

Essential Element MiniMap	DLM Essential Element	Target Linkage Level	Proximal Linkage Level	Distal Precursor Linkage Level	Initial Precursor Linkage Level	How is the distal precursor related to the target?	How is the initial precursor related to the target?
M.3.OA.4	M.3.OA.4 Solve addition and subtraction problems when result is unknown, limited to operands and results within 20	Determine the unknown in a subtraction equation Determine the unknown in an addition equation	Recognize the addition sign Explain the function of the addition sign Represent addition with equations Recognize the subtraction sign Explain the function of the minus sign Represent subtraction with equations Recognize the equal sign Explain the function of the equal sign	Combine sets Demonstrate the concept of addition Partition sets Demonstrate the concept of subtraction	Recognize separateness Recognize set	Distal Precursor: As students begin to understand labeling and counting small sets (1-4), they begin to use the number sequence. Students become more adept at tracking individual objects and are able to compare (e.g., more or less) two groups based on the overall area or discrete number. Again, teachers can work on this skill using a variety of sets, labeling and counting the set, and moving items in and out of the set, labeling and counting the set again. NOTE: Teachers can work on the Distal Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.	Initial Precursor: Understanding how to add and subtract requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one bear, three blocks), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. NOTE: Teachers can work on the Initial Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.
M.EE.3.G.2	M.3.G.2 Recognize that shapes can be partitioned into equal areas	Partition any shape into equal parts	Model equal part Partition circle into 2 equal parts Partition circle into 3 equal parts Partition circle into 4 equal parts Partition a rectangle into rows and columns Partition rectangle into 2 equal parts	Partition shapes	Recognize unit Recognize wholeness Recognize parts of a given whole or a unit	Distal Precursor: As students begin to recognize whole objects or shapes, they can move toward recognizing basic objects in whole and part forms. Teachers can 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, teachers should label the shapes and describe them as "whole" or "part". NOTE: Teachers 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.	Initial Precursor: Being able to partition shapes requires a student to first recognize a unit or whole objects and shapes. Teachers can work on this understanding by giving students an opportunity to observe, feel, or otherwise interact with objects and shapes in their whole forms. As students explore shapes, teachers should label the shapes and describe them as a whole shape/object. NOTE: Teachers 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.
M.EE.3.MD.1	M.3.MD.1 Tell time to the hour on a digital clock	Tell time to the hour	Recognize the hour on a digital clock Recognize the minute on a digital clock		Attend Recognize different	Distal Precursor: In the context of the 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 and next, and specific time concepts such as day, night, today, tomorrow, and yesterday.	Initial Precursor: 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. For example, providing consistent and responsive interactions (like being fed when hungry and soothed when upset) helps students organize themselves. Predictability and things that are consistent each and every day (such as shared reading, following personal care and math following P.E.) are the foundations for a student's understanding of time. In the context of learning to tell time, teachers can help students attend to what is happening and contrast it with what will happen next (first/then) or what happened in the past (i.e., "Today is Monday and we had P.E.," or "Tomorrow is Tuesday and we have music"). Teachers can draw student 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.
M.EE.3.MD.3	M.3.MD.3 Use picture or bar graph data to answer questions about data	Use bar graphs to read the data Use picture graphs to read the data	Recognize the structure of a bar graph Recognize the structure of a picture graph	Classify Order objects	Recognize attribute values Arrange objects in pairs	Distal Precursor: As students' attention to objects increases, teachers will begin to draw students' attention to what is the same and different between familiar items, including these characteristics: color, shape, quantity (one to four items), size, texture, and pattern. There is no expectation that the student will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). 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).	Initial Precursor: In order to be able to understand data on a graph, students begin learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels it, and the student observes, feels, or otherwise interacts with it (i.e., playing a version of hide and seek with age appropriate materials, or working with nesting or interlocking materials that can be taken apart and put back together). Teachers encourage students to begin placing like objects together (i.e., begin with real objects such as, rocks, shells, pencils, fruit, cans, boxes, etc.) before moving on to toys and typical educational materials (i.e., coins, letters, numbers, math manipulatives, shapes, colors, etc.).
M.EE.4.G.1	M.4.G.1 Recognize parallel lines and intersecting lines.	Recognize intersecting lines/ line segments Recognize parallel lines/ line segments	Recognize line Recognize line segment	Recognize point	Recognize attribute values	Distal Precursor: As students' attention to objects increases, the teacher will provide multiple objects and tactuals, helping students explore them, and then guide students using the hand-under-hand approach to draw their attention to where line segments begin and end. While teaching intersecting lines/line segments and parallel lines/line segments, the teacher can ask the student at the Distal Precursor level to identify where the line starts or begins.	Initial Precursor: Being able to recognize parallel and intersecting lines requires a student to begin by learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels it, and the student observes, feels, or otherwise interacts with it. While the student interacts with the object, the teacher can describe its various attributes including lines. For example, using the hand-under-hand approach, Teachers can encourage students to feel the raised line of a square or the edge of a 3-D object. Starting on the left side and sweeping to the right, the teacher would say, "Line. This is a line. Line." The teacher would then repeat the sweep, saying, "Line."
M.EE.4.MD.2.a	M.4.MD.2.a Tell time using a digital clock. Tell time to the nearest hour using an analog clock	Tell time to the hour Read a digital clock	Recognize the hour hand Know hours on a clock Recognize the hour on a digital clock Recognize the minute hand Recognize the minute on a digital clock	Recognize measurable attributes	Attend Recognize different	Distal Precursor: 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 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.	Initial Precursor: 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, teachers can help students attend to what is happening and contrast it with what will happen next or what happened in the past. Teachers 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.
M.EE.4.MD.2.d	M.4.MD.2.d Identify coins (penny, nickel, dime, quarter) and their values	State value of penny State value of nickel State value of dime State value of quarter Recognize penny Recognize nickel Recognize dime Recognize quarter	Recognize money	Recognize attribute values	Attend	Distal Precursor: As students increase their attention to coins, they can begin working to recognize different attributes of coins (e.g., size, color). When presenting various coins, the teacher should model big/little, brown/silver, and thick/thin.	Initial Precursor: In order to recognize the distinctions among coins and their values, students must first attend to coins when they are present. In the context of this Essential Element, teachers should work on attending while interacting with coins and using them to accomplish things (e.g., paying for lunch, collecting donations).
M.EE.4.MD.3	M.4.MD.3 Determine the area of a square or rectangle by counting units of measure (unit squares)	Calculate area by counting unit squares Calculate area of a rectangle with tiling	Explain unit square Explain area	Recognize enclosure	Recognize some Recognize separateness	Distal Precursor: As students begin to understand labeling and counting small sets (one to four items), they begin to use the number sequence. Students become more adept at tracking individual objects and can recognize groups as having more and less on the basis of overall area. Teachers can work on this skill using a variety of arrays, labeling and counting the array and moving items in and out of the array, labeling and counting the array again. NOTE: Teachers can work on the Distal Precursor level using the sets/arrays that students working at the Target level are using for calculating area.	Initial Precursor: Understanding how to calculate area requires a student to be able to recognize that groups of items exist as a set and not just as individual objects. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one bear, three blocks), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. NOTE: Teachers can work on the Initial Precursor level using the sets/arrays that students working at the Target level are using for calculating area.

M.EE.4.MD.4.b	M.4.MD.4.b Interpret data from a picture or bar graph	Use graphs to read between the data	Use bar graphs to read the data Use picture graphs to read the data	Recognize the structure of a bar graph	Classify Order objects	Distal Precursor: As students' attention to objects increases, teachers will begin to draw students' attention to what is the same and different between familiar items, including these characteristics: color, shape, quantity (one to four items), size, texture, and pattern. There is no expectation that the students will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). Students will also begin to group two or more items in the same set based on an attribute (e.g., two tigers, bumpy balls and bumpy gravel, red spoons). As the students group two or more items, the teacher will model the representation in a bar or picture graph and encourage students to actively participate in the creation of the graph.	Initial Precursor: In order to be able to understand data on a graph, students begin learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., these are blocks, these are shapes, these are animals), and the student observes, feels, or otherwise interacts with it. Teachers encourage students to begin placing like objects together.
M.EE.4.OA.5	M.4.OA.5 Use repeating patterns to make predictions	Recognize the core unit in a repeated pattern	Recognize symbolic patterns Recognize repeating patterns Recognize pictorial patterns	Recognize patterns	Recognize attribute values Arrange objects in pairs	Distal Precursor: As students develop their awareness of attributes and putting like objects together, teachers will draw students' attention to patterns in words, symbols, numbers, images, routines, and the environment. Teachers will then allow the student to observe, feel, or otherwise interact with the patterns.	Initial Precursor: In order to understand and work with patterns, students begin by learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., there are two blocks, this is a circle, these are brown cows), and the student observes, feels, or otherwise interacts with them. Teachers encourage students to begin placing like objects together.
M.EE.5.NF.1	M.5.NF.1 Identify models of halves (1/2, 2/2) and fourths (1/4, 2/4, 3/4, 4/4).	Recognize halves in a set model Recognize fourths in a set model Recognize halves on an area model Recognize fourths on an area model	Recognize one half in a set model Recognize one fourth in a set model Recognize one half on an area model Recognize one fourth on an area model	Partition sets into equal subsets Partition any shape into equal parts	Recognize some Recognize separateness	Distal Precursor: As students begin to understand labeling and counting small sets (one to four items), they begin to use the number sequence and become more adept at tracking individual objects. At this level, the teacher's instruction should focus on one-to-one correspondence and authentic social encounters, such as distributing objects (e.g., utensils, or snacks) to people and aligning objects or people to available spaces (e.g., in the presence of a train shed, a student may begin to place individual trains in each of the slots). These skills are the beginning of partitioning sets into equal subsets.	Initial Precursor: In order to understand fractions, students at this level start with learning to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets with one to four items. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it, then count the items (e.g., for two balls, "One, two") and encourage students to use numbers to label and count the separate sets. Teachers should begin working on the quantifier "some" as students are developing an understanding of the quantities one through four, using the individual student's communication system to model the use of the word "some".
M.EE.5.NBT.1	M.5.NBT.1 Compare numbers up to 99 using base ten models	Compare 2 quantities up to 100 using models	Compare 2 quantities up to 10 using models	Count all objects in a set or subset Recognize same number of Recognize different number of Recognize more number of Recognize fewer number of	Recognize separateness Recognize set	Distal Precursor: As students begin to understand labeling and counting small sets (one to four items), they begin to use the number sequence and become more adept at tracking individual objects and can recognize same, different, more, and less on the basis of overall area or discrete number. Again, teachers can work on this skill using a variety of sets, labeling and counting the sets, and moving items in and out of the sets, labeling and counting the sets again. Teachers should draw students' attention to the change that occurs when items are moved in and out of a set. NOTE: When working on the Distal Precursor level, students will count and compare smaller sets using both overall area and discrete number, but when using the larger sets that students working at the Target level are working on, students will compare using overall area rather than discrete number.	Initial Precursor: Comparing numbers requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one bear, three blocks), count the items, label the set again, and encourage students to use numbers to label and count the separate sets. NOTE: Teachers can work on the Initial Precursor level using the sets of numbers that students working at the Target level are working on, but when using the larger sets, teachers should help students notice the difference in overall area when sets are larger or smaller..
M.EE.5.G.1.4	M.EE.5.G.1.4 Sort two-dimensional figures and identify the attributes (angles, number of sides, corners, color) they have in common	Analyze shapes to identify common attributes	Describe attributes of shape	Classify same two-dimensional shapes with same size and same orientation Classify same two-dimensional shapes with different size and/or different orientation	Recognize same Recognize different	Distal Precursor: As students develop an understanding of same and different shapes, teachers will provide opportunities for students to classify or group the same shapes based on the shape size (e.g., this is a big square, this is a little square). As students progress with identifying the size of shapes, the teacher can begin to introduce different orientations of the shape. Note: As new attributes (e.g., size and orientation) are introduced, teachers should make sure to support the student in remembering that the attribute doesn't change the name of the shape	Initial Precursor: Being able to analyze shapes requires a student to recognize when basic objects and shapes are the same or different. Teachers should work on this understanding by providing students with a shape and naming it (e.g., this is a square). Then teachers should provide multiple examples of the "same" shape for students to make comparisons, focusing student attention on the characteristics that make this a particular shape (e.g., a square has four sides that are the same size). As students explore shapes, teachers should label the shapes and describe them as "same" or "different". NOTE: When presenting the same shape for comparison, teachers should use shapes with different colors, textures, sizes, and orientation so that students understand the attribute that makes it that shape (e.g., four sides that are the same).
M.EE.5.MD.1.a	M.5.MD.1.a Tell time using an analog or digital clock to the half or quarter hour	Tell time to the quarter hour Tell time to the half hour	Recognize the hour hand Knows hours on a clock Recognize the hour on a digital clock Recognize the minute hand Recognize the minute on a digital clock	Recognize measurable attributes	Attend Recognize different	Distal Precursor: 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.	Initial Precursor: 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, teachers can help students attend to what is happening and contrast it with what will happen next or what happened in the past. Teachers 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.
M.EE.5.MD.2	M.5.MD.2 Represent and interpret data on a picture, line plot, or bar graph	Represent data using bar graph Represent data using picture graph Represent data using line plot (dot plot) Use graphs to read between the data	Use bar graphs to read the data Use picture graphs to read the data Use line plots (dot plots) to read the data	Classify Order objects	Arrange objects in pairs Recognize attribute values	Distal Precursor: As students' attention to objects increases, teachers will begin to draw students' attention to what is the same and different between familiar items, including these characteristics: color, shape, quantity (one to four items), size, texture, and pattern. There is no expectation that the students will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). Students will also begin to group two or more items in the same set based on an attribute (e.g., two tigers, bumpy balls and bumpy gravel, red spoons). As the students group two or more items, the teacher will model the representation in a bar or picture graph and encourage students to actively participate in the creation of the graph.	Initial Precursor: In order to be able to understand data on a graph, students begin learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., these are blocks, these are shapes, these are animals), and the student observes, feels, or otherwise interacts with it. Teachers encourage students to begin placing like objects together.
M.EE.5.OA.3	M.5.OA.3 Identify and extend numerical patterns	Extend a symbolic pattern by applying the rule	Recognize repeating patterns Recognize the core unit in a repeated pattern Recognize the pattern rule in a growing pattern Recognize growing patterns Recognize symbolic patterns Recognize shrinking patterns Recognize the pattern rule in a shrinking pattern	Recognize patterns	Order objects Classify Contrast objects	Distal Precursor: As students develop their awareness of attributes and putting like objects together, teachers will draw students' attention to patterns in words, symbols, numbers, images, routines, and the environment and allow the student to observe, feel, or otherwise interact with the patterns. For example, looking at a black-and-white checkered floor, the teacher would point out, "Black, white, black, white." Other examples include pointing out that "sun", "fun", and "bun" all contain the "-un" letter pattern, or that morning is first, then afternoon.	Initial Precursor: In order to understand and work with patterns, students begin by learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., there are two blocks, this is a circle, these are brown cows), and the student observes, feels, or otherwise interacts with them. Teachers encourage students to begin placing like objects together, drawing attention to the characteristics that make an item the same or different.

M.EE.6.RP.1	M.6.RP.1 Demonstrate a simple ratio relationship	Recognize many to 1 ratio Represent many to 1 ratio	Partition any shape into equal parts Explain unit fraction Recognize fraction	Model equal part	Recognize wholeness Recognize a unit Recognize parts of a given whole or a unit	Distal Precursor: As students begin to recognize whole objects or shapes, they can move toward recognizing when basic objects are in whole and part forms. Teachers can 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, teachers should label the shapes and describe them as "whole" or "part". NOTE: Teachers can work on the Distal Precursor skills using everyday objects and/or using the shapes that students working at the Target level are representing as a ratio.	Initial Precursor: Being able to understand ratios requires a student to recognize a unit or whole objects and shapes. Teachers can work on this understanding by giving students an opportunity to observe, feel, or otherwise interact with objects and shapes in their whole form. As students explore shapes, teachers should label the shapes and describe them as whole objects. NOTE: Teachers can work on the Initial Precursor skills using everyday objects and/or using the shapes that students working at the Target level are representing as a ratio.
M.EE.6.G.1	M.EE.6.G.1 Solve real-world and mathematical problems about area using unit squares	Solve word problems involving area of rectangles	Calculate area by counting unit squares Calculate area of a rectangle with tiling	Explain unit square Explain area	Recognize some Recognize separateness	Distal Precursor: As students continue to develop their understandings of number and sets, they can also work on covering small rectangles with unit squares and counting each one as it is placed. Unit squares should be placed on a rectangle side by side with no gaps or overlaps. Core vocabulary can be used to model the language associated with these concepts. Examples include "all", "all on", "put on", "it here", "finished". If one of the unit squares is placed on the diagonal, the word "turn" can be used.	Initial Precursor: In order to solve problems using unit squares, students at this level start with learning to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets with one to four items. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label the set and then count the items (e.g., for two balls, "One, two") and encourage students to use numerals to label and count the separate sets. Teachers should begin working on the quantifier "some" as students are developing an understanding of the quantities one through four, using the individual student's communication system to model the use of the word "some".
M.EE.6.SP.5	M.EE.6.SP.5 Summarize data distributions shown in graphs or tables.	Summarize data by overall shape	Recognize outliers Recognize peaks in data distribution Recognize symmetric distribution Analyze the overall shape of the data distribution	Recognize that distribution of data can be described by overall shape of a graph Recognize the structure of a line plot (dot plot)	Classify Order objects	Distal Precursor: Students can actively participate in the creation of graphs and line plots by placing representations, Xs, or dots for each response to the research question. When the graph or line plot is complete, teachers will encourage students to use their core vocabulary to describe the overall shape of the data and teachers will also model the description (e.g., "up", "not up", "same").	Initial Precursor: In order to summarize data, students begin by learning to recognize what is the same and different between familiar items, including these characteristics: color, shape, quantity, size, texture, and pattern. There is no expectation that the students will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). Students will also begin to group two or more items in the same set based on an attribute (e.g., two tigers, bumpy balls and bumpy gravel, red spoons). As the students group two or more items, the teacher will model the representation in a bar graph or line plot and encourage students to actively participate in its creation.
M.EE.6.EE.1-2	M.6.EE.1-2 Identify equivalent number sentences	Evaluate if equations are true or false Recognize equivalent algebraic expressions	Represent addition with equations Represent the unknown in an equation Represent subtraction with equations	Demonstrate the concept of addition Demonstrate the concept of subtraction	Combine sets Compare sets	Distal Precursor: As students begin to understand labeling and counting small sets, they begin to use the number sequence. Students become more adept at tracking individual objects and can recognize when items are added to a set or when items are taken away. Again, teachers can work on this skill using a variety of sets, labeling and counting the set, and moving items in and out of the set, labeling and counting the set again. NOTE: Teachers can work on the Distal Precursor level using the sets of numbers that students working at the Target level are working with.	Initial Precursor: Understanding how to evaluate equations and recognize equivalent expressions requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label the set (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numbers to label and count the separate sets. Then teachers should combine the sets, give it a new label, and count the set. NOTE: Teachers can work on the Initial Precursor level using the sets of numbers that students working with.
M.EE.6.EE.3	M.EE.6.EE.3 Apply the properties of addition to identify equivalent numerical expressions	Recognize equivalent algebraic expressions Use properties of addition to create an equivalent algebraic expression	Evaluate if equations are true or false Apply associative property of addition Apply commutative property of addition	Represent the unknown in an equation Represent subtraction with equations Represent addition with equations	Compare sets Combine sets	Distal Precursor: As students begin to understand labeling and counting small sets, they begin to use the number sequence and become more adept at tracking individual objects. Again, teachers can work on this skill using a variety of sets, labeling and counting the sets, and moving items in and out of the sets, labeling and counting the sets again. Additionally, the teachers will pair those sets with the symbolic representations for addition and subtraction (e.g., $3 + 2 = 2 + 3 = 2 + 7$). NOTE: Teachers can work on the Distal Precursor level using the sets of numbers that students working at the Target level are adding and subtracting.	Initial Precursor: Understanding how to evaluate equations and using the properties of addition to create equivalent expressions requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numbers to label and count the separate sets. Then teachers should combine the sets, give it a new label, and count the set. NOTE: Teachers 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.7.NS.1	M.EE.7.NS.1 Add fractions with like denominators (halves, thirds, fourths, and tenths) with sums less than or equal to one	Add fractions with common denominators	Explain the concept of addition and subtraction of fractions Decompose a fraction into a sum of unit fractions with the same denominator	Recognize parts of a given whole or a unit	Recognize separateness Recognize subset	Distal Precursor: As students begin to understand labeling, counting small sets, and recognizing wholes and parts of objects and sets, teachers will use a variety of tools, labeling and counting the sets, and labeling and counting the subsets. Examples of tools include ten-frames, egg cartons, a collection of items in a category, such as shoes, socks, and pants for clothes as the category, and your fingers and thumb for the hand as the category.	Initial Precursor: Adding fractions requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. Teachers should use tools like the ten-frame to point out whole and parts (e.g., a row of five dots and a row of four dots are parts or subsets of nine).
M.EE.7.NS.3	M.7.NS.3 Compare quantities represented as decimals in real world examples to tenths	Compare two decimals to tenths using symbols	Represent a decimal to tenths as a fraction	Recognize one tenth in a set model Recognize tenths in a set model	Recognize separateness Recognize set Recognize subset	Distal Precursor: As students begin to understand labeling, counting small sets, and recognizing wholes and parts of objects and sets, teachers will use set models to provide a wide variety of sets of 10 to model tenths. For example, when using individual shapes to match the fraction, the teacher would say, "I have 10 cubes in my bag, and one-tenth of them are blue."	Initial Precursor: Adding fractions requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. Teachers should use tools like the ten-frame to point out whole and parts (e.g., a row of five dots and a row of four dots are parts or subsets of nine).
M.EE.7.G.1	M.EE.7.G.1 Match two similar geometric shapes that are proportional in size and in the same orientation	Match the same two-dimensional shape with different sizes and same orientation Match the same three-dimensional shapes with different size and same orientation	Match the same two-dimensional shape with same size and same orientation Match the same three-dimensional shapes with same size and same orientation	Recognize same Recognize different	Attend Notice what is new	Distal Precursor: At this level, teachers will encourage students to begin placing like objects together, drawing attention to the characteristics that make an item the same or different and using the core vocabulary to model the words "same" and "different".	Initial Precursor: In order to match two- and three-dimensional shapes, students must first begin by learning to attend to people and objects when they are present. In the context of this Essential Element, teachers should work on attending while interacting with shapes. As students' attention to people, objects, and shapes increases, the teacher draws students' attention to the new object or stimulus, labels them (e.g., there are two cubes, this is a circle, these are brown cows), and the student observes, feels, or otherwise interacts with them.

M.EE.7.G.4	M.EE.7.G.4 Determine the perimeter of a rectangle by adding the measures of the sides	Calculate the perimeter of a rectangle by counting unit lengths on a grid Calculate perimeter by adding all the side lengths	Explain length Explain perimeter	Describe measurable attributes Recognize measurable attributes	Recognize attribute values		Initial Precursor: In order to calculate perimeter, students begin by learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., this is a circle and it does not have any sides, this is a rectangle and it has four sides), and the student observes, feels, or otherwise interacts with the shapes. Students also work on counting small units, recognizing that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numbers to label and count the separate sets.
M.EE.7.SP.3	M.EE.7.SP.3 Compare two sets of data within a single data display such as picture graph, line plot, or bar graph	Use visual overlap of two sets of data to compare variability of two populations Compare differences in shape of 2 or more sets of data	Recognize peaks in data distribution Recognize symmetric distribution Recognize outliers Recognize variability in a data set	Recognize the structure of a bar graph Recognize the structure of a line plot (dot plot) Recognize the structure of a picture graph	Classify Order objects		Initial Precursor: In order to compare data, students begin by learning to recognize what is the same and different between familiar items, including these characteristics: color, shape, quantity (one to four items), size, texture, and pattern. There is no expectation that the students will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). Students will also begin to group two or more items in the same set based on an attribute (e.g., two tigers, bumpy balls and bumpy gravel, red spoons). As the students group two or more items, the teacher will model the representation in a bar graph or line plot and encourage students to actively participate in its creation.
M.EE.7.EE.1	M.EE.7.EE.1 Use the properties of operations as strategies to demonstrate that expressions are equivalent	Use properties of operations to generate equivalent expressions involving subtraction Use properties of operations to generate equivalent expressions involving addition	Apply the associative property of multiplication Apply commutative property of addition Apply associative property of addition Apply the commutative property of multiplication	Model associativity of multiplication Model additive commutativity Model associativity of addition Model multiplicative commutativity	Partition sets Combine sets		Initial Precursor: In order to use properties of operations, students begin by counting small units, recognizing that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. The general goal is to explore how the set changes when items are separated out (partitioned) or combined.
M.EE.8.NS.2.a	M.EE.8.NS.2.a Express a fraction with a denominator of 100 as a decimal	Represent a fraction with a denominator of 100 as a decimal	Explain the decimal point Represent a fraction with a denominator of 10 as a decimal	Partition sets into equal subsets Explain unit fraction	Recognize separateness Recognize set		Initial Precursor: Converting a fraction to a decimal requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. Teachers should use tools like the ten-frame to point out whole and parts (e.g., a row of five dots and a row of four dots are parts or subsets of nine).
M.EE.8.G.2	M.EE.8.G.2 Identify shapes that are congruent	Recognize congruent figures	Describe attributes of shapes Analyze shapes to identify common attributes Explain attribute relationships between shapes	Match the same two-dimensional shape with same size and same orientation Match the same two-dimensional shape with different sizes and same orientation	Recognize same Recognize different		Initial Precursor: Being able to recognize congruent figures requires a student to recognize when basic objects and shapes are the same or different. Teachers can work on this understanding by providing students with a shape and naming it (e.g., this is a square). Then teachers should provide multiple examples of the "same" shape for students to make comparisons, focusing student attention on the characteristics that make this a particular shape (e.g., a square has four sides that are the same). As students explore shapes, teachers should label the shapes and describe them as "same" or "different". NOTE: When presenting the same shape for comparison, teachers should use shapes with different colors, textures, sizes, and orientation so that students understand the attribute that makes it that shape (e.g., four sides that are the same).
M.EE.8.G.9	M.EE.8.G.9 Use the formulas for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms)	Calculate volume of right rectangular prisms with formula Calculate area for rectangles with formula Calculate the perimeter of parallelograms with formula	Explain volume Explain area Explain length Explain perimeter	Recognize measurable attributes	Recognize attribute values		Initial Precursor: In order to calculate volume, area, and perimeter with formulas, students begin by learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., this is a circle and it does not have any sides, this is a rectangle and it has four sides), and the student observes, feels, or otherwise interacts with the shapes. Students also work on counting small units, recognizing that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one bear, three blocks), count the items, label the set again, and encourage students to use numbers to label and count the separate sets.
M.EE.8.SP.4	M.EE.8.SP.4 Construct a graph or table from given categorical data and compare data categorized in the graph or table	Use graphs to read between the data Use tally chart to read between the data Represent data using bar graph Represent data using picture graph Represent data using line plot (dot plot) Represent data using tally charts	Use bar graphs to read the data Use picture graphs to read the data Use line plots (dot plots) to read the data Use tally charts to read the data	Recognize the structure of a bar graph Recognize the structure of a picture graph Recognize the structure of a line plot (dot plot) Recognize the structure of tally chart	Classify Order objects		Initial Precursor: In order to represent and use data, students begin by learning to recognize what is the same and different between familiar items, including these characteristics: color, shape, quantity (one to four items), size, texture, and pattern. There is no expectation that the students will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). Students will also begin to group two or more items in the same set based on an attribute (e.g., two tigers, bumpy balls and bumpy gravel, red spoons). As the students group two or more items, the teacher will model the representation in a bar graph or line plot and encourage students to actively participate in its creation.

M.EE.8.EE.2	M.EE.8.EE.2 Identify a geometric sequence of whole numbers with a whole number common ratio	Recognize geometric sequences	Recognize shrinking patterns Recognize growing patterns	Recognize symbolic patterns Recognize sequence	Classify Contrast objects Order objects	Distal Precursor: As students develop their awareness of attributes and putting like objects together, teachers will draw students' attention to patterns and sequences in numbers and letters (symbolic patterns) and allow the student to observe, feel, or otherwise interact with the patterns and sequences.	Initial Precursor: In order to recognize geometric patterns, students begin by learning to notice what is new. The teacher draws the student's attention to the new object or stimulus, labels them (e.g., there are two blocks, this is a circle, these are brown cows), and the student observes, feels, or otherwise interacts with them. Teachers encourage students to begin placing like objects together, drawing attention to the characteristics that make an item the same or different.
M.EE.8.EE.7	M.EE.8.EE.7 Solve simple algebraic equations with one variable using addition and subtraction	Solve linear equations in one variable	Determine the unknown in an addition equation Determine the unknown in a subtraction equation	Demonstrate the concept of addition Demonstrate the concept of subtraction	Combine sets Partition sets	Distal Precursor: As students begin to understand labeling and counting small sets, they begin to use the number sequence and become more adept at tracking individual objects. They can recognize when items are added to a set or when items are taken away. Again, teachers can work on this skill using a variety of sets, labeling and counting the set, and moving items in and out of the set, labeling and counting the set again. NOTE: Teachers can work on the Distal Precursor level using the sets of numbers that students working at the Target level are working with.	Initial Precursor: Solving linear equations requires a student to count small units while recognizing that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numbers to label and count the separate sets. The general goal is to explore how the set changes when items are separated out (partitioned) or combined.
M.EE.N-CN.2.a	M.EE.N-CN.2.a Use the commutative, associative, and distribute properties to add, subtract, and multiply whole numbers	Apply associative property of addition Apply commutative property of addition Apply the commutative property of multiplication Apply the associative property of multiplication Apply the distributive property	Add 1 and 1 Add 1 to 2, 3, and/or 4 Add within 5 Add within 10 Add within 20 Multiply by 1, 2, 3, 4, 5, and/or 10	Combine sets Demonstrate the concept of addition Combine Demonstrate the concept of multiplication Solve repeated addition problems	Recognize separateness Recognize set Recognize subset	Distal Precursor: As students understanding of labeling and counting sets develops, they will begin working on adding items to a set and combining sets to create a new set. Additionally, students will work on developing an understanding of equal shares by actively participating in one-to-one distribution of these concepts: objects to person (e.g., each person in the group is given a pencil), objects to objects (e.g., given four counters the student would line up four more counters in front of or on top of the first set), and objects to available space (e.g., given an egg carton with 6 spaces, the student would put a plastic egg in each available space).	Initial Precursor: Using the properties of addition and multiplication requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numerals to label and count the separate sets. Teachers should use tools like the ten-frame to point out whole and parts (e.g., a row of five dots and a row of four dots are parts or subsets of nine).
M.EE.N-CN.2.b	M.EE.N-CN.2.b Solve real-world problems involving addition and subtraction of decimals and whole numbers, using models when needed	Solve word problems involving addition with rational numbers Solve word problems involving subtraction with rational numbers	Add 2 decimals with digits in the tenths place Subtract 2 decimals with digits in the tenths place	Recognize a unit Explain ten as a composition of ten ones Explain place value for ones and tens	Recognize set Recognize separateness	Distal Precursor: As students' understanding of number develops, they will work with numbers greater than nine (two-digit numbers). Teachers should use tools to create tactual and visual models of tens and ones (e.g., ten-frames, connecting cubes, bundling sticks). Teachers will describe these numbers as "___ groups of 10 and ___ ones" (e.g., thirteen is one group of 10 and 3 ones).	Initial Precursor: Adding and subtracting rational numbers requires a student to be able to recognize that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numerals to label and count the separate sets.
M.EE.G.CO.1	M.EE.G.CO.1 Know the attributes of perpendicular lines, parallel lines, and line segments, angles, and circles	Define circle Explain angle Explain perpendicular lines/line segments Explain parallel lines/line segments	Recognize circles Recognize parallel lines/line segments Recognize perpendicular lines/line segments	Recognize point Recognize ray Recognize angle Recognize right angles	Recognize same Recognize different Recognize attribute values	Distal Precursor: As students increase their understanding of what makes shapes the same or different, they will begin to learn about other characteristics that make up a shape. The teacher will provide multiple objects and tactuals, helping the student explore them, and then guide the student using the hand-under-hand approach to draw their attention to where lines start and stop (point and rays) and where two lines meet to make an angle. NOTE: Recognizing points should only be taught in the context of a lesson on lines, line segments, and angles.	Initial Precursor: Defining and explaining various shapes, angles, and lines requires a student to first recognize when basic objects and shapes are the same or different. Teachers can work on this understanding by providing students with a shape and naming it (e.g., this is a square). Then teachers should provide multiple examples of the "same" shape for students to make comparisons, focusing student attention on the characteristics that make this a particular shape (e.g., a square has four sides that are the same size). As students explore shapes, teachers should label the shapes and describe them as "same" or "different". NOTE: When presenting the same shape for comparison, teachers should use shapes with different colors, textures, sizes, and orientation so that students understand the attribute that makes it that shape (e.g., four sides that are the same).
M.EE.S-ID.1.2	M.EE.S-ID.1.2 Given data, construct a simple graph (table, line, pie, bar, or picture) and interpret data	Use graphs to read beyond the data Represent data using bar graph Represent data using picture graph Represent data using line graph Represent data using pie charts	Use bar graphs to read the data Use picture graphs to read the data Use line graphs to read the data Use pie charts to read the data	Recognize the structure of a bar graph Recognize the structure of a picture graph Recognize the structure of a line graph Recognize the structure of a pie chart	Classify Order Objects	Distal Precursor: Students actively participate in the creation of bar graphs, picture graphs, line graphs, and pie charts by placing representations, Xs, or dots for each response to the research question.	Initial Precursor: In order to represent and use data, students begin by learning to recognize what is the same and different between familiar items, including these characteristics: color, shape, quantity (one to four items), size, texture, and pattern. There is no expectation that the students will use the attribute words expressively, but rather that the teacher will model the label of the attribute using the student's mode of communication (e.g., bumpy ball, smooth cup, two squares, blue car, etc.). Students will also begin to group two or more items in the same set based on an attribute (e.g., two tigers, bumpy balls and bumpy gravel, red spoons). As the students group two or more items, the teacher will model the representation in graphs and charts and encourage students to actively participate in its creation.
M.EE.A-CED.1	M.EE.A-CED.1 Create an equation involving one operation with one variable, and use it to solve a real-world problem	Solve real-world problems using equations with non-negative rational numbers Represent real-world problems as equations	Represent expressions with variables Represent the unknown in an equation	Represent multiplication with equations Represent division with equations Represent subtraction with equations Represent addition with equations	Combine sets Partition sets	Distal Precursor: As students begin to understand labeling and counting small sets, they begin to use the number sequence and become more adept at tracking individual objects. Again, teachers can work on this skill using a variety of sets, labeling and counting the sets, and moving items in and out of the sets, labeling and counting the sets again. Additionally, teachers will pair those sets with the symbolic representations for addition, subtraction, multiplication, and division (e.g., $3 \times 2 = ?$, $3 - 2 = ?$). NOTE: Teachers can work on the Distal Precursor level using the sets of numbers that students working at the Target level are working with.	Initial Precursor: Representing and solving equations requires a student to count small units while recognizing that two or more sets or groups of items exist. Teachers can work on this skill using a variety of sets. Teachers should help students recognize when items are grouped together into a set or separated out. As teachers present a set, they should label it (e.g., two balls, one marker, three CDs), count the items, label the set again, and encourage students to use numbers to label and count the separate sets. The general goal is to explore how the set changes when items are separated out (partitioned) or combined.