1(2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value.	**1(2)(B)** The student is expected to use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones.

Materials

- Linking cubes or base-ten blocks

Procedure:

Student will use linking cubes or base-ten blocks to represent a given number in more than one way.

Use the objects to represent the number 45.

- **What is the value of the tens? What is the value of the ones?**
- **What is the combined value of the tens and ones?**

Use the objects to represent the number 45 in a different way.

- **What is the value of the tens? What is the value of the ones?**
- **What is the combined value of the tens and ones?**

Repeat using the number 36.
Repeat this task with other numbers as needed.

Check Student's Responses:

Represented 45 using _____ tens _____ ones

Composed/decomposed 45 using _____ tens _____ ones

□ Correctly described the value of the tens and the ones
□ Incorrectly described the value of the tens and/or ones

Represented 36 using _____ tens _____ ones

Composed/decomposed 36 using _____ tens _____ ones

□ Correctly described the value of the tens and the ones
□ Incorrectly described the value of the tens and/or ones

Notes:

1(2)(B) The student is expected to use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly represented the number.** This student may be ready to represent larger numbers up to 120.

- The student **incorrectly represented the number.** This student may need more practice representing numbers and describing the value of the objects in the tens and ones place. Observe to make sure the student is counting the correct number of blocks for each of the hundreds, tens, and ones and is arranging the objects from left to right.

- The student **correctly composed/decomposed the number.** This student may be ready to compose and decompose larger numbers up to 120 in multiple ways.

- The student **incorrectly composed/decomposed the number.** This student may need more practice composing and decomposing numbers using concrete models.

  A teaching strategy might include asking the student to represent the number 25. Prompt the student to describe the value of the tens and the value of the ones (20 and 5). Ask, "What is the combined value of 2 tens and 5 ones?" Prompt the student to decompose one of the tens into 10 ones then describe the new value of the tens and ones (10 and 15). Ask, "What is the combined value of the 1 ten and 15 ones?" Ask, "What value was represented by both of these sets?" Explain to the student that the value of the sets are the same because they simply decomposed 1 ten into 10 ones without adding or taking away any additional objects.

1(2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value.	**1(2)(C)** The student is expected to use objects, pictures, and expanded and standard form to represent numbers up to 120.

Materials

- Linking cubes or base ten blocks
- Paper and pencil

Procedure:
Prompt the student to use objects, expanded form, and standard form to represent numbers such as 52, 78, and 104.

I am going to tell you a number. I would like you to:

- **Use the objects to represent the number _____.**
- **Write the expanded form of the number _____.**
- **Write the standard form of the number _____.**

Check Student's Responses:	**Check Student's Strategies:**
For the number _____, the student correctly used the following: □ Objects to represent the number □ Expanded form □ Standard form	The student: □ Represented the number in using the least number of objects (52, 5 tens and 2 ones) □ Used decomposing to represent the number (52, 4 tens and 12 ones) □ Used skip counting and counting on to determine the value □ Other:
For the number _____, the student correctly used the following: □ Objects to represent the number □ Expanded form □ Standard form	The student: □ Represented the number in using the least number of objects (78, 7 tens and 8 ones) □ Used decomposing to represent the number (78, 6 tens and 18 ones) □ Used skip counting and counting on to determine the value □ Other:

Notes:

1(2)(C) The student is expected to use objects, pictures, and expanded and standard form to represent numbers up to 120.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly represented the number using objects.** This student may be ready to represent numbers using pictorial representations.

- The student **incorrectly represented the number using objects.** Consider how he or she represented the set:
  - The student reversed the digit in the tens and ones place
  - The student miscounted the number of tens and/or ones

  A teaching strategy might include asking the student to represent the number on a tens and ones mat.

- The student **correctly represented the number using expanded form and standard form.** This student may be ready to represent numbers in more than one way using composing and decomposing.

- The student **incorrectly represented the number using expanded form.**

  A teaching strategy might include asking the student to use skip counting and counting to determine the value of each place and to record the value.

- The student **incorrectly represented the number using standard form.** Consider whether the student reversed the digit in the tens and ones place or as a result of the misrepresentation of the number.

  A teaching strategy for reversing the digits might include asking the student to say the number they have recorded out loud. Next, prompt the student to refer back to the objects to determine if that was the number he or she represented.

1(2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value.	**1(2)(E)** The student is expected to use place value to compare whole numbers up to 120 using comparative language.

Materials

- None needed

Procedure:

Record and display two numbers between 0 and 120 such as 45 and 54, 75 and 85, and 110 and 120.

Use the words less than, greater than, or equal to to describe the relationship between these two numbers.
Justify your answer.

Check Student's Responses:	**Check Student's Strategies:**
1. Numbers _____ & _____ □ Correct comparative language □ Incorrect comparative language	The student: □ Used place value to compare □ Compared digits without reference to the place value □ Other:
2. Numbers _____ & _____ □ Correct comparative language □ Incorrect comparative language	The student: □ Used place value to compare □ Compared digits without reference to the place value □ Other:
3. Numbers _____ & _____ □ Correct comparative language □ Incorrect comparative language	The student: □ Used place value to compare □ Compared digits without reference to the place value □ Other:

Notes:

1(2)(E) The student is expected to use place value to compare whole numbers up to 120 using comparative language.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly compared the two numbers and used place value to compare two numbers.** This student may be ready to compare and order three whole numbers.

- The student **correctly compared the two numbers but compared the digits without reference to the place value.** This student may need additional questioning such as, "What is the value of [one of the digits in the numbers]?"

- The student **incorrectly compared the two numbers.** This student may need additional time using concrete or pictorial models to compare numbers.

  A teaching strategy might include asking the student to use linking cubes or base ten blocks to represent two numbers. Prompt the student to compare the number of hundreds, tens, and ones, as appropriate, in each set by asking, "How many tens are represented in each set? What is the value of these tens?"

1(2) Number and operations. The student applies mathematical process standards to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value.	**1(2)(F)** The student is expected to order whole numbers up to 120 using place value and open number lines.

Materials

- Number cards to 120
- Paper and pencil

Procedure:
Choose three number cards for the students to put in order from least to great.
Prompt the student to use an open number line to prove the order.

Put these numbers in order from least to greatest.
Draw an open number line. Order these numbers on the open number line.

Repeat using three additional numbers as needed.

Check Student's Responses:	**Check Student's Strategies:**
Numbers _____, _____, _____ □ Correct □ Incorrect □ Used the magnitude of the numbers to place numbers on the open number line □ Placed the numbers at the beginning, middle, and end of the open number line	The student: □ Used place value to order the numbers □ Referred to the digit instead of the place value □ Used the relationship among the numbers to place numbers on the open number line □ Other:
Numbers _____, _____, _____ □ Correct □ Incorrect □ Used the magnitude of the numbers to place numbers on the open number line □ Placed the numbers at the beginning, middle, and end of the open number line	The student: □ Used place value to order the numbers □ Referred to the digit instead of the place value □ Used the relationship among the numbers to place numbers on the open number line □ Other:

Notes:

1(2)(F) The student is expected to order whole numbers up to 120 using place value and open number lines.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student had **difficulty ordering numbers**. Determine if the student had difficulty ordering the numbers based on the numbers chosen. It may be necessary to choose three numbers easier to compare such as numbers with different digits in the tens place and ones place or by allowing the student to use concrete models to represent and order the numbers.

- The student **consistently produced errors with numbers that had the same digit in the tens place**.

  A teaching strategy might include practicing ordering numbers using those that vary by tens digit only (e.g., 40, 50, 60).

- The student **did not verbalize a strategy for ordering the numbers.** Ask the student to explain how he or she ordered the three numbers. Prompt the student to use place value to compare and order the given numbers using questions such as, "Which number has the greatest value in the tens place?"

- The student **did not use magnitude to place the numbers on the open number line.** Consider whether or not the student simply placed the three numbers on the open number line without considering the relationship among the numbers.

  A teaching strategy might include creating benchmarks on the open number line for the students such as labeling all the tens on the number line to help the student use the relationship between the number and the given decade to place the numbers on the open number lines.

1(3) Number and operations. The student applies mathematical process standards to develop and use strategies for whole number addition and subtraction computations in order to solve problems.	**1(3)(C)** The student is expected to compose 10 with two or more addends with and without concrete objects.

Materials

- Counters such as two-colored counters, two different colors of linking cubes, or two different colors of color tiles
- Paper and pencil

Procedure:
Ask the students to use the objects and numbers to compose 10.

Use the counters to compose 10 in as many different ways as you can.
Record a number sentence for each representation.

Check Student's Responses:	**Check Student's Strategies:**
The student used counters to compose to 10 in _____ different ways, using the following ways: The student was able to record a number sentence: □ For all of the models □ For most of the models □ For a few of the models □ For none of the models	The student: □ Randomly composed the objects to 10 □ Seemed to have a system for composing 10 in various ways □ Other:

Notes:

1(3)(C) The student is expected to compose 10 with two or more addends with and without concrete objects.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly used counters to represent two addends in more than one way.** This student may be ready to use counters to compose 10 with more than two addends.

- The student **correctly recorded number sentences to compose to 10.** This student may be ready to compose 10 without counters and/or to compose 10 with more than two addends.

- The student **correctly used counters to represent two addends only one way.** This student may further experiences composing 10 in more than one way.

  A teaching strategy might include asking the student to hold 10 two-colored counters, then shake them and drop them on the table. Prompt the student to record the number of counters of each color showing. Prompt the student to use the numbers recorded to create a number sentence. Prompt the student to repeat holding, shaking, and dropping the counters composing to 10 in various ways.

1(4) Number and operations. The student applies mathematical process standards to identify coins, their values, and the relationship among them in order to recognize the need for monetary transactions.	**1(4)(C)** The student is expected to use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.

Materials

- Coins or pictures of coins

Procedure:

Show the student the following collection of coins, as described below, one at a time.

- 12 pennies
- 6 nickels
- 8 dimes

What is the value of the set of coins?

Check Student's Responses:	**Check Student's Strategies:**
The student correctly identified the value of the following collections: □ Pennies □ Nickels □ Dimes	The student: □ Used counting by _____ to determine the value of the pennies □ Used counting by _____ to determine the value of the nickels □ Used counting by _____ to determine the value of the dimes

Notes:

1(4)(C) The student is expected to use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly determined the value of coins using skip-counting.** This student may be ready to determine the value of mixed coins (pennies, nickels, and dimes) up to a value of 120 cents.

- The student **incorrectly determined the value of the coins.** Consider how he or she determined the value of the coins:
  - The student miscounted using skip-counting
  - The student incorrectly identified the value of the coin(s)

  A teaching strategy might include asking the student to identify each type of coin and its value (penny, nickel, and dime). Next, it may be appropriate to practice rote skipping counting by twos, fives, and tens. Continue practicing by activities such as the following:
  - *Show the students 5 nickels and state, "The value of one nickel is 5 cents." Prompt the student to use skip-counting by fives to determine the value of the 5 nickels.*
  - *Show the students 7 dimes and state, "The value of one dime is 10 cents." Prompt the student to use skip-counting by tens to determine the value of the 7 dimes.*
  - *Show the students 10 pennies and state, "The value of one penny is 1 cent, but how could we group the pennies so that we could use skip-counting by twos or fives to determine the value." Prompt the student to use skip-counting to determine the value of the 10 pennies.*

1(5) Algebraic reasoning. The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships.	**1(5)(B)** The student is expected to skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set.

Materials

- Counters (color tiles, two-colored counters, etc.)

Procedure:

Create different sets of counters (up to 120) for the student.

Skip count by twos to determine the number of objects in this set.
Skip count by fives to determine the number of objects in this set.
Skip count by tens to determine the number of objects in this set.

Repeat this task with different numbers of objects as needed.

Check Student's Responses:	**Check Student's Strategies:**
The student correctly skip counted by: □ Twos □ Fives □ Tens The student did NOT correctly skip count because: □ He or she skipped a number(s) □ Had difficulties changing decades □ Other:	The student: □ Skip counted without moving the objects □ Grouped the counters as he or she skip counted □ Other:

Notes:

1(5)(B) The student is expected to skip count by twos, fives, and tens to determine the total number of objects up to 120 in a set.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly used skip counting to determine the number of objects.** This student may be ready to describe and compare the identified shapes.

- The student **incorrectly used skip counting to determine the number of objects.** Consider how he or she determined the number of objects:
  - The student is unable to skip count by rote.
  - The student miscounted because of an incorrect grouping of counters

  A teaching strategy might include using a hundreds chart to practice rote counting by twos, fives, or tens. Additionally, provide the student with opportunities to group counters by twos, fives, or tens first then skip count the groups to determine the total number of objects.

1(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.	**1(6)(A)** The student is expected to classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language.

Materials

- Two-dimensional shapes including regular and irregular shapes.

Procedure:

Place shapes on table. Ask the questions below based on the two-dimensional shapes displayed.

1. **Place all the shapes that have straight sides in one group and the ones without straight sides in another.**
   How could you describe the shapes in each group?

2. **Find all of the shapes that have four sides.**
   From this set, find all of these shapes that have four sides that are the same size.
   What name could we give these shapes?

3. **Find all of the shapes that have less than four vertices.**
   What name could we give these shapes?

Check Student's Responses:

1. The student sorted the shapes by: _____

   □ Correctly sorted the shapes □ Incorrectly sorted the shapes

   The student described the group(s) as: _____

2. The student sorted the shapes by: _____

   □ Correctly sorted the shapes □ Incorrectly sorted the shapes

   The student described the group(s) as: _____

3. The student sorted the shapes by: _____

   □ Correctly sorted the shapes □ Incorrectly sorted the shapes

   The student described the group(s) as: _____

Notes:

1(6)(A) The student is expected to classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **sorted the figures into two groups; straight sides and shapes with without straight sides**. The student may be ready to classify shapes according to the number of sides.

- The student **sorted correctly and identified the shapes correctly.** This student seems to be able to count the number of sides so this student may be ready to discuss how these figures are alike and different using more formal language.

  A teaching strategy might include asking students to draw several figures with certain given attributes such as straight sides, a certain number of sides, or a certain number of vertices, then discuss how the figures are alike and how they are different.

- The student **incorrectly sorted the figures.** The student may need additional support in understanding vocabulary such as straight, side, vertex, etc.

  A teaching strategy might include placing one or two shapes that belong in each group before the student sorts. Next, prompt the student to find shapes similar to the ones you placed in each group.

- The student **incorrectly identified the shapes as squares and/or triangles.** The student may need additional support in identifying shapes and understanding the attributes of the shape.

  A teaching strategy might include asking students to identify shapes. Review the attributes of the shapes by identifying and counting the sides and vertices with the student.

1(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.	**1(6)(D)** The student is expected to identify two-dimensional shapes, including circles, triangles, rectangles, squares, as special rectangles, rhombuses, and hexagons and describe their attributes using formal geometric language.

Materials

- A variety of two-dimensional shapes (circles, triangles, rectangles, squares, rhombuses, and hexagons). Include different sizes of shapes and common and uncommon shapes (e.g. right triangle, equilateral triangle, etc.).

Procedure:
Show the student one two-dimensional shape at a time.

What shape is this? How can it be described?

Repeat for other shapes.

Check Student's Responses:

Shape: _____
□ Correctly identifies all shapes □ Incorrectly identifies all shapes
□ Identifies attribute(s) using formal language: sides, vertices
□ Identifies attribute(s) using informal language: _____

Shape: _____
□ Correctly identifies all shapes □ Incorrectly identifies all shapes
□ Identifies attribute(s) using formal language: sides, vertices
□ Identifies attribute(s) using informal language: _____

Shape: _____
□ Correctly identifies all shapes □ Incorrectly identifies all shapes
□ Identifies attribute(s) using formal language: sides, vertices
□ Identifies attribute(s) using informal language: _____

Notes:

1(6)(D) The student is expected to identify two-dimensional shapes, including circles, triangles, rectangles, squares, as special rectangles, rhombuses, and hexagons and describe their attributes using formal geometric language.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly identified all the shapes.** The student may be ready to identify the shapes based on given attributes.

  A teaching strategy might include asking the student to identify a shape based on given attributes:
  - *What shapes have 4 sides and vertices? What is the name of the shapes?*
  - *What shapes have 4 equal sides? What is the name of the shapes?*

- The student **only identified geometric figures that are common or prototypical.** The student may need additional experience identifying uncommon or atypical shapes.

  A teaching strategy might include asking the student to show you a shape such as a triangle. Turn or flip the shape and ask the student, "Is this still a triangle?" Continue to turn and flip the shape until the student recognizes that it is still a triangle regardless of the orientation of the shape. Ask the student, "What makes this shape a triangle?" If the student correctly describes the triangle as having three sides and vertices, prompt the student to find all of the other shapes that have only three sides. If the student cannot describe an attribute of the triangle, explain that all triangles have three sides and three vertices as you point and count the sides and vertices.

- The student **used informal vocabulary.** The student may need additional time and practice relating informal vocabulary to formal vocabulary such as using the word vertices instead of corners.

1(6) Geometry and measurement. The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties.	**1(6)(E)** The student is expected to identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language.

Materials

- Three-dimensional geometric solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms.

Procedure:
Show the student one three-dimensional solid at a time.

What is the name of this solid?
How do you know it is a _____?

Repeat for other solids.

Check Student's Responses:

Solid: _____

□ Correctly identifies solid □ Incorrectly identifies solid
□ Identifies attribute(s) using formal language: vertices, edges, faces
□ Identifies attribute(s) using informal language: _____

Solid: _____

□ Correctly identifies solid □ Incorrectly identifies solid
□ Identifies attribute(s) using formal language: vertices, edges, faces
□ Identifies attribute(s) using informal language: _____

Solid: _____

□ Correctly identifies solid □ Incorrectly identifies solid
□ Identifies attribute(s) using formal language: vertices, edges, faces
□ Identifies attribute(s) using informal language: _____

Notes:

1(6)(E) The student is expected to identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **correctly identified the solids but did not use attributes to describe the solids.** Provide the student with opportunities to sort solids based on a given attribute or identify the common attribute of three to five solids.

- The student **described attributes of solids using informal language.** The student may need additional time and practice relating informal vocabulary to formal vocabulary such as vertices, faces, and edges.

1(7) Geometry and measurement. The student applies mathematical process standards to select and use units to describe length and time.	**1(7)(E)** The student is expected to tell time to the hour and half hour using analog and digital clocks.

Materials

- Analog clock
- Pictures representing time on analog and digital clocks

Procedure:
Show the student an analog clock or a picture of analog or digital clocks with time on the hour and half hour.

What time does the clock show?

Repeat using various times.

Check Student's Responses:	**Check Student's Strategies:**
1. Time: _____ Analog | Digital □ Correct □ Hour correct but not minute □ Confuses hour and minute □ Incorrect _____	The student: □ Used skip counting to determine time □ Said time without pointing or counting □ Other:
2. Time: _____ Analog | Digital □ Correct □ Hour correct but not minute □ Confuses hour and minute □ Incorrect _____	The student: □ Used skip counting to determine time □ Said time without pointing or counting □ Other:
3. Time: _____ Analog | Digital □ Correct □ Hour correct but not minute □ Confuses hour and minute □ Incorrect _____	The student: □ Used skip counting to determine time □ Said time without pointing or counting □ Other:

Notes:

1(7)(E) The student is expected to tell time to the hour and half hour using analog and digital clocks.	**Possible interpretations, issues to follow up on, and implications for teaching**

What did you observe?

- The student **confused the hours and minutes.**

  A teaching strategy might include working with analog faces that are only on the hour so the students gain practice corresponding the small hand with the hour and the large hand at the 12. Once they are more comfortable with recognizing what each hand represents, move on to half hours.

- The student **correctly read and wrote the times shown.** This student may be ready to work with times in quarter hours or 5-minute increments.