**TSL4324/5325 SIGNATURE ASSESSMENT**

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| Florida ESOL Competencies and Skills | 1,2,3,4,5,6,7,8,9,10,11 |
| Florida ESOL Standards | 1a, 1.1b, 1.1.c, 1.1.d, 1.1.e, 1.1.f, 2.2.a,2.2.d,.1.a,3.1.b.,3.2.a,3.2.b.,3.2.c.,3.2.d.,3.2.e.,3.2.f.,3.2.g.,3.2.i.,3.2.j.,3.2.k.,3.3.a.,3.3.b.,3.3.c.,4.1.a.,4.1.b.,  4.1.c.,4.1.d.,4.1.e.,4.2.a.,4.2.b.,4.2.c.,5.1.d |
| FEAPs | 1c,1d,3e,4b1,4b2 |

**SIOP LESSON PLAN**

**DESCRIPTION OF LESSON PLAN COMPONENTS**

**Grade Level:** 9th Grade

**Subject:** Algebra 1

**Topic of the lesson:** Probability and Descriptive Statistics

**Duration:** 2 class periods

**Context:**

The information in this section is not based on a real classroom or students. It is created by you for the purposes of this assignment and based on information from the Nutta textbook. The questions below will help prepare your section on context. These are suggestions, and feel free to add additional info.

**School:** The school is located in a Metropolitan area. It is an affluent public school that has roughly 800 kids per grade level 9-12.

**Class:** This class has 25 students with 3/5 of the class being American and the other being exchange students and EL. Since the school is located in the middle of the city, the class sees students who transfer in when parents come into the city for work.

**English Learner & Background:** Edgar is a Non-Native US Citizen coming from Puerto Rico with an intermediate language proficiency, however he does have a high language demand being in the 9th grade. Unlike his other EL peers, his family immigrated to the US to better their life and are in a lower socioeconomic class compared to the other students. In this classroom, he has one other student who speaks his native language of Spanish. In his ELD class, he excels and is friendly, but when coming to his content area class he chooses to not participate and act out. Though he may have an entry level learning of the concept, this stops him from succeeding in his classes as his English proficiency is not at par with his grade level yet.

**Cultural Considerations:** Some challenges that Edgar may face is the ability to comprehended the necessary vocabulary needed to compute the different word problems associated with probability and Descriptive Statistics. The first day of the lesson heavely focuses on a review of Descriptive Statistics and I can make sure Edgar and the other EL’s have a grasp on these topics using Formative Assessments throughout the lesson.

**Lesson overview:** In the previous lesson, the students learned to calculate learned about one variable descriptive statistics. With this information, the students will now learn to calculate the expected value of an event. On the second day, the students would learn how to calculate the probability of an event given the expected value and a change in the probability of the even using the famous Monty Hall problem. This lesson closing out the unit on Statistics as in Algebra 1, students are only required to focus on One Variable Statistics.

**State Standards:**

MAFS.912.S-ID.1.2 : Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets

**Content Objectives:**

1. SWBAT calculate expected probability for independent events.
2. SWBAT analyze data sets and identify normal distributions
3. SWBAT define the law of large numbers.

**Language Objectives:**

Consider the proficiency level, WIDA Can Do descriptors and the gap between the learner’s abilities and the requirements of your content area lesson. Use the language objective structure taught in class.

1. Students will be able to orally describe the vocabulary words in context with the lesson to their small group.
2. Students will be able to withdraw information from a word problem to calculate expected value.

**Vocabulary Lists:**

**Key:** Expected probability, independent events, Law of large numbers

**Functional –** compare and contrast different data values using mathematical language

**Supplemental Materials list:**

<https://research.steinhardt.nyu.edu/scmsAdmin/media/users/xr1/glossaries/Math/Grades3to5/ele3to5mathspanish.pdf>

**Technology:**

This lesson will use a digital simulator to help the students visual the calculation of the Monty hall problem and how the probability changes when you switch doors or stay at the same door.

**Higher Order Thinking Questions:**

How do we analyze the difference in probability of independent events and combined probabilities?

How do we calculate the probability for independent events?

**Use of L1 to build content in new language (if applicable):**

As the new vocabulary is being introduced to all students, only a translation guide will be provide for the terms that may be unknown to the EL in their L1. According to the SIOP feature, having the translation guide for the student will provide clarification on information so that the student can make connections to the concept of probability in their L1 and apply it to the English lesson.

**Pre-assessment:**

For my pre-assessment, I will use the digital simulation mentioned above to walk students through the probability problem. Rather than focusing on the difference in probability, this will allow for them to have a sense of wonderment as to why the probabilities changes and get them thinking in this mindset before going into the lesson.

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| **LAUNCH Time:5-10 Minutes** | | |
| **What the Teacher Will Do** | **Probing/Eliciting Questions** | **a. Anticipated Student Responses**  **b. Alternative Student Responses** |
| “***Does anyone like to watch game shows?”***  Teacher will pause and wait for answers.  “**Back in the 70’s, there was as popular game show that aired were contestants would pick from 3 doors and behind two were a goat, and the third was a brand new car. You would get to pick a door, the host would then show you one of the goats. Being generous, he would give you the option to stay with your original door or switch to the other door he hasn’t opened.”**  Teacher will pull up game show website link to demonstrate game. <https://www.stayorswitch.com/>  Teacher will call on any student to be “contestant.”  ***“In the math world there is a large debate over this problem. What do we think the probability of picking a goat is?”***  Teacher will wait a few moments for responses and explanations.  ***“What do we think is the probability of getting a car?”***  ***Why do we think that?***  Teacher will wait a few moments for responses and explanations.  “***And what if we switch our door when the host offers? What do we think are some ideas? Turn and talk to your partner for a moment and then we are going to come back together to discuss.”***  Teacher will give students 5 minutes to discuss and will monitor their conversation while walking around the room.  “***So what do we think? What is the probability if we switch of getting a car? Does our probability change and why”***  ***\****Assuming we get alternating ideas\* | “What do we think is our expected probability for each scenario and why?” | Yes, no.  For staying 2/3  For switching 1/3  1/3 ½ or 2/3  I don’t know  It stays the same or it changes. |

**Transition Statement:** *“let’s see if we can test some of these hypothesis with our lesson today.”*

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| **EXPLORE Time: 30-40Minutes** | | |
| **What the Teacher Will Do** | **Probing/Eliciting Questions** | **a. Anticipated Student Responses**  **b. Alternative Student Responses** |
| ***“In order to see, why don’t we try playing the game.***  ***Each group should receive three cups and three prizes (1 car, 2 goats). Number the cups 1, 2, and 3 and have the students take turns playing the game with one students the host and the***  ***other as the contestant and one as the data recorder. They should record in a table the***  ***number of wins and losses when the contestant switches doors and (separately) the***  ***number of wins and losses when the contestant doesn’t switch. They should try each***  ***strategy 10 times and switch 3 times. So that each member gets to play each role. (30 trials for stay and 30 total trials for switch) Before switching, make sure to calculate the probability of winning each way before switching partners.”***  \*All of these instructions will be on a PowerPoint slide for students to refer back to.\*  ***“Do we have any questions before we begin?”***  While students are working , teacher will walk around asking each group the following questions:  Teacher will ask questions listed in Question column while monitoring students.  Once a group is finished, they will report their probability values into a table on the white board at the front of the room.  ***“Let’s come back together and see what we found.”***  Teacher will select groups during her monitoring process to report out based on different thinking, unique responses, or predicted answers.  ***“What do we notice about the range of values that we found? How do this compare to our prediction values?”***  ***“after completing our trials we can see that we have a range of answers from \*lowest answer\* to \*highest answer\* Does anyone have an explanation as to why there is such a variance in our answers. “***  Teacher will wait a few moments. If no responses, turn and talk.  \*\*\*\*If class is running out of time, I will end day one here. At home, think about the question down below and be ready to discuss it tomorrow\*\*\*\*\*\*  ***“With class running out today, I want you to think about the following question I just asked and be ready to discuss it tomorrow. You can also find it on your worksheet on the back if you forget.” Thank you and see you tomorrow.*** | Which method do you think will result with the most wins. Why?  With the data you have so far, what probability do you think have of winning if we switch/stay? Teacher will ask this question again once students are close to finishing.  How do think these compare to our values we came up with before we started? Why do you think they are the same or different?”  How do think your probabilities compare from 10, 20, 30 trials? Why do you think there is a change? What probabilities do you think they are getting close to as you add more trials?  *“What do we notice about the range of values that we found? How do this compare to our prediction values?”*  *Does anyone have an explanation as to why there is such a variance in our answers* | What do we do?  Staying or switching because there are more goats or because you got rid of a goat.  This will vary between groups  They are the same or different than our expected values.  This will vary from group to group.  As we get more numbers the outliers have less of an effect. We are getting closer to 1/3 for staying and 2/3 for switching  They are spread out because there is variability in getting answers. They are close to what we thought they would  Since there is less numbers, outliers have more of an effect on the data. There isn’t a variance in the answers. |

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| **SUMMARIZE Time: 40 Minutes** | | |
| **What the Teacher Will Do** | **Probing/Eliciting Questions** | **a. Anticipated Student Responses**  **b. Alternative Student Responses** |
| ***“Welcome back class!” We looked at each groups observed values when we completed our Monty hall trials and were left wondering why we saw some variance between our predicted values and our actual answers. As well, there was some variance among probabilities in the groups. In your small groups, I want you to spend the first 5 minutes discussing what you came up with for your homework question and come up with a group response to share to the class.”***  ***“On the board, I rewrote our data value from our trials.***  ***“I know that a few days ago we talked about spread of data and measure of central tendencies.”***  ***“Based on our data we see from our individual groups, what do we notice about our data distributions?”***  Teacher will call on different groups selected during the monitoring process.  ***“There are all really good ideas. For our individual numbers, I see that we have a range of values that are close to what our expected probability will be, but it isn’t exact.***  ***What happens if we combine half of our values. Instead of just looking at 30 individual trials, we are looking 150 trials. How does this value compare to our expected value? Why do we think this?***  Teacher will wait a few moments and listen for ideas  ***And what if we take the average all 300 trials? Before we do this, what do we think is going to happen to our value?***  Teacher will get some predictions.  ***Why do we think that when we have more trials, we get closer and closer to our actual expected probability?***  Teacher will wait for responses.  ***This idea is known as the Law of Large Numbers.***  Teacher will play video  <https://www.youtube.com/watch?v=MntX3zWNWec>  0:00- 2:07  ***The video said that the Law of Large numbers is “as the number of trials increases, the observed or actual probability gets closer to the expected probability.”***  ***Did we notice this happening with our values?***  Teacher will wait for responses.  ***That is right, we did.***  ***In our video, it showed how when flipping a coin, they had an uneven amount of heads.***  ***When flipping a coin, what is the probability of getting a head once?***  ***If we flip it again, what is the probability of getting the probability of heads on the second flip?***  ***That’s right, its still ½. These are what as known as independent events. Between each flip, regardless of what the previous flip was, it still has the same probability of getting heads.***  ***One way independence gets misunderstood is by the gambler’s fallacy.***  Teacher will play the rest of the video from earlier.  *2:10-2:44*  ***Does anyone have anything they would like to share about these ideas?*** | ***Does anyone have an explanation as to why there is such a variance in our answers?***  ***what do we notice about our data distributions?”***  ***What happens when our sample size gets larger?***  ***“How does an even larger sample size change our answer?”***  ***“Did we see that this happened with our data values?”***  ***Did we notice this happening with our values?***  ***When flipping a coin, what is the probability of getting a head once?***  ***If we flip it again, what is the probability of getting the probability of heads on the second flip?*** | **Since there is less numbers, outliers have more of an effect on the data. There isn’t a variance in the answers.**  **It’s skewed left, right normal.**  **Our answers stay the same.**  **Our values get closer to our expected probability.**  **Our answers stay the same.**  **Our values get closer to our expected probability.**  **Yes/ no/ I don’t know**  **Yes we did, no we didnt**  **1/2 , ¼ 50/50, I don’t know**  **I don’t know 50/50 1/4** |

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| **ASSESSMENT Time: 10 Minutes** | | |
| **What the Teacher Will Do** | **Probing/Eliciting Questions** | **a. Anticipated Student Responses**  **b. Alternative Student Responses** |
| Teacher will pass out assessment and remind students that they should work by themselves on it.  **“It is important that you explain your reasoning if asked. When finished, place all worksheets and papers in box by the door”**  **“Thank you again class for letting me teach and observe you this semester.”**  Teacher will give 5 minute warning. |  |  |

**ESOL Strategies/Accommodation:**

Listed in the chart below are possible accommodations that facilitate and production for ELs during instruction. In the chart below identify the accommodations you used in this lesson with a check mark or write in ‘others’ (strategies and accommodations that will be used in this lesson (i.e., modifications - text passages or assignments/learning task materials, or other supplemental materials). In the corresponding box, briefly explain why you feel that these are appropriate for the lesson, and how it will support the learners’ understanding of the content and will help the learner develop academic language.

\*Highlight in yellow where the accommodations occur within the Lesson Sequence/Procedures Section.

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| **ACCOMODATION TRACKING CHART** | |
| **INSTRUCTION** | **ASSIGNMENTS** |
| \_\_\_\_\_ Explicitly teach language objectives.  \_\_\_\_\_ Simplify language used in instruction  \_\_\_\_\_ Use reduced text so that the print is not  dense  \_\_\_\_\_ Provide additional instruction including  reviews, drills and opportunities for re-teaching  \_\_\_\_\_ Teach in small groups:\_\_Math\_\_\_\_ *(indicate content area)*  \_\_\_\_\_ Allow for Peer Tutoring/Teaching  \_\_\_\_\_ Increase the use of manipulatives to enhance concepts depending on language level of learner (see “can do” indicators)  \_\_\_\_\_ Provide visual aids to enhance key concepts (books, videos, realia, etc.)  \_\_\_\_\_ Use Graphic Organizers  \_\_\_\_\_ Allow for alternate seating for proximity to peer helper or teacher as necessary  \_\_\_\_\_ Assist student in building a picture file of key vocabulary  \_\_\_\_\_ Assist students to underline key words or important facts in text  \_\_\_\_\_ Incorporate Group Work and Cooperative Learning  \_\_\_\_\_ Provide prompts, photocopies of notes or outlines, or highlighted texts and materials  \_\_\_\_\_ Utilize resources in the student’s first language  \_\_\_\_\_ Teach new concepts in chunks  \_\_\_\_\_ Provide frequent checks for comprehension  \_\_\_\_\_ Orient students to expectations through rubrics  \_\_\_\_\_ Provide simplified/additional instructions  \_\_\_\_\_ Use highlighter to cue EL into key questions and directions (e.g. how, where, when, how many)  \_\_\_\_\_ Use visually isolated text with ruler, paper, or piece of paper with a window  \_\_\_\_\_ Use process charts to identify key steps to events or procedures  \_\_\_\_\_ Other:  \_\_\_\_\_ Other | \_\_\_\_\_ Allow editing and revision before grading  \_\_\_\_\_ Provide a daily or weekly syllabus of class and homework assignments  \_\_\_\_\_ Give alternative homework or class work assignments suitable to the student’s linguistic ability for activities and assessments  \_\_\_\_\_ Extend time for assignment completion as necessary  \_\_\_\_\_ Allow students an opportunity to express key concepts in their own words  \_\_\_\_\_ Utilize alternate reading assignments/materials at the student’s reading level. When possible, use material specifically designed for LEP students  \_\_\_\_\_ Utilize resources in the student’s first language  \_\_\_\_\_ Substitute a hands-on activity or use of different media in projects for a written activity  \_\_\_\_\_ Utilize assignment notebooks  \_\_\_\_\_ Simplify language or shorten assignments  \_\_\_\_\_ For each chapter questions, indicate page number where answer is found  \_\_\_\_\_ Use group project rather than individual work to lesson  ELLs affective filters in early stages of language development  \_\_\_\_\_ Other:  \_\_\_\_\_ Other:  \_\_\_\_\_ Other: |

**Review and Assessment:**

**Formative:** For my formative assessment, I have students complete an exit slip to monitor their assessment on the law of large numbers. I have the students write a small paragraph to recall the definition in their own words.

**Summative:** For the summative assessment, the students will turn in and complete the worksheet worked on together as a group during the lesson.

In addition to the assessments described in your lesson sequence/procedures section, you must complete the ***Assessment Alignment Chart*** below. Make sure that the assessment(s) address the content and language objectives. Cleary identify any modifications that might be necessary for ELLs at varying levels. Within the lesson be sure you show how you will lead students up to the assessment through the use of review. Evidence of both formative and summative assessments are necessary. Lesson must show how appropriate formative assessment is used to monitor learning.

In the ***ELL Accommodations – Assessment Chart*** below identify the accommodations you used in this assessment with a check mark. In the corresponding box, briefly explain why you think that these are appropriate for the assessment of ELL’s performance and how it will serve in measuring the learner’s content knowledge and academic language development.

Include assessment materials as needed – rubrics, tests, quizzes, assignment/project descriptions, etc. in an appendix at the end of this assignment.

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| **Assessment Alignment** | | | | | |
|  | Items | How does this address the content objective(s)? | How does this address the language objective(s)? | Are modifications necessary for your EL? Why or why not? | Did you include assessment materials in the appendix, as appropriate? |
| Formative Assessment(s) | 1.  Exit Slip | This allows for the recall of information to see if students can explain the new vocabulary words used. | This allows the EL students and other students a chance to use their new vocabulary in writing and define them correctly | If needed, a definition reminder of new vocabulary words will be provide for Els and other students as needed. | yes |
| Summative Assessment(s) | 1.  Lesson Worksheet | This assessment allows the teacher to analyze if the students are able to calculate the correct probabilities for independent events. | The worksheet encourages the students to use writing to explain their answers instead of just orally explaining it. | If needed, a definition reminder of new vocabulary words will be provide for Els and other students as needed. | yes |

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| **ELL ACCOMODATION- ASSESSMENTS** |
| \_\_\_\_\_ Provide a word bank  \_\_\_\_\_ Provide an opportunity for the student to take the test/re-test  individually with a teacher or paraprofessional  \_\_\_\_\_ Allow for the test to be read aloud  \_\_\_\_\_ Allow for small group administration of assessments  \_\_\_\_\_ Use informal observations of performance and classroom  participation as a percentage of the overall evaluation (see  rubric).  \_\_\_\_\_ Incorporate group work into the assessment process  \_\_\_\_\_ Simplify the language and format of the assessment to  match the language utilized during instruction  \_\_\_\_\_ Provide opportunities for the student to take tests in  sections/chunks  \_\_\_\_\_ Allow for extended time to complete the assessment  \_\_\_\_\_ Provide opportunity for student to provide oral responses to  be recorded by teacher or paraprofessional  \_\_\_\_\_ Accept correct answers on test or worksheets in any written  form such as lists, phrases, or using inventive spelling  \_\_\_\_\_ Allow editing and revision before grading  \_\_\_\_\_ Design projects and assessment for student that require  reduced sentence or paragraph composition  \_\_\_\_\_ Use rubrics as an assessment tool in place of textbook tests  \_\_\_\_\_ Use picture dictionary or language heritage dictionary for  standardized assessments  \_\_\_\_\_ Other: |
| **Assessment Accommodation Explanation** |
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**Follow-up Home Learning Assignment:**

As a home follow up assignment, I will have students play the Monty Hall game with parents to promote language and vocabulary practice at home. By communicating with their parents, this will provide the opportunity for students to make connections to different mathematical principles and concepts in their home language, while also practicing their math skills.

**Reflection/Analysis:**

* For the prompts below, you should include specific references to course content from lectures, materials, and textbooks. Elaborate and exemplify rather than make arbitrary statements.

1. How am I meeting the Principles of Effective Second Language Teaching in this lesson?

My lesson allows the student to focus on mastering the mathematical skills necessary to complete the lesson while having the help of their peers and I to help with any language barrios that may arise during the lesson. The lesson uses group work to he learner focuses on accomplishing tasks rather than focusing on the language itself and uses purposeful content-related activities to teach the ideas.

1. What second language learning theory/methodology/approach influenced this lesson? Explain.
2. How does this lesson reflect your personal philosophy of teaching English language learners in a mainstream classroom?

This lesson idea comes from a 1960’s American game show entitled “Let’s Make a Deal.” Personally, I believe that the bringing in an idea of pop culture or real world example to the classroom, especially mathematics, can help benefit English Learners as it is a chance to see not only the language skills and vocabulary applied in the classroom, but in a real world setting as well. I have seen EL students learn English from pop culture at home and they say that it has helped with language emersion when unable to have the social interaction at school and home.

1. How is this lesson culturally responsive/sensitive?

This math lesson does not touch on any cultural ideas that would need to be addressed or explained for students. As the lesson is focusing on the Law of Large numbers, a mathematical concepts that is a large idea in not only the math field but science as well, there is little way to explain a math principle in a cultural way. Instead of using the Monty Hall problem, data could be gathered on different social groups or other experiments using culturally appropriate ideas could be used instead.

1. Based on this lesson only, if the parent of your EL asks you, “How are you teaching my child English?” How can you respond?

In order to help with English development, I am allowing the student to work within small groups and large class discussion to promote academic language growth, along with social language practice as well. The student will get practice with using mathematics terminology with their peers and will get familiar with integrating it into their social vocabulary as well.

* In the prompts below, provide a specific example from your lesson plan and validate your responses with references to course content. Please include information from SIOP and/or Nutta to explain how you know this occurred.

1. How did you***increase comprehensibility*** for all students, but especially your EL*?* Provide one example.

For any new vocabulary words, I plan to give both oral and visual definitions for all students. One example in my lesson is the vocabulary term “Law of Large Numbers.” After having students come up with the definition, I will redefine it verbally for them as well as write in on the board. If needed, I will provide any translations for the students first language.

1. How did you ***increase background knowledge*** for all students, but especially your EL? Provide one example.

I used prior mathematical vocabulary and lessons to create this lesson. In order to grasp these concepts, the students needed to be familiar with fractions, percentages, chance, and ratios, which would have been taught prior to this lesson or grade level.

1. How did you ***increase critical thinking/study skills*** for all students, but especially your EL? Provide one example.

In order to promote critical thinking skills, my lesson uses student centered discovery to help the students and the EL uncover the information through exploration, rather than using Direct Instruction. This helps to implement SIOP feature 17. I introduce and model and concept to the class, after the students complete “we do it” as they work to make probability discoveries in small groups, after they “do it alone” with a formative assessment solidifying their understanding and providing a check in for the teacher to note if the lesson was understood by the students.

1. How did you ***increase interaction*** for all students, but especially your EL? Provide one example

In order to increase interactions with students, I had not only the EL but the entire class work in small groups while completing the data collection. This promotes SIOP feature 13 by allowing the student to use social strategies that encourage students to sort out information through discussion and peer interaction.

**Apendix:**

A screenshot of a cell phone

Description automatically generated

Table

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated