

# Mini-Map for M.EE.3.NBT.2

Subject: Mathematics Number and Operations in Base Ten (NBT) Grade: 3

## Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.3.NBT.2 Demonstrate understanding of place value to	M.3.NBT.2 Fluently add and subtract within 1000 using
tens.	strategies and algorithms based on place value, properties of
	operations, and/or the relationship between addition and
	subtraction.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate	Recognize ten as a	Recognize a group of 20	Understand the value of	Use place value
understanding of	group of 10 individual	or more objects as	each digit in a numeral.	understanding to round
"separateness" by	objects or 10 ones.	multiple sets of 10 and	That is, the digit in the	numbers to the nearest
recognizing objects that		remaining ones.	tens place is formed by	10. The digit in the tens
are not joined together.		Demonstrate	grouping objects by	place is rounded up if
Communicate		understanding of tens	tens, and the digit in	the digit in the ones
understanding of a set		and ones and use that	the ones place is	place equals five or
by recognizing a group		understanding to	composed of individual	more (e.g. <i>,</i> 47 is
of objects sharing an		represent a given	objects.	rounded up to 50). If
attribute.		number (e.g. <i>,</i> count		the digit in the ones
		objects to assemble		place is less than five,
		sets of 10 and a set of		the number is rounded
		remaining ones to reach		down (e.g., 62 is
		a given number).		rounded down to 60).
				Communicate
				understanding of the
				value of 100 as 100
				ones, 10 tens, or 1
				group of 100.

How is the Initial Precursor related to the Target? Understanding place value starts with students working on early counting skills. Educators demonstrate and provide explicit lessons on the conceptual and procedural knowledge of number names, number sequence, one-to-one correspondence, cardinality, abstraction principle, and order irrelevance principle all within a context of counting concrete, pictorial, and numeral representations. Educators will support students by counting anything and everything, helping them to notice when things are grouped together and when they are separate.

#### How is the Distal Precursor related to the Target?

At this level, students are provided lessons on recognizing equivalence in sets with same items and then with different items. Educators will also have students compare sets and make basic ordinal judgments (e.g., a set has more and fewer disks than the comparison set) using models (e.g., ten-frame, number line, arrays) of ten as the benchmark for which these comparisons are made.

Released Testlets
See the Guide to Practice Activities and Released Testlets
Using Untested (UN) Nodes
See the document Using Mini-Maps to Plan Instruction.

M.EE.3.NBT.2 Demonstrate understanding of place value to tens.





# Mini-Map for M.EE.3.NBT.3

Subject: Mathematics Number and Operations in Base Ten (NBT) Grade: 3

# Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.3.NBT.3 Count by tens using models such as objects, base	M.3.NBT.3 Multiply one-digit whole numbers by multiples of 10
ten blocks, or money.	in the range 10– 90 (e.g., 9 × 80, 5 × 60) using strategies based
	on place value and properties of operations.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
In a series of events,	Communicate	Communicate number	Demonstrate skip	Demonstrate skip
identify an event as	understanding that	words 1 to 30 in	counting by multiples of	counting by tens,
occurring "before" or	numbers occur in a	numerical order	10 to count objects up	starting at a multiple of
"after" another event.	pattern. For example,	verbally. Start at a	to 40 [(e.g., arrange	10 (e.g., 30, 40, 50, 60).
	the numbers 20 to 29,	number, one or	objects up to 40 in	Use this understanding
	30 to 39, or 50 to 59	otherwise, and count	groups of 10 objects,	of counting by tens to
	follow a pattern, where	objects to 30 by	and count the total	count dimes and 10-
	each number is	assigning a single	number of objects using	dollar bills, and
	expressed by naming	number word to each	multiples of 10 (i.e., 10,	communicate the total
	the decade number and	object. While counting	20, 30, 40)].	value of a set (e.g., 10 +
	then the digit number	objects up to 30,		10 + 10 dollar bills equal
	[i.e., 24 is expressed as	demonstrate an		30 dollars).
	twenty (decade	understanding that (i) it		Communicate an
	number) four (digit	does not matter where		understanding of
	number)].	you start or in what		repeated addition as
		order you count, (ii) the		adding the same
		number of objects in a		numeral a given
		set remains the same,		number of times (e.g., 3
		and (iii) the last number		+ 3 + 3 + 3 means
				adding 3 four times).

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
		counted equals the		
		total number of objects.		

How is the Initial Precursor related to the Taraet? In order to fully understand the number sequence and skip counting, students begin by counting objects in a one-to-one fashion. Then, students use small collections to make comparisons (e.g., 3 items is more than 2 items because you have to count further). Once students can count at least 3 items, educators begin introducing the positional words before and after. A powerful way to teach these concepts is to incorporate them into daily routines. For example, lining classmates up to go somewhere, lining up familiar items, following a schedule, and using the words "before" and "after" to describe the relative location of the people, objects, and events. During math, educators will describe the location and the characteristic of the item being discussed (e.g., the square comes before the circle; number 2 is after number 1; in this pattern, blue is before red).

How is the Distal Precursor related to the Target? Students will continue to build their familiarity with the counting sequence enabling them to have number-before and number-after knowledge (e.g., when asked "What comes after 5?" the student is able to indicate 6 without having to count up from 1; however, they still may use the count sequence to get a running start: 4, 5, 6). Educators provide students with many opportunities to make close comparisons utilizing models (e.g., ten-frame, number line, sets) so they have a visual or tactual way to compare small collections (e.g., Which is more? 7 or 8; 3 or 4; 9 or 10). The models help students see that two is one more than one, and three is one more than two. This will help them build the concept that each number in the count sequence is one more than the previous number.

Released Testlets		
See the Guide to Practice Activities and Released Testlets.		
Using Untested (UN) Nodes		
See the document Using Mini-Maps to Plan Instruction.		



**M.EE.3.NBT.3** Count by tens using models such as objects, base ten blocks, or money.



# Mini-Map for M.EE.3.NF.1-3

Subject: Mathematics Number and Operations—Fractions (NF) Grade: 3

## Learning Outcome

DLM Essential Element	Grade-Level Standard
<b>M.EE.3.NF.1-3</b> Differentiate a fractional part from a whole.	<ul> <li>M.3.NF.1 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.</li> <li>M.3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.</li> <li>M.3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.</li> </ul>

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate generic	Recognize separateness	Demonstrate	Recognize each object	Recognize a fraction as
understanding of	as objects that are not	understanding of	as the part of a	a number expressed as
"some" as a certain	joined together.	partition by dividing a	whole/unit when shown	a quotient of two
amount or a number of	Recognize wholeness as	circle, square, or	a whole/unit containing	integers in the form
people or things.	an object that has all	rectangle into two or	a group of objects.	<i>a/b,</i> with <i>b</i> not equal to
	the parts joined	more distinct parts.	Demonstrate	zero. Recognize the
	together.	These parts may or may	understanding of a unit	area model that
		not be equal in area.	fraction (e.g., 1/4) as	represents a whole and
			the quantity formed by	the model that
			one part when a whole	represents one half
			is partitioned into <i>n</i>	when shown different
			(e.g., 4) equal parts.	area models.

How is the Initial Precursor related to the Target? Understanding fractions requires students to first recognize an amount of something. Before students begin to recognize items separately, they recognize sets visually or tactually as a whole (i.e., there is something there). Provide students with meaningful experiences and descriptions of items they can touch, hear, smell, and see. Help students make sense of the items by demonstrating the symbolic word, sign, or symbol (e.g., Here are/is some cubes, some pencils, some dirt). Look for fun and interesting opportunities across the day to use the word "some" within a natural context.

How is the Distal Precursor related to the Target? When working toward an understanding of fractions, students need exposure to a wide variety of items that can be put together and taken apart (e.g., linking cubes, magnetic tiles, puzzles). Encourage students to interact with the objects. Educators should take care to use the words "whole" and "part" to describe them. While students do not need to say these words, they do need to learn the meanings. At the same time, students will be working on counting skills. The models used to teach counting (e.g., five-frame, ten-frame, sets, number line) can be used to support the concepts of whole and part.



M.EE.3.NF.1-3 Differentiate a fractional part from a whole.



	Мар Кеу	
IP	Initial Precursor	
DP	Distal Precursor	
PP	Proximal Precursor	
Т	Target	
S	Successor	
UN	Untested	
Boxes indicate tested nodes		



# Mini-Map for M.EE.3.OA.4

Subject: Mathematics Operations and Algebraic Thinking (OA) Grade: 3

## Learning Outcome

DLM Essential Element	Grade-Level Standard
<b>M.EE.3.OA.4</b> Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.	<b>M.3.OA.4</b> Determine the unknown whole number in a multiplication or division equation relating three whole
	numbers.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate	Combine two or more	Identify the addition,	Find the unknown sum	Determine the
understanding of	sets of objects to create	subtraction, and equal	(e.g., 5 + 8 = ?) or the	unknown quantity in
"separateness" by	a new set. Divide a set	signs. Understand that	missing addend (e.g., 6	join, part-part-whole,
recognizing objects that	of 10 or fewer objects	the "+" sign indicates	+?=10) in an addition	compare, or separate
are not joined together.	into two or more	the numbers on either	equation. Find the	word problems.
Communicate	distinct subsets.	side of the sign should	unknown difference in a	
understanding of a set	Demonstrate an	be added together, that	subtraction equation	
by recognizing a group	understanding of	the "-" sign indicates	(e.g., 12 - 7 = ?).	
of objects sharing an	addition by combining	one number should be		
attribute.	the objects of both the	"taken away" from		
	sets, and demonstrate	another number, and		
	an understanding of	that the "=" sign		
	subtraction by	indicates that quantities		
	removing some objects	on either side represent		
	from a larger set.	the same value.		
		Represent addition or		
		subtraction word		
		problems or models		
		with equations (e.g.,		
		representing 6 marbles		

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
		plus 2 marbles equal 8		
		marbles as 6 + 2 = 8		
		marbles).		

How is the Initial Precursor related to the Target? Understanding how to add and subtract requires a student to be able to recognize a set or group of items (also see M.3.OA.1-2). Students need many opportunities to experience quantities and numerals in context across the school day. Educators provide lessons using a variety of sets to model early counting. Teach students to recognize when items are grouped together into a set or separated out. The educator presents a set, labels it (e.g., two balls, one bear, three blocks), counts the items, labels it again, and encourages students to use numerals to label and count the separate sets. How is the Distal Precursor related to the Target? As students begin to understand labeling and counting small sets, educators will highlight the differences between sets on the basis of overall area or discrete number using the words "more," "less," and "same." Provide students with multiple opportunities to count and compare a wide variety of sets with an increasing number of items, label the set (e.g., eight ball, 12 bears, 15 blocks), and move items in and out of the sets, labeling and counting them again (e.g., "You just said this set has 11 cubes; if I take two cubes, how many will you have?").

NOTE: Educator can work on the Distal Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.



M.EE.3.OA.4 Solve addition and subtraction problems when result is unknown, limited to operands and results within 20.





# Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.3.G.2 Recognize that shapes can be partitioned into equal	M.3.G.2 Partition shapes into parts with equal areas. Express
areas.	the area of each part as a unit fraction of the whole.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate	Divide familiar shapes,	Recognize two glasses	Divide familiar shapes,	Recognize an area
understanding of a unit	such as circles,	with an equal amount	such as circles, squares,	model representing the
by recognizing a group	triangles, squares,	of liquid. Demonstrate	and/or rectangles, into	fractions one half, one
of countable objects.	and/or rectangles, into	an ability to partition a	two or more equal	third, one fourth, or
Communicate	two or more distinct	circle and rectangle into	parts.	one tenth when
understanding of	parts. These parts may	two, three, and four		presented with three
"wholeness" by	or may not be equal.	equal parts. Recognize		different area models.
recognizing an object		that a rectangle divided		
that has all the parts		into equal parts can		
joined together.		have rows and columns.		
Recognize parts of an				
object and the whole				
object.				

How is the Initial Precursor related to the Target? Being able to partition shapes requires a student to recognize a unit and recognize when basic objects are in whole and part forms. Work on this understanding by giving students an opportunity to observe, feel, or otherwise interact with objects and shapes in their whole and part forms. The general goal is to explore the differences between whole units or objects and parts of units or objects. As students explore shapes, label them and describe them as whole or part.

NOTE: Educators can work on the Initial Precursor skills using everyday objects and/or using the shapes that students working at the Target level are partitioning into equal parts.

#### How is the Distal Precursor related to the Target?

As students begin to recognize whole objects or shapes and parts of objects or shapes, they can move toward building and taking apart shapes.

NOTE: Educators can work on the Distal Precursor skills using everyday objects and/or using the shapes that students working at the Target level are partitioning into equal parts.

Released Testlets
See the Guide to Practice Activities and Released Testlets.
Using Untested (UN) Nodes



M.EE.3.G.2 Recognize that shapes can be partitioned into equal areas



# Mini-Map for M.EE.3.MD.1

Subject: Mathematics Measurement and Data (MD) Grade: 3

# Learning Outcome

DLM Essential Element	Grade-Level Standard
<b>M.EE.3.MD.1</b> Tell time to the hour on a digital clock.	M.3.MD.1 Tell and write time to the nearest minute, and
	measure time intervals in minutes. Solve word problems
	involving addition and subtraction of time intervals in minutes,
	e.g., by representing the problem on a number line diagram.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Show interest in and	Recognize measurable	Identify the hour as the	Communicate the time	Communicate the time
focused attention to a	attributes in a variety of	numeral on the left side	shown on a digital clock	shown on a digital clock
task, object, or any	contexts (e.g.,	of the colon symbol (:)	to the nearest hour	to the nearest half hour
environment stimulus.	understand that time is	and the minutes as the	(e.g., 3 o'clock, 7	(e.g., 4:30, 6:30) or
Recognize that an	measurable using both	numeral on the right	o'clock).	quarter hour (e.g., 2:15,
object can share some	a clock and a calendar).	side of the colon symbol		3:45, 8:15).
or none of the		(:) on a digital clock.		
attributes of other				
objects in a group, and				
recognize the object				
that does not share any				
attribute with other				
objects in a group as				
"different."				

How is the Initial Precursor related to the Target? In order to understand the passage of time and ultimately to tell time and understand its relevance, students begin by learning to focus their attention and recognize when things in their environment change or are different. In the context of learning to tell time, educators can help students attend to what is happening and contrast it with what will happen next or what happened in the past. They can draw students' attention to changes and help them notice new and different things in the environment, especially when those new and different things are associated with the passage of time.

#### How is the Distal Precursor related to the Target? In the context of an Essential Element addressing the ability to tell time, recognizing measurable attributes refers to attributes that begin to mark time. For example, students recognize attributes such as the beginning and ending of an activity; things that are accomplished first then next; and specific time concepts such as day, night, today, tomorrow, and yesterday.



M.EE.3.MD.1 Tell time to the hour on a digital clock.





# Mini-Map for M.EE.3.MD.4

Subject: Mathematics Measurement and Data (MD) Grade: 3

# Learning Outcome

DLM Essential Element	Grade-Level Standard
<b>M.EE.3.MD.4</b> Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.	<b>M.3.MD.4</b> Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Recognize attributes or	Compare the length of	Demonstrate an ability	Measure the length of	Using standard forms of
characteristics of an	two objects without	to measure lengths and	an object in inches or	measurement, compare
object, such as color,	using a measuring tool,	distances using informal	feet, using an	the lengths of two or
orientation, length,	and communicate	units of measurement.	appropriate tool such as	more objects, and
width, and weight.	whether the length of	(Informal measurement	a ruler or yardstick.	communicate whether
	the object is longer	tools are not standard		the length of one object
	than, shorter than, or	tools, such as a ruler or		is longer than, shorter
	equal to the length of	yardstick, but rather		than, or equal to
	the other object.	objects like shoes and		another object.
		blocks or body parts like		
		hands and feet.)		

How is the Initial Precursor related to the Target? In working toward learning to use tools to measure the length of objects, students begin by learning to notice the attributes of an object. The educator draws the students' attention to an object or stimulus, labels it, describes it, and the student observes, feels, or otherwise interacts with it.

#### How is the Distal Precursor related to the Target?

As students are engaging with objects, educators will continue to label and describe them, but they will also begin to incorporate lessons that have students directly comparing the lengths of two objects by matching one item against another (e.g., placing them side by side). This implies that they can distinguish length from other attributes such as color or shape. As students make direct comparisons, educators should demonstrate the describing words associated with length (e.g., short/long, length) and encourage students to begin using the words.

#### **Instructional Resources**



See the document Using Mini-Maps to Plan Instruction.



**M.EE.3.MD.4** Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.



# Mini-Map for M.EE.3.MD.3

Subject: Mathematics Measurement and Data (MD) Grade: 3

# Learning Outcome

DLM Essential Element	Grade-Level Standard
<b>M.EE.3.MD.3</b> Use picture or bar graph data to answer questions	M.3.MD.3 Draw a scaled picture graph and a scaled bar graph
about data.	to represent a data set with several categories. Solve one- and
	two-step "how many more" and "how many less" problems
	using information presented in scaled bar graphs.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Recognize attributes or	Group together objects	Recognize the structure	Using a bar or picture	Using a bar or picture
characteristics of an	by attribute values such	of bar and picture	graph, answer explicit	graph, answer
object such as color,	as shape or size (e.g.,	graphs such as the	questions by	questions that require
height, or weight. Form	group together a	framework, specifiers,	interpreting	interpretation and
pairs of objects by	square, a rectangle, and	or labels for the <i>x</i> - and	information directly	integration of
matching two objects	a rhombus, as they all	y-axes. Understand that	from the graph (e.g., in	information presented
sharing a specified	have four sides). Order	bars are used to display	a bar/picture graph	on the graphs (e.g., in a
attribute.	objects by following a	data in bar graphs,	displaying students'	bar/picture graph
	specific rule (e.g.,	where the height of the	favorite ice cream, how	displaying students'
	arrange three objects	bar represents the	many students like	favorite ice cream, how
	with different sizes	number of observations	strawberry ice cream?).	many students like
	from the smallest to	for each category.	Demonstrate an	strawberry and
	largest).	Understand that	understanding of the	chocolate ice creams?
		pictures, symbols, or	information	Or which is the favorite
		geometrical figures are	represented on the	ice cream of all the
		used to display data in	graph.	students?).
		picture graphs, where		Demonstrate the ability
		the number of pictures		to use information
		or symbols represents		

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
		the number of		represented on the
		observations for each		graph.
		category.		

How is the Initial Precursor related to the Target? In order to be able to understand data on a graph, students begin by learning to notice the attributes of an object. The educator draws the students' attention to new objects or stimuli, labels them, describes them, and the student observes, feels, or otherwise interacts with them. Educators encourage students to begin placing like objects together.

#### How is the Distal Precursor related to the Target?

As the students' attention to objects increases, educators will begin to draw the students' attention to what is the same and different between familiar items: color, shape, quantity (1-4), size, texture, and pattern. Educators should take care to use attribute words while defining and demonstrating their meaning. While students do not need to say these words, they do need to learn the meanings. Students will also begin to group two items in the same set based on their attributes (e.g., two tigers, bumpy ball and bumpy gravel, red spoons).

Released Testlets
See the Guide to Practice Activities and Released Testlets.
Using Untested (UN) Nodes
See the document Using Mini-Maps to Plan Instruction.

M.EE.3.MD.3 Use picture or bar graph data to answer questions about data.



Мар Кеу		
IP	Initial Precursor	
DP	Distal Precursor	
PP	Proximal Precursor	
Т	Target	
S Successor		
UN	Untested	
Boxes indicate tested nodes		



# Mini-Map for M.EE.3.OA.1-2

Subject: Mathematics Operations and Algebraic Thinking (OA) Grade: 3

## Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.3.OA.1-2 Use repeated addition to find the total number	M.3.OA.1 Interpret products of whole numbers, e.g., interpret
of objects and determine the sum.	5 × 7 as the total number of objects in 5 groups of 7 objects
	each. For example, describe a context in which a total number
	of objects can be expressed as $5 \times 7$ .
	<b>M.3.OA.2</b> Interpret whole-number quotients of whole numbers,
	e.g., interpret 56 ÷ 8 as the number of objects in each share
	when 56 objects are partitioned equally into 8 shares, or as a
	number of shares when 56 objects are partitioned into equal
	shares of 8 objects each.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Communicate	Combine two or more	Use models, such as	Solve repeated addition	Demonstrate
understanding of	sets, containing objects,	mathematical equations	problems by	multiplication by
"separateness" by	to form a new set.	(e.g., 5 + 5 + 5 = 15),	representing the	combining multiple sets
recognizing objects that	Combine two parts	sets of manipulatives,	problem using an	containing the same
are not joined together.	(e.g., blocks, toys, or	or number line	equation and finding	number of objects.
Communicate	shapes) to form a new	diagrams to represent a	the sum using an	Communicate
understanding of set by	whole. Demonstrate	repeated addition	addition strategy, such	understanding that the
recognizing a group of	addition by combining	problem.	as skip counting.	number of sets times
objects sharing an	the objects belonging to			the number of objects
attribute. Communicate	two or more sets, and			in each set equals the
understanding of a	communicate that the			total number of objects.
subset by recognizing a	total number of objects			
subset as a set or group	in the new set is called			
of objects within a	the sum.			

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
larger set that share an				
attribute.				

How is the Initial Precursor related to the Target? In order to use repeated addition to solve problems, students must first learn to organize items into groups/sets based on a common characteristic such as size, color, shape, texture, or flavor. Students learn how to sort items by separating a group of items into two groups (e.g., vehicles and animals). As students gain comfort sorting items into sets, they are encouraged to use their language to convey their thought process by identifying and naming the characteristic that determines the set (e.g., wheels and legs). Activities that require students to engage actively with the items will foster the students' understanding of set, subsets, and separateness (e.g., the game "one of these things is not like the other"; highlighting one characteristic in a group of similar items [e.g., color] by which the items will be grouped; incorporating creating sets into everyday activities [e.g., during clean up time students place items into one of two bins based on a designated characteristic]).

## **Instructional Resources**

Released Testlets
See the Guide to Practice Activities and Released Testlets.
Using Untested (UN) Nodes

How is the Distal Precursor related to the Target? As students gain an understanding of how to group items into sets, educators will begin to help students connect their knowledge of sets with their knowledge of counting. Educators will provide multiple experiences counting sets and combining sets using multiple models. The following are examples of models.







Мар Кеу			
IP	Initial Precursor		
DP	Distal Precursor		
PP	Proximal Precursor		
Т	Target		
S	Successor		
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Boxes indicate tested nodes			



# Mini-Map for M.EE.3.OA.8

Subject: Mathematics Operations and Algebraic Thinking (OA) Grade: 3

## Learning Outcome

DLM Essential Element	Grade-Level Standard	
M.EE.3.OA.8 Solve one-step real-world problems using addition	M.3.OA.8 Solve two-step word problems using the four	
or subtraction within 20.	operations. Represent these problems using equations with a	
	letter standing for the unknown quantity. Assess the	
	reasonableness of answers using mental computation and	
	estimation strategies including rounding.	

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Combine two or more	Demonstrate	Find the unknown sum	Solve addition and	Use addition and
sets of objects or	understanding of	(e.g., 5 + 8 = ?) or the	subtraction word	subtraction to solve
numbers to form a new	addition by combining	missing addend (e.g., 6	problems within 20.	two-step word
set. Divide a set of 10 or	the objects of two or	+? = 10) in an addition		problems, including
fewer objects into two	more sets and	equation. Find the		join, separate, part-
or more distinct subsets	understanding of	unknown difference in a		part-whole, and
(e.g., dividing a set	subtraction by	subtraction equation		compare problems.
containing 10 objects	removing some objects	(e.g., 12 - 7 = ?).		
into two subsets	from a larger set.			
containing 4 and 6				
objects).				

#### *How is the Initial Precursor related to the Target?*

The knowledge needed to solve addition and subtraction word problems links back to an understanding of how to create sets (see M.3.OA.1-2), but it also requires learning to manipulate sets (i.e., combining and separating or partitioning). Provide students many opportunities to take a set of objects (e.g., tiles, linking cubes, buttons) and separate them based on a given characteristic (e.g., shape, color, size) into two distinct sets, separate them again based on another characteristic. Guide students to notice how the set size changes each time you combine or partition the sets.

#### How is the Distal Precursor related to the Target? As students gain an understanding of how to group and

As students gain an understanding of now to group and manipulate items into sets, educators will begin to help students connect their knowledge of sets and counting to addition and subtraction. Educators will provide multiple experiences using the various addition and subtraction problem types (e.g., joining, separating, part-part-whole, and comparison problems). Here are a few examples.



## Instructional Resources

Released Testlets
See the Guide to Practice Activities and Released Testlets.
Using Untested (UN) Nodes

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M.EE.3.OA.8 Solve one-step real-world problems using addition or subtraction within 20.

Мар Кеу			
IP	Initial Precursor		
DP	Distal Precursor		
PP	Proximal Precursor		
Т	Target		
S	Successor		
UN	Untested		
Boxes indicate tested nodes			



# Mini-Map for M.EE.3.OA.9

Subject: Mathematics Operations and Algebraic Thinking (OA) Grade: 3

## Learning Outcome

DLM Essential Element	Grade-Level Standard
M.EE.3.OA.9 Identify arithmetic patterns.	<b>M.3.OA.9</b> Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.

Initial Precursor	Distal Precursor	Proximal Precursor	Target	Successor
Recognize "same" as	Arrange objects in a	Recognize that patterns	Recognize the pattern	Determine the pattern
the object that shares	specific order by	(or cycles) exist in	that either repeats or	rule in a repeating,
all of the same	following a specific rule	nature or in everyday	grows when shown	growing, or shrinking
attributes as other	(e.g., arrange objects	life.	different patterns	pattern by finding how
objects in a group.	from the largest to the		involving numbers,	a term in the pattern is
Recognize "different" as	smallest size). Group		letters, symbols, or	obtained from a
the object that shares	like items by attributes		shapes (e.g., 1, 1, 2, 1,	previous term (e.g., in
some or none of the	such as size, shape, and		1, 2, 1, 1, 2, or 2, 4, 6,	the pattern 1, 3, 5, 7,
attributes as other	color. Contrast or		8).	each term is obtained
objects in a group.	distinguish objects			from the previous term
	based on attributes			by adding 2, which
	such as shape, size,			implies that the pattern
	texture, and numerical			rule is "add 2"). Apply a
	pattern.			given pattern rule to
				find the next term in a
				pattern.

How is the Initial Precursor related to the Target? Recognizing patterns is an important building block to many mathematical concepts and skills such as skip counting, repeated addition, and multiplication. In order to build toward arithmetic patterns, students need to engage in activities that compare at least two items. Calling attention to both how they are the same and how they are different. This type of instruction should include but may not be limited to quantities, shapes, and attributes across the school day so students have many opportunities to experience same and different. How is the Distal Precursor related to the Target? Building on same and different, educators can use some of the other mathematical concepts like working with sets or recognizing a whole and parts to help students identify same and different. For instance, students may create a set and then create a second set that has the same amount. Then, they can change one of the sets to make it different. As students are learning to create and identify sets that are same and different, educators can draw student attention to the various attributes of an object to teach students to order, classify, and contrast the objects. These understandings will then lead to students having the attentional skills to begin recognizing patterns.

#### **Instructional Resources**

Released Testlets

See the Guide to Practice Activities and Released Testlets.

**Using Untested (UN) Nodes** 

See the document Using Mini-Maps to Plan Instruction.



