictures
Students will make a picture using 4, 5 or 6 tiles. Students will trace their picture onto paper and circle two groups of the tiles. For example, if a student uses 4 tiles they could circle a group of 3 and a group of 1, or they could circle 2 groups of 2 tiles. Students continue to make pictures and find combinations of the number.

Evaluation of Students

Formative:
At Stations 1 and 2:
Do students accurately place the correct number of counters out?
Are students able to join two sets and correctly identify the total?

At Station 3-4:
What strategies are students using to determine what one more or one less counter is?

At Stations 5:
What groups of

Plans for Individual Differences

Extension: The number of objects at each station can be increased.

Intervention: If students are struggling, have students only work with the numbers 3 or 4.

Lesson 5: Going Inside
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Model and solve a subtraction, result unknown problem • Explain their strategies for solving the problem
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	fewer, more, remove
Materials	Whole class: number cards (0-5), counters, ten frame Stations: Station 1: cubes Station 2: picture cards, counters, work mat Station 3: number cards, ten frame, counters Station 4: beans, paper plate with line down the middle Station 5: number cards, counters, work mat

Tasks in the Lesson

Engage	7-10 minutes

During whole group time, tell the following story to the class:
There are 5 children on the playground.
Pull a (0-5) number card and use that number in your problem.
___ children went inside. How many children are still on the playground?

Use questions to begin the problem solving process.
Who can retell the story to the class?
What is our story about? (students on the playground).
How many kids were on the playground? (4)

Represent the 5 children by having 5 students stand up.
What happened in our story? (__ kids left)
How can we show that? (have __ students sit down or move)

Some students may want to have more students stand up.
If this happens you may need to have students stand up and act out the problem to show the action of leaving the playground to go inside.

After students have sat back down, ask *How many kids are still on the playground?*
What was your thinking? Use this question to reinforce to students the idea that after the action of the problem (removing people), the remaining people need to be counted in order to solve the problem.

Use the same problem type and support students through the process of using counters and a five frame to model the problem.
How many students were there at the beginning? Put counters on each of the students.
What happened next? (Students left).
How many students left? (Students give solution).
Remove counters and ask *How do we figure this out?* (We need to count the counters that are left).
S, how many students are still on the playground?
Ask students to share their thinking.

Explore and Explain   10-12 minutes

Give each student counters and a work mat.
The teacher will tell the story:
There are 5 students on the playground.
The teacher will select another number card and use that number in the problem.
___ students went inside. How many students are still on the playground?

Students will use the counters to solve the problem.
Ask students to share their solution and their strategies.
As students give their solution, it is acceptable to allow many students to share their solution, even if they all have the same solution. Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

Possible responses (example 5 - 2 = __):
I put out 5 counters, I took away 2. Then I counted what was left. There were 3 left, so there were 3 students on the playground.
I used 5 counters. I counted back and said 4 and 3. I landed on 3 so there are 3 students still on the playground.
I counted from 2 and said 3, 4, 5. I said 3 numbers. There are 3 students on the playground.

Pull a number card again and pose a new task starting with 5. Allow students to work on the task and have them share their strategies.

Feel free to repeat this process a few times before moving to the next phase of the lesson.

Elaborate	30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:

Station 1: One Less Dog
Students will roll a number cube, build the number with counters and find one less than their number. No recording is needed at this station. Students continue this process.

Station 2: Going Inside
Students will start with 5 counters and tell a story about 5 students. Students will pull a number card and take away that many counters and determine how many are left. No recording is needed at this station. Students continue this process.

Station 3: One More Animal
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will add one more counter and count the total. No recording is needed at this station. Students continue to select different number cards.

Station 4: Walk the line.
Students will spill beans or counters onto a paper plate that has a line drawn down the center. Students will count the number of counters on the left and on the right and record their results.

Station 5: Tile Pictures

Evaluation of Students

Formative:
At Stations 1 and 2:
Do students accurately place the correct number of counters out?
Are students able to join two sets and correctly identify the total?

At Station 3:
What strategies are students using to determine how many more counters they need to fill the Five Frame?

At Stations 4-5:
Can students accurately determine the various parts and the whole while working?
What strategies are students using to determine the various parts? (e.g., counting all, counting on, fluently identifying parts)

Plans for Individual Differences

Extension: The number of objects at each station can be increased.

Intervention: If students are struggling, have students only work with the numbers 3 or 4.

Lesson 6: Sharing Toys

Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Model and solve a subtraction, result unknown problem • Explain their strategies for solving the problem
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	fewer, more, remove
Materials	Whole class: number cubes (0-2), counters, work mat Stations: Station 1: number cards, counters, work mat Station 2: number cube, counters, ten frame Station 3: number cards, ten frame, counters Station 4: number cubes (1-3), picture cards, counters, five frame Station 5: cubes

Tasks in the Lesson

Engage	7-10 minutes

During whole group time, put 5 cubes or counters on the five frame and tell the following story to the class:

You have 5 toys.
Roll a number cube and use that number in your problem.
You give ___ toys to your friend. How many toys do you have now?

Use questions to begin the problem solving process.
Who can retell the story to the class? Have a few students retell the story before moving on.
What is our story about? (toys).
How many toys did we have? (5). Put out 5 counters on the five frame.

How many toys did we give our friend?
How can we show that with our counters? (Take counters away).

Ask a student to take away counters. Have the class check to make sure that they removed the correct amount.
How many toys do we have now?
How did you use counters to help you solve the problem?

Explore and Explain   10-12 minutes

Give each student counters and a work mat. Show the class
The teacher will tell the story:
You have 4 toys.
The teacher will select another number card and use that number in the problem.
You give ___ toys to your friend. How many toys do you have now?

Allow students to solve the problem.
Ask students to share their solutions and their strategies.
As students give their solutions, it is acceptable to allow many students to share their solution, even if they all have the same solution. Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

Possible responses (example 4 - 3 = __):
I put out 4 counters, I took away 3. Then I counted what was left. There was 1 counter, so I had 1 toy.
I used 4 counters. I counted back and said 3, 2, and 1. I landed on 1 so I knew I had 1 toy left.
I counted up from 3 and knew that 4 was 1 more. I had 1 toy left.

Pose 2-3 more tasks to students using either 3, 4 or 5 as your start number.
Note: If you pull a number card that is larger than your start number, pull another number card.

Elaborate   30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:
Station 1: Kids on the Playground
Students will start with 3, 4, or 5 counters to represent kids on the playground. Students will roll a number cube and tell a story about that number of kids leaving. No recording is needed at this station. Students continue this process.

Station 2: Sharing Toys
Students will put 5 counters on a ten frame and roll a number cube (1-3). Students will take away that many counters. Students will determine how many counters are left. No recording is needed at this station. Students continue this process.

Station 3: One More Animal
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will add one more counter and count the total. No recording is needed at this station. Students continue to select different number cards.

Station 4: One Less Animal
Students will grab a picture card and put counters on each of the people. Students will roll a number cube and take away that many counters. Students will count the remaining counters to solve the problem.

Station 5: Snap It
Students will make a train of 3, 4, or 5 cubes and hold it behind their back. Students will snap off a few cubes and count them while holding the rest behind their back. Students will figure out how many cubes are behind their back.

Evaluation of Students

Stations 1-4: What strategies do students use to solve the story problems? Do students represent the problem appropriately? Do students accurately solve the problem?

Station 5: What strategies do students use to determine how many cubes they have behind their back?

Plans for Individual Differences

Extension: The number of objects at each station can be increased.

Intervention: If students are struggling, have students only work with the numbers 3 or 4.

Lesson 7: How Many More?
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Determine the missing part • Explain how they found the missing part
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	join, more, fewer
Materials	Whole class: number cube, five frame

Tasks in the Lesson

Engage	3-5 minutes

During whole group time, the teacher rolls a number cube (0-5) and shows it to the class. Use this number cube as your start number.

We want to put 5 cookies in each bag. Right now we have __ cookies. How many more cookies do we need to fill the bag?

Show a Five Frame to the students and ask:
Who remembers how this can help us solve problems?

The teacher should say:
We have __ cookies. Who can put counters on the five frame to show the cookies?

So, how do we find out how many more cookies we need?

Ask students to share their solutions and their strategies.
As students give their solutions, it is acceptable to allow many students to share their solution, even if they all have the same solution.
The teacher might say: *How many cookies do we need? How did you solve this problem?*
Did anyone use a different strategy?

Regardless of the solution, the teacher should not lead students to think whether their solution is correct or incorrect.

Possible responses:
I counted the empty spaces.
I knew that 5 is __ and __.
I started at __ and counted in my head until I got to 5.

The teacher finishes representing the problem by placing __ counters of a different color to fill the Five Frame.

Explore and Explain   10-12 minutes

Give each student a Five Frame and counters.
The teacher will roll the number cube again to get a start number.
The teacher will tell the story:
There are __ dogs in the park. Some more dogs ran there. There are now 5 dogs in the park. How many dogs ran there?

Students will use the counters and Five Frame to solve the problem.
The teacher will ask students to share their solution and strategies.
Possible responses:
I counted the empty spaces.
I knew that 5 is __ and __.

Continue this with 3-4 more examples. The teacher should keep asking students questions to check for understanding.

Elaborate   30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:

Station 1: Kids on the Playground
Students will start with 3, 4, or 5 counters to represent kids on the playground. Students will roll a number cube and tell a story about that number of kids leaving. No recording is needed at this station. Students continue this process.

Station 2: Sharing Toys
Students will put 5 counters on a ten frame and roll a number cube (1-3). Students will take away that many counters. Students will determine how many counters are left. No recording is needed at this station. Students continue this process.

Station 3: One More Animal
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will add one more counter and count the total. No recording is needed at this station. Students continue to select different number cards.

Station 4: One Less Animal
Students will grab a picture card and put counters on each of the people. Students will roll a number cube and take away that many counters. Students will count the remaining counters to solve the problem.

Station 5: Snap It
Students will make a train of 3, 4, or 5 cubes and hold it behind their back. Students will snap off a few cubes and count them while holding the rest behind their back. Students will figure out how many cubes are behind their back.

Evaluation of Students

Formative:

Plans for Individual Differences

Extension: The number of objects at each station can be increased.

Intervention: If students are struggling, have students only work with the numbers 3 or 4.

Lesson 8: Coin Drop
Overview and Background Information

Mathematical Goals	By the end of the lesson students will: • Model and solve a subtraction, result unknown problem • Explain their strategies for solving the problem
Common Core State Standards	**Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.** **K.OA.1** Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations. **K.OA.2** Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. **K.OA.5** Fluently add and subtract within 5. **Count to tell the number of objects.** **K.CC.5** Count to answer "how many?" questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1–20, count out that many objects.
Emphasized Standards for Mathematical Practice	1. Make Sense and Persevering while Solving Problems 2. Reason Abstractly and Quantitatively 5. Use Appropriate Tools Strategically 8. Look for and Express Regularity in Repeated Reasoning
Prior Knowledge Needed	making sets of objects (within 5), counting sets of objects consistently with accuracy (within 5)
Vocabulary	Fewer, more, remove
Materials	Whole class: pennies (real or plastic) or two-color counters Stations: Station 1: picture cards, number cubes, tree work mat, counters Station 2: picture cards, counters, work mat Station 3: number cards, five frame, counters Station 4: counters, five frame Station 5: pom-poms, hoops recording sheets for Stations 5

Tasks in the Lesson

Engage   3-5 minutes

During whole group time, tell the following story to the class:

You have 5 pennies (or counters) in your hand and you drop them. What are the different combinations of heads and tails that you could get?

The teacher picks up 5 pennies (or counters) and drops them. After they drop, the teacher puts them in a five frame.

How many heads did we get? How many tails did we get? (Ask based on the color if you use counters).

Record the results for students to see. When you record do not use the + sign.
Appropriate recordings:
   3 heads and 2 tails OR 3 heads, 2 tails

The teacher should ask:
If we drop the coins again will we end up with the same amount or different amount? Why do you think that? Let's find out!

Explore and Explain	10-12 minutes

Give each student a Five Frame and coins (counters).
Model again for students how to drop the five coins. Place them in the five frame and count how many heads and how many tails you have.

After you count, record the results for students to see. Remember that the + sign should not be used.

Allow students to work independently on the Coin Drop activity. As students work, ask the following questions to check students' understanding:
   What combinations have you found?
   Do you think there are more combinations that you haven't found? Why do you think that?
   Do you notice anything with your combinations?

Elaborate	30-35 minutes

Students will spend the remainder of the lesson in independent work stations practicing concepts related to joining and number sense. The teacher's role is to scaffold and extend students' learning by interacting with students at each of the stations. The teacher should not be fixed at one station the entire time.

These stations are intended to focus on combinations of 3, 4, and 5 only. Each day a student should only be working on combinations of either 3, 4, or 5. This is determined by the teacher or the student.

Here is an overview of the five stations:
Station 1: Kids on the Playground
Students will start with 3, 4, or 5 counters to represent kids on the playground. Students will roll a number cube and tell a story about that number of kids leaving. No recording is needed at this station. Students continue this process.

Station 2: Sharing Toys
Students will put 5 counters on a ten frame and roll a number cube (1-3). Students will take away that many counters. Students will determine how many counters are left. No recording is needed at this station. Students continue this process.

Station 3: One More Animal
Students will select a number card (0-5) and use that number as the start number in their story problem. Students make that number using counters. From the start number, students will add one more counter and count the total. No recording is needed at this station. Students continue to select different number cards.

Station 4: One Less Animal
Students will grab a picture card and put counters on each of the people. Students will roll a number cube and take away that many counters. Students will count the remaining counters to solve the problem.

Station 5: Snap It
Students will make a train of 3, 4, or 5 cubes and hold it behind their back. Students will snap off a few cubes and count them while holding the rest behind their back. Students will figure out how many cubes are behind their back.

*Stations from earlier in the unit may also be used in place of Stations 4 and 5.

Evaluation of Students

Formative:

Plans for Individual Differences

Extension: The number of objects at each station can be increased.

Intervention: If students are struggling, have students only work with the numbers 3 or 4.

Coin Drop

I started with _____ Counters/Coins.

_____ **Counter/Coin**	_____ **Counter/Coin**

Table 1 Common addition and subtraction situations[1]

	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$ **(K)**	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$ **(1st)**	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$ One---Step Problem **(2nd)**
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$ **(K)**	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$ **(1st)**	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$ One---Step Problem **(2nd)**

	Total Unknown	Addend Unknown	Both Addends Unknown[2]
Put Together/ Take Apart[3]	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$ **(K)**	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5, 5 - 3 = ?$ **(1st)**	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5, 5 = 5 + 0$ $5 = 1 + 4, 5 = 4 + 1$ $5 = 2 + 3, 5 = 3 + 2$ **(K)**

	Difference Unknown	Bigger Unknown	Smaller Unknown
Compare[4]	("How many more?" version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy? **(1st)**	(Version with "more"): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have? One---Step Problem **(1st)**	(Version with "more"): Julie has 3 more apples than Lucy. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?$ $? + 3 = 5$ One---Step Problem **(2nd)**
	("How many fewer?" version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5, 5 - 2 = ?$ **(1st)**	(Version with "fewer"): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?, 3 + 2 = ?$ One---Step Problem **(2nd)**	(Version with "fewer"): Lucy has three fewer apples than Juli e. Julie has five apples. How many apples does Lucy have? One---Step Problem **(1st)**

K: Problem types to be mastered by the end of the Kindergarten year.

1st: Problem types to be mastered by the end of the First Grade year, including problem types from the previous year(s). However, First Grade students should have experiences with all 12 problem types.

2nd: Problem types to be mastered by the end of the Second Grade year, including problem types from the previous year(s).

[1] Adapted from Box 2---4 of Mathematics Learning in Early Childhood, National Research Council (2009, pp. 32, 33).

[2] These take apart situations can be used to show all the decompositions of a given number. The associated equations, which have the total on the left of the equal sign, help children understand that the = sign does not always mean makes or results in but always does mean is the same number as.

[3] Either addend can be unknown, so there are three variations of these problem situations. Both Addends Unknown is a productive extension of this basic situation, especially for small numbers less than or equal to 10.

[4] For the Bigger Unknown or Smaller Unknown situations, one version directs the correct operation (the version using more for the bigger unknown and using less for the smaller unknown). The other versions are more difficult.