## Module 3 Lesson Plan

Lesson Title: Data Collection with Fuzzbugs		Grade Level/Subject: 3rd Grade	
Maximum # of Students: Students in classroom		Total Time Required: One class period	
<b>Prior Knowledge Needed:</b> Students should have a general understanding of collecting, interpreting and organizing data. In second grade, students should understand how to explain that the length of a bar in a bar graph represents the number of data points for a given category.			
Materials: SMARTBoard, Chromebooks, Enough bar graph organizer papers for every student within the classroom. Website: <u>https://www.abcya.com/games/fuzz_bugs_graphing</u> Video Lesson Link: <u>https://www.youtube.com/watch?v=nuBd37HPa64</u>			
<ul> <li>Performance Objectives/Learning Targets:</li> <li>Students will analyze data and construct their own bar graph.</li> <li>Students will develop and create a bar graph in the interactive math game.</li> </ul>			
<ul> <li>Standards:</li> <li>3.D.1 Summarize, construct, and analyze data.</li> <li>3.D.1.1 Summarize and construct a data set with multiple categories using a frequency table, line plot, pictograph, and/or bar graph with scaled intervals.</li> </ul>			
Lesson Procedure			
Before:	Before the lesson, students will level of prior knowledge they ha questions within the pre-test are demonstrate their understanding as baseline data to guide instruct	complete a 10-question pre-test to determine the ave about data collection (bar graphs). The directly aligned with the learning goals to g of each goal. Answers from the pre-test will serve tion.	

	Pre-Test Link: <u>https://forms.gle/DVNSUe3CSTLdy5eJA</u>	
	Post-Test Link: <u>https://forms.gle/Z5MVqXmSdJfcAkbM7</u>	
During:	After data has been collected from the pre-test, the teacher will then use explicit instruction to teach the students the concept of turning data that has been collected into a bar graph. When the period of explicit instruction is over, the students will move into their learning activity. The learning activity will involve a small group of students being provided with their own set of data. The students will work together to create their group bar chart using the data set given to them by the teacher. Once all the groups have had their bar charts checked by the teacher, the students will move into independent practice with technology to interact with the educational "Fuzz Bugs" game which allows students to create a bar graph and reflect on the data they used to create said bar graph. In the lesson, the teacher provides students with a set of empty data on a sheet. Then students begin saying what numbers they want the data set to be. The teacher is engaging students toward the concept of problem-based learning through the in-class activity. Students then start seeing the problem-based process when the teacher is showing first step-by-step how to input data on a sheet. Then the math game relates to problem-based learning and lets students input the data set, create a neat bar graph, and count the total that is in each bar graph.	
After:	After the lesson, students will complete a 10-question post-test to determine the level of knowledge gained about data collection (bar graphs) in reference to the lesson that was just taught. The questions within the post-test are directly aligned with the learning goals to demonstrate their understanding of each goal. Answers from the post-test will serve as baseline data to determine if students are ready to advance to the next concept or if the lesson needs to be reviewed. Post-Test Link: https://forms.gle/Z5MVqXmSdJfcAkbM7 This lesson plan fits into the larger idea of problem-based learning. Problem-based learning is when students are presented with a problem and they will work collaboratively to identify what they need to know to effectively answer the question presented to them and they begin researching and constructing a model that they will use to show their learning and understanding. For this lesson to become PBL the students will be grouped in threes and each presented with a research question. The students will then begin researching cause and effect or problem and solution and use data to back up the answers they come to. The data observed and collected needs to be turned into a bar graph. Seeing the students turn	

their knowledge into a bar graph allows PBL to connect to the overall understanding of the bar graph.

## **5E Model:** (Engage, Explore, Explain, Evaluate, Elaborate)

Engage: Students will get in groups to create their own bar graphs, also students will play a math game called Fuzz Bugs that supports bar graphs with math. The math game also keeps students engaged in the lesson and helps them see visually what a bar graph looks like. Explore: Students get to draw out their own bar graph and see their own work. When students play the interactive math game, the game will let students know if their answer is correct or not. Students get to explore and discover bar graphs through the game by having to input the correct amount of data to create their own bar graph. Then the process for the game will begin again after creating each bar graph. Students will see their progress after completing the process of the game and have extra practice to enhance their knowledge of bar graphs. Explain: The teacher explains how bar graphs are utilized at the beginning of the lesson. After the learning activity is completed, the teacher will explain how to create bar graphs using the Fuzz Bugs interactive game.

Evaluate: Students are evaluated during their group work and through pre and post-test assessments.

<u>Elaborate:</u> At the end of the lesson, the teacher will discuss with the whole class the use of bar graphs and how we can use them in math and outside of math as well.

**FOCUS STUDENT #1:** Focus student one does not receive Special Education services and scored near the bottom of the pre-test for the lesson and has little confidence in math. For this focus student, I would move her seat near and close to my desk and also move a higher-level student or students near her to encourage collaboration. I also would have said students do Think-Pair-Share with higher-level students or students around them. Think-Pair-Share starts by asking students to individually think about a given topic or answer a specific question. Next, pair students together to discuss their results and findings. Finally, have each pair share their ideas with the rest of the class, and open the floor for further discussion. This instruction strategy allows students to learn the content individually, in small groups, and then in large groups.

**FOCUS STUDENT #2:** Focus student two is learning English as a Second Language (ESL Student). He understands spoken English better than reading a textbook and quickly catches on to the new learning once explained within his language abilities. For focus student two I would also recommend collaboration with a higher-level student and I would move them closer to the front of the classroom. I would also give focus student two a video to watch to ensure that the student for sure understands the content fully. Here is the link <u>Bar Graphs 3rd Grade - Solve Elementary Problems Math Video</u>. I would also give the student a copy of the same worksheet that my other students have but in their native language;

## **Technology:**

Students will interact with the Fuzz Bug educational computer game. <u>https://www.abcya.com/games/fuzz\_bugs\_graphing</u>

## Assessment:

Rubric

https://docs.google.com/document/d/1\_zL0SGmDIYArcQB28CVcu0iRffVCHWA8E5PneF02 ROo/edit?usp=sharing