

EFFECTIVE WAYS TO EMBED THE L1 INTO
A MATH CURRICULUM TO INCREASE THE
PERFORMANCE OF ENGLISH LANGUAGE
LEARNERS IN MATH STANDARDIZED
EXAMS

by

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CERTIFICATION OF PROJECT WORK

We, the undersigned, certify that this project entitled EFFECTIVE WAYS TO EMBED THE L1 INTO A MATH CURRICULUM TO INCREASE THE PERFORMANCE OF ENGLISH LANGUAGE LEARNERS IN MATH STANDARDIZED EXAMS by Lucy C. Nuñez, Candidate for the Degree of Master of Science in Education, Teaching English to Speakers of Other Languages, is acceptable in form and content and demonstrates a satisfactory knowledge of the field covered by this project.

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EFFECTIVE WAYS

Abstract

Since No Child Left Behind (NCLB), the goal was to have 100% of all students, including English language learners (ELLs), to meet state standards by 2013-2014. ELLs are expected to progress at the same rate as native English speakers, not taking into account that these students are in the process of learning a new language. ELLs are not given enough time to gain the academic vocabulary needed to pass the NYS standardized tests (Solórzano, 2008). Some teachers would say that ELLs need as much exposure as possible to L2 input during limited class time, which is why some opt out from using the L1 in the classroom (Schweers, 1999). Other teachers are pressured to have students meet the standards and pass the NYS standardized test in order to meet AYP, that they are not incorporating effective strategies into their instruction. Research has shown that students perform better when they are allowed to use their native language in the classroom (Lightbown & Spada, 2006; Pica, 1994). It is beneficial to embed the use of the L1 during class instruction because ELLs struggle with the English language and rely on their L1 to communicate and grasp concepts being taught. The purpose of this curriculum project, therefore, was to develop a curriculum where the L1 has been incorporated into math lessons. Doing so may assist in teaching concepts to ELLs more successfully which in turn may help increase the performance of ELLs on the NYS Math exam. This curriculum project was designed for teachers to use with 3rd grade ELLs.

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Introduction

Often, schools do not value the importance of using the L1 and the benefits it has for English language learners' (ELLs)' learning. When students are given the opportunity to learn new information with allowing them to build off of what they already know from the knowledge of their L1 they are more likely to succeed (Wright, 2010). Many ELLs value their first language as much as native English speakers value their own. Some ELLs may wish to continue using their native language because it is part of their culture and sometimes the only way they are able to communicate with other relatives (Baker, 2009). There are also ELLs who cast away from the L1 and prefer to learn English because they want to assimilate with the American culture and also are told they have more opportunities of succeeding (Trueba, 1991). When students feel that their language is being valued and acknowledged it may help give them a sense of belonging and help build confidence, which can lead to better performances across all areas of learning (Curran, 2003).

Due to NCLB, teachers are faced with pressure to meet Annual Yearly Progress (AYP). AYP is measured by student's results in standardized exams. Although ELLs are not proficient in the English language, they still have to take these standardized exams. Wright (2010) states effective ways that the L1 can be used in the classroom to help students acquire the language and content needed to succeed. The curriculum created embeds the native language of students in effective ways that can help students' acquire the information in an easier way to perform better in the math standardized exams.

Problem

ELLs are being placed in monolingual programs in which teachers only incorporate the English language and not their first language (L1) into their daily instruction (Baker, 2011). Programs that focus on English the majority of the time tend to believe that using a students' L1 is not beneficial for the student when acquiring a second language. From the early 19th century to approximately the 1960s, there was a belief that bilingualism had a detrimental effect on thinking (Brasileiro, 2009; Mouw & Xie, 1999). During this time period, monolingual students were thought to be more superior to bilingual students. However, when the second language and culture are acquired with pressure to replace or demote the first language, this may result to a less positive self-concept, loss of cultural or ethnic identity (Fillmore, 1991).

Since the passage of No Child Left Behind (NCLB, 2001), many teachers feel pressure to meet Annual Yearly Progress (AYP) by making sure all students, no matter how long they have been in the United States, pass their state's accountability tests (Wright, 2010). Standardized test scores are the indicator used to hold schools and school districts accountable for student achievement pressuring teachers to focus their instruction in preparing students to pass these standardized tests (Nichols, Glass, & Berliner, 2005). An analysis of national standardized testing shows that in the 4th grade, 35% of ELLs are behind in Math when compared to their counterparts (Fry, 2008). In both reading and writing, regardless of grade level, ELLs trail their White counterparts in the percent of students meeting or exceeding state standards.

Math standardized tests can be difficult for ELLs because of the academic language. Students not only have to develop the math vocabulary but also understand what different symbols represent and read graphs in order to answer certain math problems correctly (Garrison & Mora, 1999). ELLs are required to take the NYS math standardized test the first year they

arrive in the country, unlike the English Language Arts (ELA) standardized tests where students are exempted the first year. Because students are required to take the math exam and not given the appropriate time needed to gain more English language skills, their scores are affected. ELLs not performing as well on the state tests may be due to the math instruction they get in schools. Some mainstream teachers might not be aware of effective ways to teach ELLs and help them gain more English language skills needed to understand what is being asked of them to do on these exams. Also, mainstream teachers might not find them having enough time in the classroom to individualize instruction for ELLs due to the time constraints and other subjects that have to be covered in a school day. When teachers test to the test, ELLs are not able to learn as easily. When working with ELLs, teacher should be prepared to use visuals and incorporate their L1 to help make connections to background knowledge. Teacher should also be able to give individual students instruction if they need help on certain concepts. Because a general education classroom can contain lots of students, students can receive more individualized instruction by an ESL teacher.

States have adopted or developed new ELL assessments to comply with NCLB requirements (Wolf et al., 2008). With the pressure of having to meet these requirements and not leading to the school being penalized, teachers are moving away from using authentic assessments and teaching to the test. Some teachers are opting away from using the L1 in the classroom because they feel it is interfering with helping the students learn the material they will be tested on in the standardized tests (McLaughlin, 1992). However, research has shown that L1 use provides support and appropriate scaffolding in language learning (Cook, 2001; Ionin & Montrul, 2010; Kim & Petraki, 2009; Lightbown & Spada, 2006; Oguro, 2011; Tang, 2002).

Purpose

If the goal for NCLB is to have 100% of students meet state standards by 2013-2014, it would be beneficial to use methods that promote second language acquisition for ELLs, such as using the L1 in the classroom. Using the L1 contributes to students L2' acquisition process (Hulya, 2009). Research has shown that students perform better in the classroom when they are allowed to use their native language (Lightbown & Spada, 2006; Pica, 1994). Since research has shown the importance of using students' L1, the purpose of this project was to create a curriculum where there are possibilities for the L1 to be incorporated into math lessons, specifically to teach concepts that may help increase the performance of ELLs on the NYS Math exam. The goal of this project was to create a curriculum that will serve as a resource to make math more comprehensible for ELLs by incorporating strategies into math lesson plans including the L1 that has shown to be effective for ELLs.

Significance

My curriculum is significant because it can be used as a tool in schools that lack teachers who are aware of effective strategies that can be used to teach ELLs. This curriculum incorporates ways that research has proven to embed the L1 in the classroom to teach math and help students perform better in the exams. Due to the problem, that some schools have teachers who do not have experience working with ELLs, this curriculum will be beneficial for teachers to use with their students. With the strategies embedded in the lesson plans, teachers can become aware of the importance the L1 plays in the learning process of ELLs and how they can use it in the classroom for individualized instruction. With this curriculum, ESL teachers can see how some of the strategies they have been using to teach ELLs English skills, can also be used across other content areas.

Literature Review

No Child Left Behind

On Thursday December 13, 2001, No Child Left Behind (NCLB) was approved during the presidency of George W. Bush (Baker, 2011). With the approval of NCLB, many changes were made in regards to the requirements that ELLs had to meet, to reach the goal of reducing the achievement gap between advantaged and disadvantaged students (Abedi, 2004). NCLB makes states, districts and schools accountable for the academic performance and English language development of students (Baker, 2011).

States, districts and schools are accountable for the following requirements:

- (a) establish academic standards for content areas and English language development;
- (b) assess LEP students annually on their progress in learning English (based on the standards) and attaining proficiency;
- (c) test all students annually in Grades 3 to 8 and high school on their attainment of reading and mathematics standards (plus science at selected grade levels);
- (d) ensure that students in different subgroups (race/ethnicity, special education, and LEP) make adequate yearly progress (AYP) towards the ultimate goal of ensuring that 100% of students pass state-standards-based tests by 2014;
- (e) ensure that LEP students make AYP in learning English and attaining English proficiency;
- (f) implement a system of increasingly severe sanctions for schools and/or districts with subgroups of students who fail to make AYP two or more years in a row (Baker, 2011, p. 193)

In following NCLB regulations, schools have to report student progress in terms of proficiency each year; this reporting is known as AYP. Each state follows a timeline for all students to reach proficiency in English, allowing students the maximum of 2 years to be proficient (Abedi, 2004).

AYP must be reported for the following subgroup categories: (a) economically disadvantaged students, (b) students from major racial and ethnic groups, (c) students with disabilities, and (d) students with limited English proficiency (LEP) (Abedi, 2004, p. 4). In regards to the subgroups, high expectations have been set for ELLs.

English Language Learners

ELLs are not only the students that you find in classrooms across the United States trying their best to learn the English language in order to pass standardized tests. An English language learner can be any person, no matter the age, who has a first language other than English and is learning English as their second language or an addition to any other languages they know. They can be from any part of the world. They also do not have to be in a classroom setting to be considered an ELL. For example, there are people Mexico who are not in a school setting and whose native language might not be English but are trying to learn the English language for various purposes. Although the term *ELL* and Limited English Proficient (LEP) can mean the same thing when describing a student who is not fluent in the English language, the use of the term LEP and immigrant student has given students a more negative view.

Misconceptions of ELLs. There has been a common misconception that all ELLs are immigrants. ELLs are a heterogeneous and complex group of students. Fifty-seven percent of adolescent ELLs were born in the United States, while 43 percent were born elsewhere (National Council of Teachers, 2008). In schools today, ELLs tend to get labeled. Examples of these labels are LEP and the “others” (Cawthon, 2010). When hearing the word “limited” students will start to realize that they have been labeled in such a way and are being compared to their other peers in a negative way. ELLs in classroom will then begin to feel that they are less-worthy than the other students in the classroom feeling they cannot accomplish tasks that native

speakers can, also causing them to not participate because the feel of not wanting to get embarrassed if they are not saying the right words to a question asked by the teacher. In using these terms to label ELLs, the focus is exclusively on their level of proficiency in the English language. It implies that the only major difference between an ELL and a native speaking student is their English language and literacy development (Baker, 2011), when in reality every student brings different contributions to a classroom.

Each year, the United States becomes more ethnically and linguistically diverse (Echevarria, Vogt & Short, 2004). Students from non-English-speaking backgrounds represent the fastest-growing subset of the K-12 student population (Short & Echevarria, 2005). In today's classroom, around the nation, you can find students that come from all different parts of the world. According to the National Center for Education Statistics (NCES) in the 2009-2010 school year, almost 10% of students enrolled in prekindergarten to twelfth grade were labeled as ELLs (NCES, 2010). The percentage of ELLs that you will find in a classroom will vary across the United States. According to the National Center of Migrant Integration Policy (2010), more than one in four of the nation's ELL students lived in California, the state with the largest number of ELLs. The second state with the largest number of ELLs was Texas, followed by Florida, New York, Illinois and Arizona although within the past few years in states such as Delaware, Colorado, New Hampshire and Nebraska, the percentage of ELLs has increased (National Center of Migration Integration Policy, 2010). According to Cardenas-Hagan, Carlson and Pollard-Durodola (2007), about three fourths of the Ell population come from homes where Spanish is the primary language. Garcia, Kleifgen and Falchi (2008) also agree that Spanish is the language spoken by most ELLs across the nation. Kindler (2002) states 76% of ELLs' native

language is Spanish, followed by Vietnamese (2%), Hmong (1.6%), Cantonese (1.0%), Korean (1.0%), and with other languages below 1%, for example, Arabic (0.9%) and Navajo (0.6%).

ELLs and NCLB

As stated in the NCLB Act of 2001, S. 9101, 25, of Title IX, (25) the term limited-English proficient, when used with respect to an individual, means an individual:

(a) Who is aged three through 21; (b) who is enrolled or preparing to enroll in an elementary school or secondary school; (c) who was not born in the United States or whose native language is a language other than English; who is a Native American or Alaska Native, or a native resident of the outlying areas; and who comes from an environment where a language other than English has had a significant impact on the individual's level of English language proficiency; or who is migratory, whose native language is a language other than English, and who comes from an environment where a language other than English is dominant; (d) and whose difficulty is speaking, reading, writing, or understanding the English language may be sufficient to deny the individual the ability to meet the State's proficient level of achievement on State assessments described in Section 1111(b)(3) and the ability to successfully achieve in classrooms where the language of instruction is English; or the opportunity to participate fully in society. (<http://www2.ed.gov/policy/elsec/leg/esea02/pg107.html> - sec9101)

With the requirements that need to be met by the schools due to NCLB, ELLs in the classroom that come from different backgrounds will not only have to face the challenge of learning a new language but also become accustomed to the new culture. Short & Echevarria (2005) state ELLs are expected to progress at the same rate as native English speakers, not taking into consideration that they are still in the process of learning a new language, which is unfair. Collier and Thomas

(1989) and Cummins (1981) concluded from their research that five to seven years of special English instruction is required for ELLs to function effectively in academic courses. ELLs are assessed and tested annually whether or not they have become proficient in the English language. NCLB requires the testing of English language skills for ELLs with the use of high-stakes assessment (Menken, 2010). Pressure is put on teachers to teach the English language as quickly as possible in order to have the students pass the standardized tests and meet AYP. In order for the goal of ensuring 100% of students to pass state standards-based tests by 2014 to be met, ELLs would have to be proficient in the English language, meaning they are limited to the time they have to learn the new language. Under NCLB, ELLs are also held accountable to meeting state standards that native language speakers are.

Standardized Tests and ELLs

The state tests given in New York are standardized. They are norm-referenced in such a way that one student's performance is compared to another student's performance in the same grade level. The statewide tests show student progress and are part of the accountability system of NCLB. ELLs are tested in the content-areas of math, science and social studies and English language arts. Students are tested to monitor whether or not they are meeting the state standards in the previously stated content areas. Since 2007 the U.S. Department of Education has required that ELLs who have been in the United States for one year take the same English language arts tests as those taken by native English speakers (Menken, 2010). Not only are ELLs taking the New York State English as a Second Language Achievement Test (NYSESLAT) to test out of English as a Second Language (ESL) program once they reach proficiency, they must also pass the same standardized tests as native English speakers do. All students are tested yearly in math, English, science and history to determine whether they are reaching state standards. Often,

standardized tests are developed for the mainstream population, and do not take into account the needs of ELLs, who are faced with challenging academic careers (Abedi, 2010). The decision of a student being considered an ELL should not be determined based on their performance on these high-stakes assessment. Factors such as linguistic complexity and cultural bias in the format of the questions can affect the scores that ELLs receive (Solano-Flores, 2008). Not only are ELLs taking the NYSESLAT to test out of ESL once they reach proficiency, they must also pass the same test across content-areas as native English speakers do. ELLs are tested in the content-areas of math, science and social studies. Due to the importance of reaching AYP, some teachers are shying away from using creative techniques with ELLs. Teachers are teaching to the test without incorporating factors that can help ELLs perform better on these test (Wright & Choi, 2006). Incorporating the L1, creating a culturally relevant environment, along with other factors according to second language acquisition theories, may lead to better performance on these high-stakes assessments (Schon, Shaftel & Markham, 2008).

There are advantages and disadvantages to the use of standardized testing that affect all students. Examples of advantages is that it provides a national perspective or ranking, they are often readily scored, they produce reliable data and easy to train teachers for administration (Gottlieb, 2006). Some of the disadvantages of standardized testing is that it does not represent in-depth knowledge, does not allow for student creativity or imagination, does not take into account different learning styles and it leads to misinterpretation of results (Gottlieb, 2006). ELLs are affected by the disadvantages of standardized testing. Standardized testing does not test in-depth knowledge that ELLs have. They are not given the opportunity to show what they really know because they are not being tested in their first language. No one child learns the

same way. Especially ELLs who are in the process of learning a new language, standardized tests do not take into account different learning styles.

The achievement gap between ELLs and non-ELLs. There is a great concern between the achievement gap between ELLs and non-ELLs. ELLs' scores are usually lower than those of non-ELLs across most content-areas such as math, reading and science (Abedi, 2004). Based on standardized tests, non-ELLs usually test higher than ELLs. According to Cawthon (2010), The National Assessment of Education Progress (NAEP), which assesses reading and math skills, resulted in ELLs averaging 36 points less than non-ELLs on the National Assessment of Educational Progress. As of 2009, scores of Hispanics and White students have risen, but the overall achievement gap remains. Within a twenty-year span, 1990-2010, gaps between Hispanic and White students were 19 points at grade 4 and 24 points at grade 8, in Mathematics (NAEP, 2011).

Abedi (2002) states that factors such as parent education level, inadequate school and testing conditions and the struggle of learning a second language have a huge impact on achievement gap between ELLs and non-ELLs. Standardized testing also has a huge impact on the achievement gap between the two groups. As long as ELLs take standardized tests when they do not know the English language well enough, they will continue to score low on exams causing the achievement gap to remain the same.

Across the nation, the math achievement gap between ELLs and non-ELLs continue to increase (Abedi & Lord, 2001). Abedi & Lord (2001) found that in an eight-grade standardized test, ELLs scored significantly lower than non-ELLs. The study show that a reason for the significant difference in scores that affected the ELLs performance was due to the complexity of math word problems. The complexity of math word problems can be a huge factor in the

performance of ELLs in math standardized test because of the math academic language being to difficult to understand. Depending on the ELL level of English language proficiency, some ELLs no little to no English and are required to take the standardized test. When they come across math vocabulary that they have not seen before, they are forced to either skip the question or answer the question incorrectly. The results of the standardized test are then compared to non-ELLs who know the English language very well and are more likely to understand the vocabulary used in the test than an ELL would

The 2013 Grade 3 Common Core Mathematics Test. The 2013 Grade 3 Common Core Mathematics Test will consist of three books that are administered over three successive days. The test is designed so that most students complete each book in about 50 minutes. While it is likely that most students will complete the books within the 50 minute time period, students are permitted 70 minutes if needed. In grade 3, students are required to apply mathematical understandings and mathematical practices gained in the classroom in order to answer multiple-choice questions, short-response and extended-response. Book 1 and Book 2 will consist of multiple-choice questions. Book 3 consists of short-and extended-response questions. Book 1 contains 30 multiple-choice questions, Book 2 contains 31 multiple-choice questions and Book 3 contains 5 short-response questions and 3 extended-response questions with a total of 69 questions that the student will have to answer within the 3-day testing period. The written-responses will be graded on new rubrics and policies pertaining to the new CCSS.

All questions on the test measure the CCSS for Mathematics. While all questions are linked to a primary standard, many questions measure more than one standard. The majority of the questions, 40-50%, are based on operations and algebraic thinking. 15-25% are based on number and operations-fractions, 15-25% on measurement and data, 5-15% on number and

operations in base tens and 5-15% on geometry (Grade 3 Common Core Mathematics Test Guide).

Academic Language and ELLs

The term academic language commonly refers to the language used in the classroom or other academic contexts for the purpose of acquiring knowledge. Forms of academic language include comparing and contrasting, listing, defining, classifying, predicting, explaining analyzing, arguing and persuading. When students are asked to compare and contrast the main characters in the book, they will be using academic language to respond. Academic language is a register that includes task-specific registers. Different registers are used in different situations. For example, usually students do not use the same register that is used in the classroom as they would use when having a conversation with their friends outside of school.

Learning the mathematical register can be very challenging for ELLs. Learning the complex vocabulary in math is necessary for students to perform math problems. Linguistic challenges that ELLs might come across when learning the register include the multi-semiotic formations, dense noun phrases, conjunctions, implicit logical relationships and the technical vocabulary (Schleppegrell, 2007). In order for students to understand math concepts they need to be able to understand and use symbols, visual displays, interpret graphs and diagrams. This can become challenging for ELLs because not only are they in the process of learning a new language, but they are also being introduced to bigger concepts of symbols and graphs. With the development of the Common Core State Standards (CCSS), the importance of the relationship between content and academic language has been recognized. There is a huge emphasis on academic language, which is very crucial when learning mathematical concepts.

Difficulty ELLs have with math academic language. The wording of math problems can also cause confusion to ELLs. The use of conjunctions, ambiguity of words used outside of school and in mathematical context can interfere with ELLs learning of math concepts. For example, Schleppegrell (2007) states words such as “place, burrow, and product” can be problematic for ELLs (p. 6). Some ELLs have developed different meanings to these words and now have to establish another meaning to fit the mathematical context. Math problems can also be implicit which can cause ELLs to struggle especially during taking standardized testing. They are not able to ask for assistance, as they would have the chance if it were a classroom activity. A common math problem that can be found in standardized testing is a “trigonometry problem representing a man on a cliff looking down at a river and wanting to calculate the width of the river with a rope and device measuring angles” (Schleppegrell, 2007, p. 142). In order for a student to solve the problem, they will need to understand the language, the mathematical symbolism, the diagrams, and the process needed to solve the problem correctly. These multiple semiotic systems in mathematics make it difficult for students to understand the mathematic language.

Schleppegrell (2007) examined how teachers were using language to encourage student participation. Ms. Koch, one of the teachers she observed, allowed for her students to interact with each other and use their L1. Schleppegrell (2007) found the following, In allowing students use their L1 in the classroom, she realized the in-class grades and standardized test scores of the ELLs in her class jumped from failing or below average to average and above average within the year in which they were in her class (p. 103). These findings prove that allowing students to use their L1 in the classroom leads to an improvement of performance in standardized test within the ELL group.

Using manipulatives. Relating new vocabulary to touchable objects is one of the basic premises of second language acquisition (Garrison & Mora, 1999). Most ELLs are visual learners and the use of manipulatives can be very beneficial for them. With the use of manipulatives, teachers can help ELLs learn vocabulary in an easier way. Words are easier to remember when students are able to see and touch the objects they represent while repeatedly hearing and saying the new words. Examples of manipulatives that can be used in the classroom are rulers when introducing the concept of measurement. Inch, foot and yard are vocabulary terms that can be taught when students are holding a ruler. Also when teachers are introducing the base-ten system, they can allow students to use the base-ten manipulatives. With the base-ten blocks many activities can be done such as addition, subtracting and the concept of borrowing. Using manipulatives in the classroom also allow ELLs to participate in hands-on activities.

Working in groups. There are two advantages of having students working in groups, one being developing both listening and speaking skills in English and to increase their mathematical understanding. When ELLs have the opportunity to work in groups, teachers are providing a safe environment for them. Some ELLs are afraid to speak a loud in front of a large group of students because they might feel embarrassed that they do not know the English language as well as the native-English speakers do. Although some ELLs are hesitant to speak in a large group, some are able to express themselves in smaller groups. Working in groups increases the chance of ELLs to express their ideas. Student work groups can also benefit both ELLs and non-ELLs. ELLs, who did not fully understand a concept that was reviewed during class instruction, have the opportunity to ask their classmates in the group. In groups, students tend to build relationships with their group members and also build their confidence. ELLs can

build confidence to ask for help to their classmates instead of feeling intimidated by asking the teacher. Working in groups also allows ELLs to come to a fuller understanding of the concepts taught in class. During group discussions, concept development is enforced through the input of peers and feedback given to one another. For example, if an ELL student does not fully understand a concept, they can gain additional information through the interaction going on between other group members.

Writing prompts. In the NYS Math standardized exam, ELLs are required to respond to short-and extended-response questions. It can be difficult for an ELL to express themselves in a language they are not proficient in yet, let alone write in that language. Writing can be the most difficult skill to learn; yet ELLs are held accountable for answering these questions in the exam. In my curriculum, students will practice answering to writing prompts and they will be allowed to use their L1 in the response if they do not feel comfortable writing in English. When students are given the opportunity to respond in the language of greatest fluency, they are able to show their full understanding of the concept. When required to answer in the language of least fluency, students might either leave the question blank or answer in a form that the teacher cannot understand. Teachers are able to see whether or not the student has grasped the concept when allowing them to answer in the language they feel most comfortable with.

When teachers assign students to participate in writing prompts, if an ELL student chooses to respond in their L1, the teacher can then translate the problem for them. By translating teachers can work one-on-one with the student and discuss in English what the task of the problem was and translate how the student came to the answer. Teachers can also pair students to discuss the translation. An idea can be to group a beginning ELL student with a more advanced level ELL student. When students are grouped, they learn from one another. The

translation process is very important because students are graded on their response to the writing prompts in the test in English. Practice can help students achieve this goal.

Second Language Acquisition

Second language acquisition (SLA) refers both to the study of individuals and groups who are learning an additional language after learning their first language. This additional language is called a second language (L2) (Saville-Troike, 2012). A student's L2 does not necessarily have to be the second language but it can be the third, fourth, or fifth language being learned. There are various reasons as to why people want to learn a second language and the function it will play in their lives. Some people want to learn a second language for societal reasons, which can lead to a better education, employment or as a way to communicate with others in the community. A second language can also be learned as a foreign language, which is usually required in schools in the middle school ages, as well as for future travel. Other factors equally related to second language achievement intelligence, aptitude, learning styles, personality, motivation, attitudes, identity and ethnic group affiliation and learner beliefs (Lightbown & Spada, 2006). Teachers' being aware of SLA is helpful because it can inform them on best practices for to use with ELLs.

Interactions play a huge role in SLA. Although interactions among ELLs are not as accurate as those in conversations among native speakers, they are still able to understand one another. During interactions among non-native speakers, they use characteristics from both their L1 and the L2, and create a language that is used as an aid to help acquire the L2. ELLs can use this language during group work along with other ELLs that understand each other or during private speech. Allowing ELLs to use the language they feel with can also help increase their motivation and help create a positive environment for all students.

SLA Theories

There are various theories and hypothesis that have served as the best way for a student to acquire a second language to theorist, such as the Behaviorist theory, Universal Grammar theory, Comprehensible Input hypothesis, Interactionist theory, and Social-cultural theory that incorporate the use of the L1 into the L2 (Larsen-Freeman, 1991). The Behaviorist theory focuses on mimicry and memorization to drive instruction where students learned dialogues and sentences by heart (Lightbown & Spada, 2006). Under this theory, the Contrastive Analysis Hypothesis stated “where the first language and target language are similar, learners should acquire target language structure with ease” (Lightbown & Spada, 2006, p. 34).

Research by Cummins (2000) states that the developments of the first and second languages are intertwined. Students L1 skills will transfer to their L2. A study by Gabriele, Troseth, Martohardjono, & Othguy (2009), examine the relationship between syntactic comprehension and emergent literacy of syntactic skills in the L1 and L2. The focus is on bilingual children who are dominant in their native language, which is Spanish, and how their syntactic base in their L1 will help them perform better on a test of emergent literacy in the L2, which is English. Kindergarten students were administered a standardized test of reading readiness in both English and Spanish along with a series of syntax measures in both languages as well. The standardized test that was administered to this group of students was the *Gates MacGinitie* reading test. This test is used to measure literacy concepts, oral language concepts, letters and letter-sound correspondence and listening comprehension. The study focused on the listening comprehension, which leads to the ability to understand the text. The results of this study suggest that having a strong syntactic base in either the L1 or L2 is related to better performance on listening comprehension in the L2 (Gabriele et al., 2009).

According to the Input hypothesis, acquisition of a second language is acquired when a student is exposed to language that is comprehensible and that contains $i+1$. In this hypothesis, the “ i ” represents the current level of language already acquired by the students, and the “ $i+1$ ” represents the step beyond the current level of acquisition that should be taught in order for students to acquire more of the language. A study by Spada & Lightbown (1999) shows that acquisition can progress only when learners are “exposed to language that represents the next level in a natural sequence of development” (p. 2). It is beneficial to provide instruction that targets a learner’s next developmental level because it triggers thinking, instead of keeping them in the current level.

According to Long (1983), there was more than just providing students with comprehensible input in order to acquire a second language, interaction was required, which led to the Interactionist theory. In his Interactionist Hypothesis, “modified interaction made language comprehensible” (Lightbown & Spada, 2006, p. 43). When modifying interaction, it does not mean having to simplify the language for students, rather, allowing students to interact with other speakers in cases where they can elaborate, give feedback, and negotiate for meaning which will help the speakers reach a mutual comprehension. ELLs can be paired with native speakers to interact and learn from one another. Under this theory, comprehension checks, clarification requests and paraphrasing can help the English language learner reach comprehension in a conversation.

The Interactionist theory is based on the importance of interactions between a student and a teacher. Language develops primarily from social interaction (Lightbown & Spada, 2006, p. 20). When a supportive interactive environment is created for the student, they are able to “advance to a higher level of knowledge and performance” (Lightbown & Spada, 2006, p. 20).

A supportive interactive environment can be created for children as early as infancy. In the Interactionist theory, there are no rules, communication and acquiring the language occurs naturally. Feedback is also very important in interactions among children and adults. Feedback given by the adult can help the child realize what difficulties he might be having in the language, which can help him, reach mastery if practiced more. Students are allowed to use their L1 to express their ideas. They are not forced to speak if they do not feel comfortable. Through constant exposure to the L2 among peers and teachers, students will acquire the language naturally.

Vygotsky believed that children learn from adults, which was called the zone of proximal development in the Sociocultural Theory (Spada & Lightbown, 2006). With the adults talking to them as early as their infancy and constant communication throughout the years, children begin to pick up on how to hold a conversation and other components of the language and begin to use it themselves. Under this theory, teachers are experts serving as the facilitator that is helping the students gain the new information. Teachers in the classroom can serve as facilitators and use the L1 in the classroom in different ways and have the students take in what is being said from them.

As the development of English language relies on skills and experiences in first language, it is important that students are given the opportunity and time to experience and discover knowledge and skills in English at school (Short & Echevarria, 2005; Walqui, 2006; Zehler, 1994). In a school environment, ELLs will have access to more academic situations, where they can use the L1 to help improve their L2 skills. Such programs that value the use of the L1 for ELLs are bilingual education programs. In the process of acquiring a second language, children create a separate language, where they are influenced by their L1 and L2, called interlanguage.

Transferability Theory. Many skills and concepts are common across languages. It is more effective to teach students skills and concepts in the language that they know, since they will understand the instruction, while also teaching them vocabulary in the second language. Once ELLs have acquired sufficient vocabulary, they can then transfer those skills and concepts to the L2. Teachers should be aware of the positive transfer and negative transfers a student's L1 can contribute to their L2 and not ignore the influence they have on one another. Some languages might have positive transfers, where a rule used in an L1 can be used in the L2, without the student having to learn a new rule. For example, some Spanish vocabulary words might have a different pronunciation, but have the same spelling and meaning such as the word exterior. An ELL who is familiar with the spelling and meaning of that word in their L1 may be able to more easily transfer that knowledge to help them acquire the same concept in the English language.

It is also possible for an L1 to have negative transfers to the L2, which will cause errors. Dam (2010) found that typical interference errors range in articles, gender, personal pronouns, question formation, negation and word order. She gives an example, in which a Spanish-speaking ELL, will use a rule in the Spanish language, which is of gender. Grammatical gender is assigned to nouns in Spanish, in which the moon is feminine. A student will bring a negative transfer of the language into their L2, but assigning the gender to the moon, where the English language does not (Dam, 2010). L1 transfer plays a big role in students acquiring a second language where they transfer the properties of their L1 grammar to their L2. Some languages have similarities that ELLs can carry over to their L2. It is important for teachers to be aware of the reasons behind the errors that ELLs make in the classroom because it can help them monitor

as well as drive future instruction to help the student see the error they have made and finding ways to prevent that from occurring again.

Factors that contribute to SLA

The commitment of teacher, appropriate curriculum resources and engagement of parents are also factors that can contribute to a student's performance in the classroom that also ties into their encouragement in wanting to acquire a second language (Baker, 2011). It is important for teachers to be aware of the ELLs needs in the classroom and how to account for individual differences. This will help drive instruction in the most effective way. These individual differences are personality, culture, literacy, motivation, anxiety, instruction, teachers, other peers and school community (Lightbown & Spada, 2006). Students who are motivated to learn a second language are determined too. In my curriculum project, I will be embedding SLA theories that research has proven to help contribute to the acquisition of a second language to ELLs. Using the L1 is a SLA theory that may help students perform better. With the use of the L1 in my math curriculum, students will be able to comprehend math concepts better and also use information they already know from their L1 to help acquire the same concepts in the L2. The students' level of proficiency in the L1 also plays a factor in the development of SLA. The more academically sophisticated the student's native language knowledge and abilities, the easier it will be for that student to learn a second language. This helps explain why foreign exchange students tend to be successful in American high school classes, because they already have high-level proficiency in their native language (Walqui, 2006).

Factors that hinder SLA

Many educators are puzzled about why so many ELLs are behind academically and seem slow in attaining grade-level English proficiency (Echevarria, 2006). Socioeconomic factors and

the quality of education that ELLs receive are a few of the factors that play into their underachievement today's society. Many immigrants and refugee children that tend to be a percentage of the ELL population live in poverty (Camarota, 2007). Because education is now so important to economic success, the large share of immigrants with relatively little education has implications for their economic and social integration into American society (Camarota, 2007). Due to these circumstances, ELLs may experience abuse, malnutrition, poor health, ignorance and neglect (Trueba, 1991). These circumstances can affect ELLs' performance in the classroom across all spectrums.

Another contributing factor to the underachievement of ELLs is due to the shortage of teachers who have been prepared to work effectively with ELLs (Echevarria, 2004). NCLB states that highly qualified teachers need to be teaching ELLs but according to National Center for Education Statistics (2002), less than 13% of teachers in the United States have received professional development to prepare them for teaching linguistically and culturally diverse students. According to Hamre & Pianta (2005), ELLs are behind academically and seem slow in attaining grade-level English proficiency which depends greatly on the teacher-student relationship. In order to make ends meet, some principals are hiring less-qualified teachers, using substitute teachers, requiring reading specialists to fill the void, increasing class size, and asking teacher to teach outside their field preparation, which have long-term negative consequences for ELLs.

Those ELLs who migrate to the U.S. face many problems along with getting accustomed to a new place. Some students prefer to remain silent in the classroom when being taught in a foreign language due to the struggle they have with the unknown language, the language learning experience, language shock and anxiety. Language shock is one of the problems ELLs face

(Miller & Endo, 2004). Due to the language shock, students may not feel confident with the language they are using which can cause them to experience frustration and failure. With teacher expectations of ELLs having to learn the English language in a few years, ELLs build anxiety that affects their performance in the classroom.

Not being able to use the L1 can build a negative view of the L2 in an ELLs point of view. The native language they speak is valued and is probably the only language used at home in order to communicate with other members of the family. In the schools, some ELLs do not see their native language being valued as much as they see it at home with their families. A sense of not belonging in the classroom is built from the negative view of their L1. The majority of immigrant children believe that continuing to speak their native language works against their being accepted at school.

Attitudes towards using the L1

The debate over whether English language classrooms should include or exclude students' native language has been a contentious issue for a long time (Brown, 2000). There have been various studies that show the L1 has a facilitating role to play in the classroom that can actually help learning rather than hinder learning. Attitudes have changed a lot throughout history. Several hundred years ago, the use of the L1 to acquire the L2 was accepted, until the 19th century when the U.S. was moving towards a monolingual approach (Briggs, 2001). Due to the spread and dominance of the English, the use of the L1 in the classroom was not necessary. Krashen (1985) believed that the best way to teach English was to expose students to the most L2 possible. He also believed that using the L1 would take away time from learning. Many linguists believed that the use of the L1 brought error transfer into the L2.

Although some states have chosen to follow English-only policies, the choice of excluding the use of the L1 in the classroom has been declining. Briggs (2001) also states that the L1 is useful to use in the classroom and students tend to prefer teachers who understand their L1. In a study by Schweers (1999), he found that 89% of Spanish students studying English wanted L1 used in the class because it facilitates learning. Students also desired up to 39% of class time be spent in L1 (Schweers, 1999, p. 7). The use of the L1 also facilitates communication, facilitates teacher-student relationships, and facilitates the learning of L2 (Harbord, 1992).

Attitudes of the use of the L1 in the classroom vary from teacher to teacher, and this is why not all teachers use the L1 to help students acquire their L2, although more research has shown it to benefit students (Briggs, 2001; Brown, 2000; Carson & Kashihara, 2012; Kim & Petraki, 2009). In a study by Kim and Petraki (2009), students' and teachers' attitudes to the use of L1 in ESL classrooms at a Korean School in Vietnam were recorded. There was a mixture of attitudes given by teachers and students. Native English Speaking Teachers (NESTSs) believed that having an English only policy benefitted the language learners the most, whereas the Korean English Teachers (Non NESTSs) believed using the L1 for grammar translation helped the students in allowing them to see the similarities and differences between their L1 and L2. After data collection of questionnaires, interviews and observations findings show that NESTSs attitudes towards the usefulness of L1 use was very small, their general opinion about how much teachers should use L1 was a little and when the L1 was used in the classroom they used the L1 more with beginner to pre-intermediate students rather than very little with upper-intermediate to advanced students. NESTSs teachers who participated in the study believed that "having

students use the L1 in daily pair work or group work activities would hinder the acquisition of the language” (Kim & Petraki, 2009, p. 68).

Findings of Non-NESTSs showed that the usefulness of the L1 in the classroom was useful and when the L1 was used it was frequently used with beginner-intermediate students. Non-NESTSs believed the use of L1 “advanced the students confidence, and provide support, especially by providing explanations in reading, writing and grammar and word clarification which can also prevent students from building affective filters” (Kim & Petraki, 2009, p. 70). For both teachers and students, regardless of the level, it is believed that Korean is the most useful when clarifying the meaning of words and expressions, at the beginning stages when students are first beginning to acquire a second language, they can use their L1 to help them distinguish the meaning of words. Although, Non-NESTSs were aware of the benefits of using students’ L1 in the classroom, they also believed English should be “the primary vehicle of communication” (Schweer, 1999).

Research has shown that students have a positive attitude when they are allowed to use their L1 in the classroom (Carson & Kashihara, 2012; Kim & Petraki, 2009). In the study of Kim & Petraki (2009), beginning level students saw more advantages of L1 use than those at higher levels. In the classroom, more beginning students preferred clarification of meaning of words and expressions and explanation of grammar rules in their L1. Results of interviews of Korean teachers also showed that the use of the L1 can advance the students confidence, and provide support, especially by providing explanations in reading and writing as well as providing a more comfortable and motivating environment for ELLs.

Other researchers have suggested the use of L1 in situations such as eliciting language, checking comprehension; giving instructions and helping learners cooperate with each other

(Atkinson, 1987). Even though ELLs at the beginning and intermediate stages have not developed their language proficiency, teachers are still able to teach and check for comprehension of concepts by using the L1. For beginning ELLs, using the L1 can be the only way to communicate. Cook (2001) states that students can use the L1 for scaffolding and also for cooperative learning with peers in the classroom. Teachers can allow students to use the L1 as a scaffolding technique by using basic concepts of the L1 that can help in learning the new concepts in the L2. The use of the L1 also facilitates communication, facilitates teacher-student relationships, and facilitates the learning of L2 (Harbord, 1992).

Importance of L1 use in the classroom

Research shows the practice of incorporating ELL students' native languages into instruction to be a major factor enhancing their success in school (Ramirez, 1992). Valuing native languages and cultures of ELLs plays a huge role in their success in school. Research has also emphasized the importance of using ELLs native language in order to provide greater access to content-area knowledge, facilitate academic and cognitive growth, and support the development of both native language and English language proficiency. According to Cummins (1991) if students are not given the opportunity to use their L1 in the classroom to learn new information while they are still developing their cognitive and academic language, they will not have access to the same content-area knowledge and academic skills as their native English-speaking peers. Studies have also shown that programs incorporating the L1 have benefitted ELLs by allowing them to learn through social interaction and help build self-esteem and identity formation (Fay &Whaley, 2004).

Cook (2001) and Turnbull (2001) both believe that the students' native language plays an important role in acquiring a second language. With the use of the L1 in the classroom, it not

only strengthens students' confidence in their abilities, but it also results in higher achievement and higher levels of proficiency in English (Cook, 2001). In order to teach students, teachers need to be aware that they need to build an environment that their students feel most comfortable to participate. Using the L1 in the classroom can help build connections with students of different backgrounds allowing them to feel welcomed in a classroom full of different cultures.

A study conducted by Karathanos (2009) focused on mainstream teachers' perspectives of incorporating ELL students' native language into instruction and how does the varying degrees on teaching experiences affect their view of the L1 use in the classroom. The participants of this study consisted of pre-service and practicing teachers taking ESL courses in a public university in the state of Kansas that were separated into three groups. The pre-serviced teachers were undergraduate juniors and seniors with no ESL-specific university coursework, the untrained were experienced teachers with no background in ESL, and the trained teachers who were experienced teachers with at least three courses of ESL coursework. Results from the study show a correlation of teachers who have taken ESL courses and the importance of ELLs using their L1. Teachers who have experience in an ELL classroom setting and/or have taken ESL courses and practiced theory-driven content instruction that help ELLs, believe that it is important to allow the use of L1 in the classrooms to drive instruction. When comparing the results of the three subgroups, pre-service teachers showed the least support, the untrained teachers showed more support, and trained teachers showed the most support for the L1 use in instruction for ELLs. These findings show that teaching experience and ESL-related coursework played strong factors related to mainstream teachers' increased support of the L1 use in the classrooms.

Despite research demonstrates that it is critical to allow ELLs to use their native language, some schools still use English immersion programs, where instruction and learning only take place in English, such as the school in the study located in Kansas. Within the past 10 years, Kansas has experienced a 269% increase in ELL students attending PK-12 schools. The majority of ELL students in Kansas (81%) speak Spanish as their L1. A problem in the mid-western region of the USA, who are growing in population of ELLs, is that they do not have enough ESL teachers to teach the students. Schools in this area tend to serve ELLs in classrooms with predominantly English-speaking mainstream teachers with little or no preparation to address the educational needs of ELLs. In Kansas and other Midwestern states with rising populations of ELLs can benefit from English-dominant mainstream teachers' understanding SLA theories. Their attitudes toward native language use can also play a crucial role in the educational experiences and outcomes of ELLs (Karathanos, 2009).

According to Wright (2010) the purpose of using the L1 is to make instruction in English as comprehensible as possible for ELLs so they can learn the content and acquire more English. Wright states that by using the L1 in the classroom, students were able to extract details and students were able to provide explanation. In the event that a student began giving an explanation in English, but was not able to complete his/her thought due to not being able to fully explain themselves in English, the student used their L1. In allowing a student to explain themselves in their L1, students are able to demonstrate what they really know which can help teachers guide instruction. Wright also states that in using the L1 in classrooms, students were kept engaged in the lesson. When you are teaching ELLs in a language they are not yet proficient in, it might cause them to lose interest or not be focused on what is being taught.

When teachers use the L1, this helps to catch the attention of students because you are teaching in a language they know and are able to understand much easier.

Effective ways to use the L1 in the classroom is to use preview-review, give explanations during whole-class or small-group instruction, give quick explanations for individual students, accepting students' contributions in the L1 during class discussions, labeling the classroom in English and the students' native language, accepting initial writing in the L1/using the L1 to support writing in English, students helping students and using word squares to improve academic vocabulary (Wright, 2010).

Preview-review is one of the most effective ways to use the L1 in the classroom (Wright, 2010). Teachers can preview-review a lesson by having a brief discussion with students in their native language before a lesson to activate prior knowledge or building background knowledge. After the preview-review is done, teachers will present the lesson in English. Quick explanations for individual students can be done when the teacher sees that students are having trouble understanding the concepts. Teachers can take concepts that might be difficult to describe in English, and by saying the concept in the students' native language, they are able to pick up the concept much quicker. When students are working independently, teachers can give quick explanations to those who are struggling. A quick explanation in their L1 is sometimes all a student needs to complete their work. If a student needs additional help, pulling a student aside to reteach the concept in the L1, can also be a helpful strategy. Accepting students to contribute during discussions in their L1 is very important. A teacher might be reading a book and an ELL might want to tell a story that relates to the story that is being read. In this case, teachers should allow students to share their ideas in their L1, and the teacher will respond in English. The

teacher will not translate word for word in English but rather, respond to what the student has shared. Teachers should also accept students' contribution of the L1 when placed in groups.

Labeling the classroom in English and the students' L1 is also an effective way to incorporate the L1 in the classroom. Teachers can use these labels on math concepts that are being taught in the class and also used to label graphs and tables. Students will be able to read the concept name in their native language and also read it in English. This also makes students' feel that their native language is being valued in the classroom, which also contributes to the performance of ELLs (Wright, 2010). Teachers should also accept initial writing in the students' L1/Use the L1 to support writing in English when using their math journals. Writing an entry in their math journal will be the wrap up for every lesson. Students can take this time to write about what they have learned in class. Especially ELLs who are in the beginning level and do not know how to write in English yet; allowing them to write in their L1 is good practice. As ELLs begin to learn more and gain the math vocabulary, they will begin to write in English. When students write in their L1, teachers can respond to their entry in English to help them practice and become more familiar with the English language.

Teachers should also allow ELLs to talk with other ELLs in the classroom by using their L1. ELL's, who cannot communicate in English, communicate in their L1 with family, friends and teachers (Wright, 2010). This can be good practice for students to learn from one another. Teachers can pair a beginning-level ELL student with an intermediate-level ELL student and the beginning-level ELL can learn from the other student. Finally, teachers can use a strategy called word squares to help ELLs develop vocabulary much quicker. In word squares, students have an index card, which is divided into four squares. In the top left square, students write the vocabulary word in English. In the top right square, students will write the vocabulary word in

Spanish. In the bottom left square, students will write what the word means to them in their own words and in the bottom right square, students will draw an illustration of what the word means to them. This has proven to be very effective in helping ELLs develop vocabulary quicker, instead of providing students with bilingual dictionaries (Wright, 2010). Throughout my math units, students will be creating a math vocabulary book, which will include word squares of key terms discussed in lesson plans. The above strategies will be embedded in my lesson plans to help increase the performance of ELLs in the NYS math exam.

Methodology

Setting

My curriculum project was based on the needs of students in the Dunkirk City District Schools located in Chautauqua County. According to the NYS School report card, the enrollment of students in the 2010-2011 school year in the Dunkirk City Schools District was a total of 1,993 students. The average class size was 20 students. Of these 1993 students, 47% are White, 41% are Hispanic, 9% are Black or African-American and 1% are Native-American or Asian. Dunkirk city schools consist of six schools, four elementary schools, one middle school and one high school. Out of the total enrollment of students in the district, 13% are ELLs. There are 260 students who are in the ESL program. Over 50% of re student population were also eligible for free or reduced lunch (NYSDOE, 2012). These students include those from kindergarten-12th grade. The majority of ELL students are Hispanic and Blacks. About 200 students in the ESL program are in the elementary school grade-levels, 40 students are in the middle school grade-levels and the remaining 20 students are in the high-school grade-levels. The majority of the students in elementary grade-level and a few in the middle school grade-levels are in the beginning ELLs. The remaining students are Intermediate. There are students in the ESL program that have in it for more than six years and have not been able to test out.

Students from Hispanic heritage make up the majority of ELLs in the Dunkirk City Schools District. Due to the high percentage of Puerto-Rican families in the Dunkirk area, most of the students in the ESL program are from Puerto Rico descendant. Out of the 260 ELLs, 250 of those students' L1 are Spanish. The remaining ten students are from Pakistan and Japan. The pull-out model is usually used for the exception of push-in very rarely when the general education and special education teacher have an activity planned together.

Intended Audience

This curriculum was created and intended for teachers to use on third grade ELLs. Teachers who are struggling in teaching ELLs math in an effective way to help them pass the NYS Math Exam, can use lesson plans and ideas in this curriculum, to help guide instruction. ELLs, especially those in third grade, who are struggling in meeting state standards, can benefit from this curriculum. Students are tested for the first time in Math through a standardized test, in the third grade. Since it is their first time being tested, the curriculum I created will be a great beginning for students to accustom to the content that will be seen in these exams as well as practice with their language skills. Beginning ELLs still struggle with the English language and rely on their L1 to help them communicate and grasp concepts being taught. Offering ways to allow students to use their L1 in the classroom can help them understand math concepts that they need to understand in order to pass the NYS Math exam. The ESL teacher will be able to push-out students from their mainstream class and teach them in the ESL classroom. Due to the rigorous CCSS, it would be more beneficial for these students to have more enrichment in these areas of math.

Needs Analysis

In a previous field placement at the Dunkirk Elementary School #3, I was able to work with ELL students and discuss the needs of these students with ESL teacher. The group of students I am designing the curriculum for, their L1 is Spanish. In discussing the needs of this group of ELLs, which I am creating the curriculum for, we discussed factors that can affect learning the mathematical concepts needed to pass the NYS Math standardized math test. Beginning ELLs low-vocabulary impacts their performance in standardized tests. Math register is complex, in having a low-vocabulary, understanding and using mathematical vocabulary can be difficult for an ELL. Having a low-vocabulary can also lead to a struggle in interpreting word

problems and math symbols. The ESL teacher also emphasized the importance of math academic language.

Overall, beginning ELLs in the Dunkirk elementary school, perform poorly in the NYS Math standardized test. The ESL teacher expressed a huge emphasis in the way the ELLs value their L1 and how he has been able to get them to participate more and express more of their ideas during literacy. When ELLs come into his classroom, focus is put on improving their English to help them to improve their reading and comprehension skills. He discussed with me that he thinks it would be a great idea to create a curriculum that ESL teachers can use to help students also develop the skills needed to understand math concepts, not only literacy concepts to help ELLs pass the NYS math standardized exam.

I also contacted via e-mail general education teachers and ESL teachers to get an idea of what do their students struggle with in math. Most of the responses were related to the math vocabulary. For example, the difference between the math terms “negative” and “minus” a concept that is important when plugging into a calculator or verbally answering a math problem that involves operations. Also, the phrases “at least” and “is at least” which come up frequently in standardized exams. In receiving these emails, I realized how important it is to understand the math register to understand the math concepts and to do well on the test, which led me to also build some of my lessons on focusing on the vocabulary used in previous standardized tests.

How my curriculum was developed

The purpose of my curriculum was to create lesson plans for ESL teachers, that can be used with their ELLs, that embed the use of their L1 to help them better understand the concepts needed to pass the NYS Math exam. In order to create these lesson plans, I reviewed the Common Core State Standards (CCSS). The math standardized test questions are aligned with

the CCSS. By taking the NYS Math Standardized test, results show whether students understand what is being taught in their current grade level. For example, taking a look at a practice 3rd grade NYS Math exam question, “There are 3 large picture frames. Each picture frame contains exactly 2 pictures. What fraction represents just one picture out of all the pictures in the frames? This practice question is aligned with CCSS 3.0A.1 and 3.NF.1. This question is aligned to CCSS 3.0A.1 because it assesses the students’ ability to interpret the setting in order to find the total number of pictures in the frames. It is also aligned to CCSS 3.NF.1 because it assesses the student’s ability to understand the fraction $\frac{1}{6}$ as the quantity formed by 1 part when the whole is partitioned into 6 equal parts. In the process of creating my lesson plans, I take into account critical areas in the 3rd grade which are, developing understanding of multiplication and division and strategies for multiplication and division within 100, developing understanding of fractions, especially unit fractions, developing understanding of the structure of rectangular arrays, and describing and analyzing two-dimensional shapes.

In creating these lesson plans, I embedded the use of Spanish, which is the language spoken in the group of students this curriculum will be created for. Along with embedding the use of the L1, I also took into account the math academic language that has been used in previous NYS Math exams. From reading the questions and focusing on the vocabulary that is being used, my lessons were tailored to focusing on these vocabulary words. Having ELLs become familiar with the vocabulary words that are being used in these tests, can help them prepare for the exam so that they do not stumble when they come across these words. Lesson plans will emphasize frequently used words in previous tests.

SIOP Model. The development of my curriculum was based on the Sheltered Instruction Observation Protocol model (SIOP). The SIOP model offers a framework for teachers to present

curricular content concepts to ELLs through strategies and techniques that make information comprehensible for the students. Sheltered instruction is an approach that is vital in the SIOP model. The aim of sheltered instruction is to accommodate the needs of ELLs by taking into account the language and content needs. During sheltered instruction, the mainstream curriculum, which in this case is the math curriculum, is modified for ELLs so that the content is understandable while also improving their language development of the English language. Continuing to develop language skills can help in comprehension across all content-areas.

Examples of ways teachers can develop language skills across the four domains can be to engage students in peer discussions, complete graphic organizers, and write journals. The observation protocol is made up of eight components that are important to follow for making content comprehensible for ELLs, these components are preparation, building background, comprehensible input, strategies, interaction, practice/application, lesson delivery, and review/assessment.

Features under the Preparation component focus on the language and content objectives use of supplementary materials, and the meaningful activities used in the lesson-planning process. Building background focuses on making connection with students' background experiences and prior learning and developing their academic vocabulary. This is very important for my curriculum because my lesson plans focused on helping ELLs develop the math academic vocabulary used in NYS Math exams by making connections to their L1. With their prior background of their L1, students will be guided to use what they already know to help them understand the vocabulary used in the tests. By doing so, this will help increase the comprehension of students' understanding of the question and increase their chance of answering the questions correctly.

Comprehensible input considers adjusting teacher speech and modeling academic tasks to enhance comprehension. Providing comprehensible input to ELLs is vital because teachers need to tailor lesson plans by taking into consideration students' different learning styles. Through the use of interaction, teachers will enforce the use of elaborating math discourse in the classroom to help students practice with vocabulary words that they will need to understand in order to understand a math word problem. Interaction also consists of grouping students accordingly to help them meet language and content objectives.

A student strategy for success is another component in the SIOP model. ELLs can benefit from knowing specific strategies to use that can help increase comprehension. Examples of strategies are gallery walks and the use of graphic organizers. In the component of lesson delivery, effective lessons clearly state for ELLs both the content and language objectives. Effective lessons also accommodate all learners and keep all learners engaged. In lesson delivery teacher should set objective to have students cover the four domains, which are reading, writing, speaking and listening. Practice component consists of planning for ELLs to have hand-on materials, opportunities to practice and to apply concepts learned. In my curriculum, ELLs work with manipulatives to help them understand the math concepts more easily. During the practice component, ELLs will have the opportunity to integrate reading, writing, speaking and listening skills as well to meet objectives set by teacher. Finally, Review and Assessment, the final component in the SIOP model, a comprehensive review of objectives set for ELLs. Teachers as well as students also provide each other feedback on their work.

My choice to use the SIOP model for my lesson plans was based on the emphasis that SIOP lessons place on building vocabulary and background knowledge and developing learning strategies that contribute to students' literacy development (Echevarria, Short & Powers, 2006).

There are also other advantages of using the SIOP model that allows for variations in classroom implementation while it provides teachers with specific features that, when implemented consistently, are likely to lead to improved academic outcomes for ELLs.

Common Core State Standards. This curriculum was written following the 3rd grade Math CCSS. These standards define what students should understand and be able to do in their study of mathematics. My curriculum consist of five units, each unit corresponding to critical areas that 3rd grade students should be able to understand in order to pass the standardized test. The first unit is operations and algebraic thinking. This unit contains lesson plans that are aligned to standards that cover the topics of representing and solving problems involving multiplication and division, understanding properties of multiplication and the relationship between multiplication and division, multiplying and dividing within 100, and solving problems involving the four operations, and identify and explaining patterns in arithmetic. The second unit focused on Number and Operations in base ten. Lesson plans are aligned to standards that cover understanding the use of place value and properties of operations to perform multi-digit arithmetic. My third unit focused on number and operations-fractions. Lesson plans are aligned to standards that cover developing an understanding of fractions as numbers. The fourth unit focused on measure and data. Lesson plans in this unit are aligned to standards that cover solving problems involving measurement, understanding concepts of area, relating area to multiplication, and geometric measurement. The fifth unit focused on geometry. Lesson plans in this unit are aligned with standards that cover attributes of shapes. When students take the NYS Math exam, they are being tested whether they understand what they have learned in their current grade level. Students are taught according to the CCCS that have been developed. See Appendix A for scope & sequence.

Validity Considerations

The curriculum I created was intended for 3rd grade ELLs in the Dunkirk Elementary School. The 3rd grade group of ELLs is a small group of students, making the results not generalizable. Due to my curriculum only focusing on the Spanish language and not other languages, there is no transferability. This can make it difficult for teachers who do not speak Spanish and are fluent in other native languages. In relation to outcome validity, because the NYS math standardized exam is given yearly, results are not released until early June, which is late in the school year. Teachers will not be able to determine if the curriculum embedding the L1, has had any effect on ELLs performance on the standardized exams until towards the end of the school year.

The use of L1 in lessons

Legarreta-Marcaida (1981) states, to teach an unknown concept use the known language. New learning should be introduced and explained in the students' native language and later presented and reinforced in the second language. The purpose of this instructional strategy is to ensure comprehensible input for ELLs. The L1 will be used to introduce math vocabulary and concepts needed for students to understand mathematical concepts. I will begin lessons with the L1 and depending on their level of comprehension I will either continue in Spanish to teach the concept or teach it in English to reinforce concepts they are aware of. In some lessons I will use preview-review to embed the L1 to build background knowledge.

In relation to the SIOP model, that suggests pair work, ELLs will be allowed to have discussions with their peers in their L1 when they feel it is necessary. They will have the opportunity to ask questions, explain answers, and hold discussions in their L1. The lesson plans will show examples of reviewing lessons in the L1, allowing students to use their L1 knowledge to build background knowledge, translating key concepts in the L1, using visual aid in the L1

and giving homework allowing students to demonstrate comprehension in L1. Throughout my lessons, there will be an additional column labeled, L1 Support/Additions, which will state when and how it would be more useful to use the L1 in the lesson.

Results

See Appendix (B) for Inserted Curriculum

Discussion

Final Curriculum

My final curriculum project does match my original purpose and initial design. My original purpose was to create a math curriculum by embedding the use of the L1 into the lessons, to help students perform better on the NYS math exam. My completed curriculum focuses on topics that are aligned with the Common Core State Standards (CCSS) as well as questions that were given in previous state test. I have created fifty-lesson plans that are divided into five units. The five units are operations and algebraic thinking, number and operations in base ten, number and operation-fractions, measurement and data and geometry. Each unit would cover topics that align with the CCSS. Mainstream teachers, who may have little to no experience with ELLs, can use these lessons to provide individualized instruction to ELLs in their classrooms. In an ESL classroom, the ESL teacher and students have more of a chance to have individualized instruction as compared to the mainstream class where the class can contain about twenty-five or more students with different abilities.

Teachers who have not worked with ELLs in the past might not be able to differentiate instruction apart from native-English speakers. In a classroom with both ELLs and native-English speakers, some teachers might not be aware of effective strategies that can be taught to help ELLs better understand the concept. Some teachers might just teach all students the same way, thinking that they are all proficient in English, and not differentiate instruction for ELLs. Although this curriculum was intended for the use of ESL teachers, general education teachers can also skim through the lesson plans to get an idea of some strategies they can use with ELLs in their classroom during math lessons. I hope that the topics I have chosen to cover in my lesson plans can help ELLs perform better in the NYS math exams. Overall, my curriculum will

be used to review concepts to students that have been introduced in their mainstream class but focus more on how language use can make them gain a better understanding of the topic.

In developing the curriculum I came across some struggles. As I was creating the lessons, I found it to be more time consuming than I had imagined. Each lesson plan took about three hours. There were times where my ideas changed as to how to present the lesson, and that increased the amount of time spent on each lesson. The CCSS are so broad in related to the previous NYS Math Standards. I based my curriculum on the CCCS because students are tested on how well they have learned the standards. It was a great idea to use previous NYS standardized exams as a guide. The NYS standardized exams provided me with useful information and topics that needed to be taught in the 3rd grade. Seeing the trends from year to year also made me realize about the topics that were very important to teach in my lesson plans. Creating a scope & sequence chart was also very helpful. Within my first few lessons, I did not create a scope & sequence chart and it made the process a bit more difficult. I had a lot of ideas in mind, but they were not organized and I found myself doing a lesson in one unit at one time then jumping to another unit, without finishing the previous one. In creating the scope & sequence, I wrote down what each unit will cover and how the L1 will be used in the lessons, and when it was time to write the lesson plan, I felt prepared.

Limitations

A limitation that this project might have is that it is only targeted for beginning ELLs. In reality, a classroom of ELLs may be mixed-levels, some will be beginning, some will be intermediate and others advanced. The chance of having a class where every student is a beginning ELL is very unlikely. They might be in the same level but all have different strengths and weaknesses. Because this curriculum is targeted to beginning ELLs, teachers will have to

tailor the lessons to students in the class who are in different level. Another limitation that this project might have is that it might not include all the topics that will be covered in the NYS math exam. As previously stated, there are no complete sample books of the new testing that will occur beginning the year of 2013. Teachers can find sample books of previous exams online and tailor instruction according to the question on the exam. For the new exams, no sample book including sample questions that will be on the exam is available. Teachers pretty much have to follow the new CCSS and teach concepts that fall into those standards. In my opinion, teachers can use previous exams, although they are not specifically tailored to the new CCSS, they technically cover the same concepts. Another limitation was when I emailed third grade teachers about difficulties students have in math. I contacted a few 3rd grade teachers to get a perspective of what are some concepts I should focus on and adding them to my curriculum.

I should have been more specific when writing the emails to the general education teachers. By not specifying that I wanted information on ELLs, teachers were very broad in their responses, it seemed like they just focused on problems their native English speakers had.

If I were to create a curriculum again, next time, I would do a few things differently. I will choose to modify a curriculum that teachers use as a guide to help students learn to the concepts that will be tested on the exams. In modifying the curriculum I will have a general understanding of activities that are being done in the mainstream classroom and alter it so that the L1 can be incorporated whether it be when introducing vocabulary, discussions among students or writing in journals. In creating a curriculum and not modifying one, I had to think about approaches I thought students learned concepts best. I will also contact more teachers and find out more information on topics they think I should cover in my curriculum.

A final limitation to my curriculum is that it will be only work for people who are

proficient in the Spanish language. My curriculum incorporates the use of the Spanish language in the lessons to help ELLs whose native language is Spanish, so only those teachers who are proficient with the language can use the lessons.

Implications

After creating the curriculum, there are few suggestions that can be made in the future. Since the curriculum was limited for the use of teachers who are proficient in Spanish and for ELLs' who L1 is Spanish, in the future a curriculum can be created for the use of ways to use any L1 in the classroom. The audience, in which this curriculum was created for, fit well because the majority of the students in the Dunkirk School District are Hispanic, but if a teacher wanted to use this curriculum in a different district, modifications would have to be made to the curriculum.

Another implication would be for teachers. My curriculum covers topics that teach to the test. There are activities that involve group work, discussions and the use of manipulatives, but in the future, teachers can incorporate project-based activities, so that students are applying the information they learned in other ways. By using project-based activities, teachers can assess students in various ways. This will benefit teachers because ELLs should be assessed in different ways, especially when they have trouble verbally expressing their ideas due to not being proficient in the English language.

Future Ideas

I plan to offer this curriculum to the Dunkirk school districts as well as school districts in the Western New York Area that are interested in ways that embedding the L1 into classroom instruction can benefit ELLs. An idea I have is to visit different school districts across Western NY give a presentation on the research I have found that proves that using the L1 in the

classroom leads to better student performance. I can also present a few lesson plans to the school districts and show how the L1 will be embedded by the use of effective strategies. After a few years of schools using this curriculum as part of their instruction, I will collect data of ELLs test scores as well as how much their English language skills have improved and present the results to school districts. If ELLs have shown improvement in both test scores and language skills, this will encourage them to want to use the curriculum in their schools. I will also plan to use this curriculum in my own class in the future. Students receive instruction in math in their mainstream class along with their native-English speaking peers. Being able to provide ELLs with extra help outside the classroom where they do not feel pressured is a huge factor in their process of learning a new language.

Conclusion

ELLs face several challenges when entering school. They have to get accustomed to a new culture, learn a new language, and become proficient enough in the English language in order to pass the state exams that are given every year beginning in the 3rd grade. ELLs and native-speakers are held to the same standards when having to take state exams. Students might have a general understanding of math concepts but they might get confused when reading a math question in a language that is new to them. It is anticipated that this curriculum help students acquire math concepts and vocabulary that will help them perform better in the state exam through allowing the use of the L1 in the classroom. Teachers using the students' native language may not only help students perform better on state exams but also help students across all content-areas. Using the L1 can help students acquire the English language rather than only drilling English to students. Lastly, this curriculum can benefit ELLs in leaving a huge impact that can help them improve their reading, speaking, writing and listening skills in English.

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Appendix A
Scope & Sequence

Unit	# Of Lessons	Topic	CCSS	L1 Strategies
Unit 1	12	Operations and Algebraic Thinking (Multiplication & Division)	<p>3.0A.1- Interpret products of whole numbers</p> <p>3.0A.2- Interpret whole-numbers quotient of whole numbers</p> <p>3.0A.3- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities</p> <p>3.0A.4- Determine the unknown whole number in a multiplication or division equation relating to three whole numbers</p> <p>3.0A.5- Apply properties of operations as strategies to multiply and divide</p> <p>3.0A.7- Fluently multiply and divide within 100</p> <p>3.0A.8- Solve two-step word problems using the four operations.</p> <p>3.0A.9- Identify arithmetic patterns and explain them using properties of operations</p>	<ul style="list-style-type: none"> • Preview Review • Word Squares • Accept students' contribution in the L1 during class discussions • Students helping students using L1 during discussion • Accept students' contribution in the L1 during class discussion • Accept initial writing in students' L1 • Pull students aside to reteach concepts • Label the classroom in English and L1
Unit 2	7	Number and operations in base ten	<p>3.NBT.1- Use place value understanding to round whole numbers to the nearest 10 or 100</p> <p>3.NBT.2- Fluently add and subtract within 1000 using strategies</p> <p>3.NBT.3- Multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations</p>	<ul style="list-style-type: none"> • Preview Review • Word Squares • Accept students' contribution in the L1 during class discussions • Students helping students using L1 during discussion • Accept students' contribution in the L1 during class discussion

				<ul style="list-style-type: none"> • Accept initial writing in students' L1 • Label the classroom in English and students' L1
Unit 3	8	Number and Operations- Fractions	<p>3.NF.1-Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$</p> <p>3.NF.2-Understand a fraction as a number on the number line; represent fractions on a number line diagram</p> <p>3.NF.3-Explain equivalence of fractions in special cases and compare fractions by reasoning about their size</p>	<ul style="list-style-type: none"> • Preview Review • Word Squares • Label charts in L1 • Give quick explanation in L1 during whole-group instruction • Accept students' contribution in the L1 during class discussions • Students helping students using L1 during discussion • Give quick explanation for individual students • Accept initial writing in students' L1
Unit 4	14	Measurement and Data	<p>3.MD.1-Tell and write time to the nearest minute and measure the time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes</p> <p>3.MD.2-Measure and estimate liquid volumes and measure of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes.</p> <p>3.MD.3- Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two- step "how many more" and "how many less" problems using information presented in scaled bar graphs.</p>	<ul style="list-style-type: none"> • Preview Review • Word Squares • Accept students' contribution in the L1 during class discussions • Students helping students using L1 during discussion • Accept students' contribution in the L1 during class discussion • Accept initial writing in students' L1 • Pull students aside to

			<p>3.MD.5-Recognize area as an attribute of plane figures and understand concepts of area measurement</p> <p>3.MD.6- Measure areas by counting unit squares</p> <p>3.MD.7- Relate area to the operations of multiplication and division</p> <p>3.MD.8- Solve real world and mathematical problems involving perimeters of polygons</p>	reteach concepts
Unit 5	9	Geometry	<p>3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category</p> <p>3.G.2- Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.</p>	<ul style="list-style-type: none"> • Preview Review • Word Squares • Accept students' contribution in the L1 during class discussions • Students helping students using L1 during discussion • Accept students' contribution in the L1 during class discussion • Accept initial writing in students' L1 • Pull students aside to reteach concepts • Give quick explanation in L1 during whole-group instruction • Give quick explanation to individual students

Appendix B
Inserted Curriculum

SIOP Lesson: 1.1 Model Multiplication

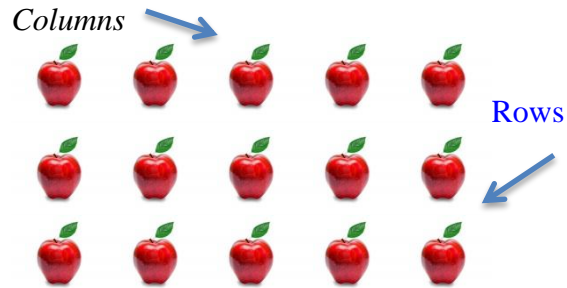
Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Model Multiplication Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.0A.1- Interpret products of whole numbers			
Key Vocabulary: multiplication, equal groups, repeated addition		Visuals/Resources: counters, cups, overhead projector, board	
HOTS: How can you model multiplication in different ways?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW have manipulatives for students to use. TW ask students how have they used counters in previous lessons. SW have the opportunity to demonstrate how they can use counters.			
Content Objective: SWBAT use manipulatives to model multiplication.	Meaningful Activities: TW introduce the vocabulary words <i>multiplication, equal groups, and repeated addition</i> . TW have these vocabulary words in the classroom displayed along with pictures. TW hand out index cards to students so they can fill out the word squares to the vocabulary words. TW write word problem on overhead projector. The following word problem will be displayed to students, “Laura has 3 strips of stickers. There are 5 stickers in	L1 Support/Additions: Label the classroom in English and Students’ L1 Word Squares Give quick explanation during whole-class instruction in L1	Review/Assessment TW listen to students following a long saying the vocabulary words a loud in both languages. TW check students’ word squares if they are completing it the correct way. Also, will walk around to help any students who might need assistance.

<p>Language Objective: SWBAT write a repeated addition sentence that corresponds to the model.</p>	<p>each strip. How many stickers does Laura have in all?</p> <p>TW model. TW draw 3 squares to represent the strips and use counters to represent stickers the stars in each strip. Explain to students that there are 3 groups of 5. TW model more word problems and use counters to model to students.</p> <p>TW have 3 cups in front of the students. She will put counters in each cup and have students come up and count the counters. TW prompt students with questions as the demonstrations continue, such questions will be, “How many cups do you have? How many counters do you have in each cup? How many groups of 4 counters do you have?”</p> <p>TW model multiplication sentence on board to go along with the word problems she has given students. After students have practiced figuring out groups with prompts given by teacher.</p>	<p>Accept student contribution in the L1 during class discussion</p> <p>Give quick explanation during whole-class instruction in L1</p>	<p>TW give students counters to demonstrate their understanding of grouping.</p> <p>TW listen to answers being given by students to questions.</p> <p>SW complete repeated addition sentences to answer word problems given by teacher.</p>
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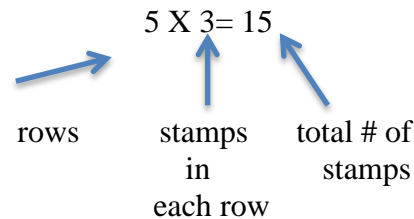
	<p>TW model the addition number sentence that they should use. An example of the repeated addition multiplication sentence is</p> $\underline{\quad} + \underline{\quad} + \underline{\quad} = \underline{\quad}$ <p>After students have completed assignment, TW hand out math journals.</p>	<p>Accept initial writing in students' L1</p>	
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts. Journal writing prompt: Students will continue to model with manipulatives of their choice. They can also draw pictures. Students will have to model the following and write the repeated addition sentence to go along: 2 groups of 6, 4 groups of 6, 3 groups of 8</p>			

SIOP Lesson: 1.2 Arrays and Commutative Property

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Arrays and Commutative Property Duration: 45-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.0A.1- Interpret products of whole numbers 3.0A.3- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities 3.0A.5- Apply properties of operations as strategies to multiply and divide			
Key Vocabulary: array, column, row, commutative property, factor, product HOTS: Does order of factors change the product of a multiplication sentence?		Visuals/Resources: teddy bear counters, index cards, picture of apples	
Connections to Prior Knowledge/Building Background: Students have learned how to model multiplication problems by using equal group of items. TW provide students with teddy bear counters and have them continue to practice forming groups.			
Content Objective: SWBAT use arrays to multiply numbers in any order.	Meaningful Activities: TW present new vocabulary to students. TW provide students with index cards. TW explain definitions. A rectangular array shows objects arranged in equal rows and equal columns. TW show an example of rows and columns to students.	L1 Support/Additions: Word Squares Give quick explanation during whole-class instruction in L1	Review/Assessment 1. Teacher will assess students by making sure they are filling out the word squares index cards correctly.



TW point to the columns and then point to the row as well as say these words in Spanish again.

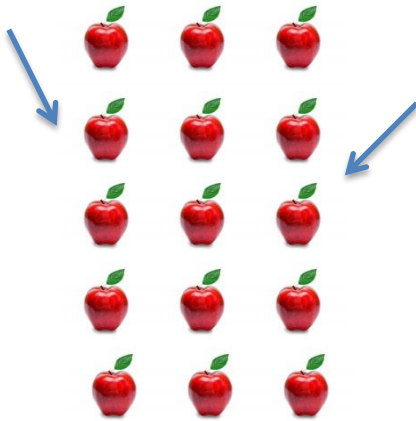
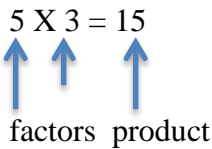
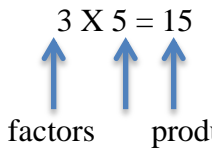


TW draw an array on the board with equal rows and equal columns.

TW tell students that rows are left to right and columns are up and down. TW point to each. SW use teddy bear counters to model arrays with multiplication sentence given by teacher.

Label the classroom in English and Students' L1

2. TW assess students by walking around the classroom to see if students are creating the arrays the proper way following the multiplication sentences given. TW go over to students when they are done modeling each one. TW pay attention to the rows and columns.

<p>Language Objective: 1. SWBAT explain the commutative property of multiplication.</p> <p>1. SWBAT write a number sentence to represent the arrays.</p>	<p>TW ask students if we switch the rows and columns, will that change the total amount of apples?</p> <p>columns</p>  <p>rows</p> <p>TW explain that changing the order of the factors does not change the product. TW review again what the factors and product are in a multiplication sentence.</p> <p> $5 \times 3 = 15$  factors product </p> <p> $3 \times 5 = 15$  factors product </p>	<p>Accept student contribution in the L1 during class discussion</p> <p>Give quick explanation during whole-class instruction in L1</p>	<p>TW ask students how many rows and columns make up the array.</p> <p>TW have students find the missing number sentences on the board for students to do that deal with the commutative property of multiplication. SW also have to draw a model of each number sentence. An example:</p>
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	After students are done completing the assignment, TW hand out math journals.	Accept initial writing in students' L1	$2 \times 4 = \underline{\quad}$ $4 \times 2 = \underline{\quad}$ TW tell students to draw an array on their papers. An array with 4 rows, with 6 in each row. SW have to create a repeated addition or multiplication sentence.
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 1.3 Solving word-problems using arrays to solve multiplication problems

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Solving word-problems using arrays to solve multiplication problems Duration: 45 minute class period		Grade: 3 rd grade	
Common Core Standard: 3.0A.1- Interpret products of whole numbers 3.0A.3- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities 3.0A.5- Apply properties of operations as strategies to multiply and divide 3.0A.8- Solve two-step word problems using the four operations.			
Key Vocabulary: array, commutative property of multiplication		Visuals/Resources: highlighters, math journals,	
HOTS: How can you model multiplication in different ways?			
Connections to Prior Knowledge/Building Background: Preview-Review: I will do a preview-review in Spanish. TW ask students what are some ways we can solve a multiplication problem. Write on the board the ways they name. Skip counting, using repeated addition, making equal groups, and arrays should be some answers they call out. Have students refer back to their word squares to explain what they mean.			
Content Objective: SWBAT create an array to represent and solve multiplication problems.	Meaningful Activities: TW present the following problem to students in both English and Spanish. SW read the word problem along with teacher. Lisa baked cupcakes for her birthday. She arranged the cupcakes in 5 equal rows of 2 cupcakes in each. How many cupcakes did she bake?	L1 Support/Additions: Give quick explanation during whole-class instruction in L1	Review/Assessment TW pay close attention to students as they read the word problem aloud.

<p>SWBAT identify key information in word problems needed to solve the problem.</p>	<p>TW explain the steps needed to solve the problem using an array. TW write on board steps in English and Spanish so that students can refer to the board if they are struggling. First- what is the question asking you to do? What do we need to find? Second- what do we know?</p> <p>TW have students use highlighters to highlight information in the word problem that is important to know in order to solve the problem.</p> <p>TW model to students with the information that was highlighted how to create an array to solve the problem.</p> <table border="1" data-bbox="625 1036 961 1230"> <tr><td>X</td><td>X</td></tr> <tr><td>X</td><td>X</td></tr> <tr><td>X</td><td>X</td></tr> <tr><td>X</td><td>X</td></tr> <tr><td>X</td><td>X</td></tr> </table>	X	X	X	X	X	X	X	X	X	X	<p>Give quick explanation during whole-class instruction in L1</p> <p>Accept student contribution in the L1 during class discussion</p>	<p>Teacher will check what the students are highlighting. Students should high light “the total number of cupcakes” and “cupcakes are arranged in 5 equal rows of 2.” Students can also highlight the word problem written in Spanish.</p> <p>Students will practice with more word problems highlighting important information.</p>
X	X												
X	X												
X	X												
X	X												
X	X												

SIOP Lesson: 1.4 Practice completing Multiplication Table

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Practice completing a multiplication table Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.OA.1- Interpret products of whole numbers 3.OA.5-Apply properties of operations as strategies to multiply and divide. 3.OA.7-Fluently multiply and divide within 100			
Key Vocabulary: multiplication table HOTS: How can we use number patterns to memorize multiplication tables?		Visuals/Resources: grid paper, math journals, pencils	
Connections to Prior Knowledge/Building Background: Preview-Review: TW review words that will be used during the lesson in the students' L1. An example of a word will be <i>mas</i> . TW state 4 <i>mas</i> 3 es 12.			
Content Objective: 1. SWBAT finish completing the multiplication table.	Meaningful Activities: TW have students take out the grid paper they were using to create the multiplication table. TW review patterns with students to find the product of factors of 0-12. TW review patterns with students with the first 2 factors. TW tell students that the product end with either 0 or 5. TW group students to complete the multiplication table as partners.	L1 Support/Additions: Give quick explanation in L1 during whole-classroom instruction Students helping students	Review/Assessment SW have to take these patterns and use them to fill out the remaining of the 5 times table. SW use multiplication table to help find the product of the two factors. TW will walk around to see if the students are in the right column.

<p>Language Objective: SWBAT orally state times tables by looking at the chart.</p>	<p>TW ask students to find the product of particular numbers.</p> <p>After students are done completing the multiplication table, TW hand out math journals.</p>	<p>Accept students' contribution in the L1 during class discussion</p> <p>Accept initial writing in students' L1</p>	
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts. SW work in pairs and ask each other to find the product of two factors and use their multiplication table as additional support.</p>			

SIOP Lesson: 1.5 Even and Odd numbers

Lesson: Even and Odd numbers			
Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Even and odd numbers		Grade: 3 rd grade	
Duration: 45 minute class period			
Common Core Standard:			
3.OA.9- Identify arithmetic patterns			
Key Vocabulary: even, odd		Visuals/Resources: pieces of candy, counters, paper, pencil, 20 sided-die, white-boards	
HOTS: How can we use the number patterns we know to answer multiplication problems?			
Connections to Prior Knowledge/Building Background:			
Preview-Review: TW review number patterns previously reviewed. SW use white boards to write the answer to the multiplication problem the teacher asks.			
Content Objective: 1. SWBAT classify numbers as even or odd.	Meaningful Activities: TW introduce the concept of even and odd numbers. TW tell students that even numbers end in 0, 2, 4, 6, or 8. Odd numbers end in 1, 3, 5, 7, or 9. TW relate even numbers to division. TW tell students that when a person has an even number of things, they can divide it equally between two people. TW model to students an even number such as the number 8. TW model and explain that if there are 8 pieces of candy and two friends want to share it equally, each friend will get 4 candies each. TW use another problem to explain odd	L1 Support/Additions: Give quick explanation in L1 during whole-class instruction	Review/Assessment: TW check for understanding by asking students to model an even number with counters.

<p>Language Objective: 1. SWBAT record odd and even numbers on chart paper.</p>	<p>concept. For example, if there were 3 pieces of candy, 3 being an odd number, and two friends want to share the candy equally, they will each receive 1 piece of candy and 1 will be left over. This is an example of candy not being able to be shared equally.</p> <p>SW play a game with the die. SW be paired in groups. TW tell students to make a T-Chart on their paper and label one column Even and the other column Odd. TW give directions to students of the activity they will be doing.</p> <p>SW take turns rolling the 20-sided number die. If student rolls a 5, SW have to determine whether that number is a even or odd number. SW have the opportunity to use counters to help them decide whether the number is even or odd. There will be different rounds to the activity but the first round, the student who gets five even numbers first wins that round.</p> <p>After students are done completing their lessons, TW hand out math journals.</p>	<p>Students helping students</p> <p>Give quick explanation in L1 during whole-classroom instruction</p> <p>Accept initial writing in students L1</p>	<p>SW record even and odd numbers on the correct column of their T-Chart as they roll the die.</p> <p>SW be able to interact with students in group in their native language. The more advanced Ell can help the beginning Ell by communicating in a language they both are proficient in.</p>
<p>Wrap-up: Math Journal Prompt: TW call out numbers aloud and have students determine whether the numbers are even or odd. SW record their answers in their math</p>			

journals.

SIOP Lesson: 1.6 How to model division

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: How to model division Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.OA.2- Interpret whole-number quotients of whole numbers 3.OA.4- Determine the unknown whole number in a multiplication or division equation relating to three whole numbers			
Key Vocabulary division, divide, partition, division sentence		Visuals/Resources: counters, math journals	
HOTS: How can we use counters to solve division problems?			
Connections to Prior Knowledge/Building Background: Students have previously reviewed about grouping. Students know that you can separate objects into equal groups to model division.			
Content Objective: SWBAT solve for the unknown number in a division problem.	Meaningful Activities: SW have counters on their table. TW tell students to grab 15 counters. TW tell students to partition or “break up” the 15 counters into 3 equal groups. TW model the above assignment and then have students partition other division problems. TW grab 3 counters at a time to make a group, four times. TW write the division sentence on the board, which will be $12/3=4$. As teacher says the division problem TW will say the words, as follows, 12 divided by 3 equals 4.	L1 Support/Addition: Give quick explanation in L1 during whole classroom instruction	Review/Assessment:

<p>Language Objective: SWBAT show how to divide a problem using manipulatives.</p>	<p>TW provide students with division sentences. The quotient, the answer to a division problem will be missing.</p> <p>SW find the answer to the division problem using counters.</p> <p style="text-align: center;">$20/4=X$ $36/6=X$ $21/3=X$</p> <p>TW provide students with word problems. Word problems will be provided to students in native language and English language. SW be able to show or model how they would solve the problem using manipulatives.</p> <p>An example of a question will be: Mr. Arthur made 9 pancakes for his 3 children. All 9 pancakes were shared equally among his 3 children. Which expression can be used to find the number of pancakes each child ate?</p> <p>After students are finished completing assignment, TW hand out math journals.</p>	<p>Give quick explanation in L1 during whole classroom instruction</p> <p>Pull students aside to reteach concept in L1 (If necessary)</p> <p>Accept initial writing in students' L1</p>	<p>SW use counters to solve for the unknown.</p> <p>TW walk around classroom to check if students are grabbing the right amount of counters and separating them into the amount of equal groups the problem states too.</p> <p>TW check if students have grabbed 9 counters because that is the total amount as a whole and then divide the counters equally for the 3 friends.</p>
<p>Wrap-up: TW review word problems. TW call on students to model how they found the answer to the word problem using counters.</p>			

SIOP Lesson: 1.7 Dividing using a number line

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Dividing using a number line Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.OA.2-Interpret whole numbers quotients of whole numbers			
Key Vocabulary number line, repeated subtraction		Visuals/Resources: number lines, math journals, pencils	
HOTS: How can we use a number line to help us solve a division problem?			
Connections to Prior Knowledge/Building Background: Begin by asking students in native language, what are some ways that we have studied to solve division problems. This will be asked in the students' native language to give those students who are still struggling to speak in English the opportunity to express the knowledge they have of the topic.			
Content Objective: SWBAT to solve division problems using a number line.	Meaningful Activities: TW model subtracted division to students and explain to students that division is the same as repeated subtraction. TW model a division problem using a number line. TW write the division problem $12/3=?$ TW model by using a number line and SW follow the teacher as she is modeling. The number line she will make will start with the number zero and end in the number 12. TW model repeated subtraction. TW tell students to start at 12 and count back by 3s. TW model the jumps being made. TW model that you will stop at 9, 6, 3, and finally 0. TW then count the amount of times that	L1 Support/Additions: Give quick explanation in L1 during whole classroom instruction Accept student contribution in the L1 during classroom discussion	Review/Assessment: SW be asked what is the number of the whole group and by how many do we need to jump on the number line.

<p>Language Objective: SWBAT read word problems and create number lines to help solve the problem.</p>	<p>were jumped. That will be the answer which is 4.</p> <p>TW model another division problem using the number line. TW explain how to use repeated subtraction in both languages.</p> <p>TW provide students with division word problems. SW have to identify the whole number of objects and by how many groups you have to divide by. SW write a number line to help solve the problem.</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Give quick explanation for individual student (If necessary)</p> <p>Accept initial writing in students L1/Use L1 to support writing in English</p>	<p>SW solve division problems using a number line. TW walk around to check if they are following the correct steps.</p>
<p>Wrap-up: SW solve division problems in their journals and explain how they got to the answer. SW write the answer in their native language or English. It is their choice in what language they feel most comfortable with.</p>			

SIOP Lesson: 1.8 Recognizing patterns with shapes and numbers

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to HOTS = Higher Order Thinking Skills			
Lesson: Recognizing patterns with shapes and numbers Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3. OA.9- Identify arithmetic patterns and explain them using properties of operations			
Key Vocabulary: pattern		Visuals/Resources: overhead projector, tangrams, math journals	
HOTS: How can you identify patterns in a series of numbers?			
Connections to Prior Knowledge/Building Background: Preview Review: SW review definitions of patterns in the native language to gather up any background knowledge that students might have about the topic. TW ask students to show examples of patterns. Students can point to clothing patterns or draw patterns. TW ask students to remember the number patterns when answering multiplication problems.			
Content Objective: SWBAT identify patterns.	Meaningful Activities: TW begin lesson by showing a pattern on the overhead using tangrams. TW ask students to identify the shapes. TW then ask students what do they realize about these shapes. TW discuss with students what a pattern is. Example of pattern that TW model on overhead will be tangrams of the following shapes in the following order: Square, Circle, Square, Circle (Actual tangrams will be used to model for students) TW ask students what do they think the following shape will be? TW ask students in both languages for those	L1 Support/Additions: Give quick explanation in L1 to whole classroom instruction Accept student contribution in the L1 during class discussions	Review/Assessment: SW determine the pattern. SW recognize pattern and chose from the options that the next shape will be a square.

<p>Language Objective: SWBAT name the following numbers in the pattern.</p>	<p>students who are not yet able to answer in English. TW give students choice to choose from. TW ask students will the next shape be a triangle, a pentagon, a rectangle or a square. 4. TW practice other models using tangrams.</p> <p>TW present students with a number pattern. The number pattern shown to the students will be: 5, 10, 15, 20, 25, ____ TW ask students to identify the pattern in the set of numbers given.</p> <p>TW tell students, “Now that you know the pattern. What do you have to do to find the next number? TW practice other number patterns with students including patterns with odd and even numbers.</p> <p>After students have completed assignment, TW hand out math journals.</p>	<p>Accept student contribution in the L1 during class discussions</p> <p>Accept initial writing in L1</p>	<p>TW pick on students for their answers about the pattern they think is going on. SW be assessed if they are able to follow the pattern and add 5 to the last number in the pattern. TW look for the answer of 30 to be the missing number in the pattern.</p> <p>TW check for understanding to determine if students are able to identify the pattern and apply the pattern to find the missing number in the pattern.</p>
<p>Wrap-up: Math Journal prompt: SW write in their journals. SW draw two patterns that they can recall from the lesson or one that they made up on their own. SW then give their journals to their partner and the student will have to find the pattern and fill-in the missing number or shape.</p>			

SIOP Lesson: 1. 9 Reviewing Vocabulary

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Reviewing Vocabulary Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.OA.1- Interpret products of whole numbers 3.OA.3- Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities			
Key Vocabulary: key terms, addition, sum, and, total, increase, more, raise, both, combined, in all, all together, additional, extra, subtraction, less than, more than, decrease, difference, reduce, change, lost, left, remain, multiplication, product, of, multiplied, times, as much, by, twice, division, divide evenly, cut, split, out of, each, every, shared, equal pieces HOTS: How can we use key terms in word problems to help us find out what the question is asking us to do?		Visuals/Resources: 2005-2010 3 rd Grade NYS Mathematics Test Book 1, name cards, pencils, paper, dictionaries/bilingual dictionaries	
Connections to Prior Knowledge/Building Background: Preview Review: SW review sum, less than, product, and divide evenly. Students have previously reviewed how to look for words in a dictionary. SW be familiar with more math key words that will help them solve word problems much easier.			
Content Objective: SWBAT arrange math key terms into the appropriate category.	Meaningful Activities: Categories of the words addition, subtraction, division and multiplication will be on the board. Students will read aloud the different math key terms such as <i>sum, more, product, shared, etc.</i> SW then individually be called up to put the math key term under the correct category. For example, if the math key term is sum, the	L1 Support/Additions: Label the classroom in English and students' L1 Give quick explanation for individual students in L1 (If necessary)	Review/Assessment Students will be assessed whether they are able to distinguish the math key terms into the correct categories. TW walk around class to check if students highlighted the correct word. Will be assessed if they highlighted the correct

<p>Language Objective: SWBAT explain what a word problem is asking them to do.</p>	<p>student will put it under the addition category.</p> <p>Students will practice with word problems that have come up on previous NYS Math exams and be able to convert the word problems to an equation. For example, in the word problem, Dan bought two boxes of paper clips. One box has 175 paper clips and the second box has 375 paper clips. What is the <i>total</i> number of paper clips in the two boxes?</p> <p>After students are done completing their assignment, TW hand out math journals.</p>	<p>Accept student contribution in the L1 during classroom discussion</p> <p>Accept initial writing in L1</p>	<p>word.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			


SIOP Lesson: 1.10 Using Guess and Check

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Using Guess and Check Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.0A.1- Interpret products of whole numbers 3.0A.2- Interpret whole-numbers quotient of whole numbers 3.0A.5- Apply properties of operations as strategies to multiply and divide			
Key Vocabulary: guess, check HOTS: How can you use first guesses to make a better second guess?		Visuals/Resources: highlighters, word problems, math journals, pencils	
Connections to Prior Knowledge/Building Background: Preview-Review: TW present teacher with activities that have students guess. TW play guess the number game. SW have to guess what number the teacher is thinking of according to the clues she gives them.			
Content Objective: SWBAT identify the important information in a word problem.	Meaningful Activities: TW introduce vocabulary terms <i>guess and check</i> . TW present a word problem to the students. An example of the word problem will be, Lisa and Evan took a trip to New York City. Evan took 6 times the number of photos that Lisa did. If they took a total of 28 photos, how many photos did each take?	L1 support/L1 Addition: Give quick explanation to students in L1 during whole classroom instruction	Review/Assessment: TW check for students understanding of reading math word problem.

<p>Language Objective: SWBAT explain why they chose the number for their first</p>	<p>TW highlight, “how many photos did each take.” TW explain to students that you need to find the number of photos each girl took. TW ask students what other information is important in the word problem. TW highlight they took 28 photos and Evan took 6 times as many photos as Lisa did.</p> <p>TW model how to use guess and check to solve the problem. TW ask students to make a guess. TW use 6 as an example. TW tell students to multiply 6 by 6. To check the answer: $6 \times 6 = 42$. TW tell students that 42 is greater than 28, so they will have to guess again and use a smaller number. TW use the number 4 to answer guess and check the equation.</p> <p>TW ask students why did we choose a smaller number instead of a larger number.</p> <p>TW present students with more word problems that involve</p>	<p>Give quick explanation to students in L1 during whole classroom instruction</p> <p>Accept students contribution in the L1 during classroom discussion</p> <p>Accept students contribution in the L1 during classroom discussion</p>	<p>TW assess if students are making accurate guesses.</p> <p>TW walk around classroom to assess students. SW explain to teacher why they chose the answer they did.</p>
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guess.	multiplication and division. SW use guess and check strategy to solve problems. After students have completed the assignment, TW hand out math journals.	Give quick explanation to students in L1 to individual students (If necessary) Accept students initial writing in L1	
Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.			

SIOP Lesson: 1.11 Reviewing Money

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills													
Lesson: Reviewing money Duration: 45 minute class period		Grade: 3											
Common Core Standard: 3.0A.9- Identify arithmetic patterns and explain them using properties of operations													
Key Vocabulary penny, nickel, dime, quarter, dollar, coins		Visuals/Resources: money coins,											
HOTS: What are different ways you can make a dollar?													
Connections to Prior Knowledge/Building Background: Preview-Review: TW review money terms in Spanish to build a connection to their prior knowledge.													
Content Objective: SWBAT to categorize coins under the proper amount. SWBAT compile coins to equal a dollar.	Meaningful Activities: TW provide students with a worksheet of label such as the one above: <table border="1" data-bbox="583 781 1140 857"> <tr> <td>Penny</td> <td>Nickel</td> <td>Dime</td> <td>Quarter</td> <td>Dollar</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> TW give each student coins and SW have to put the coins in the proper category. For example, if the student picks up a  , SW put the coin under the penny category. SW continue to do this with the remaining coins such as nickel, dime, quarter and dollar bill. SW also write how much is coin is worth after placing the coin into that category. After reviewing the worth of each coin, TW have students' compile coins together to equal one dollar. For example, students	Penny	Nickel	Dime	Quarter	Dollar						L1 Support/Addition: Label graphs in L1 Give quick explanation during whole classroom	Review/Assessment: TW walk around and observe how groups are interacting. SW listen to vocabulary being used in the lesson and making sure that the students are creating groups of coins that equal to one dollar.
Penny	Nickel	Dime	Quarter	Dollar									

<p>Language Objective: SWBAT to name coins.</p>	<p>can put together 4 quarters to make a dollar, or 10 dimes to make a dollar, etc.</p> <p>After students are done making groups of coins that equal to one dollar, SW have to present to the class in their groups, the different ways they created one dollar.</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>small group instruction</p> <p>Accept student contribution in the L1 during class discussions</p> <p>Accept initial writing in L1/Use L1 to support writing in English</p>	<p>TW play close attention of how the students are presenting. SW use the name of coins for example if they used 4 quarters to make one dollar, they will have to name the coin as a quarter and not just raise or point to coin being used. If student is having trouble, TW jump into teach in the native language as well as English.</p>
<p>Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 1.12 Equality or Inequality?

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Equality or Inequality? Duration: 45 minute class period		Grade: 3 rd	
Common Core Standard: 3.OA.5 -Apply properties of operations as strategies to multiply and divide 3.OA.8 - Solve two-step word problems using the four operations.			
Key Vocabulary: equation, inequality, expressions, symbols		Visuals/Resources: manipulatives, math journals	
HOTS: How can we tell the difference between an expression and an equation?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW review math symbols with students. TW write symbol on board such as +, -, and x and students will say what they represent. Students will also recall key terms that relate to the math symbol.			
Content Objective: SWBAT distinguish between an expression and an equation.	Meaningful Activities: TW introduce the math key term <i>equation</i> and <i>expression</i> . TW ask students if they know the difference between both terms. TW explain to students that an expression can be one number or it can be a group of numbers with operation symbols. An equation is two expressions that have the same value. An equation also includes an equal sign. TW write number on the board. Some will contain an equal sign and others will not. Examples of expressions will be 5-3, 7+2, and the number 9. Examples of	L1 Support/Addition: Give quick explanation in L1 during whole-group instruction Accept student contribution in L1 during classroom discussion Label examples in L1	Review/Assessment: TW listen to students to responses if they can recall any background knowledge about equations and expressions. TW listen to students' responses to assess comprehension of concept.

<p>Language Objective: SWBAT explain why an equation is an equality or an inequality.</p>	<p>equations will be $5-3=2$, $7+2=9$, $3+3=9$. TW point to each and ask students to answer whether it is an expression or an equation.</p> <p>TW introduce the key term of <i>inequality</i>. TW explain to students that an inequality are two expressions that do not have the same value and use symbols $<$ and $>$ to show an equality.</p> <p>TW show students examples of expressions being an equality or inequality. TW solve two expressions, one will be an equality and the other will be an inequality. An example of an expression that is an equality will be: $3+2=2+3$. An example of an expression being an inequality will be $5+1<2+6$. SW have the opportunity to use manipulatives to help solve the expressions.</p> <p>TW present students with additional expressions. TW pair students. SW solve each side of the expressions and</p>	<p>Give quick explanation in L1 during whole-group instruction</p> <p>Students helping students</p>	<p>TW call on students to help her solve the expression. Expressions will involve addition, subtraction, multiplication and division.</p> <p>TW listen to students' explanation as to why an expression is an equality or inequality. TW listen to the use of key terms discussed in</p>
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	determine if the expression is an equality or an inequality. After students have finished working on their assignment, TW hand out math journals.	Accept initial writing in the L1	the lesson by students.
Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.			

SIOP Lesson: 2.1 Place Value ones, tens, hundreds, thousands

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Place Value ones, tens, hundreds, thousands		Grade: 3rd	
Duration: 45 minutes			
Common Core Standard:			
3.NBT.1-Use place value understanding to round whole numbers to the nearest 10 or 100			
3.NBT.2-Fluently add and subtract within 1000 using strategies and algorithms			
Key Vocabulary: Digit, standard form, word form, place value, expanded form, round		Visuals/Resources: ones, tens, and hundreds base-ten blocks, overhead-projector, paper transparency	
HOTS: How can we use base-ten blocks to represent numbers?			
Connections to Prior Knowledge/Building Background:			
Preview-Review: TW have a discussion with students related to numbers. TW ask students what ways they use numbers. TW ask students if they have used base-ten blocks.			
Content Objective:	Meaningful Activities:	L1 Support/Addition:	Review/Assessment:
1. SWBAT identify the different forms that numbers can be written in.	TW write each word on the board--digit, standard form, word form, place value, expanded form and round. TW ask students what they know about each word.	Accept students contribution in L1 during classroom discussion	TW take notes of the information that students are able to recall. Students should be able to recall that place value includes the ones, tens, and hundreds place.
SWBAT model numbers using base-ten blocks.	TW provide students with base-ten blocks. TW review with students what each block represents. The small cubes are the ones, the longs are the tens, flats are hundreds and blocks are thousands. TW begin by demonstrating to students how to present the number 33. That		TW walk around the classroom to observe and help students who might be struggling with grasping the concept.

<p>Language Objective: SWBAT write their own three-digit number in each of the three different forms.</p> <p>SWBAT explain the value of numbers on a place-value chart.</p>	<p>will be 3 small cubes and 3 longs, which will equal 33. After modeling two other examples, SW then be asked to model numbers on their own.</p> <p>TW write a number on the board. For example, the number 764, in standard form, expanded form, and word form. SW have to identify each number form.</p> <p>By using the model previously reviewed by teacher, SW choose a 3-digit numbers such as, 567, and write that number in standard form, expanded form, and word form. TW pair students.</p> <p>SW be provided with place-value charts. TW fill out place-value chart on the overhead-transparency and fill in the place-value chart with numbers. TW begin with 2-digit number, then work on 3-digit number and finally model numbers with 4-digits. TW review the ones, tens, hundreds, and thousands</p>	<p>Give quick explanation in L1 to whole-group instruction</p> <p>Students helping students</p> <p>Give quick explanation in L1 to individual students</p>	<p>TW compare students' work to the format she used to model the different forms</p>
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	<p>place value. For example, in the chart below teacher will ask students, “Look at the 5 in each number. Do each of the 5s have the same value? Why not? Sample answer: No they are not the same value. The 5 in the first number is 50 and the 5 in the second number means 500.</p> <p>TW then model a different number. The number will be a 3-digit number to help us get to the 4-digit number after. The number the TW model on the transparency will be 927. TW go over every number individually. For example, TW write the number 7, TW will ask the students, “How many ones are there? What is the value of the 7 in the ones? As the teachers writes the 2, TW will ask students how many tens are there? What is the value of the 2 tens? How many hundreds are there? What is the value of the 9 hundreds?</p> <p>After students are completed with the assignment, TW hand</p>	<p>Accept students contribution in L1 during classroom discussion</p> <p>Accept initial writing in L1</p>	<p>TW listen to students answer to check for comprehension.</p>
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	out math journals.		
Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.			

SIOP Lesson: 2.2 Comparing numbers using number line and place value chart

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Comparing numbers using number-line and place value chart		Grade: 3rd	
Duration: 45 minutes			
Common Core Standard:			
3.NBT.1-Use place value understanding to round whole numbers to the nearest 10 or 100			
3.NBT.2-Fluently add and subtract within 1000 using strategies and algorithms			
Key Vocabulary: Is less than, is greater, is equal to		Visuals/Resources: base-ten blocks, paper, pencil, bilingual dictionary including above vocabulary words	
HOTS: What are different ways we can compare numbers?			
Connections to Prior Knowledge/Building Background:			
Preview-Review: Students have practiced the use of place-value charts and have previously worked with number lines. SW be asked what are ways that they have been using base-ten blocks in previous lessons.			
Content Objective: SWBAT compare two-whole numbers by using a number line or place-value chart. SWBAT select the appropriate comparing symbol when comparing two numbers.	Meaningful Activities: TW introduce concepts is less than, is greater, is equal to. Teacher will write the words -- less than (<), is greater than (>), and is equal to (=) on the board. TW explain to students that when one number is compared to another, it can greater than, less than or equal to. A place-value chart is a useful tool that helps us compare numbers.	L1 Support/Addition: Give quick explanation in L1 during class whole-group instruction Give quick explanation in L1 during class whole-group instruction	Review/Assessment: TW listen to responses given by students when asked to compare numbers on the place value chart.

	Hundredths	Tens	Ones		
<p>SWBAT create number sentences using the symbols $<$, $>$, $=$.</p>	9	3	1	<p>Accept students contribution in the L1 during class discussions</p>	<p>TW observe students and check to see if they are placing the numbers correctly on the number line.</p>
<p>SWBAT arrange base-ten blocks to help compare numbers.</p>	8	9	7	<p>Give quick explanation in L1 during class whole-group instruction</p> <p>Accept students contribution in the L1 during class discussions</p>	<p>SW have the opportunity to explain their knowledge in Spanish.</p>

	<p>and place the numbers they choose on the number line.</p> <p>TW review the definition of the symbols less than, greater than, and equal to. SW practice creating number sentences using the symbols with different numbers. For example, an example of a number sentence will be $346 < 456$, $567 = 567$.</p> <p>SW be given a set of base-ten blocks. SW also be given a sheet of number sentences that they will have to fill in using the comparing symbols. SW be in groups. SW use the base-ten blocks to represent each number and help them determine which number is less than, greater than or equal to. For example, if the two numbers they are comparing are 347 and 367, students should be able to realize that 347 has 4 longs and 367 has 6 longs, which will make 367 the greater number. The student's number sentence will look like the</p>	Students helping students	SW be assessed on their group work and teacher will also be walking around the classroom to check if the students are representing the numbers correctly using base-ten blocks on their place value charts.
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<p>Language Objective: SWBAT to explain why a number is less than, greater than or equal to another number.</p>	<p>following $347 < 367$</p> <p>By using the number line, SW determine how to compare the numbers. For example the numbers 345, 457, 567 were chosen. Students should be able to say that because the number 345 is to the left of 457 on the number line, than it is less than 457.</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>Accept students contribution in the L1 during class discussions</p> <p>Accept initial writing in Students L1</p>	<p>TW listen to students' explanation to check for comprehension.</p>
<p>Wrap-up: Math Journal Prompt: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts. Number sentences will be on the board. SW have the chance to either show their work using a number line or base-ten blocks. 500 ____ 788 399 ____ 399 544 ____ 945</p>			

SIOP Lesson: 2. 3 Ordering Numbers

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills												
Lesson: Ordering Numbers Duration: 45 minutes		Grade: 3 rd										
Common Core Standard: 3.NBT.1- Use place value understanding to round whole numbers to the nearest 10 or 100 3.NBT.2- Fluently add and subtract within 1000 using strategies 3.NBT.3- Multiply one-digit whole numbers by multiples of 10 in the range 10-90 using strategies based on place value and properties of operations												
Key Vocabulary: digit, place value, order numbers, least, greatest HOTS: How can we compare numbers?		Visuals/Resources: Place value chart, dice, teddy bear counters										
Connections to Prior Knowledge/Building Background: Preview-Review: TW discuss what are some ways we have used the place-value chart for. SW be given die to roll three times. SW write down the 3-digit number on their place-value chart. SW use the same three digit number to create another number and write it in the place-value chart below the first number. For example, students roll the die three times. The first time the student rolled a 6, the second time a 3 was rolled and the third time a 1 was rolled. Student will review on how to describe the relationship between the numbers listed above by using the symbols of greater than, less than or equal to.												
<table border="1"> <thead> <tr> <th>Hundredths</th> <th>Tens</th> <th>Ones</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>3</td> <td>1</td> </tr> <tr> <td>3</td> <td>1</td> <td>6</td> </tr> </tbody> </table>		Hundredths	Tens	Ones	6	3	1	3	1	6		
Hundredths	Tens	Ones										
6	3	1										
3	1	6										
Content Objective: SWBAT to demonstrate numbers least to greatest by the use of manipulatives.	Meaningful Activities: SW be grouped into pairs. Students will be given 22 teddy bear counters. SW be asked to make groups, one group with 10 teddy bear counters, one with 5, and one with 7.	L1 Support/Addition: Students helping students	Review/Assessment: TW pay close attention to see if students are grouping teddy bear counters as asked too. Students should have three groups, one of 10, one of 5 and the last group of 7.									

<p>SWBAT organize the piles of teddy bear counters from least to greatest.</p>	<p>TW introduce the vocabulary order numbers, least and greatest.</p> <p>TW ask students which group has the most teddy bear counters? Which group has the least number of counters?</p> <p>SW be asked to count how many teddy bear counters are in each group. SW then move around the groups to order from least to greatest.</p> <p>TW explain to students that you can use a place-value chart to order numbers from least to greatest, especially when numbers are big such as thousands.</p> <p>TW provide a word problem to students that they will use a place-value chart to line up their numbers. TW model how to line up numbers on a place-value chart.</p>	<p>Give quick explanations during whole-class instruction</p> <p>Accept students' contribution in the L1 during classroom discussions</p>	<p>TW check if students understand the concept of least and greatest.</p>
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<p>SWBAT display numbers from least to greatest using place-value charts.</p> <p>Language Objective: SWBAT explain why they have ordered the numbers the way they did.</p>	<p>For students who are struggling ordering numbers from least to greatest, students can use connecting cubes to represent numbers such as 3, 7, and 10. Students can use these connecting cubes to determine which stack is the shortest and the longest. The shortest stack will represent the least and the longest stack will represent the greatest.</p> <p>SW be able to explain why they ordered the numbers from least to greatest whether it is with manipulatives or by using the place value chart</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>Accept students' contribution in the L1 during classroom discussions</p> <p>Accept initial writing in students' L1</p>	<p>TW listen to student explanation. When student is giving their explanation they should use the vocabulary words least or greatest. When describing their use of the place-value chart, students should be able to say this number is greater because the number on the right is greater than the first number in the other number.</p>
<p>Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 2.4 Round to the nearest ten

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills							
Lesson: Round to the nearest ten Duration: 45 minutes		Grade: 3 rd					
Common Core Standard: 3.NBT.1-Use place value understanding to round whole numbers to the nearest 10 or 100.							
Key Vocabulary: Place value charts HOTS: How can we round numbers?		Visuals/Resources: place value charts					
Connections to Prior Knowledge/Building Background: Preview-Review: TW start discussion with students and ask them what are some ways that they have been using the place value chart.							
<p>Content Objective: SWBAT round whole numbers to the nearest ten using a place value chart.</p>	<p>Meaningful Activities: 1. TW define the word round – to change the value of a number so it is easier to work with. It is easier to work with numbers that end in zero. Zeroes are round, so we call this rounding.</p> <p>TW walk students through several examples on how to round numbers when using a place-value chart.</p> <p>TW say, “Sometimes we round numbers to the nearest ten. A place-value chart and rounding rules can help you round. For example, look at the number 63 in the place-value chart.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Tens</td> <td style="text-align: center;">Ones</td> </tr> <tr> <td style="text-align: center;">6</td> <td style="text-align: center;">3</td> </tr> </table>	Tens	Ones	6	3	<p>L1 Support/Addition: Give quick explanation in L1 during whole-class instruction</p> <p>Label displays in L1</p>	<p>Review/Assessment: TW ask students questions to check for comprehension.</p>
		Tens	Ones				
6	3						

<p>SWBAT understand rounding rules for rounding numbers to the nearest ten.</p>	<p>Step 1: Circle the digit to be rounded. Step 2: Look at the digit to its right. Step 3: If the digit is less than 5, do not change the circle digit. Step 4: Replace all the digits after the circled digit with zeros.</p> <p>The above number will be rounded to 60, because the number to its right is less than 5.</p> <p>TW tell students that we are going to look at some numbers and decide how we can change them so that are easier to work with. TW have overhead projector with transparency paper that will display a number line.</p> <p>SW also have a sheet of paper and create a number line just as the teacher has modeled. TW tell students to begin with the number 24. Teacher will ask students, “What is the nearest ten less than 24? Students will label the number with a colored</p>	<p>Give quick explanation in L1 during whole-class instruction</p>	<p>TW walk around classroom to check if students are following the rules for rounding.</p>
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<p>SWBAT round whole numbers to the nearest ten using a number line.</p> <p>Language Objective: SWBAT explain why rounded numbers are easier to work with.</p> <p>SWBAT agree when you round up or down.</p>	<p>marker of their choice. TW then ask students what is the nearest ten greater than 24? SW label the number 30 on the number line with a different colored marker.</p> <p>TW tell students that using a number line can help you visually see which number is your original number easier to work with or rounded too. The number 20 is closer to the number 24 than the number 30 is, so it will be rounded or easiest to work with the number 20 from looking at the number line.</p> <p>TW ask students why do we round numbers? When are times that we round numbers?</p> <p>TW have a discussion as a whole group and give students examples of numbers. Numbers such as 45, 32, 17 are examples of numbers that teachers will ask the students if the ones digit tells the number</p>	<p>Accept students contributions in the L1 during class discussions</p> <p>Accept students contributions in the L1 during class discussions</p>	<p>TW check the model that students have created to check if they understand the concept of using a number line to round numbers.</p> <p>TW check for comprehension through responses. Reasons are because it easier to work with rounded numbers and we can also round when we are asked to estimate.</p> <p>TW listen to student responses. Students who are struggling with the concept, she will have that student come in another time to get</p>
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	to be rounded up or rounded down. After students have completed their assignment, TW hand out math journals.	Accept initial writing in students' L1	additional support by using the L1.
Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.			

SIOP Lesson: 2.5 Rounding to the nearest 100

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to HOTS = Higher Order Thinking Skills			
Lesson: Rounding to the nearest 100 Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3.NBT.1- Use place value understanding to round whole numbers to the nearest 10 or 100			
Key Vocabulary ones, tens, hundreds, place value HOTS:		Visuals/Resources: place value chart	
Connections to Prior Knowledge/Building Background: Students have practiced using a place value chart to round numbers to the nearest ten. SW begin the lesson by practicing on the steps that should be taken in order to round numbers.			
Content Objective: 1. SWBAT round a number like 6, 456 to the nearest hundred.	Meaningful Activities: TW begin the lesson by having students round numbers to the nearest ten. TW write a number on the board such as 6, 456. TW round the number to the nearest hundred by following the steps given to the students to round numbers. TW write number on the board 6, 456. TW state the steps aloud. First, circle the digit that will be rounded which is the hundreds place. Remind students that if you are rounding to the nearest hundred, you have to highlight the number on the hundreds place.	L1 Support/Additions: Give quick explanation in L1 during whole classroom small group	Review/Assessment: SW practice by rounding numbers to the nearest ten.

<p>Language Objective: SWBAT list the steps needed to round numbers.</p>	<p>Next, look at the digit to the right. Ask students what number that is? 5. If the digit is 5 or greater, add one to the circled digit. If the number is less than 5 than you keep the number the same. Finally, you replace all the digits after the number you circled with zeroes.</p> <p>TW allow the use of place value charts so that students can write the numbers on the chart and visually see them in front of them.</p> <p>TW give students numbers to round to the nearest ten. Examples of these numbers will be 721, 835, 975, 235. SW solve to round to the nearest hundred and also list the steps they took to get the answer.</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Accept student contribution in the L1 during class discussion</p> <p>Accept initial writing in students L1/Use L1 to support writing in English</p>	<p>SW list steps. TW walk over to students to have them orally state the steps they took to find how to round numbers.</p>
<p>Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 2.6 Adding using base ten blocks

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Adding using base ten blocks Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.NBT.2-Fluently add and subtract within 1000 using strategies 3.NBT.A.2- Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.			
Key Vocabulary: add, blocks, flats, longs, cubes		Visuals/Resources: base ten blocks, paper, pencil	
HOTS: How can we show addition using base ten blocks?			
Connections to Prior Knowledge/Building Background: TW write a number on the board. SW demonstrate the number using base ten blocks. For example, TW write the number 2345 and SW have to demonstrate using 2 blocks, 3 flats, 4 longs, and 5 unit cubes.			
Content Objective: SWBAT demonstrate addition problems using base ten blocks.	Meaningful Activities: TW provide students with base ten blocks. TW model how to solve an addition problem on the overhead using base ten blocks. SW follow her model as she is doing it. TW provide students with addition problems to solve. SW use base ten blocks to help solve the addition problem. TW pair students in pairs. Example of addition problems that will be used is $34+70=$ ____, $345+400=$ ____, $500+499+$ ____, $500+500=$ ____.	L1 Support/Additions: Students helping students using L1 during discussion	Review/Assessment: 1. TW check to see if students are modeling the problem she is on doing. 2. TW walk around to see if students are modeling the addition problems correctly.

<p>Language Objective: SWBAT describe the steps they took in order to solve the addition problem.</p>	<p>As teacher is walking around, SW be in groups discussing with students the steps taken to solve the addition problem.</p> <p>TW hand out journals to students when they are done with their activity.</p>	<p>Students helping students using L1 during discussion</p> <p>Accept students' contribution in the L1 during class discussion</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around and select students to describe the steps they took to solve the addition problem. TW look for words such as block, flat, longs, cubes and add in their explanation.</p> <p>TW check if students are adding and not taking away in this activity.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts. Students can draw the base ten blocks in their notebook to support their thinking.</p>			

SIOP Lesson: 2.7 Subtract using base ten blocks

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Subtract using base ten blocks Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.NBT.2-Fluently add and subtract within 1000 using strategies 3.NBT.A.2- Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.			
Key Vocabulary: subtract, blocks, flats, longs, cubes		Visuals/Resources: base ten blocks, paper, pencil	
HOTS: How can we show subtraction using base ten blocks?			
Connections to Prior Knowledge/Building Background: TW write a number on the board. SW demonstrate the number using base ten blocks. For example, TW write the number 471 and SW have to demonstrate using 4 flats, 7 long and 1 cube.			
Content Objective: SWBAT demonstrate subtraction problems using base ten blocks.	Meaningful Activities: TW provide students with base ten blocks. TW model how to solve a subtraction problem on the overhead using base ten blocks. SW follow her model as she is doing it. TW model 877-240. TW tell students that they will first model 877. TW then tell students that they will take away 240. TW ask students, how many flats should I take away? How many longs? How many cubes? TW enforce students to ask themselves these questions as they are solving the subtraction problems.	L1 Support/Additions: Students helping students using L1 during discussion	Review/Assessment: TW check to see if students are modeling the problem she is on doing. TW walk around to see if students are modeling the addition problems correctly.

<p>Language Objective: SWBAT describe the steps they took in order to solve the subtraction problem.</p>	<p>TW provide students with subtraction problems to solve. SW use base ten blocks to help solve the subtraction problem. TW pair students in pairs. Example of subtraction problems that will be used are $754-241=$____, $401-205=$____, $892-234=$____, $277-144=$____.</p> <p>As teacher is walking around, SW be in groups discussing with students the steps taken to solve the subtraction problem.</p> <p>TW hand out journals to students when they are done with their activity.</p>	<p>Students helping students</p> <p>Accept students' contribution in the L1 during class discussion</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around and select students to describe the steps they took to solve the subtraction problem. TW look for words such as block, flat, longs, cubes, subtract and or took away in their explanation.</p> <p>TW check if students are subtracting and not adding in this activity.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts. Students can draw the base ten blocks in their notebook to support their thinking.</p>			

SIOP Lesson: 3.1 What is a fraction?

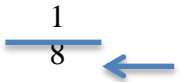
Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: What is a fraction? Duration: 40 minute period class		Grade: 3 rd	
Common Core Standard: 3.NF.1: Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$.			
Key Vocabulary: fraction, whole, half, fourth, quarter, numerator, denominator		Visuals/Resources: fraction bars, scissors, crayons, coloring, pencils, index cards, math journals	
HOTS: How can we compare fractions?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW have a brief discussion with students in their native language related to the topic (Wright, 2010). TW ask students if they have ever shared food with someone? If so, how did you share it? SW be able to answer question in Spanish. This question will lead to the topic of fractions.			
Content Objective: 1. SWBAT identify the numerator and denominator of a fraction.	Meaningful Activities: TW continue into the lesson after asking the question to connect to prior knowledge. TW present students with a picture of a sandwich on the overhead projector and ask the students, "When you were eating the sandwich and ate it with someone else, you probably took the whole sandwich and broke it into two equal parts, right?" TW model to students the fraction on the transparency, which is $\frac{1}{2}$. TW point to the top number of the fraction and	L1 Support/Addition: Pictures are labeled with L1 Give quick explanation	Review/Assessment:

<p>2. SWBAT create fraction bars.</p>	<p>have students repeat after her when she says the word and the definition, which is the numerator, is how many parts we are talking about. The bottom, the denominator, tells how many equal parts. TW also present the vocabulary words fraction, whole, and half.</p> <p>TW add the words to their vocabulary wordbook.</p> <p>TW present fraction bars page on the overhead projector. TW also provide students with a copy. SW be asked to point to the bar that says “1 whole.” TW explain that this stands for the whole fraction bar.</p> <p>SW be told to color in the bar that says “1 whole.” TW model how to color in the bar on the overhead projector.</p> <p>TW then tell students to point to the bar that says “half.” TW show them that they should be pointing to only one half, not both because they will equal to one whole. SW be reminded that the 1 stands for number of</p>	<p>during whole class small group</p> <p>Word Squares</p>	<p>TW check student word squares to see if they are filling them out the correct way. She will provide assistance to students if needed.</p> <p>TW observe students to see if they are pointing to the correct fraction bar.</p>
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<p>Language Objective: 1. SWBAT compare fractions.</p>	<p>pieces we are coloring, and the 2 stands for total number of equal pieces. TW then color in one half on her page and then walk around the class to check if the students are doing the same. SW also color in the bar that represents one-half.</p> <p>TW continue the same process with thirds, fourths, sixth, and eights. After students have colored in one of each fraction, SW turn and talk to ask answer what these fractions have in common (they have 1 as the numerator, each fraction piece gets smaller, each denominator is getting bigger as you go down the page).</p> <p>SW continue to color in the rest of the fraction bars. After coloring, they will cut out all pieces.</p> <p>TW work in pairs to compare $\frac{1}{4}$ and $\frac{1}{6}$, $\frac{1}{8}$ and $\frac{1}{6}$ and $\frac{1}{2}$ and $\frac{1}{3}$. SW use their fraction pieces to demonstrate each one.</p> <p>After students are finished</p>	<p>Students helping students</p> <p>Students helping students</p> <p>Accept initial writing in</p>	<p>TW ask students to explain why $\frac{1}{4}$ is smaller than $\frac{1}{2}$? TW ask questions to assess students' understanding of the lesson. TW ask students to hold up the smallest piece ($\frac{1}{8}$) and the biggest piece ($\frac{1}{2}$). TW assess students also by asking them to hold up the fractions she calls out.</p> <p>TW assess students to see if they are able to use the fraction pieces to compare fractions.</p>
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	completing their assignment, TW hand out math journals.	students L1	
Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.			

SIOP Lesson: 3.2 Fraction Parts

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Fraction Parts Duration: 45 minute class period		Grade: 3 rd	
Common Core Standard: 3.NF.1-Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is portioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$			
Key Vocabulary: denominator, unit, fractions		Visuals/Resources: fraction strips, index cards, crayons, math journals	
HOTS: How can we distinguish fraction parts?			
Connections to Prior Knowledge/Building Background: Students have created fraction strips and will now focus on the fraction parts to represent the numerator and denominator of a fraction. TW have students practice using fractions strips and naming fraction parts in students' L1.			
Content Objective: 1. SWBAT recognize unit fractions.	Meaningful Activities: TW write on board a fraction such as the one below: $\frac{1}{8}$  TW introduce the term-denominator to students. TW tell students the bottom number is the denominator, that it represents the total number of equal parts, and also stands for the divisor. TW write these different representations on the board. SW use their fraction strips. TW write a fraction on the board and SW have to use chips	L1 Support/Addition: Give quick explanation during whole-class small group	Review/Assessment: TW walk around classroom to check to see if the students are doing it correctly. Assessment will continue with other fractions such as $2/6$, $3/8$, $5/6$.

<p>Language Objective: 1. SWBAT answer questions using fraction vocabulary such as one-half, one-third, one-fourth, etc.</p>	<p>to cover in the fraction unit represented. For example if the teacher writes on the board, $\frac{2}{3}$, SW have to use the thirds fraction strip by looking at the denominator because that is the whole. SW also have to use 2 chips to cover the thirds strip because that is what the fraction is representing.</p> <p>TW have students do the above activity where they have to fill in the fraction strips with the counters.</p> <p>After students are finished completing their assignment, TW hand out math journals.</p>	<p>Accept student contribution in the L1 during class discussion</p> <p>Accept initial writing in students L1</p>	<p>SW have to answer using fraction vocabulary to questions teacher will ask during activity such as:</p> <ul style="list-style-type: none"> • What fraction is shaded in? • TW have fractions on the board and SW be asked to read the fraction name out.
<p>Wrap-up: Math journal prompt: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their</p>			

thoughts. SW answer word problems when they are done with the above activity:

- One half of Lucy's class is wearing red shirts. There are 10 students in the classroom. How many students are wearing red shirts?
- There are 12 cats in the park. One third of the cats have spots. How many of the cats have spots?
- One third of the roses in the park are pink. If there are 15 roses in total. How many roses are pink?

SIOP Lesson: 3.3 Fractions in number line

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Fractions in number lines Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.NF.1- Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$ 3.NF.2- Understand a fraction as a number on the number line; represent fractions on a number line diagram 3.NF.A.2a- Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts.			
Key Vocabulary: fraction, number line		Visuals/Resources: number line, fraction strips	
HOTS: How can you represent fractions on a number line?			
Connections to Prior Knowledge/Building Background: TW begin lesson by reviewing vocabulary and using realia to support her explanation. TW explain what a fraction is, a numerator and a denominator. TW ask students to cut their fruits in half. TW write the $\frac{1}{2}$ on the board. TW call on students to state, which is the numerator and denominator of the fraction. TW recall to students that a whole is equal to 1.			
Content Objective: SWBAT identify fractions in a number line.	Meaningful Activities: TW draw a number line on the board. TW ask students what they know about a number line. SW have the opportunity to work with a partner and discuss ideas. TW point out to students the 0 and the 1 on the number line. TW use fraction strips to make points where a fraction will lie on a number line. TW model how to make a number line of thirds by using the fraction	L1 Support/Additions: Accept students' contribution in the L1 during class discussions Students helping students	Review/Assessment: <ol style="list-style-type: none"> 2. TW ask students what information they can recall about a number line.

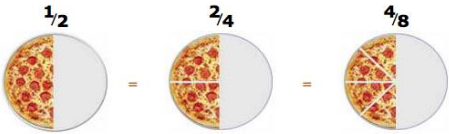
<p>Language Objective: 1. SW be able to create number lines representing fractions.</p>	<p>strips of the thirds. TW think-aloud and say, the 0 is here. Then $\frac{1}{3}$ (TW make a point on the number line), then $\frac{2}{3}$ (TW make point on number line) and TW write $\frac{3}{3}$ under the number 1.</p> <p>TW model how to demonstrate fourths on a number line.</p> <p>TW tell students to create number lines to represent fifths, sixth, sevenths, and eights. SW be able to work with students while creating number lines.</p> <p>SW be able to use their fraction strips to help them create their number lines.</p> <p>TW give out journals.</p>	<p>Students helping students using L1 during discussion</p> <p>Accept initial writing in L1</p>	<p>TW ask students where would three-fourths, four-fourths go on a number line. SW identify where they belong by making points on their number line. TW walk around to check if students are marking their number lines correctly.</p> <p>TW walk around class to check if students are doing their assignment correctly. TW monitor discussion among students.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 3.4 Comparing fractions with common denominators

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Ordering fractions Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.NF.1- Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$ 3.NF.2- Understand a fraction as a number on the number line; represent fractions on a number line diagram			
Key Vocabulary: fractions, numerator, denominator		Visuals/Resources: number lines, overhead, math journals, pencils,	
HOTS: Which fraction is smaller? Which fraction is smaller?			
Connections to Prior Knowledge/Building Background: SW identify the missing fraction on a number line. For example, TW distribute different number lines to students and SW put the missing fraction. If a student receives a number line of fifths and the 2 nd mark is missing a fraction, SW have to identify that mark as $2/5$ on a number line.			
Content Objective: SWBAT compare fractions on a number line.	Meaningful Activities: TW explain to students when looking at fractions on a number line, the fractions closest to 1 are bigger. The fractions closest to 0 are smaller. TW draw a number line on the board and also provide students with number lines. TW model sixths on a number line. TW think-aloud, and have students help fill out the number line. Sample prompts	L1 Support/Additions: Give quick explanation during whole-class instruction	Review/Assessment: 1. TW ask students what information they can recall about a number line.

<p>Language Objective: SWBAT state which fraction is smaller/bigger and explain why.</p>	<p>will be, what fraction comes before $\frac{3}{6}$, what number comes after $\frac{3}{6}$ on the number line?</p> <p>TW have students circle both fractions so that students can visually see the 2 fractions they are comparing and are able to see where they are in a number line.</p> <p>TW have number lines on the overhead. TW call on students to determine what fraction is smaller or bigger. An example would be, what fraction is bigger, $\frac{3}{6}$ or $\frac{1}{6}$.</p> <p>TW hand out journals to students.</p>	<p>Accept students' contribution in the L1 during class discussions</p> <p>Accept initial writing in L1</p>	<p>TW call on students to answer the questions. TW listen to students response explaining why a fraction is smaller or bigger.</p> <p>TW listen to students answer to check for comprehension.</p>
<p>Wrap Up: SW write what they learned in class today. SW compare fractions using a number line. TW write problems on board and SW answer them in their journals. Problems will be $\frac{3}{4}$ and $\frac{4}{4}$. SW create a number line, circle both fractions on the number line and write why they chose their answer.</p>			

SIOP Lesson: 3.5 Equivalent Fractions

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Equivalent Fractions Duration: 40-minute class period		Grade: 3rd grade	
Common Core Standard: 3.NF.2-Understand a fraction as a number on the number line; represent fractions on a number line diagram 3.NF.A.3a- Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.			
Key Vocabulary: numerator, denominator, fraction, equivalent		Visuals/Resources: realia, laptops, math journals, pencils	
HOTS: What fractions are equivalent?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW begin lesson by demonstrating pictures to students. SW have to pair pictures of people doing the activity. For example, TW have pictures of people watching television, washing clothes, walking their dog and SW have to pair these pictures. TW introduce the vocabulary word equivalent. TW ask students how do they think the word equivalent is related to fractions? TW present students with two different fractions such as $\frac{1}{2}$ and $\frac{3}{6}$. TW explain to students that equivalent fractions are the same, even though they look different.			
Content Objective: SWBAT locate equivalent fractions on a number line.	Meaningful Activities: TW continue to explain the meaning of equivalent fractions to students. TW show visuals to students. Examples of visuals will be to represent $\frac{1}{2}$, for example,  TW ask students what do they see in these 3 pictures. TW explain to students that these pictures all represent $\frac{1}{2}$ but are divided differently. TW tell students that $\frac{1}{2}$, $\frac{2}{4}$, and $\frac{4}{8}$ are equivalent fractions. TW hand out laptops to students. SW navigate	L1 Support/Additions: Word Squares Give quick explanation during whole-class instruction in L1 Accept students contribution in the L1 during classroom	Review/Assessment: TW check if students are completing the word squares correctly. Students can draw equivalent fractions for their illustration. SW answer what similarities they see in the pictures.

<p>Language Objective: SWBAT name equivalent fractions when given a set.</p>	<p>in the following website (http://www.mathsisfun.com/numbers/fraction-number-line.html) to locate fractions that are equivalent. TW have the same screen opened on her laptop that will be projected on the board.</p> <p>TW go over with students what to do. For example, if you move the line on the fraction bars to $\frac{1}{2}$, if you look down the fraction bars it will be highlighted that $\frac{1}{2}$ is equivalent to $\frac{2}{4}$, $\frac{3}{6}$, $\frac{4}{8}$, $\frac{5}{10}$, $\frac{6}{12}$, $\frac{7}{14}$, $\frac{8}{16}$.</p> <p>TW group students in pairs. TW write on board a set of fractions such as, $\frac{2}{3}$, $\frac{1}{2}$ and $\frac{3}{6}$. SW have to choose what two fractions are equivalent.</p> <p>SW be able to use the website (http://www.mathsisfun.com/numbers/fraction-number-line.html) for support.</p> <p>After students are done, TW distribute math journals to students.</p>	<p>discussion</p> <p>Give quick explanation during whole-class instruction in L1</p> <p>Give quick explanation for individual students in L1 (if needed)</p> <p>Students helping students</p> <p>Accept initial writing in students' L1</p>	<p>SW locate equivalent fractions using the fraction number line on the website.</p> <p>TW walk around classroom and have students name equivalent fractions they have found.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 3.6 Whole numbers as fractions

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Whole numbers as fractions Duration: 40-minute class period		Grade: 3rd grade	
Common Core Standard: 3.NF.1- Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$ 3.NF.2- Understand a fraction as a number on the number line; represent fractions on a number line diagram 3.NF.A.3c- Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.			
Key Vocabulary: numerator, denominator, fraction, equivalent		Visuals/Resources: laptops, math journals, envelope with flashcards of fractions, pencils	
HOTS: What fractions represent whole numbers?			
Connections to Prior Knowledge/Building Background: TW provide students with laptops and direct them to the website, http://www.mathsisfun.com/numbers/fraction-number-line.html . TW review what the word equivalent means. SW find equivalent fractions to $1/2$ and $1/4$.			
Content Objective: SWBAT locate fractions that are equivalent to whole numbers.	Meaningful Activities: TW explain to students that fractions can also be equivalent to whole numbers. TW model on the fraction number line that if you move the line all the way to the right, you will see the fractions that are all equivalent to 1. TW write a fraction such as $2/2$ on the board and SW have to locate the fraction on the fraction number line.	L1 Support/Additions: Give quick explanation during whole-class instruction in L1	Review/Assessment TW walk around classroom to check if students are locating the fractions equivalent to whole numbers on their number line.

<p>Language Objective: SWBAT list fractions that are equivalent to fractions and whole numbers.</p>	<p>SW be paired in groups. TW hand out envelope that has flashcards of fractions.</p> <p>When students are done completing the activity, TW hand out journals.</p>	<p>Students helping students using</p> <p>Accept initial writing in students' L1</p>	<p>SW list fractions that are equivalent to the fractions on the flashcards. TW monitor discussion among groups.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 3.7 What fraction is shaded in?

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: What fraction is shaded in? Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.NF.1-Understand a fraction $1/b$ as the quantity formed by 1 part when a whole part is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$			
Key Vocabulary: shaded-in, fraction, numerator, denominator HOTS: How can we identify what fraction of a shape is shaded in?		Visuals/Resources: flashcards with pictures of shapes shaded in, math journals, cut-out circles, pizza pie	
Connections to Prior Knowledge/Building Background: Preview-Review: TW review fraction concepts using a pizza pie. TW remind students that the whole pizza is a whole or 1. There are 6 students in the class. TW ask students how many students do we have in the class. TW ask students how can we cut the pizza so that every one gets one slice. TW divide pizza into 6 equal pizza. TW give one pizza to a student. TW ask students, what fraction of the pizza was given away? SW respond to questions.			
Content Objective: SWBAT match fractions to shaded pictures that represent the same fraction.	Meaningful Activities: TW draw a circle on the board. The circle is divided in half. TW review numerator and denominator definitions in Spanish. Teacher will represent $\frac{1}{2}$ shaded in. TW review what the word shaded in means. TW color in 1 of the 2 shapes that it is divided into. SW follow the model on their paper. TW model another fraction such as $\frac{2}{3}$. TW	L1 Support/Additions: Give quick explanation during whole-class instruction in L1	Review/Assessment

<p>Language Objective: SWBAT explain why they chose the fraction they di.</p>	<p>divide the circle into 3 and shade-in 2.</p> <p>SW continue to follow the teacher's model on their paper.</p> <p>TW hand out flashcards of pictures with shapes and separate flashcards with fractions. SW have to match it with the appropriate fraction it represents.</p> <p>TW hand out cut-out circles to students. These circles will be shaded in differently. Such as one circle will be shaded $\frac{1}{2}$ another will be shaded in $\frac{2}{3}$. SW have to raise up the circle that represents the fraction the teacher chose.</p> <p>After activity is over, TW hand out math journals.</p>	<p>Accept initial writing in students' L1</p> <p>Give quick explanation during whole-class instruction in L1</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around class to see if students are matching the correct shaded picture to the fraction she has stated.</p> <p>TW look around classroom as students are holding up the shaded-in shapes. TW assess comprehension of concept through this activity.</p>
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Wrap Up:

SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.

SIOP Lesson: 3.8 Review Fractions using word problems

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Review Fractions Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.OA.9- Identify arithmetic patterns and explain them using properties of operations			
Key Vocabulary: numerator, denominator, fraction, equivalent,		Visuals/Resources: word-problems, highlighters, paper, pencils	
HOTS: How can we solve fraction word problems?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW provide students with paper. SW write everything they can remember about fractions. SW be able to draw pictures, write terms, and use symbols to express their knowledge.			
Content Objective: SWBAT locate words that tell you what the word problem is asking you to do/find.	Meaningful Activities: TW provide students with word problems. TW read two word problems aloud and SW continue the rest in pairs. TW locate words such as “what part is shaded-in” and highlight to show students that is what the question is asking you to find. SW continue to follow the model in word problems when paired with a student. SW discuss in pairs any questions they might have. With the word problem that the teacher provided the students	L1 Support/Additions: Accept students contribution in the L1 during classroom discussion Students helping students using L1 during discussion	Review/Assessment: TW walk around classroom to check if student are highlighting the write information. TW monitor discussion among students.

<p>Language Objective: 1. SWBAT orally explain how they solved the word problem.</p>	<p>with, SW solve the word problems among groups.</p> <p>TW hand out math journals when students have completed assignment.</p>	<p>Accept students contribution in the L1 during classroom discussion</p> <p>Give quick explanation to individual students in L1 (If needed)</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around classroom to check if students are solving the word problems correctly.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 4.1 Tell Time

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to HOTS = Higher Order Thinking Skills			
Lesson: Tell Time Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3. MD.1-Tell and write time to the nearest minute and measure the time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes			
Key Vocabulary hour, o'clock, minute hand, hour hand		Visuals/Resources: clock, construction paper for minute hand and hour hand, math journals	
HOTS: How can we tell time on an analog clock?			
Connections to Prior Knowledge/Building Background: TW preview-review the concept of clocks in Spanish. SW be told that they will be learning about time and in order to gather as much background information that they have about time, it is best to introduce the subject in their native language. Students know how many minutes in an hour, seconds in a minute, and how many minutes in half hour in their native language.			
Content Objective: SWBAT distinguish between the minute hand and hour hand.	Meaningful Activities: TW introduce new vocabulary words hour, o'clock, minute hand and hour hand. TW tell students to look at the clock in the classroom. TW ask students, "How many numbers are on the clock? Have students point to the hour hand. TW have students Turn and Talk to their classmates and discuss what are some things	L1 Support/Additions: Word Squares Accept student contribution to class discussion in L1	Review/Assessment: TW tell students to add these words to their word vocabulary book using the index cards. They will just put the English term, and Spanish term then at the end of the lesson come back and fill out their own definition and draw an illustration. TW call on a few students to share their ideas.

<p>SWBAT create a clock.</p>	<p>you can do in an hour.</p> <p>TW have students point to the minute hand. TW tell students that when the minute hand moves from one tick mark to the next, one minute has passed.</p> <p>SW create a number line, following the model the teacher has. The number line will contain the numbers 1-12. SW use the number line to put in the circle to create a clock.</p> <p>TW provide students with construction paper to create the hour hand and the minute hand. For this lesson, all students will use red paper for the hour hand, and black paper for the minute hand. TW review that the red-hand is the minute hand and the black-hand is the hour hand that shows the hour.</p> <p>TW will tell students to</p>	<p>Students helping students</p> <p>Accept student contribution to class discussion in L1</p> <p>Give quick explanation in L1 during whole group instruction</p>	<p>TW walk around room to check if student are making the clock the correct way. SW have the clock in the room to look back in the case they are struggling.</p>
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<p>SWBAT distinguish the difference between the 24-hour clock and the 12-hour clock.</p> <p>Language Objective: SWBAT write what they have learned about time in today's lesson.</p>	<p>present various times. For example students should be able to show 6:00 or 6:30PM.</p> <p>TW explain to students that most students in the class having Hispanic background might follow the 24-hour clock, but that in America we follow the 12-hour clock. TW will explain to students that 16:00 is 4:00PM here in America. Other examples will be shown to students.</p> <p>TW hand out math journals.</p>	<p>Accept initial writing in L1</p>	<p>SW be able to tell the time on a 12-hour clock when given the 24-clock time. TW check for understanding.</p> <p>TW check for objectives that she covered during the lesson. Also check for examples that students might have given.</p>
<p>Wrap-up: Students will write in their journals. SW be able to use pictures or diagrams to support their thoughts.</p>			

SIOP Lesson: 4.2 What time is it?

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: What time is it? Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3.MD.1- Tell and write time to the nearest minute and measure the time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes			
Key Vocabulary half-past, quarter-till, quarter past HOTS:		Visuals/Resources: analog clock, clock created by students, board, paper, pencils	
Connections to Prior Knowledge/Building Background: Students have previously learned about analog clocks. They know what the minute hand and hour hand represent. SW practice with partner to represent different times.			
Content Objective: SWBAT demonstrate time on their clock when given directions from teacher.	Meaningful Activities: SW be asked to take out clocks that they created the day before. SW split the clock into fourth and TW will explain each section is $1/4^{\text{th}}$, or a quarter and that it is equal to 15 minutes. SW circle the numbers that the quarters are on like 3, 6 and 9. TW explain this is said “quarter after” when the minute hand is on the 3. TW teach students about half past. TW will write on the board the time 5:30. TW explain to students that when the minute hand is on the	L1 Support/L1 Additions: Give instruction in L1 during whole group instruction	Review/Assessment: TW model using a clock by moving the hour hand to the 6 and the minute hand to the 3 and ask students what time is it. Other examples will be hour hand on the 11 and the minute hand on the 3. TW tell students it is a quarter past 3 o'clock and students will have to show the time on their clocks. SW be asked how they say that time. Most students should be able to say five-thirty.

<p>Language Objective: 1. SWBAT orally tell time using vocabulary of half past, quarter till, and quarter after.</p>	<p>30, that means it is half past. TW put examples on the board, such as 9:30, 11:30. TW model how to say it, by saying. For 9:30, it is half past 9, for 11:30, it is half past 11.</p> <p>TW explain how to determine when to say “quarter till” when being asked the time. TW demonstrate on the clock by putting the hour hand at the 4 and the minute hand on the 9. TW tell students that when the minute hand is on the 9, that is the 45-minute mark, meaning it is a quarter till 5.</p> <p>TW change the time on the analog clock and ask students what time it is.</p> <p>When students are done with their assignment, TW hand out math journals.</p>	<p>Students helping students</p> <p>Accept initial writing in L1</p>	<p>SW respond with quarter to, half past, or quarter till. Examples of times teacher will show on the analog clock will be 2:30, 9:45, 5:15, and 8:30.</p>
<p>Wrap-up: SW write in their math journals. SW be able to use pictures and diagrams to support their thoughts.</p>			

SIOP Lesson: 4.3- Elapsed Time

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Elapsed Time Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3.MD.1- Tell and write time to the nearest minute and measure the time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes			
Key Vocabulary: elapsed time		Visuals/Resources: index cards, analog clocks, overhead projector, transparency paper to draw and model table	
HOTS: How can we tell time that has passed by?			
Connections to Prior Knowledge/Building Background: Preview-review: TW begin the lesson in their native language. Discussion will begin by asking students, how is time used in your life day-to-day? TW model a response that is expected from the students. An example of teacher response will be, I wake up in the morning and spend 1 hour getting ready. It takes me five hours to prepare for activities for school. If students are having trouble then I will prompt them with questions to answer: Amount of time spent playing a specific sport.			
Content Objective: 1. SWBAT demonstrate elapsed time.	Meaningful Activities: 1. TW group students in pairs. TW give out the analog clocks created by students in previous lesson. TW say a time and SW demonstrate. SW work in pairs, and both agree on the time that they show on the analog time. 2. After students have demonstrated an understanding to show time, TW ask students to show what time it will be 4 hours later from the times the teacher has shown. TW have the times that she previously asked to demonstrate on the board (1:25, 4:30, 8:50). TW explain to students that <i>elapsed time</i> is the amount of time that has passed from the beginning to the end of an activity.	L1 Support/Additions: Students helping students Give quick explanation in L1 during whole group instruction	Review/Assessment: TW have students raise their analog clocks to check if they demonstrated the correct time. SW show the elapsed time on the clock. TW walk over to students to check if they are correct. If they are they can move on to showing the elapsed time for the following time.

<p>Language Objective: SWBAT create a table to show elapsed times of activities.</p>	<p>TW draw a table on the overhead and SW copy her model. The following table will be drawn:</p> <table border="1" data-bbox="478 375 1052 675"> <thead> <tr> <th>Activity</th> <th>Start Time (Tiempo de Empiezo)</th> <th>End Time (Tiempo de Termino)</th> <th>Time Passed (Tiempo que ha pasado)</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>Teacher and students will work on a few questions together. A set of questions will be posted on the board and SW have to put answers on their tables. Examples of questions are: This morning you woke up at 7:00AM and ate breakfast at 8:00AM. How much time has passed? TW choose student raising their hand to answer the question. After receiving the answer of 1 hour, TW fill in the table and students will copy how she is doing it. Under Start time will be the time you woke up, TW put 7:00AM. Under end time, is when you ate breakfast, TW put 8:00AM and under time passed, TW put 1 hour.</p> <p>When students are finished completing the assignment, TW hand out math journals.</p>	Activity	Start Time (Tiempo de Empiezo)	End Time (Tiempo de Termino)	Time Passed (Tiempo que ha pasado)													<p>Label table in L1</p> <p>Give quick explanation in L1 during whole group instruction</p> <p>Accept initial writing in L1</p>	<p>TW assess students by checking if they are filling out the table correctly. SW be told to create their own scenarios after answering the questions the teacher has on the board.</p>
Activity	Start Time (Tiempo de Empiezo)	End Time (Tiempo de Termino)	Time Passed (Tiempo que ha pasado)																

	After math journal writing, SW add <i>elapsed time</i> to their vocabulary word book.	Word Squares	
Wrap-up: SW write in their math journals about what they have learned today. SW be able to use pictures and diagrams to support their thoughts.			

SIOP Lesson: 4. 4 Measuring with rulers and meters stick

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Measuring with rulers and meters stick		Grade: 3	
Duration: 45 minute class period			
Common Core Standard: 3.MD.4- Generate measurement data by measuring using rulers marked with halves and fourth of an inch. Show the data by making a line plot			
Key Vocabulary: estimate, length, long, inch, foot, centimeter, meter		Visuals/Resources: rulers, meter stick, white paper, classroom objects	
HOTS: How can we accurately estimate the length of an object?			
Connections to Prior Knowledge/Building Background: Students know what a ruler is and how to use one. Students also know the units of length. TW review estimation.			
Content Objective: SWBAT estimate the measurement of objects.	Meaningful Activities: TW pair students. There are 5 groups of students. Each group will go around the classroom and bring back any 2 objects for the class to measure. SW come back to the rug area. TW have chart paper on the easel and will write down the 10 objects that were chosen by the students. TW model and think aloud how to estimate with the ruler or meter stick. TW chosen an object and SW have to make a guess. TW choose another object. TW estimate how long the object is.	L1 Support/Additions: Students helping students Give quick explanation in L1 during whole group instruction	Review/Assessment: SW make a guess whether the object chosen is going to be longer than ruler, closer to longer than 2 rulers. TW take responses from all students.

<p>Language Objective: SWBAT state the correct measurement vocabulary when estimating the lengths of objects.</p>	<p>The object she chose was a pencil. TW record the second prediction on the chart paper.</p> <p>SW continue to estimate the measurements of the remaining objects and record their answers on their sheet of paper.</p> <p>TW ask students to write the unit of length to the objects being measured.</p> <p>When students are finished, TW hand out math journals.</p>	<p>Accept initial writing in L1</p>	<p>Students should be able to make appropriate estimations. When measuring a pencil students should not be using a meter stick, a ruler is more appropriate.</p> <p>TW walk around and assess students. TW check if reasonable estimations have been made.</p> <p>SW be assessed upon the correct choice of unit used. For example, when measuring a pencil, a student should not put yards, instead it should be inches.</p>
<p>Wrap-up: SW write in their math journals what they have learned today in class. SW be able to use pictures and diagrams to support their answers.</p>			

SIOP Lesson: 4.5 Collecting data

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Collecting data Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.MD.3- Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two- step “how many more” and “how many less” problems using information presented in scaled bar graphs.			
Key Vocabulary graph, collect, data, tally		Visuals/Resources: Chart paper, math journals	
HOTS: How can you collect data?			
Connections to Prior Knowledge/Building Background: Preview Review: TW ask students if they have seen graphs in other content areas. TW ask students what are some things the realized about the graphs.			
Content Objective: 1. SWBAT collect data.	Meaningful Activities: TW begin lesson by introducing the term collecting data. TW begin by modeling to students’ ways data is collected. TW gather information about students’ favorite types of ice-cream. TW have a list on the board of the different flavors such as vanilla, chocolate or strawberry. TW ask students to raise their hand when she mentions their favorite ice-cream flavor and place a tally next to it. TW tell students that	L1 Support/Additions: Give quick explanation in L1 during whole group instruction Accept students contribution in L1 during classroom discussion	Review/Assessment: SW participate in the collecting of data teacher is attempting to collect. TW check for all of student’s contribution.

<p>Language Objective: SWBAT record data.</p>	<p>tallies are lines used to keep count. TW explain to students that data can be collected about anything. For example, favorite subject, favorite types of movies, favorite foods, etc.</p> <p>TW have students think for a few minutes about data they will like to collect about their classmates.</p> <p>SW come up to the class and collect data. SW ask students the question they are collecting data about for example, Favorite subject. Math, Science, English and Art will be the categories. SW record data on the board as they ask students what are their favorite subjects. SW all have different types of data being collected.</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Accept students contribution in L1 during classroom discussion</p> <p>Accept initial writing in L1</p>	<p>TW jot down ideas from students on the board.</p> <p>TW help students record data on the board. Charts of these tables with tallies will be kept up in the board to help students create graphs in future lessons.</p>
<p>Wrap-up: Math Journal Prompt: SW look at sample graphs created by teacher and will briefly discuss what types of graphs they think they are. SW be able to use</p>			

pictures and diagrams to support their answers.

SIOP Lesson: 4. 6 How to create Bar Graphs

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: How to make Bar Graphs Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3. MD.3 Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.			
Key Vocabulary: bar graph		Visuals/Resources: large graph paper	
HOTS: How can we represent data we have collected?			
Connections to Prior Knowledge/Building Background: Students have learned how to collect data. TW have students recall the data that was collected in previous class and have students create their own tally mark table about that information.			
Content Objective: SWBAT label the different parts of a bar graph.	Meaningful Activities: TW model how to create a bar graph with the data she previously collected about students' favorite ice creams. TW use large graph paper and think aloud of the process needed to create a bar graph. TW say aloud the steps needed to create a bar graph. The steps are as follows: First, decide on a title for the graph. TW tell students that the title has to relate to the information you have collected. TW then draw the vertical and horizontal axis. TW label the	L1 Support/Additions: Give quick explanation in L1 during whole group instruction	Review/Assessment: TW ask students to think of a title to name her bar graph.

<p>Language Objective: SWBAT to retell the steps needed to create a bar graph and list them in their math journals.</p>	<p>horizontal axis. TW model where the horizontal axis is. TW tell students that the horizontal axis will contain the names of the ice cream flavors. TW then label the vertical axis. TW show students where the vertical axis is. TW decide on the range of numbers to put on the scale based on the information collected. TW advise students to begin with 0 and consider the greatest number shown on the graph. Teacher and students have decided on using intervals of 2 because 10 is the greatest number. TW model how to create the bars on the graph.</p> <p>TW collect data once again from students. This time it will be based on their favorite type of candy. Categories will be starburst, Hershey's Kiss or bubblegum. After collecting data, TW ask students to help her create a bar graph.</p> <p>After students have completed with their assignment, TW hand out math journals.</p>	<p>Accept students contribution to classroom instruction in L1</p> <p>Accept initial writing in L1</p>	<p>TW ask students to retell the ice cream flavors that were taken data on. TW think aloud as she is filling in this part of the bar graph.</p> <p>SW skip count by 2 as the teacher is filling in the scale on the vertical axis.</p> <p>TW follow steps given by students to create a bar graph. SW retell the steps. If students are not able to retell in English, SW have the opportunity to retell in their native language.</p>
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Wrap-up:

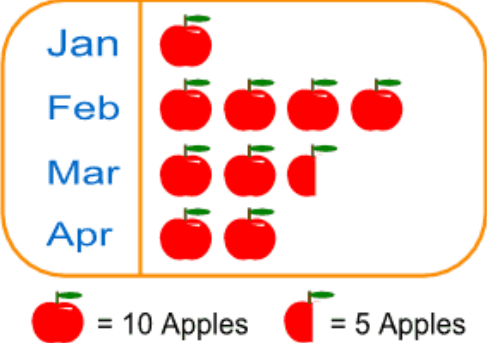
SW write in their math journals about what they have learned to day. SW be able to use pictures and diagrams to support their thoughts.

SIOP Lesson: 4.7 Practice Creating & Reading bar graphs

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to HOTS = Higher Order Thinking Skills			
Lesson: Practice Creating & Reading Bar Graphs Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.MD.3- Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.			
Key Vocabulary bar graph		Visuals/Resources: data previously collected, checklist, math journals	
HOTS: How do you read a bar graph?			
Connections to Prior Knowledge/Building Background: Teacher has previously modeled creating a bar graph and students have collected information. TW review information that has been collected with students.			
Content Objective: SWBAT create a bar graph of their own.	Meaningful Activities: TW take out the tables from previous class when students collected data. This data will be used to create their own graphs. TW also put list of steps needed to create a bar graph. TW provide students with a checklist to help them create the bar graph in case they struggle with leaving a part out.	L1 Support/Additions: Give quick explanation in L1 during whole group instruction	Review/Assessment: TW walk around class to observe students while they create their bar graph. TW assist students if they have any questions.

<p>Language Objective: SWBAT create questions to go along with their bar graphs.</p>	<p>In previous class, teacher presented students with questions to answer about the bar graph she created. Examples of question were:</p> <ul style="list-style-type: none"> • How many students chose vanilla as their favorite ice cream flavor? • How many more students chose vanilla ice cream than chocolate ice cream? <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Accept students contribution in L1 during classroom discussion</p> <p>Accept initial writing in L1</p> <p>Accept initial writing in L1</p> <p>Students helping students</p>	<p>SW create 3 questions for other students to answer about their graphs. SW be able to follow the model of the questions the teacher created.</p>
<p>Wrap-up: TW pair students. SW exchange graphs and questions. SW answer questions about the graph.</p>			

SIOP Lesson: 4.8 What is a pictograph?

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: What is a pictograph? Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.MD.3 Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.			
Key Vocabulary pictograph, key		Visuals/Resources: index cards, model of pictograph, paper, pencil	
HOTS: How is a pictograph different than a bar graph?			
Connections to Prior Knowledge/Building Background: Preview-review- TW begin lesson by reviewing previous concepts in Spanish. TW discuss the graphs that have been covered in previous classes and explain to students that today they will work on a different type of graph. TW ask students to name the different types of data we have collected by students.			
Content Objective: 1. SWBAT distinguish between a bar graph and a pictograph.	Meaningful Activities: TW introduce lesson by showing a model from a pictograph that she has created. The Pictograph will be shown on the overhead project. An example of the pictograph will be as shown below: 	L1 Support/Additions:	Review/Assessment:

<p>Language Objective: SWBAT read a pictograph and verbally answer questions about the graph.</p>	<p>TW ask students to name some difference between this graph and a bar graph. After listening to some differences, TW hand out index cards and have students fill out their word squares.</p> <p>TW discuss what a key means. TW make it clear that it is not the object used to open the door to your house rather it shows what the symbols represent. TW review the key shown on the pictograph below. TW will ask students what does the full apple represent and what does the half apple represent.</p> <p>After reviewing the graphs, TW take out sheet of paper where she has written questions to be answered about the pictograph. Examples of questions will be: What is the title of the pictograph? What do the apples represent? What does one apple represent? What does half of an apple represent?</p> <p>After students have completed assignment, TW hand out math journals.</p>	<p>Accept student contribution in the L1 during class discussions</p> <p>Word Squares</p> <p>Give quick explanation during whole classroom small-group</p> <p>Accept initial writing in students L1</p>	<p>SW respond by naming differences between both graphs.</p> <p>TW ask students what do they see in the graph? What are the symbols?</p> <p>SW respond to teacher's questions.</p> <p>SW answer questions by reading information from the graph.</p>
<p>Wrap-up: Math journal prompt: SW create 2 questions about the graph and exchange questions with partner.</p>			

SIOP Lesson: 4.9 Practice reading Bar graphs & Pictographs

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Practice reading bar graphs & pictographs		Grade: 3rd	
Duration: 45 minute class period			
Common Core Standard: 3.MD.3- Represent and interpret data. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.			
Key Vocabulary bar graph, pictograph		Visuals/Resources: large paper for Venn-diagram	
HOTS: How can we compare the graphs we have worked with?			
Connections to Prior Knowledge/Building Background: By using a Venn Diagram TW ask students to compare and contrast a bar graph and a pictograph.			
Content Objective: 1. SWBAT recall information needed to help understand reading a graph.	Meaningful Activities: TW present students with an example of both a bar graph and pictograph. TW ask students questions about the graphs. TW ask students questions in Spanish until she feels that they are able to comprehend and answer in simple sentences in English. <ul style="list-style-type: none"> • Sample questions will be comparing information of the subjects. 	L1 Support/Additions: Give quick explanation during whole classroom small-group Accept student contribution in the L1 during class discussions	Review/Assessment: TW check if students are able to read the graphs and answer questions of the graphs.

<p>Language Objective: SWBAT find specific information on graphs needed to answer questions.</p>	<p>TW hand out worksheet of both a bar graph and pictograph. SW have to read the graph and answer questions that follow the graph.</p> <p>SW discuss the graph and questions to their partners. SW be paired. One student will discuss the bar graph and the other student will discuss the pictograph.</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>Students helping students</p> <p>Accept students contribution in the L1 during class discussions</p> <p>Accept initial writing in students L1</p>	<p>TW be able to determine if students comprehend the information being stated in the graphs depending on how they answer the questions.</p>
<p>Wrap-up: SW write in their math journals about what they have learned today. SW be able to use pictures and diagrams to support their thoughts.</p>			

SIOP Lesson: 4.10 Creating line-plots

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Creating line-plots Duration: 45 minutes		Grade: 3 rd	
Common Core Standard: 3.MD.3- Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two- step “how many more” and “how many less” problems using information presented in scaled bar graphs.			
Key Vocabulary: frequency, data, line-plot		Visuals/Resources: chart paper for line-plot, math journals	
HOTS: How do line-plots differ from other graphs we have worked with?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW start discussion among students and ask them if they can name graphs we have worked with before. TW ask students to compare the graphs mentioned. TW call on students to come to the board and draw a quick example of the graphs mentioned.			
Content Objective: SWBAT create a line-plot.	Meaningful Activities: TW present the key terms frequency and line plot to students. TW explain to students that a line plot is a graph that shows frequency of data along a number line. TW take data from the classroom. TW ask the number of family members the students’ have and write the data down. SW copy the model the teacher is making. For example, if 4 students have 10 family members in their family, the TW write that data down. TW explain to students that	L1 Support/Addition: Give quick explanation in L1 during whole-group instruction Accept students contribution in L1 during class discussions	Review/Assessment: TW listen to responses given by students. TW walk around to check if students are following the model that is being presented.

<p>Language Objective: SWBAT discuss answers to questions that relate to the line plot created.</p>	<p>because more than one student has 10 family members in their family, you can put 4 X's above the number 10 on the graph.</p> <p>SW recall the parts of a graph, which are the title, the scale, and naming the axis.</p> <p>With the help of the teacher, SW create a line-plot.</p> <p>Using the line-plot created in class about number of family members in students' family, TW ask student questions about the graph.</p> <p>SW be paired. SW answer questions using the line plot graph. Example of questions will be, how many students have 2 family members in their family? How many have more than 5?</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Accept students contribution in L1 during class discussions</p> <p>Students helping students Pull students aside to reteach concept</p> <p>Accept initial writing in L1</p>	<p>TW check is students can recall parts of a graph.</p> <p>TW check if students are creating the line-plot correctly.</p> <p>TW walk around to listen to discussions between students. If a student is struggling, TW reteach concept.</p>
<p>Wrap-up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 4.11 Finding the perimeter

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Finding the perimeter Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.MD.8- Solve real world and mathematical problems involving perimeters of polygons.			
Key Vocabulary perimeter, length, width		Visuals/Resources: ruler, paper, cut out shapes	
HOTS: How can you measure around objects?			
Connections to Prior Knowledge/Building Background: Preview-Review: SW review the properties of polygons and their sides with the use of tangrams and cut out shapes.			
Content Objective: 1. SWBAT label the sides of polygons.	Meaningful Activities: TW show a picture of a shape on the overhead. TW ask students to name the shape. TW have a picture of a pentagon on the overhead. TW use a ruler to measure the sides of the pentagon. TW ask students what do they know about the sides of a pentagon. TW measure two sides of the pentagon and ask students what patterns do they see? TW introduce the term perimeter. SW add the key term <i>perimeter</i> to their math vocabulary book. TW explain that perimeter is the distance around the outside of a figure.	L1 Support/Additions: Accept student contribution in the L1 during class discussions Accept student contribution in the L1 during class discussions Word Squares	Review/Assessment: SW be able to answer that all sides of pentagon are the same. An example of a student's response should be that because a pentagon has 5 equal sides, the length of all sides are the same length.

<p>Language Objective: SW be able to recognize patterns in shapes.</p>	<p>TW tell students that in order to find the perimeter of a shape, you add the lengths of all sides of that shape. TW model the addition problem $5+5+5+5+5=25$ in.</p> <p>TW label that the 5 are the inches of each side and the 25 represents the perimeter of the entire shape.</p> <p>TW give students examples of cut out shapes and objects that have the same size of lengths.</p> <p>SW have to find the perimeter of these shapes by using a ruler to measure the lengths.</p> <p>After students have finished their assignment, TW hand out math journals.</p>	<p>Give quick explanation in L1 during whole classroom small-group</p> <p>Give quick explanation in L1 for individual students (If necessary)</p> <p>Accept initial writing in students L1</p>	<p>TW walk around the classroom to check to see if students are able to recognize the patterns. For example, if the teacher gave the students an octagon, after measuring one side, the student should recognize that all the sides are the same length so students can label the other sides the one length measured at first around the 8 sides.</p> <p>TW check to see if students are using the perimeter formula correctly.</p>
<p>Wrap-up: SW write in their math journals about what they learned today. SW be able to use pictures and diagrams to support their thoughts.</p>			

SIOP Lesson: 4.12 Finding Areas

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Finding Area Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.MD.5-Recognize area as an attribute of plane figures and understand concepts of area measurement 3.MD.6- Measure areas by counting unit squares			
Key Vocabulary area, units		Visuals/Resources: graph paper with units	
HOTS: How do you find the area of a figure?			
Connections to Prior Knowledge/Building Background: We have previously reviewed how to find the perimeter of objects. TW present students with shapes and ask them to review the perimeter concept.			
Content Objective: SWBAT find the area of figures.	Meaningful Activities: TW begin lesson by showing a shape on the overhead projector and reading a word problem. An example of a word problem will be: The Lopez family had a new floor done. Each of the tiles is a square? What is the area of the floor? TW introduce the term <i>area</i> to students. TW ask students how do they think they can answer the question. TW tell students in order to solve the problem you can count the units inside the square. Each unit represents 1 unit. TW model counting the units and students will repeat	L1 Support/Additions: Give quick explanation in L1 during whole classroom small group Accept student contribution in the L1 during class discussions	Review/Assessment: SW be able to answer question in the language they feel most comfortable in.

<p>Language Objective: SWBAT explain how to find the area of shapes.</p>	<p>aloud as she goes.</p> <p>TW provide students with shapes and units clearly outlined in each. SW have to find the area of each shape and give an explanation as to how they came about with the answer.</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Accept student contribution in the L1 during class discussions</p> <p>Accept initial writing in L1</p>	<p>TW walk around the class as students work individually in this activity. TW look at answer sheets to check for understanding. TW ask students how did they find the area.</p>
<p>Wrap-up: SW write in their math journals about what they have learned in class today. SW be able to draw pictures or diagrams to support their thoughts.</p>			

SIOP Lesson: 4. 13 Counting units

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Counting units Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.MD.5-Recognize area as an attribute of plane figures and understand concepts of area measurement 3.MD.6- Measure areas by counting unit squares			
Key Vocabulary: area, units		Visuals/Resources: cut out squares in graph paper, graph paper, pencils	
HOTS: How can you find the area?			
Connections to Prior Knowledge/Building Background: TW present students with cut out figures in graph paper. TW tell students to shade in any part of the square they would like. TW then ask students to count the squares they have shaded.			
Content Objective: SWBAT calculate the area of a plane figure.	Meaningful Activities: TW draw a rectangle on the overhead above a piece of graph paper. TW shade in the whole rectangle. TW ask students, "How can we find the area of this rectangle?" TW model to students counting the units in the rectangle. TW tell students that the units are the cubes in the rectangle and that each cube represents 1 unit. TW hand out shapes and SW have to find the area.	L1 Support/Additions: Accept students' contribution in the L1 during class discussions Give quick explanation in L1 during whole-group instruction (If needed)	Review/Assessment: TW take responses from students.

<p>Language Objective: SWBAT state the area of a shape.</p>	<p>TW give out graph paper to students. TW tell students that they will cut out shapes and they will hand out the shapes to another student. SW find the area of the shapes that have been given to them.</p> <p>TW hand out journals after students are finished with the activity.</p>	<p>Pull students aside to reteach concept in L1</p> <p>Accept initial writing in students L1/Use L1 to support writing in English</p>	<p>TW walk around class to check if students are counting the cubes in the shapes to find the area. TW also check for students if they are using multiplication to solve the problem.</p> <p>TW walk around classroom to check that students are cutting shapes. TW also check to see if students are counting the squares to find the area of the shape.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 4. 14 Estimating Volumes

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Estimating Volume Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.MD.2-Measure and estimate liquid volumes and measure of objects using standard units of grams, kilograms, and liters. Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes.			
Key Vocabulary: volume, estimate		Visuals/Resources: different size containers, cubes, math journals	
HOTS: How can we use ones cubes to estimate and measure the volume of containers?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW review what estimation means. TW ask students to estimate the length of objects.			
Content Objective: SWBAT estimate the volume of a figure.	Meaningful Activities: TW introduce math term <i>volume</i> to students. TW ask students what do they think of when they hear the word volume. TW clarify to students that volume is the number of unit cubes that make up a solid figure. SW add volume to their math vocabulary book. TW provide students with containers and cubes. TW have the same size container. TW ask students to estimate how many cubes the students it will take to fill up the container.	L1 Support/Additions: Give quick explanation during whole-class instruction in L1 Accept student contribution in the L1 during class discussions Word Squares	Review/Assessment: SW record their estimations of how many cubes they think it will take to fill in the container.

<p>Language Objective: SWBAT list estimated volumes and actual volumes containers.</p>	<p>TW provide students with different size of containers. TW be paired in groups. TW have students estimate how many cubes it will take to fill up the different containers. SW fill up the container with the cubes. SW compare their estimations.</p> <p>After students are finished completing the activity, TW hand out journals.</p>	<p>Students helping students</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around to check if students are making estimations and filling up the containers with cubes.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 5.1 Polygons

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Polygons Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.			
Key Vocabulary plane figure, circle, polygon, side, triangle, quadrilateral, pentagon, hexagon, octagon		Visuals/Resources: tangrams, few cut up shapes, worksheet, math journals	
HOTS: Is a circle a polygon?			
Connections to Prior Knowledge/Building Background: Preview Review: To build connection to prior knowledge, TW show students the tangrams and have them name the shapes in Spanish. This will help teacher determine what the students know about the topic she will begin to teach.			
Content Objective: SWBAT to identify polygons.	Meaningful Activities: TW present students with tangrams and a worksheet. SW chose what shapes are polygons and which are not. TW have students take out their word vocabulary book. These words might be hard for students so as a class we will do the word square activity together as the lesson goes on. TW explain to students that a polygon is a closed plane figure that has three or more sides.	L1 Support/Additions: Word Squares Give quick explanation in L1 during whole class small group	Review/Assessment: SW separate tangram shapes and cut up shapes into two categories. One category being that they are polygons and the other that they are not. TW walk around to assess students.

<p>Language Objective: SWBAT explain why each shape presented is a polygon using math vocabulary.</p>	<p>TW go over the worksheet that was given. TW have tangrams in the overhead as well as allow students to use during the lesson. TW begin by going over the shapes and stating why they are polygons.</p> <p>TW state a triangle is a polygon because it is a closed plane figure and has 3 sides. A Hexagon is a polygon because it is a closed plane figure with 6 sides. TW model counting the sides of each polygon and SW follow.</p> <p>For review, TW call on students individually and ask them why a particular shape is a polygon.</p>	<p>Accept student contribution in the L1 during class discussions</p>	<p>TW check that students are counting the sides to the polygons. As a group, we will count the sides to the polygons a loud.</p> <p>SW have to use the vocabulary words such as polygon, plane figure, sides and the name of the polygon in their sentence. For example, a response from a student can be, “An octagon is a polygon because it is a closed plane figure with 8 sides.”</p>
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	After students have completed the assignment, TW hand out math journals.	Accept initial writing in the L1/Use L1 to support writing in English	
Wrap-up: Math Journal Prompt- SW write in their journals and answer the following question, “Is a circle a polygon? Why or why not? TW prompt students that we will discuss the answer to the question tomorrow in class.			

SIOP Lesson: 5.2-Classifying Triangles

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Classifying Triangles Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributed can define a larger category.			
Key Vocabulary equilateral triangle, isosceles triangle, scalene triangle, right triangle		Visuals/Resources: ruler, worksheet, index cards	
HOTS: Are all triangles polygons?			
Connections to Prior Knowledge/Building Background: Preview-Review: Students have previously learned about different polygons. TW ask students what are some things that you know about triangles? TW listen ideas on board.			
Content Objective: SWBAT label triangles as equilateral, isosceles or scalene.	Meaningful Activities: TW hand out worksheet that has an equilateral, isosceles and scalene triangle a long with ruler. TW group students. SW measure the sides of the triangles and list the measurement on the worksheet. When finished, SW come to area rug with worksheet and discuss the findings. TW ask if any students find any difference between the triangles. TW explain the definition of each type of triangle and SW have to label the triangles on their paper. Students may take notes as well.	L1 Support/Additions: Students helping students Accept student contribution in the L1 during class discussions Give quick explanation in L1 during whole classroom small group	Review/Assessment: TW walk around class to check that students in pairs are working together and are finding the right measurements for each triangle. TW listen to responses given by students. TW will tell students to write down one difference on the back of their papers.

<p>Language Objective: SWBAT explain the properties of triangles.</p>	<p>Equilateral Triangle: All of the sides have equal length. Scalene Triangle: Each side is a different length. Isosceles Triangle: At least two of the sides have the same length. Right Triangle: A scalene or isosceles triangle with one right angle.</p> <p>SW add key terms to their math vocabulary book.</p> <p>TW present pictures of triangles on the overhead. SW come up to the front, measure the sides, identify the triangle and explain why they chose that triangle.</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>Accept initial writing in L1/Use L1 to support writing in English</p> <p>Word Squares</p> <p>Accept student contribution in the L1 during class discussions</p> <p>Accept initial writing in students L1/Use L1 to support writing in English</p>	<p>After teacher has reviewed the definition of each type of triangle, SW label each triangle. TW check if students are checking the sides and relating them to the definitions.</p> <p>TW assess students to check for understanding if they know the difference between the properties studied. SW be able to bring their word vocabulary book up with them if they need help remembering what kind of triangle it is.</p>
<p>Wrap-up: Math-journal prompts: TW give out triangles to students. In their math journals, SW glue the triangle, measure the sides, and identify the triangle. SW write 2-3 sentences describing the triangle.</p>			

SIOP Lesson: 5.3 Classifying triangles by angles

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Classifying triangles by angles Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category			
Key Vocabulary: angle, right angle, obtuse angle, acute angle		Visuals/Resources: clocks, math journals, pencils	
HOTS: How can identify triangles?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW tell students that we have categorized triangles into number of sides. TW tell students that now we will be categorizing triangles by angles. TW review scalene, isosceles triangles.			
Content Objective: SWBAT identify acute, obtuse and right angles.	Meaningful Activities: TW ask students to brainstorm in pairs what they know about angles. TW present students with pictures of right angle, obtuse angle, acute angle. TW explain the difference between all three angles. TW give out clocks to students. TW give students a time and SW have to identify whether the angle being formed is a right, obtuse or acute. For example, the TW say, “What angle is formed by 3: 45?”	L1 Support/Additions: Students’ helping students Accept students contribution in the L1 during classroom discussion Label pictures in L1	Review/Assessment: TW walk around classroom to check if student are using the clocks correctly. TW call on students to check for understanding about angles.

<p>Language Objective: SWBAT label angles.</p>	<p>TW handout cut out pictures of different angles. SW have to use the properties previously reviewed to determine what type of angle it is.</p> <p>TW ask students why they labeled the angle the angle that they did.</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>Give quick explanation to individual students in L1 (If needed)</p> <p>Accept student contribution in L1 during classroom instruction</p> <p>Accept initial writing in L1</p>	<p>SW label angles. TW walk around classroom to check if students understand the concept.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 5.4 Quadrilaterals

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to HOTS = Higher Order Thinking Skills			
Lesson: Quadrilaterals Duration: 45 minute class period		Grade: 3	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.			
Key Vocabulary: quadrilateral, parallelogram, rectangle, square, sides		Visuals/Resources: worksheet, tangrams, whiteboards	
HOTS: What are some properties of quadrilaterals?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW hand out tangrams to students. TW review previous lessons about the shapes we have worked with and any properties they can recall to serve as an introduction to this lesson.			
Content Objective: SWBAT understand what a quadrilateral is.	Meaningful Activities: TW begin the lesson by drawing shapes on the overhead. TW ask students to take a guess as to what shapes they are. TW have these shapes drawn on the overhead as well as labeled in both languages. TW explain to students what a quadrilateral is. A quadrilateral is a polygon with 4 sides and 4 angles. TW point to each shape and talk about it. TW mention a rectangle has 4 sides, 4 right angles as well as a square, parallelogram and kite.	L1 Support/Additions: Give quick explanation in L1 during whole-class small group Accept student contribution in the L1 during class discussions Label name of shapes in L1 Give quick explanation in L1 during whole-class small group	Review/Assessment: SW take notes about shapes in their math journals. SW have the opportunity to use tangrams to be able to touch the shapes and count the sides.

<p>Language Objective: SWBAT respond to true/false questions about quadrilaterals.</p>	<p>SW add key terms to their math vocabulary book.</p> <p>TW hand out whiteboards to students. TW say aloud statements that SW have to determine whether they are true or false. Examples of these statements will be: A rectangle is a parallelogram. A triangle is a quadrilateral. A circle is a quadrilateral. A quadrilateral has 3 sides.</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Word Squares</p> <p>Pull students aside to reteach concepts (If necessary)</p> <p>Accept initial writing in L1/Use L1 to support writing in English</p>	<p>SW write true or false to the statements. TW give students a minute or two to figure out the answer. SW all at once put up their whiteboards and TW be able to assess what students have learned or still need work with.</p>
<p>Wrap-up: SW write an entry in their journal about what they have learned today. SW be able to draw pictures or diagrams to support their thoughts.</p>			

SIOP Lesson: 5.5 Similar versus Congruent

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Similar versus Congruent Shapes Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.G.1 Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category			
Key Vocabulary: congruent, similar		Visuals/Resources: tangrams, geoboards, rubber bands, cut out shapes, index cards	
HOTS: What is the difference between congruent and similar shapes?			
Connections to Prior Knowledge/Building Background: TW give students tangram shapes. They have already learned about two-dimensional shapes and will discuss the shapes as a whole in class.			
Content Objective: SWBAT distinguish between congruent and similar shapes.	Meaningful Activities: TW have cut out triangles. One set will be congruent and the other will be similar. TW ask students what are the differences they can see from both sets. Pictures of both sets of triangles will be shown on the overhead. TW introduce the concepts of congruent. TW explain to students that shapes are congruent when they are the same shape and same size. TW explain that shapes are similar when they are the same shape but different size.	L1 Support/Additions: Give quick explanation in L1 during whole classroom small group	Review/Assessment: TW provide students with pictures of other shapes on the overhead and have students determine what shapes are congruent and similar.

<p>Language Objective: SWBAT tell reasons why shapes are congruent or similar.</p>	<p>TW hand out geoboards and rubber bands to students. Students will be in pairs. Students have previously worked with geo boards. TW ask students to create shapes of polygons previously worked with into congruent and similar sizes. SW then tell teacher reasons why each set of shapes are either congruent or similar.</p> <p>After students have completed the assignment, TW hand out math journals.</p>	<p>Students helping students</p> <p>Accept students' contribution in the L1 during class discussions</p> <p>Accept initial writing in students L1/Use L1 to support writing in English</p>	<p>TW walk around the classroom to make sure that groups are working together. TW also check for students' understanding in the topics. TW check if students are creating congruent and similar shapes and also telling reasons why they are each. For example, SW create congruent squares and say, they are the same shape and same size.</p>
<p>Wrap-up: Math journal prompt: TW create shapes on geoboards and students will use white boards to write their answer as to whether it is congruent or similar shape. SW write "C" on their white board for congruent and "S" if they are similar. SW then record these shapes in their math journals.</p>			

SIOP Lesson: 5.6 Line of Symmetry

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to...; HOTS = Higher Order Thinking Skills			
Lesson: Line of Symmetry Duration: 45 minute class period		Grade: 3rd	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category 3.G.2- Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.			
Key Vocabulary: symmetry		Visuals/Resources: pictures of symmetrical and non-symmetrical objects, letter cut-outs, worksheet	
HOTS: Do all letters have lines of symmetry?			
Connections to Prior Knowledge/Building Background: Students have worked with polygons before. TW provide students with cutouts of shapes and have them fold it in half to begin the concept of symmetry.			
Content Objective: SWBAT classify which letters of the alphabet have symmetry.	Meaningful Activities: TW begin lesson by introducing the term <i>symmetry</i> . SW add this key term to their math vocabulary book. TW give out cut outs of the alphabet. TW model how to see if a letter has symmetry. For example, if you fold a shape in half either right down the middle, vertically or horizontally and it is identical then it has a line of symmetry. TW begin with the letter A. TW show the students that when the	L1 Support/Additions: Give quick explanation in L1 during whole class small group instruction Word Squares Students helping students	Review/Assessment: 1. SW add the words on their word squares. SW come back at the end of the lesson to write what the word means to them and draw an illustration of the word symmetry. SW practice with all 26 letters of the alphabet. SW be put in pairs to do this

<p>Language Objective: SWBAT explain why an object has symmetry.</p>	<p>letter A is folded down the middle it has a line of symmetry. The same for the letter B. Teacher will then show an example of a letter that does not have a line of symmetry such as the letter F.</p> <p>As students are working on the activity above, SW discuss in with their pair why a letter or object has symmetry or not.</p> <p>After students are finished with the assignment, TW hand out math journals.</p>	<p>Students helping students</p> <p>Accept students' contribution in L1 during classroom discussion</p> <p>Accept initial writing in students L1/Use L1 to support writing in English</p>	<p>activity. SW separate letters into categories of symmetrical letters and non-symmetrical letters.</p> <p>TW walk around the class as students are working on the activity and listen to the discussion between both students. TW listen to reasons why a particular letter or shape has symmetry.</p>
<p>Wrap-up: SW write an entry in their math journal about what they have learned today. SW be able to draw pictures or diagrams to help support their ideas.</p>			

SIOP Lesson: 5.7 Parallel Line Segments

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Parallel Line Segments Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category			
Key Vocabulary: line segments, parallel lines		Visuals/Resources: index cards, white boards, toothpicks	
HOTS: What are properties of line segments?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW have students brainstorm any information they might have about line segments. TW write answers on board.			
Content Objective: SWBAT identify parallel line segments.	Meaningful Activities: TW introduce the vocabulary words parallel and line segments. TW use examples using toothpicks to show students the difference between line segments that are parallel and lines that are not. SW add vocabulary words to their math vocabulary book. TW present students with line segments on overhead. SW write on their white board yes or no, if the line segments are parallel.	L1 Support/Additions: Give quick explanation in L1 to whole classroom instruction Word Squares	Review/Assessment: TW walk around classroom to check if students are completing word squares of new vocabulary words correctly. TW look at students' whiteboards to check for comprehension of the concept.

<p>Language Objective: SWBAT explain if lines are parallel or not.</p>	<p>TW pair students. TW have one student create line segments and the other student will have to determine if it is parallel line segment or not. SW use toothpicks to create the line segments.</p> <p>After students have completed their assignment, TW hand out math journals.</p>	<p>Students helping students</p> <p>Accept students contribution in the L1 during classroom discussion</p> <p>Give quick explanation to individual students in L1 (If needed)</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around to listen to discussions among groups. TW check for comprehension of line segments and parallel lines.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 5.8 Solid Figures

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Solid Figures Duration: 40-minute class period		Grade: 3 rd grade	
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category			
Key Vocabulary: solid figures, rectangular prism, cube, sphere, cone, cylinder, square pyramid		Visuals/Resources: Cut-out shapes, index cards, math journals, paper, pencils	
HOTS: How are solid figures different from other shapes we have studied?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW present students with shapes previously worked with. These shapes will be square, rectangle and triangle. TW draw shapes to be in 3-dimensional and explain to students what are some differences. SWBAT use their L1 to discuss answers.			
Content Objective: 1. SWBAT identify simple solid figures.	Meaningful Activities: TW introduce the term of <i>solid figure</i> . TW hand out solid figures created by the teacher so that they see and feel how they are. As students are playing with the solid figures, the teacher will talk about each one and students will be able to see the attributes the teacher is talking about. TW explain to students that they are 3-dimensional shapes. TW point to the height, width and length of each figure and SW follow what the teacher is modeling. TW label figures in	L1 Support/Additions: Give quick explanation in L1 during whole classroom instruction Give quick explanation in L1 during whole classroom instruction Label displays in L1	Review/Assessment: TW look around the classroom to check if students are following along with the shapes and the attributes she is explaining.

<p>Language Objective: SWBAT list the names of solid figures.</p>	<p>students L1.</p> <p>SW log the vocabulary words in their math vocabulary words. SW use the shapes handed out to help draw an illustration of the figures.</p> <p>TW present students with complex solid figures. An example of a complex solid figure will be a cylinder with a cone right above it. TW pair students.</p> <p>SW list the solid figures they see in the complex figure. TW ask students to share their answers.</p> <p>After students are done completing the assignment, TW hand out math journals.</p>	<p>Word Squares</p> <p>Students helping students</p> <p>Accept students contribution in the L1 during classroom discussion</p> <p>Accept initial writing in students' L1</p>	<p>TW walk around to check if students are completing word squares correctly.</p> <p>TW pay close attention to discussion among groups. TW also check to see if students comprehend the solid figures.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			

SIOP Lesson: 5.9 Solving word-problems with triangles

Key: SW = Students will; TW = Teacher will; SWBAT = Students will be able to; HOTS = Higher Order Thinking Skills			
Lesson: Solving word-problems with triangles		Grade: 3rd grade	
Duration: 40-minute class period			
Common Core Standard: 3.G.1- Understand that shapes in different categories may share attributes and that the shared attributes can define a larger category			
Key Vocabulary: isosceles triangle		Visuals/Resources: highlighters, word problems, math journals, pencils, papers	
HOTS: How can we use the properties we know about triangles to help us solve word problems?			
Connections to Prior Knowledge/Building Background: Preview-Review: TW present isosceles triangles to students. TW ask students to recall information they can remember about this type of triangles. TW jot down answers on the board.			
Content Objective: 1. SWBAT select the correct information needed to solve a word problem.	Meaningful Activities: TW present students with a word problem. The word problem will be, “A garden is shaped like an isosceles triangle. Lisa walks around the garden. How many feet does she walk? A picture model will be presented to show the feet on each side of the triangle. TW model the word problem. TW highlight important information in the word problem. TW highlight the feet that are shown in the picture model presented under the word problem. TW underline, you need to find the distance around	L1 Support/Additions: Give quick explanation during whole-class instruction in L1	Review/Assessment:

<p>Language Objective: SWBAT explain their thought process while solving a word problem.</p>	<p>the garden, the garden is shaped like an isosceles triangle, the length of two shorter sides is 72 and the length of the longer side is 95. TW highlight the feet that are shown in the picture model presented under the word problem.</p> <p>TW add the lengths of the 3 sides.</p> <p>TW present students with word problems. SW highlight information needed to help them solve the word problem. TW pair students to work together to solve the word problems that are similar to the one stated above. SW find the missing length to the triangles in the word problems with the information given.</p> <p>After students are finished with the assignment, TW hand out journals.</p>	<p>Students helping students</p> <p>Accept students contribution in the L1 during classroom instruction</p> <p>Accept initial writing in students' L1</p>	<p>TW listen to explanation student is giving to determine whether they understand what is going on in the word problem.</p> <p>TW expect students to be familiar with properties of isosceles triangles such as that they have at least 2 equal sides.</p>
<p>Wrap Up: SW use journals and write about what they learned today. Students are able to draw diagrams or pictures to help support their thoughts.</p>			