



Topic 8: Understanding Subtraction

Lessons 1-8

Math Intervention Resources

Reteach

MDIS:

B1: 8-1, 8-2, 8-3, 8-4, 8-5, 8-6

B4: 8-7

Guided Practice

Help children make connections between the information they have and the new concepts and symbols being introduced. For example, connect “5 take away 3 is 2” to $5-3=2$.

Provide children performing below level with numerous opportunities to practice working with the “+” and “-” symbols so that they can easily differentiate between them.

Remind children that when they use + they will have more than they started with; when they use – they will have less than they started with.

Reinforce

Envision Math Games:

Topic Games:

- Rabbit Races

envision Online Games

- Computation games: Subtraction 1, 2, 3, 4
- Math facts practice

Symbaloo

Building Blocks (Golden CD)

10 Block Materials:

- Drill Doughnuts
- Minus 0-1 Strategies
- Rolling Your Subtraction Facts

Assessments

K

Topic 8: Understanding Subtraction

Lesson 8-1

MDIS: B1

Stories About Separating

Quick and Easy Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will act out number stories that involve separating two groups.	Separating parts from a whole is one interpretation of subtraction.	left separate	Counters (or Teaching Tool 32)



Math Background

One important meaning of subtraction is separating. Children separate a set of objects into two sets to answer questions about how many are left. It is important for children to have many experiences to develop and use

language like “how many are left” prior to symbolic work with the operations. From these experiences, children will connect their use of the language to the operation of subtraction and its symbols, such as the subtraction sign.

Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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. Also **K.OA.2**, **K.OA.5**

Mathematical Practices

- ✓ Make sense of problems and persevere in solving them.
- ✓ Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- ✓ Model with mathematics.
- ✓ Use appropriate tools strategically.
- ✓ Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

2 Guided Practice

Remind children that they count to find the number of objects that are left.

Error Intervention

IF children think that the number of bugs that leave is the number that is left,

then have children use counters to act out each story.

Do you understand? *How can you act out a number story about the part of a group leaving?* [I can use objects to show the whole group. Then I can move objects to the side to show the part of the group that leaves. Then I can count the objects that are left.]

Reteaching Show a train of 10 cubes (6 red and 4 blue cubes). *How many cubes are there in all?* [10] *When we separate groups, we pull or move them apart.* Take away the 4 blue cubes. Have children tell how many are left. [6] *How do you know how many are left?* [Count.] Continue with other cube trains.

K

Topic 8: Understanding Subtraction

Lesson 8-2

MDIS: B1

Stories About Take Away

Quick and Easy

Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will determine how many are left when some objects in a group are taken away.	Taking part of a group away is one interpretation of subtraction.	take away	Counters (or Teaching Tool 32)



Math Background

When young children see a set of numbers, they are more likely to add and join rather than to separate a quantity from the whole. It is important for children to first count the total.

Then they remove or mark the items to be taken away. Finally, they represent or count the unmarked items.

2

Guided Practice

After children complete each sentence, have them read it aloud. Review together what each number in the sentence means.

Error Intervention

If children are unsure why they mark Xs,

then explain that marking an X means taking away.

Do you understand? *How can you act out a number story about taking away part of a group?* [Use objects to show the whole group. Then take away some of the objects and count the objects that are left.]

Reteaching Write "9 take away 3 is 6." on the board. Show children how to model the subtraction using tiles. *How many are left?* [6] *The part we take away is 3. The part that is left is 6.* Repeat with different sentences.



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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Mathematical Practices

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K

Topic 8: Understanding Subtraction

Lesson 8-3

MDIS: B1

Stories About Comparing

Quick and Easy Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will compare two groups to find how many more or fewer.	Comparing two quantities to find how much more/less one quantity is than the other is one interpretation of subtraction.		Sheets of paper Pencils Counters (or Teaching Tool 32) Connecting cubes



Math Background

The activities in this lesson focus on identifying the number of objects in a group and deciding which group has more or fewer

objects. Review concepts of more and fewer from previous lessons.

2 Guided Practice

Remind children that they can count to find how many more or fewer.

Error Intervention

If children are unclear as to why they match the objects one to one, **then** explain that by pairing off the objects in the rows, they can see which group has more or fewer.

Do you understand? *How do you know how many more or fewer objects are in one group than in another group?* [I match each object in one row with an object in the other row. Then I count the objects left over.]

Reteaching Model taking a handful of tiles, separating them by color, and lining them up in two rows to compare. *The row with tiles left over has more. How many more tiles are there?* Repeat the activity, emphasizing fewer tiles. *The row with no tiles left over has fewer. How many fewer tiles are there?*



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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Mathematical Practices

- Make sense of problems and persevere in solving them.
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Topic 8: Understanding Subtraction

Lesson 8-4

MDIS: B1

Problem Solving: Act It Out

Quick and Easy

Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will act out and solve subtraction word problems and record the answers.	Some problems can be solved by using objects to act out the actions in the problem.		Counters (or Teaching Tool 32)



Math Background

Ask questions that help children think about how they could act out word problems. *What objects could you use to stand for things in a number*

story? How could you act out what happens? How could you check that your answer to the problem makes sense?

2

Guided Practice

Ask children word problems using the sample numbers shown. Guide children to solve each word problem by acting it out with counters. Remind them to write the answers on the lines. Ask volunteers to explain how they solved the problems.

Error Intervention

If children have trouble getting started,

then explain that the first thing they show with counters is how many are in the whole group. Ask: *What do you do next?* [Take some counters away from the group.]

Do you understand? *How does acting out help you solve a subtraction problem?* [I can show a group of things and take away some things. I can see how many are left.]

Reteaching Have groups of children pretend to be birds and act out the first problem. Then have them pretend to be ants and act out the second problem.



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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. Also **K.OA.2**, **K.OA.5**

Mathematical Practices

- ✓ Make sense of problems and persevere in solving them.
- ✓ Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- ✓ Model with mathematics.
- ✓ Use appropriate tools strategically.
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Topic 8: Understanding Subtraction

Lesson 8-5

MDIS: B1

Using the Minus Sign

Quick and Easy Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will use the minus sign (-) to represent "take-away" situations when recording subtraction.	Separating, take away, and comparison subtraction situations can be shown in a subtraction expression that uses the minus sign (-).	minus sign (-) subtract	6 pencils Counters (or Teaching Tool 32)



Math Background

Research says... Children use the minus sign to represent take-away situations acted out with counters and shown with pictures.

Mathematical symbols should be connected to children's experiences and to concrete and pictorial models (Irons & Irons, 1989).

2

Guided Practice

Have children read each problem aloud as "4 minus 2" and "8 minus 3."

Error Intervention

If children have difficulty with the vocabulary,

then connect the separating of items from a whole to placing Xs on the pictures. Use "subtract" when describing the activity.

Do you understand? *Where do you write a minus sign to show subtraction?* [Between the number that tells how many there are in all and the number that tells how many are being subtracted]

Reteaching Display 6 counters. Move 3 counters to the side. Write $6 - 3$ on the board. Point to the minus sign and explain that it means "subtract." Have children write $6 - 3$ and say "6 minus 3." Repeat with other numbers.



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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. Also **K.OA.2**, **K.OA.5**

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
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Topic 8: Understanding Subtraction

Lesson 8-6

MDIS: B1

Finding Differences

Quick and Easy Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will use the equal sign (=), subtract, and write the difference.	Some separating, take away, and comparison situations can be represented and solved using subtraction.	difference	Counters (or Teaching Tool 32)



Math Background

In math, the equal sign is a sophisticated tool to show equality between the two sides of an equation. Begin to discuss with children how

the two sides of a number sentence, separated by the equal sign, show the same thing.

2

Guided Practice

Remind children that the difference tells how many are left when they subtract part of a group from the whole.

Error Intervention

If children are unclear about the meaning of a sentence with $-$ and $=$, such as $7 - 5 = 2$,

then begin with “7 take away 5 is 2” and explain that this is how we describe the police hats in Exercise 2. $7 - 5 = 2$ says the same thing.

Do you understand? What do you know about an equal sign?

[It is used in a sentence that shows subtracting. It goes between the numbers being subtracted and the difference. It means “is.”]

Reteaching Place 7 blocks on the chalk ledge. Ask a child to remove 3 blocks. *How many blocks are left?* [4] *What is left is the difference.* Write $7 - 3 = 4$ on the board. Guide children to identify the minus sign, the equal sign, and the difference. Repeat with different numbers of blocks.



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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. Also **K.OA.2**, **K.OA.5**

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
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Topic 8: Understanding Subtraction

Lesson 8-7

MDIS: B4

Subtraction Sentences

Quick and Easy Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will write and solve subtraction sentences to represent take-away situations.	Subtraction number sentences using $-$ and $=$ can be used to show subtraction situations.	subtraction sentence	Counters (or Teaching Tool 32)



Math Background

When doing subtraction, children should be encouraged to always record the whole first whenever they deal with concrete materials. As they become more familiar with

the operations, show them how adding the difference and the part taken away gives them the whole.

2

Guided Practice

Have children cross out the puppets in each exercise and read each subtraction sentence with you: **6 minus 1 equals 5.**
7 minus 4 equals 3.

Error Intervention

If children find it confusing that a subtraction sentence contains no words,

then explain that a subtraction sentence uses numbers and signs instead of words.

Do you understand? *What do you write in a subtraction sentence?* [The number in all, the number I'm subtracting, a minus sign, an equal sign, and the difference]

Reteaching Write 6, 4, 2, minus ($-$) sign, and equal ($=$) sign on separate index cards. Display the cards in mixed order. Guide children to put the cards together to form a subtraction sentence. Repeat, using other numbers.



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

K.OA.5 Fluently add and subtract within 5. Also **K.OA.1**, **K.OA.2**

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
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K

Topic 8: Understanding Subtraction

Lesson 8-8

MDIS:

Problem Solving: Use Objects

Quick and Easy

Lesson Overview

Objective	Essential Understanding	Vocabulary	Materials
Children will solve problems by choosing addition or subtraction.	Some problems can be solved by using objects to act out the actions in the problem.		Counters (or Teaching Tool 32)



Math Background

So far, children have not had to choose whether to add or subtract to solve a problem. Guide children as they make their choices about addition or subtraction by emphasizing

what the question in the problem is asking. For example, point out that “how many are left” and “how many in all” ask two different questions.

2

Guided Practice

Remind children to look at the alligators and counters at the top of the page to help them.

Error Intervention

If children don't know whether to add or subtract,

then guide them to listen for words in the stories that tell whether some animals are joining or leaving a group. Have them think about whether the story problem is asking “how many in all” or “how many are left.”

Do you understand? *Do we add or subtract when we want to find how many there are in all?* [Add] *Do we add or subtract when we want to find how many are left?* [Subtract]

Reteaching Tell an addition or subtraction story about children, such as: *4 children are reading in the Reading Center. 2 of the children leave. How many children are left?* Have children role-play the story. *Are we joining or taking away?* [Taking away] *Should we add or subtract to solve the problem?* [Subtract] Guide children to identify words that help them choose subtraction. Model writing the matching subtraction sentence and then have children write it. Repeat with other stories about addition and subtraction.



Common Core

Domain

Operations and Algebraic Thinking

Cluster

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

Standards

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. Also **K.OA.1**

Mathematical Practices

- ✓ Make sense of problems and persevere in solving them.
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