

**Integrated Thematic Unit**

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### **Part 1 Context**

#### **State and County**

Howell Memorial Elementary School is located in Howell Township, which is situated in Monmouth County, New Jersey. Monmouth County has a population of 643,615 residents with a median age of 43. The dominant ethnicity of Monmouth County is white, with 476,000 being caucasian. The county has upcoming diversity, with 40,000 African American residents, 80,000 Latino or Hispanic, and 3,000 American Indian (U.S. Census Bureau, 2023). The languages spoken at home in Monmouth County are about 80 % English only, 8 % Spanish, 6.3 % European, and 3 % Asian and others (U.S. Census Bureau, 2023). In Monmouth County, the median income salary for families is about 118,000 dollars, which is about 20,000 dollars more than the median income in New Jersey. The poverty rate for Monmouth County is 6.4 %, which is less than New Jersey state poverty rate of 9.7 %.

In Monmouth County, New Jersey, recent immigration includes individuals from Latin America and Asia. Specific migration areas come from countries like Venezuela and Afghanistan (New Jersey Alliance for Immigrant Justice, 2024). This has impacted local schools, especially in Howell Township, where the growing diversity has led to related services such as English as a Second Language (ESL) programs. Schools in the county have introduced more after-school programs and community engagement initiatives to support immigrant families. With the influx in immigration, community-based organizations, like the New Jersey Alliance for Immigrant Justice, work to help immigrants find resources to help adapt and have their needs met (New Jersey Alliance for Immigrant Justice, 2024).

#### **Community**

Howell Memorial Elementary School is located in the Howell School District of Monmouth County. It is a growing suburban area with a population of approximately 53,537 residents. Regarding education, the district serves grades pre-kindergarten through eighth grade with 12 school buildings (Census Reporter, n.d.). The district serves about 6,500 students within the town. The district's ESL population is comprised of approximately 120 students. More than fifteen languages are represented, including Spanish, Russian, Vietnamese, Arabic, Bengali, and Polish district-wide (Census Reporter, n.d.). The ethnicity within Howell Township is mainly White, Black, Asian, and Hispanic. The white ethnicity makes up the largest part of the population at 76%. Hispanic is 13%, Asian is 5%, and Black is 4% of the population.

The median household income is about \$128,177, leaving Howell Township at about 10 percent higher than the amount in Monmouth County and about 1.3 times the amount in New Jersey (Census Reporter, n.d.). The poverty rate within Howell Township sits at about 5.6% of people below the poverty line compared to Monmouth County, which is 6.4%, and New Jersey, at 9.7% (Census Reporter, n.d.). The number of households in Howell is 18,000, and about 2.9 persons per household. The marital status in Howell is 57 %, with 15 or more years of marriage. The median value of a home located in Howell is about 429,000 dollars. (Census Reporter, n.d.)

Howell Township has a predominantly white population but is welcoming and open to diversity. The percentage of foreign-born in Howell is about 12.5% as of 2022. As New Jersey is a welcoming state to migrants, the number of immigrants living in Howell is expected to keep rising as time passes. Others include Baptist, Episcopalian, and other Christian faiths (BestPlaces, n.d.). The town ranges from traditional faiths like Catholicism and Protestantism to more modern practices like Buddhism and Wicca. Local churches include the Church of the Nativity, Howell United Methodist Church, and Marlboro Jewish Center. 57.4% of the people in

Howell are religious. Catholics comprise the highest percentage of 42.7%, 3.3% are Judaism, 2.5% are Methodist, 1.5% are Presbyterian, and others include Baptist, Episcopalian, and other Christian faiths (BestPlaces, 2023).

### **School Setting**

Howell Memorial Elementary is a new elementary school with kindergarten through fifth grade. This is the first academic school year, and this school is now kindergarten to fifth grade. It used to be a third- to fifth-grade school. Due to the redistricting, the schools in Howell have merged from kindergarten to second and third to fifth to all kindergarten to fifth grade. A handout I received on the first day of school explained the school layout. Howell Memorial consists of 17 General Education Classrooms K-5, 12 Autism and 2 Intellectually Disabled Classrooms, 14 total Special Class Programs, a Staff of 120 adults, and a student population of 400. In addition to all the special education classrooms, the school has a case study team on site, as well as guidance, OT, and speech.

### **Family**

My cooperating teacher, Mrs. Bruno, believes that family partnerships are one of the most important relationships to establish in the first weeks of school. The app Seesaw is a district-wide communication app that teachers use to communicate with parents. My teacher is constantly using Seesaw and sending pictures, updates, flyers, and anything that happened during the day that parents should know about. The school has a PTO that puts on weekly and monthly events for parents and children to attend. For example, they did an outside movie night on the lawn next to the school last week. Parent involvement in my classroom is super important. My teacher sends out at the beginning of the year what days parents can hold parties and events to

make equal opportunities for parents to be in the classroom. In addition, the kindergarten has a star of the week, which allows the student to bring a parent to read a book to the class.

### **Classroom**

I am placed in a general education kindergarten classroom this year. The class has 18 students aged five to six years old. As of now, the class does not have any children with IEPs, but there are a handful of individuals who need accommodations provided. The adults in the classroom consist of my teacher, Mrs. Bruno, and myself when I am present. The students are seated at tables with four at each and two children at the back table. The language art curriculum, called Foundations, consists of phonics and reading. In addition to Foundations, they also have Haggerty, which works on sight words and syllables. The math curriculum for kindergarten is called Envision, which provides a textbook and homework notebook. Inside the classroom, Mrs. Bruno has books throughout the bookshelf categorized by the level of the book. For example, she has bins of books at level A, reading all the way to level L. The school also provides each student with an iPad that the students take with them to specials. The teacher uses her computer inside the classroom to connect to the smartboard. The smartboard is used daily and interactive for read-aloud, freeze dances, and academics.

Classroom management in this classroom is a top priority. The class rules and expectations are posted on the classroom walls and referenced when needed. The statements are behavioral reminders, and our positive affirmations are at the back of the wall. The classroom is completely decorated and very well organized. As soon as you walk in, the atmosphere says it is a kindergarten classroom. Posters of letters, sounds, rules, birthdays, and artwork. The classroom setup most certainly represents diversity. It allows for the children to express themselves in the

work they do that the teacher hangs up on as well as making everyone feel welcome by the constant signs of welcome and hello. For a full picture description, see Appendix A.

### **Students**

The general education classroom consists of 18 students who have a wide range of abilities. Currently, the class does not have any students with IEPs or 504 plans, but there are certainly students with struggling needs. From observations, student work samples, and last year's performance my teacher has been able to point out four students that are significantly behind the others in the class. Due to this, they sit with my teacher for reading and math to get extra help. Based on data my teacher has taken, some of these students can not identify one sight word. On the other hand, we do have one student who was able to identify 20 out of 25 sight words. Although there are no IEPs or 504s, there are plenty of services that need to be provided for the students in the class.

### **Reflection**

Contextual factors, such as family involvement, diversity, and culture, greatly influence how the students and classroom will be. As a teacher, it is super important to consider all of these factors to have a safe and inclusive learning environment so that every child feels valued. All aspects of life need to be considered to have effective teaching in the classroom. Parent and teacher collaboration is essential for the child's success; each is on the same team, putting what is best for the child first. Effective teaching in this classroom needs differentiation, which includes creating inclusive and supportive environments for the children to learn. When developing lesson plans, the teacher must always consider language barriers, economic status, and family engagement. Change is constant in the classroom; the best way to prepare is to be involved with the students.

### **Part 2 Data Collection**

#### **Pre- Assessment**

For my integrated thematic unit, I have chosen to put into place evidence-based practice modeling in mathematics. The NJSL standard I will assess throughout this process is K.CC.A.3 Write numbers from 0 to 20 represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects). The pre-assessment that was given to track data on knowledge of the standard was a math worksheet that had students write down their numbers accurately as well as represent number qualities as counters. See Appendix A.

#### **Instructional Strategy**

For my evidence-based practice, I have chosen to do modeling. In kindergarten, teachers and students are constantly modeling to provide explicit instruction and the correct way to do activities. Through conversations with my cooperating teacher, it was seen that the best practice to implement is modeling because students at the beginning of kindergarten need help with writing their numbers. Through modeling, students can see the correct way of writing a number and then are able to trace for accuracy and then practice independently.

#### **Importance of Mathematical Modeling**

Modeling kindergarten math instruction is a powerful evidence-based strategy that helps young learners grasp fundamental concepts by visually and physically interacting with numbers and manipulatives. At this age, students often struggle with writing and abstract thinking, which makes it hard for them to succeed in math. As a teacher model, it can significantly help a student understand how to write letters and get the work on the page. Mathematical modeling is crucial to helping students understand and solve real-world problems by translating these problems into their own language. (Koç et al., 2022).

When associating modeling with mathematics, the term visual representations often comes about. Visual representation is effective because it allows students to develop mathematical proficiency. When teachers integrate concrete manipulatives into the classroom, students get a real-life understanding (Using Evidence-Based Math Strategies, 2021). Koc et al. have many similarities in their research with the article from Old Dominion University on using evidence-based math strategies to instruct math. Both focus on improving math instruction through research-based approaches such as modeling, particularly by enhancing problem-solving skills and understanding of mathematical concepts. Each of the articles conducts its studies based on the learner and needs of the student. Both highlight the effectiveness of modeling through problem-solving.

**Benefits of Modeling in Math Education**

Modeling helps students grasp abstract concepts by making them concrete and relatable. It encourages critical thinking and creative approaches to problem-solving beyond just the classroom and into the real world. In the elementary grades, it is extremely important to not teach math to just teach but rely on the message that math is all around us. Teachers play an important part in guiding students through this process. For example, teachers showing and modeling how math can be used at the grocery store will show students real-life examples of understanding rather than in a textbook. Turner et al. discuss how mathematical modeling can be a powerful tool for engaging elementary school students in math, particularly when it is tied to real-world contexts from their school and community (Turner et al., 2020). For example, when students learn to count to the number 5, we can relate to students who are in the grocery store, and we need to count to 5 bananas in the cart. Students can see the relation to real-life situations to get a better grasp of concepts. In addition, teachers can model in the classroom by showing the



one-to-one correspondence of counting and writing numbers on the board, in relation to Turner et al. Boucher explains that getting a deep understanding of math requires a change in instructional strategies. For example, the standard way of the teacher demonstrating procedures in front of the class followed by practice is no longer acceptable. It is now replaced by hands-on instruction and guided modeling by teachers. This way, students can make connections between math concepts and make sense of the math they are doing (Boucher, 2022). When real-life problems are taught with modeling and hands-on learning in the classroom, the benefits of math are endless. The research in the articles shows that teaching and lecturing are not sufficient for students to learn and grasp hard mathematical concepts. Teaching with practice and real-life problems shows and sparks interest in young learners.

**Connecting Visual and Contextual Approaches in Math Education**

Turner et al. discuss how students construct models to represent real-life problems and use these models to perform operations, check results, and refine their thinking. Similarly, Donna Boucher promotes the use of visual models such as number lines to help students better understand mathematical relationships and ideas. Boucher writes in her article “See” in math, saying that math is taught in ways that allow students to "see" and interact with numbers, making it easier for them to understand big ideas (Boucher, 2022). Similarly, it connects with the article, Using Evidence-Based Math Strategies, 2021, by helping especially those struggling students. The article, Using Evidence-Based Math Strategies, focuses on helping struggling students by using evidence-based practices to teach math. It suggests using methods like explicit instruction, which involves breaking down math problems step by step and using visual models so students can more easily grasp concepts (Using Evidence-Based Math Strategies, 2021).

All four of the articles highlight the importance of using real-world contexts and visual models in teaching math. Whether it's about helping struggling students, future teachers, or elementary students, they all agree that modeling and contextual learning make math more understandable and engaging. These approaches help students understand the content being taught but also to be able to apply math to real-life situations. For my evidence-based practice, these strategies are what I will be implementing for my kindergarten students. The combination of showing models of number lines and numbers representing real-life quantities will help students understand that an item can be represented in numbers and quantities.

**Fidelity Checklist for Modeling Math Instruction****Date** \_\_\_\_\_**Start time** \_\_\_\_\_**Stop time** \_\_\_\_\_**Instructional Materials**

1. \_\_\_\_ All necessary visual models and manipulatives are available and accessible to students.
2. \_\_\_\_ Technology and digital tools are being used to enhance the modeling experience. For example, number lines and graphs.
3. \_\_\_\_ Students have access to pencils, erases, dry-erase boards, markers, worksheets, and other necessities.

**Instructional Delivery**

1. \_\_\_\_ Students are able to use manipulatives. For example, drawing on number lines.
2. \_\_\_\_ Students will be able to trace the teacher's highlighter or accuracy of writing numbers on the worksheet.
3. \_\_\_\_ Models are connected to real-world problems that students can relate to. For example, referencing counting items in a shopping cart.

4. \_\_\_\_ Explicit instruction is provided by breaking down math concepts into small steps.
5. \_\_\_\_ Each step is modeled and demonstrated for students before they practice.
6. \_\_\_\_ The teacher will check for understanding after modeling the concept and before independent practice.

**Student Engagement in Lesson**

1. \_\_\_\_ Students are actively engaged in the lesson
2. \_\_\_\_ Teachers are asking questions to students during the modeling to keep student engagement.
3. \_\_\_\_ Teacher provides opportunities for student involvement when demonstrating with models.
4. \_\_\_\_ Student looks engaged and understands each step of the content.

**Feedback and Reflection**

1. \_\_\_\_ Time is provided for students to reflect on their skills and how the models helped them.
2. \_\_\_\_ Feedback is provided immediately during student practice.
3. \_\_\_\_ Specific feedback is given to help the student on what they are struggling with.
4. \_\_\_\_ Feedback suggests help for next time and future outcomes.

**Fidelity Score checkboxes checked:** \_\_\_\_ /17

**Teaching**

Implementing the evidence-based practice modeling in my placement classroom will be done in small group instruction. Normally, in my placement, my cooperating teacher will take three students to her back table, and I will take two or three other students to my table. When the students are at my table, my teacher is doing a voice-over, and I explicitly show them where to

look on the paper and use my highlight to prompt and model on their worksheet. To implement my evidence-based practice, I will use modeling by referencing the number line that will be printed out along with my highlighter, which will allow me to write the numbers on the lines provided. This will give students a printed-out visual of the numbers as well as a chance to trace my number on their paper for extra practice. While the students gain knowledge and improve accuracy, I will adjust the evidence-based practice accordingly. For example, if a student starts to show accuracy in writing, I will no longer write for them; instead, I will just point to the number. If the child is still showing improvement, I will no longer point to the number and will verbally say the number, and they will need to know how to write it correctly.

### Part 3 Lesson Design

#### Learning Segment/Unit Information:

<b>Teacher Candidate's Name:</b> Ms. Chenoweth
<b>Date of Lesson:</b> November 14, 2024
<b>Learning Segment/Unit Title:</b> Read, Make and Write Numbers

#### Context:

<b>Grade Level/Subject:</b> Kindergarten Mathematics
<b>IDEA Disability Categories represented:</b> N/A
<b>Type of classroom (continuum of placements):</b> General Education
<b>Specific Classroom Requirements (ex. curriculum, program, technology):</b> Envision Mathematics

#### Learning Segment Components:

<b>Essential Questions:</b> Why is it important to write numbers accurately? What does a number tell us about a group of objects? How can we show a number using counters? How can a ten frame help us in math?
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<b>NJ Learning Standard(s):</b> <b>K.CC.A.3</b> Write numbers from 0 to 20 to represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
<b>Summative Assessment for Learning Segment/Unit:</b> The summative assessment is the curriculum test once the unit has been completed.

**Accommodations for Specific Students:**

<b>Identified Support for ..... (ELL, advanced student, A struggling student, a student with IEP or 504)</b>	<b>Specific Characteristic(s) (Strength/Need)</b>	<b>Planned Accommodation(s)</b> These are the changes to “how” the student learns the content. The student <u>achieves the</u> <u>learning objectives</u> of the lesson.
<b>Struggling Students</b>	Assistance with writing numbers on the lines provided.	The student will get color-coated lines to see a visual of where the number should start and stop on the line. In addition to a model by the teacher to trace using a highlighter.
<b>Advanced Students</b>	Finishes quickly before others	Students will be allowed to practice their numbers on the back of their papers.

**Modifications for Students with Disabilities (based on IEP):**

<b>Identified Support for ..... (see list above and include ONLY those with disabilities)</b> Put one student per box below.	<b>Specific Characteristic(s) (Strength/Need)</b>	<b>Planned Modification(s)</b> These are changes to “what” the student learns. The <u>learning objective is</u> <u>changed</u> to meet the learner’s strengths or needs.	<b>Modified Learning Objectives</b>
N/A			

**Lesson Information:**

<b>Lesson Title:</b> Writing Numbers Zero through Ten
<b>Sequence of Lesson in Learning Segment/Unit:</b> Lesson one of the three-day lesson

Learning Objective: SWBAT	Corresponding Formative Assessment:
<b>Students will be able to write numbers from 0 to 10 on the interactive whiteboard with 100% mastery.</b>	Struggling students will come to the back table to practice writing numbers on the lines with the teacher. The teacher will tell students to write the number example “7” five times on the line. In small group instruction, the teacher will be checking the whiteboards for accuracy.

**Contexts considered when building this lesson (e.g., misconceptions, curriculum, etc.):**

<b>What did you consider when you built this lesson?</b> Something I had to consider when building this lesson was that kindergarten students are still developing fine motor skills and it may be harder to write numbers. For this, I incorporated activities like using the interactive whiteboard and practicing with lined paper, which allows for large, visible writing.
<b>Lesson considerations:</b> For this lesson, I will be using evidence-based practice modeling. This will consist of demonstrating each step clearly to reinforce the process of writing numbers. In addition, I will be providing visual and verbal guidance throughout the lesson.
<b>Theory considerations:</b> A theory that has driven this lesson is constructivism. Constructivism is a learning theory where they learn best through hands-on activities and visual representation (Brau, 2020).

**Instructional Materials:**

<b>Instructional Materials:</b> <ul style="list-style-type: none"> <li>- Envision Mathematics Book</li> <li>- Whiteboard and markers</li> <li>- Counters</li> <li>- Number cards (0-10)</li> <li>- Eraser</li> <li>- Number formation sheet</li> </ul>
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**Academic Language Demands and Supports:**

<b>What genre/product/discourse are the students working on during this lesson?</b> During this lesson, students are working on writing number quantities. In addition to associating each numeral with a set quantity of objects.
<b>What content vocabulary do students need in order to be successful during this lesson?</b> To be successful, students will need to understand the following vocabulary items: number, count, and write, and numbers 1- 10.

**What other elements of sentence and grammatical structure (syntax) do students need to know in order to be successful during this lesson?** Students will need to understand simple commands related to numbers and counting. Ex. "Count to 5," "Write the number," and "Place the counters".

**Lesson Plan Procedures:**

<b>Duration</b> (in minutes)	<b>Learning Activities or Tasks</b> (Be sure to consider UDL-representation, action/expression, and engagement diversity in planning)	<b>Accommodations for struggling students, ELL, etc.</b> (supports needed for any student)
5 mins	<b>Anticipatory Set-</b> Call struggling students to the back table. The teacher will tell the students that we are going to be practicing writing our numbers 1- 10 on our whiteboards. The teacher will pass out markers and whiteboards to students.	
5 mins	<b>Input/Modeling-</b> The teacher will start off by saying “We are going to start with the number 7”. The teacher will demonstrate how to write the number 7 referring to the oral guide on how to write the number 7. Ex. Across the sky, down from heaven that is how you make a seven.	
5 mins	<b>Guided Practice</b> Students will now be guided to try practicing writing numbers along with the teacher. The teacher will be able to use a light marker for students to trace if needed. For example, the teacher will say, “Now, let’s try writing the number 8.” “ We are going to write the number 8 three times.” Ready “ Make an s, And Do not wait; go back up, and that's an 8”. While students try, the teacher will be looking around for accuracy. During this time, the teacher will continue to model each number for understanding.	
5 mins	<b>Independent Practice:</b> Students will now try on their own. The teacher will assign numbers, and the students will have to try writing the numbers on the lines.	

5 mins	<b>Closure:</b> The teacher will close the lesson with positive feedback on how well the students did. Expressing how important it is to write numbers accurately and to keep practicing.	
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**Homework/Assignment for Next Class:**

Students are encouraged to keep practicing writing their numbers.

**References to any scholarly work used in the development of this lesson (APA format):**

Brau, B. (2020). Constructivism. The Students' Guide to Learning Design and Research.  
<https://edtechbooks.org/studentguide/constructivism>

**Lesson Information:**

**Lesson Title:** Recognizing and Representing Numbers with Ten Frames

**Sequence of Lesson in Learning Segment/Unit:** Lesson two of the three-day lesson

<b>Learning Objective: SWBAT</b>	<b>Corresponding Formative Assessment:</b>
<b>Students will be able to recognize numbers from 0 to 10 and represent them with the correct quantity of objects using ten frames to 100% mastery.</b>	Struggling students will come to the back table to practice completing a ten-frame worksheet. Students will fill out each frame with counters to match a given number (0-10). The teacher will observe accuracy and check each student.

**Contexts considered when building this lesson (e.g., misconceptions, curriculum, etc.):**

**What did you consider when you built this lesson?** Before this lesson, I had to consider that students may struggle to understand the concept of zero as "no objects". In addition, students may find it challenging to count objects one-to-one with ten frames.

**Lesson considerations:** For this lesson, I will be using evidence-based practice modeling. This will consist of demonstrating each step clearly to reinforce the process of writing numbers. In addition, I will be providing visual and verbal guidance throughout the lesson.

**Theory considerations:** A theory that has driven this lesson is constructivism. Constructivism is a learning theory where they learn best through hands-on activities and visual representation (Brau, 2020).

**Instructional Materials:**



**Instructional Materials:**

- Envision Mathematics Book
- Worksheet on ten frames
- Counters
- Number cards (0-10)
- Eraser
- Number formation sheet

**Academic Language Demands and Supports:**

**What genre/product/discourse are the students working on during this lesson?** During this lesson, students are working on representing quantities using ten frames.

**What content vocabulary do students need in order to be successful during this lesson?**

To be successful, students will need to understand the following vocabulary items: number, count, write, ten frame, counters, and numbers 1- 10.

**What other elements of sentence and grammatical structure (syntax) do students need to know in order to be successful during this lesson?** Students will need to understand simple commands related to numbers and counting. Ex. "Place counters," "Fill the frame," and "Count to"

**Lesson Plan Procedures:**

<b>Duration</b> (in minutes)	<b>Learning Activities or Tasks</b> (Be sure to consider UDL-representation, action/expression, and engagement diversity in planning)	<b>Accommodations for struggling students, ELL, etc.</b> (supports needed for any student)
5 mins	<b>Anticipatory Set-</b> Call struggling students to the back table. The teacher will tell the students that we are going to be practicing using ten frames. The teacher will show a ten frame with 5 counters, asking, "How many counters do you see?" The teacher will model how to count using the ten frames.	
5 mins	<b>Input/Modeling-</b> The teacher will start off by writing the number ex. six and model placing six counters in a ten frame. The teacher will demonstrate how to count each counter aloud as you place it.	

5 mins	<b>Guided Practice-</b> Students will now be guided to try to practice using the ten frames. The teacher will pass out the worksheet with the ten frames and counters. The teacher will prompt and model using the ten frames altogether. For example, “Show me 4”. The teacher and students will do it together, placing 4 counters on the ten frames.	
5 mins	<b>Independent Practice</b> Students will now try on their own. The teacher will assign numbers, and the students will have to try filling in their ten frames independently, counting as they go.	
5 mins	<b>Closure-</b> The teacher will close the lesson with positive feedback on how well the students did. Expressing how important it is to use ten frames and how we will continue to expand on using it.	

**Homework/Assignment for Next Class:**

Students are encouraged to keep practicing using objects to represent number quantities.

**References to any scholarly work used in the development of this lesson (APA format):**

Brau, B. (2020). Constructivism. The Students' Guide to Learning Design and Research.  
<https://edtechbooks.org/studentguide/constructivism>

**Lesson Information:**

**Lesson Title:** Understanding of Writing and Representing Numbers One through Ten

**Sequence of Lesson in Learning Segment/Unit:** Lesson three of the three-day lesson

<b>Learning Objective: SWBAT</b>	<b>Corresponding Formative Assessment:</b>
<b>Students will be able to write and represent numbers from 0 to 10 using ten frames with 100% accuracy.</b>	Struggling students will come to the back table to complete the post-assessment worksheet on writing each number from 0 to 10 and use counters to represent the numbers shown. The teacher will observe students as they work,

	providing feedback and checking for accuracy.
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**Contexts considered when building this lesson (e.g., misconceptions, curriculum, etc.):**

**What did you consider when you built this lesson?** Before this lesson, I had to consider that students understand from the past two lessons taught. The students still may struggle with fine motor skills and understanding the concept of zero as "no objects".

**Lesson considerations:** For this lesson, I will be using evidence-based practice modeling. This will consist of demonstrating each step clearly to reinforce the process of writing numbers. In addition, I will be providing visual and verbal guidance throughout the lesson.

**Theory considerations:** A theory that has driven this lesson is constructivism. Constructivism is a learning theory where they learn best through hands-on activities and visual representation (Brau, 2020).

**Instructional Materials:****Instructional Materials:**

- Envision Mathematics Book
- Post-Assessment worksheet
- Counters
- Number cards (0-10)
- Eraser
- Number formation sheet

**Academic Language Demands and Supports:**

**What genre/product/discourse are the students working on during this lesson?** During this lesson, students are working on writing and representing quantities using ten frames.

**What content vocabulary do students need in order to be successful during this lesson?** To be successful, students will need to understand the following vocabulary items: number, count, write, ten frame, counters, and numbers 1- 10.

**What other elements of sentence and grammatical structure (syntax) do students need to know in order to be successful during this lesson?** Students will need to understand simple commands related to numbers and counting. Ex. "Place counters," "Fill the frame," and "Count to" "Write the number."

**Lesson Plan Procedures:**

<b>Duration</b> (in minutes)	<b>Learning Activities or Tasks</b> (Be sure to consider UDL-representation, action/expression, and engagement diversity in planning)	<b>Accommodations for struggling students, ELL, etc.</b> (supports needed for any student)
10 mins	<b>Anticipatory Set-</b> Call struggling students to the back table. The teacher will tell the students that we are going to complete a worksheet and we will show what we know. The teacher will go over prior knowledge about writing numbers, referencing the number sheet, and using counters.	
5 mins	<b>Input/Modeling-</b> The teacher will start off by modeling how to use counters and the ten frames before starting the post-assessment.	
5 mins	<b>Guided Practice-</b> Students will now be handed the post-assessment. The teacher will do the first question together. The teacher will prompt and model how to write the numbers and represent them correctly.	
10 mins	<b>Independent Practice</b> Students will now complete the post-assessment worksheet independently. The teacher will guide the students in reading the question aloud. Students are encouraged to count and “tick” the numbers they count. The teacher will be observing and looking for questions from students.	
5 mins	<b>Closure-</b> The teacher will close the lesson with positive feedback on how well the students did throughout this unit.	

**Homework/Assignment for Next Class:**

Students are encouraged to keep practicing writing and using objects to represent number quantities.

**References to any scholarly work used in the development of this lesson (APA format):**

Brau, B. (2020). Constructivism. The Students' Guide to Learning Design and Research.  
<https://edtechbooks.org/studentguide/constructivism>

**Part 4 Progress Monitoring****Learning Standard**

- **K.CC.A.3** Write numbers from 0 to 20 to represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

**Pre and Post-Assessment**

**1. Write the number shown on the line five times.**

3 \_\_\_\_\_

6 \_\_\_\_\_

7 \_\_\_\_\_

9 \_\_\_\_\_

**2. Use the ten frames to represent the number of smiling faces given.**













### Assignment Tasks

Students are given the numbers 4, 8, 7, and 9 to write five times.

Use the Ten Frames to Represent the Number:

- 😊 : 10 smiling faces
- 🌸 : 6 flowers
- 🌳 : 8 trees
- ⚽ : 4 soccer balls

### Pre- Assessment Data

Student	Task 1: Write Numbers (3, 6, 7, 9) 5x on the line provided	Errors in writing numbers	Task 2: Represent Quantities on Ten Frames	Errors in Representation
Student 1	The student wrote the number 7 backward on the line provided.	1	The student correctly filled in the ten frames for ten smiling faces and six flowers but added one extra counter for 8 trees and only added three counters for four	2

			soccer balls.	
Student 2	The student wrote numbers 3 and 7 reversed on the lines provided.	2	The student correctly filled out the ten frames with the appropriate number of objects represented of 10, 6, 8, and 4	0
Student 3	The student wrote all numbers 3,6,7 and 9 correctly on the line provided.	0	The student correctly filled out the ten frames with the appropriate number of objects for ten smiling faces and eight trees but added one extra counter for six flowers.	1

Figure 1 Pre-Assessment Graph of Data

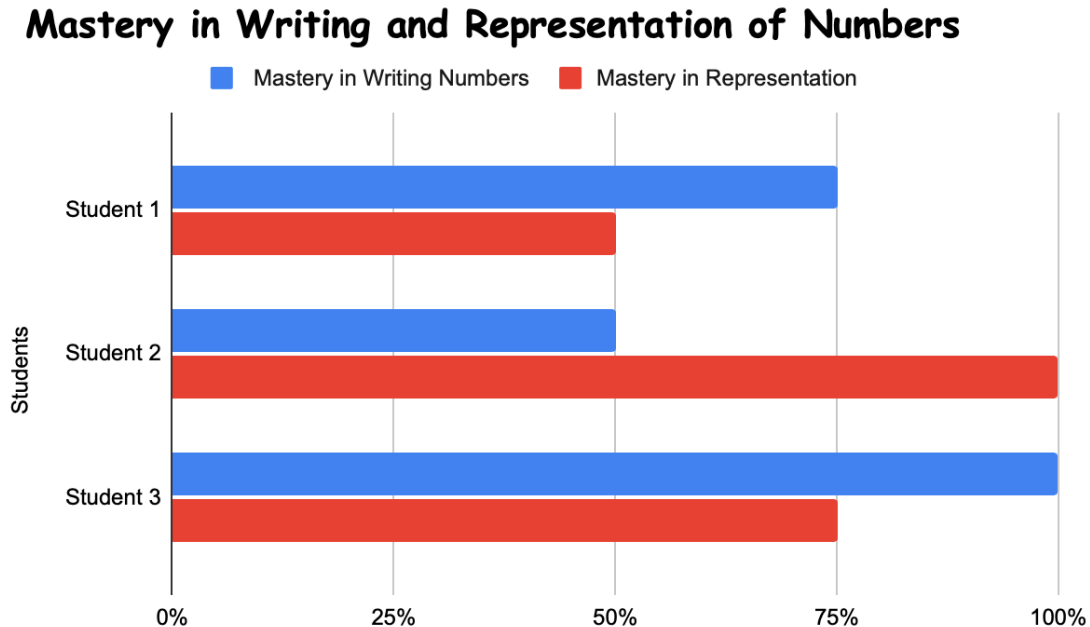


Figure One is the data from the pre-assessment that was administered to students. The data shows that students struggled in different areas of content, such as writing and representing

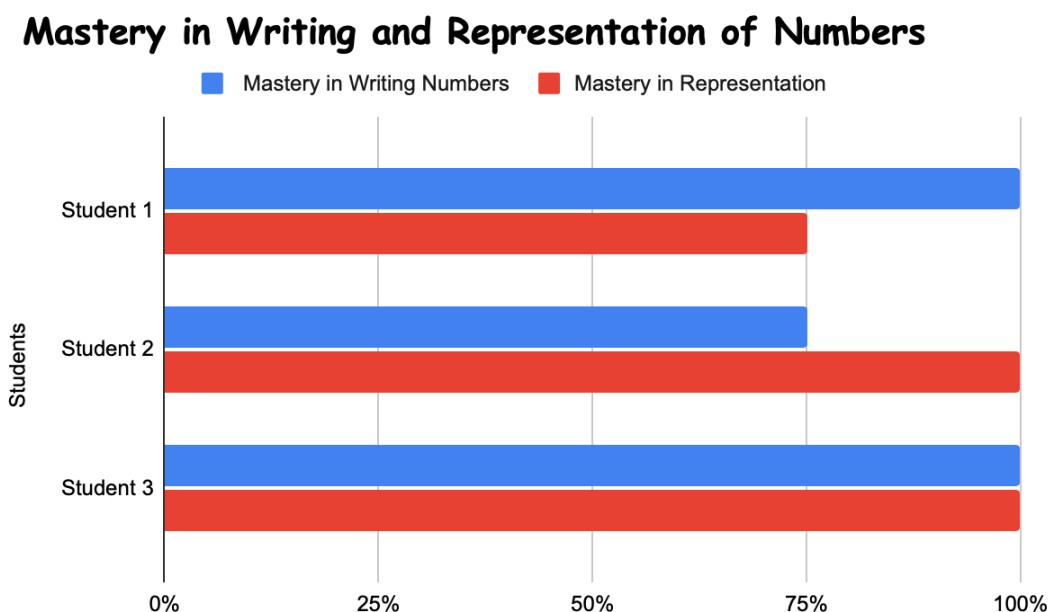
numbers. For student 1 it was observed that the student was better understanding how to write numbers accurately rather than in representation. Student 2 has 100% mastery in the representation of numbers using a ten frame. Student 2 is still progressing toward accuracy in writing numbers in the correct form. Student 3 showed mastery in writing numbers but struggled with using the ten frames to show representation. With this data, I am able to design my lessons implementing the EBP of modeling to move students toward mastery.

### Post-Assessment Data Collection

Student	Task 1: Write Numbers (3, 6, 7, 9) 5x on the line provided	Errors in writing numbers	Task 2: Represent Quantities on Ten Frames	Errors in Representation
Student 1	The student wrote numbers 3,6,7, and 9 correctly on the line provided.	0	The student correctly filled in the ten frames for ten smiling faces, six flowers, and four soccer balls but added one extra counter for eight trees.	1
Student 2	The student wrote the number 7 backward on the line provided.	1	The student correctly filled out the ten frame with the appropriate number of objects represented of 10, 6, 8, and 4	0
Student 3	The student wrote all numbers 3,6,7, and 9 correctly, all 5x.	0	The student correctly filled out the ten frame with the appropriate number of objects represented of 10, 6, 8, and 4.	0



Figure 2 Post-Assessment Graph Data



In Figure Two, the post-assessment data is shown to be significantly improved. After implementing the evidence-based practice modeling, students were able to move towards mastery of writing and representing numbers. Each of the three students showed improvement in their skills. The data on the graph shows that the evidence-based practice is working, but some further assistance is needed to reach mastery.

## Results

Implementing the Evidence-Based Practice Modeling, has shown great improvement in the general education kindergarten classroom. For this project, I have chosen to focus on three students who were seen to be struggling with writing numbers, one-to-one correspondence, using counters, and ten frames. After observing my placement classroom and collaborating with my cooperating teacher, we thought modeling was the best practice to implement. After we had developed the EBP modeling, we designed three lessons to be taught in small groups while other

students would be participating in math games in other groups. On the pre-assessment, students had problems writing their numbers backward, miscounting objects, and representing them as counters in ten frames. To be specific, looking at Student 1, we were able to see that Student 1 demonstrated significant improvement in writing numbers and achieved mastery with 100% accuracy. In addition, Student 1 still needs additional practice in counting objects and using a ten frame to represent quantities. Student 2 improved writing numbers, reduced errors from 2 to 1, and maintained mastery in representing quantities. This showed that the EBP modeling helped improve the student's skills in writing numbers. Although we did not hit 100% mastery, extra practice is still needed. Student 2 continued to show 100% mastery in representation. Lastly, student 3 demonstrated complete mastery of both tasks after the intervention. Student 3 was able to effectively apply the skills and practices learned and no longer needs additional support for these tasks. Overall, the implementation of the EBP modeling showed improvements among the three targeted students. Whether it was up to 100% mastery or up to 25% from the last assessment, I do believe that since this was only implemented for a couple of weeks, with additional practice, each student will achieve 100% mastery of each task.

The short-term goals for the three targeted students for this project would be as follows: Student 1 will be able to write numbers 1-12 with 100% mastery and represent and count objects up to 10 with 100% mastery. Student 2 will be able to write numbers 1-10 with 100% mastery and count objects up to 12 with 100% mastery. Student 3 will be able to write numbers 1-12 with 100% accuracy and count objects up to 12 with 100% accuracy. After implementing the EBP of modeling, I would only change the implementation a little longer. Since seeing improvements I do believe that each student would have been able to reach 100% mastery in both tasks with continued extra practice.

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Appendix A



## Appendix B

## Pre and Post- assessment

## Learning Standard

- **K.CC.A.3** Write numbers from 0 to 20 to represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

## Pre and Post-Assessment

1. Write the number shown on the line five times.

3 \_\_\_\_\_

6 \_\_\_\_\_

7 \_\_\_\_\_

9 \_\_\_\_\_

2. Use the ten frames to represent the number of smiling faces given.













### Assignment Tasks

Write the Number on the Line: Students are given the numbers 4, 8, 7, and 9 to write five times.

Use the Ten Frames to Represent the Number:

- 😊: 10 smiling faces
- 🌷: 6 flowers
- 🌳: 8 trees
- ⚽: 4 soccer balls