SEGMENT 1

Numbers and Operations in Base 10

Learning Objective

- Students will compare quantities up to 10.
- Students will make quantities up to 10 on a 10-frame.
- Students will compare numbers up to 100.
- Students will use a 100 chart.

Materials

- Counting and Quantity Cards
- Five Frame Mat
- Ten Frame Mat
- Base Ten Worksheet
- Linking Counting Cubes
- Counting Frame
- Ten Frame Cards
- Magnetic Whiteboard
- Magnetic Numbers
- Worksheet Pockets

Prior to Instruction

Program student AAC devices with numbers and mathematical symbols. For students who are not fluent using devices to communicate, provide students with visual response options and communication cards. For students with emerging symbolic communication, use concrete representations of objects during the lesson. Sample words and phrases include:

- Numbers 1-20
- Count
- More
- Less

Anchor Instruction for All Students

Prior to beginning instruction, show your students pictures and videos of astronauts in space. Talk to your students about how astronauts use math.

Differentiated Systematic and Explicit Instruction

Follow the instructional steps below. Adapt the steps or language, as needed, to account for student-specific needs. After each step, provide specific verbal feedback for correct responses and participation.

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	Say, **Numbers are all around us!** Say, **Today we are going to use the 10-frame to compare numbers!** Wait for student to respond.	Say, **Numbers are all around us! Sometimes we need to count by 10's. Lets make a train and count by 10's around the classroom.**	Say, **Numbers are all around us! Today we are using our base 10 blocks to make numbers on the place value chart.**

Mold-Lead-Test Instruction

This instruction is leveled for three types of support needs. All instruction is delivered in a model-lead-test format. You will teach students how to count by presenting a specific number of counters to your students in an organized or scattered array. For students needing additional support, consider using the counters on the magnetic board with the 5- and 10-frames (physical objects to manipulate versus pictures), printing and laminating counters using a pull off system, or counting larger three-dimensional objects.

	LEVEL 1	LEVEL 2	LEVEL 3
MODEL	Use two 10-frames. Say, **Today we are going to compare quantities using our 10-frame again, but this time we are going to find the frame that has LESS than the other frame. Can you say "less"?** Wait for student to respond. **My turn. This frame has…**(count out loud each dot/picture)…**(#).** Repeat for second frame. **This frame has…**(count out loud each dot/picture)…**(#).** Now touch each counter/picture in each frame, or draw a line from one to the corresponding counter/picture in the other. **See, this has a match, this has a match…this does not have a match. This set** (point to set with extra counters) **has fewer counters so it is less.** **(#) is less than (#).**	Use worksheet and 100 chart for visual support. Say, **My turn. Let's look at the 100 chart. Find number 22. We are going to find 10 more, 10 less, 1 more, and 1 less.** **What is 10 more? Jump 1 row down like this.** Move finger down. **32. 32 is 10 more than 22.** Move back to 22. **What is 10 less? Jump 1 row up like this.** Move finger up. **12. 12 is 10 less than 22.** Move back to 22. **What is one more than 22? Jump 1 spot right.** Move finger right. **23. 23 is one more than 22.** Move back to 22. **What is one less than 22? Jump 1 spot left.** Move finger left. **21. 21 is one less than 22.** Repeat with quantities 10-99 repeating the procedures.	Use worksheet and Base 10 blocks. Say, **My turn. This is the hundreds column** (point). **Say "hundreds." This is the tens column** (point). **Say "tens." This is the ones column** (point). **Say "ones."** **We are going to continue working on making three-digit numbers with Base 10 blocks. Now we are going to take a closer look at how to make those numbers.** Show units, rods, and flats. **This is a unit cube. It is equal to 1. This is a rod. It has 10 unit cubes in it. This is a flat! It has 100 unit cubes in it.** Write 115, and say, **115.** Point to 1. **1 hundred flat equals 100. Watch…**(lay out 100 flat in the hundreds column). **100. Say, "1 hundred equals 100." Watch…**(lay out 10 rod in the tens column) **10. Say "1 ten equals 10."** Wait for students to respond. **5 ones …**(lay out 5 units in the ones column) **1, 2, 3, 4, 5. How many ones?** Wait for students to respond, "5." **Great! So 1 hundred, 1 ten, and 5 ones is 115.** Wait for students to represent 115 on their place value charts. Repeat with quantities 100-999.

	LEVEL 1	LEVEL 2	LEVEL 3
LEAD	**Let's work together.** Repeat using several examples 1-10 starting with very different and moving closer together.	**Let's work together.** Repeat with examples 10-99.	**Let's work together.** Repeat with examples 100-999.
TEST	**Your turn. Tell me which set has less.**	**Your turn. Complete the worksheet.** Wait for each student response.	**Your turn. Complete the worksheet.** Wait for each student response.
PROMPTING AND ERROR CORRECTION	**Note:** To be used during the Test phase as needed.		
	If the student does not respond after 4 seconds or makes an error, compare quantities by matching one to one across the two frames. Draw lines from one to the corresponding counter/ picture in the other frame. Point to the one that has extra, and say, **This set has less.** Wait for the student to respond. If correct, deliver specific verbal praise.	*If the student does not respond after 4 seconds,* point to 100 chart and say, **[jump up/down, move left/right]** Wait for the student to point. If correct, deliver specific verbal praise. *If the student makes an error,* **Stop! Watch me.** Model move on 100 chart. **Your turn.** *If the student does not respond after 4 seconds*, say, **Do it with me.** Use hand-over-hand guidance and physically prompt the student to the make the combination.	*If the student does not respond after 4 seconds,* point to frame and say, **how many hundreds? How many tens? How many ones?** Wait for the student to point. If correct, deliver specific verbal praise. *If the student makes an error,* **Stop! Watch me.** Model creating number using Base 10. **Your turn.** *If the student does not respond after 4 seconds*, say, **Do it with me.** Use hand-over-hand guidance and physically prompt the student to the make the combination.
REINFORCE	**Great job comparing numbers and using "less"!**	**Great job making counting by 10, and stating 1 more and 1 less!**	**Great job making hundreds!**

Measuring Student Learning

Using the task-analytic data sheet, collect data on student-specific responses during the base ten lesson. Monitor student progress regularly and make data-based decisions to ensure instruction is individualized.

Independent, Technology-Delivered Instruction

enCORE provides additional instruction and practice on the target skills and concepts addressed in this Unit. Both teacher-led and independent student lessons that automatically adapt to differentiate across learning levels are key components of enCORE:

- enCORE automatically selects and assigns these lessons to your students based on their learning level and the Unit you are currently teaching
- or, to view and select any of these lessons at any time – go to the Curriculum tab in your enCORE teacher dashboard.

SEGMENT 2

Time and Money

Prior to Instruction

Program student AAC devices with numbers and mathematical symbols. For students who are not fluent using devices to communicate, provide students with visual response options and communication cards. For students with emerging symbolic communication, use concrete representations of objects during the lesson. Sample words and phrases include:

- Numbers 1-10
- $1.00
- $5.00
- Quarter Past
- Minute

Anchor Instruction for All Students

Prior to beginning instruction, read the story *Up in Space*. Show your students the wooden demonstration clock, schedules, and classroom money set. Talk to your students about what astronauts do during their day.

Math Core Vocabulary:

LEVEL 1	LEVEL 2	LEVEL 3
$1.00, $5.00 Price tag Hour	$1.00, $5.00, $10.00 Quarter to	$1.00, $5.00, $10.00, $20.00 minute

Learning Objective

- Students will identify paper money and their values.
- Students will identify quantities of a combination of bills.
- Students will tell time to the hour and half hour.
- Students will tell time by the minute in increments of 5's.

Materials

- Time Cards
- Money Cards
- Time Worksheet
- Money Worksheet
- Classroom Money Set
- Wooden Demonstration Clock
- Magnetic Whiteboard
- Magnetic Display Tray
- Magnetic Picture Pockets
- Worksheet Pockets

Introduce Math Concepts and Core Vocabulary: Time

Note to teachers: Write schedules on board. Level 1 may pair with pictures of activities to enhance comprehension of schedule.

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**In our daily schedule there is a lot to do! I wonder what an astronaut does all day. I bet astronauts have schedules, too! We do activities on the hour, half hour, and 5 minute intervals! We will practice time on our clocks today.**		

Mold-Lead-Test Instruction

This instruction is leveled for two types of support needs. All instruction is delivered in a model-lead-test format. If working in a small group, allow each student a chance to answer each item independently during the test phase. Use the system of least prompts procedure to provide support as needed.

	LEVEL 1	LEVEL 2	LEVEL 3
MODEL	Use digital and analog clock matching worksheet with times 9:30-12:30. **We are going to find clocks that tell the same time. Remember on this kind of clock** (show the wooden demonstration clock) **the hour hand is the short hand and tells us what hour it is. The minute hand is the long hand.** Show digital clock. **On this kind of clock when the minutes to the half hour we say :30, or half past (#).** **Watch me. The hour hand is between 11 and 12, and the minute hand is on the 6. It is 11:30. This digital clock says 11:30 so they match.** Use the wooden demonstration clock and times 7:00-11:45. **Remember read the half hour as 30 because it is one half of an hour, which is 30 minutes. We also say half past the hour. Now we are going to add in quarter past the hour and quarter to the next hour.** **Watch me. When the minute hand points to the 3, it is quarter past the hour, or :15. For example, we would read this as 9:15, or quarter past 9.** Repeat for a few examples. **Watch me. When the minute hand points to the 9, it is quarter to the next hour, or :45. For example, we would read this as 9:45, or a quarter to 10 because it is almost 10:00.** Repeat for a few examples. Use times 7:01-11:59 with the wooden demonstration clock. **We are telling time to the minute. We have already practiced counting by 5's. In between each number on the Judy clock are tick marks which represent one minute.** Show 10:57. **See the closest time to this is 10:55. Now I can count up from 55 to see where the hand is…55, 56, 57. It is 10:57.** Repeat using examples in the beginning of the hour, middle of the hour, and closer to the hour.		

	LEVEL 1	LEVEL 2	LEVEL 3
LEAD	**Let's work together and match the two clocks. What time?** Wait first before prompting. Make sure the student states the number and "half past"	**Let's work together.** Move the hour hand to various times in nonsequential order and alternate between :15 and :45. **What time?** Wait first before prompting. Make sure the student states both the time and "quarter past/quarter to."	**Let's work together.** Move the hour hand to various times in nonsequential order. **What time?** Wait first before prompting. Make sure the student states the time to the closest minute.
TEST	**Your turn.** Students should match the clocks. Wait for each student response.	**Your turn.** Present various times to the student and have the student read the time. Wait for each student response.	**Your turn.** Present various times to the student and have the student read the time. Wait for each student response.
PROMPTING AND ERROR CORRECTION	**Note:** To be used during the Test phase as needed.		
	If the student does not respond after 4 second or makes an error, say **(#):30. Match.** Wait for the student to respond. If correct, deliver specific verbal praise.	*If the student does not respond after 4 second or makes an error,* say **The hour hand is pointing to (#) and the minute hand is pointing to (3/9) so it is (#:15/#:45). We read this as quarter past/ quarter to. Your turn.** Wait for the student to respond. If correct, deliver specific verbal praise.	*If the student does not respond after 4 second or makes an error,* model finding the closest 5 min and counting on to find the minute. **Your turn.** Wait for the student to respond. If correct, deliver specific verbal praise.
REINFORCE	**Awesome job telling time by the half hour on two kinds of clocks!**	**Awesome job telling time by the quarter hour!**	**Awesome job telling time to the minute.**

Generalization and Extension Activities:

To promote generalization, consider opportunities to vary the types of images you use (both the content of the images and the format of the images) and look for opportunities to incorporate real-life materials or examples. Some students may need concrete objects rather than pictures for schedules. They can paste responses options, write responses, or draw their own responses. They can use the response options from the example/non-example instruction, or they can think of their own responses.

Introduce Math Concepts and Core Vocabulary: Money

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**I can COUNT money. I use money to buy all kinds of things. I bet an astronaut uses money to buy a helmet! Today we are counting money. Let's review what we have learned.** Pick up each coin and state the value, or have students choral respond value. **How much are [pennies/nickels/dimes/quarters] worth?** Wait for students to respond. **This is paper money. Look at the number in the corner. How much?** Ask for $1, 5, 10, and 20 bills.		

Differentiated Systematic and Explicit Instruction

Follow the instructional steps below. Adapt the steps or language, as needed, to account for student-specific needs. After each step, provide specific verbal feedback for correct responses and participation.

Mold-Lead-Test and a System of Least Prompts

This instruction is leveled for three types of support needs. All instruction is delivered in a model-lead-test format. You will teach students how to sort the money into corresponding columns.

	LEVEL 1	LEVEL 2	LEVEL 3
MODEL	Use the worksheet with prices $1.00-10.00. **I need to find the items that costs $1.00, $5.00, or $10.00.** Point to an item. **Look, I have enough money to pay for it. $1.00, $5.00, or $10.00!** Demonstrate. Have students repeat. Repeat a few more trials with examples and nonexamples.	**Watch me. This is a $10.00 bill and this is a $20.00 bill. Show me the $10.00 bill.** Demonstrate. Have students repeat. **Show me the $20.00 bill.** Demonstrate. Have students repeat.	Pull up an electronic Online circular for a popular superstore with high interest items Online. Choose items that costs $1.99-$9.99. **Watch me. I am going to make purchases using exact change. This item costs (read price). First, I use the dollar amount.** Count out dollars. Remember to start with largest bill first. **Then, I use change.** Count out change. Remember to start with largest coin first.
LEAD	**Let's work together.** Point to a price tag. Ask, **"how much does this cost?"** Wait for student to read price tag. **Show me how much money to use.** Wait for student to place bill on tag. Repeat for a few trials.	**Do it with me. Show me the $10.00 bill.** Demonstrate. Have students repeat. **Show me the $20.00 bill.** Demonstrate. Have students repeat.	**Do it with me. Let's pay exact change for [name item]. It costs [$ __.__].** Wait for student to use bills and coins.

	LEVEL 1	LEVEL 2	LEVEL 3
TEST	**Your turn. Show me how to pay for these items.**	**Your turn. Show me the $10.00 bill. Show me the $20.00 bill.**	**Your turn. Show me how to pay for this item using exact change.**
PROMPTING AND ERROR CORRECTION	**Note:** To be used during the Test phase as needed.		
	First prompt: If needed, after four seconds, say, **"Read the price tag. Use the dollar bills that matches."** *Second prompt*: If needed, after four seconds, read the value on the price tag and touch the bill. *Third prompt:* If needed, after another four seconds, model placing the bill on the price tag and have the student repeat.	*First prompt*: If needed, after four seconds, say, **This is the $10.00/$20.00.** *Second prompt*: If needed, after four seconds, model picking up the target bill. *Third prompt:* If needed, after another four seconds, use physical prompting.	*First prompt*: If needed, after four seconds, say **first count dollars, then coins. Remember to start with the largest bill or coin first.** *Second prompt*: If needed, after four seconds, model laying down bills and coins and counting, then have student repeat. *Third prompt:* If needed, after another four seconds, use physical prompting.
REINFORCE	**Great job paying for the item!**	**Great job! This is $10.00 and a $20.00.**	**Great job making purchases.**

Generalization and Extension Activities

Let your students pretend that they are astronauts and planning a trip to outer space. Take your students on a shopping spree in your classroom and let your students practice buying things they would need to bring with them on their trip.

Measuring Student Learning

Using the task-analytic data sheet, collect data on student-specific responses during the time and money lesson. Monitor student progress regularly and make data-based decisions to ensure instruction is individualized.

Independent, Technology-Delivered Instruction

enCORE provides additional instruction and practice on the target skills and concepts addressed in this Unit. Both teacher-led and independent student lessons that automatically adapt to differentiate across learning levels are key components of enCORE:

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SEGMENT 3

Geometry

Learning Objective

- Students will identify a half circle.
- Students will review shapes and their properties learned to this point.
- Students will partition shapes into halves and fourths.

Materials

- Geometry Cards
- Geometry Sort
- Geometry Worksheet
- Patterns Worksheet
- Shapes and Attributes Blocks
- Magnetic Whiteboard
- Magnetic Display Tray
- Magnetic Picture Pockets
- Worksheet Pockets

Prior to Instruction

Program student AAC devices with numbers and mathematical symbols. For students who are not fluent using devices to communicate, provide students with visual response options and communication cards. For students with emerging symbolic communication, use concrete representations of objects during the lesson. Sample words and phrases include:

- Oval
- Circle/Half Circle
- Fraction
- Whole
- Half
- Part

Anchor Instruction for All Students

Show your students pictures and video clips from outer space. Ask your students to identify different shapes that they see in space!

Math Vocabulary and Definitions:

LEVEL 1	LEVEL 2	LEVEL 3
Circle Half circle Partition Half	Circle Half circle Partition Halves	Circle Half circle Partition Halves Fourths

Introduce Geometry

	LEVEL 1	LEVEL 2	LEVEL 3
INTRODUCE	**This is a half circle! If you partition a circle in half, you get two half circles! Another word for partition is divide. Remember, two halves equal one whole.**		

Teaching Geometry with Constant Time Delay

Zero Second Delay Round

Complete 5-10 Trials/Student. Recommended for students needing substantial to moderate prompting and support.

Materials: Shape Cards, Shape and Attribute Sets

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
Level 1: Teach receptive identification of shapes and concepts. In the first round, display one card at a time and touch the card/shape as you name it. For example, say, **Touch half.** To increase difficulty, provide 2-3 distractors in the 0s round. *Levels 2-3*: Teach expressive and/or receptive identification of the concept/shape. Display 3-4 cards or shapes at a time. For receptive identification, say **Is this half or whole? How do you know?** As you touch the card, and immediately model by saying the word, **Half.** Repeat for all targets.	Student touches or says the targeted card or shape.	**Hooray! This is half. There are two halves in one whole.**
	Student does not respond.	**This is half. Touch half.** Wait for the student to respond. Provide physical guidance if needed.
	Student responds incorrectly.	

Four Second Delay Round

Complete 5-10 Trials/Student. Recommended for students needing some prompting and support.

Materials: Shape Cards, Shape and Attribute Sets

TEACHER SAYS	STUDENT RESPONSE	FEEDBACK
Say, **Let's practice identifying shapes some more! This time, I'm going to give you a chance to show me the shape all by yourself! But don't guess. If you need help, wait, and I will help you. Touch (show me) half.** Wait four seconds.	Student touches the triangle within four seconds.	**Hooray! This is half. There are two halves in one whole.**
	Student responds incorrectly before additional prompting.	**This is half. Touch half.** Wait for the student to respond. Provide physical guidance if needed.
	Student does not respond within four seconds.	

Differentiated Systematic and Explicit Instruction: Follow the instructional steps below. Adapt the steps or language, as needed, to account for student-specific needs. After each step, provide specific verbal feedback for correct responses and participation.

	LEVEL 1	LEVEL 2	LEVEL 3
MODEL	**This is a half circle. Say "half circle."** Wait for students to respond. **A half circle is half of a circle divided into two equal parts.** Demonstrate connecting two half circles to make one circle.	**Watch me. I am going to "partition" this shape in half. Partition means to divide into two equal parts. Say, "partition."** Lay a straw or craft stick on the shape. **This line divides the circle in half exactly so both sides are exactly the same. Look – I partitioned the circle in half. It creates two half circles.** Wait for students to respond.	**Watch me. I am going to "partition" this shape in half. Partition means to divide into two equal parts. Say, "partition."** Lay a straw or craft stick on the shape. **This line divides the circle in half exactly so both sides are exactly the same. Look – I partitioned the circle in half. It creates two half circles.** Wait for students to respond. **Now I can partition the circle again into fourths.** Lay a straw or craft stick the opposite direction across the circle creating four equal sections. **See four equal parts.** Wait for students to respond.
LEAD	**Let's work together to decide if it is a circle or half circle.** Touch the pictures on the worksheet, this time in a different order.	**Let's work together to draw a line and partition these circles into two equal halves.** Draw lines to divide shapes in half.	**Let's work together to draw a line and partition these circles into two equal halves and then into fourths.** Draw lines to divide in half and then in fourths.
TEST	**Your turn. Find the half circles.** Wait for each student response.	**Your turn. Partition these shapes in half.** Wait for each student response.	**Your turn. Partition these shapes in half. Then partition the shape into fourths.** Wait for each student response.

	LEVEL 1	LEVEL 2	LEVEL 3
PROMPTING AND ERROR CORRECTION	**Note:** To be used during the Test phase as needed.		
	If the student does not respond after 4 seconds or makes an error, point to an oval and say**, This is an half circle. Your turn.** Wait for the student to say the correct response or point to a yes/no response option on an AAC device. If correct, deliver specific verbal praise.	*If the student does not respond after 4 seconds or makes an error,* **Watch me.** Model where partition line would go with your finger. **Your turn.** Wait for the student to say the correct response or point to a yes/no response option on an AAC device. If correct, deliver specific verbal praise.	*If the student does not respond after 4 seconds or makes an error,* **Watch me.** Model where partition line would go with your finger. **Your turn.** Wait for the student to say the correct response or point to a yes/no response option on an AAC device. If correct, deliver specific verbal praise.
REINFORCE	**Great! You found the half circle!**	**Great job partitioning the shape in half.**	**Great job partitioning the shape in half.**

Instructional Tip! *For students who need a receptive response mode, you can create a yes/no response card or a green check mark and red X. These can be programmed in AAC device or made on notecards glued to popsicle sticks. Instead of saying "IS ___ or is NOT ___", students can point, press, or hold up yes/no responses. Optional: Use objects from the classroom rather than worksheet.*

Generalization and Extension Activities

To promote generalization, consider opportunities to partition shapes in the school (e.g., cinder block, poster).

Measuring Student Learning

Using the task-analytic data sheet, collect data on student-specific responses during the geometry lesson. Monitor student progress regularly and make data-based decisions to ensure instruction is individualized.

Independent, Technology-Delivered Instruction

enCORE provides additional instruction and practice on the target skills and concepts addressed in this Unit. Both teacher-led and independent student lessons that automatically adapt to differentiate across learning levels are key components of enCORE:

- enCORE automatically selects and assigns these lessons to your students based on their learning level and the Unit you are currently teaching
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