THOMPSON RIVERS UNIVERSITY | Education & Social Work

Bachelor of Education (Elementary) & Bachelor of Education (Secondary) STEM Lesson Plan

Lesson Title: 5.1 Exploring Data **Lesson #** Block B **Date:** 3/9

Name: Yiming Zhang **Subject:** Foundations of mathematics **Grade(s):** 11

Rationale:

Organizing and exploring data is an important part of statistics. Students will be able to explore the similarities and differences between two sets of data.

Core Competencies:

Communication	Thinking	Personal & Social
Acquiring and presenting information - Being able to acquire information during notes and present their understanding with the homework - Clearly communicating their mathematical understanding and work - Students will be able to discuss with their neighbors, share and develop ideas. - Students will work collaboratively to solve problems. - Students will show proper steps when doing math problems using math language.	Critical Thinking Analyzing and critiquing - Analyzing the questions in the student's notes and critiquing their answers Creative thinking: - Guide them to use the idea of "mean", "mode" and "median" to solve hook question	Personal and Cultural identity - Acknowledge personal strengths and abilities as assets

Big Ideas (Understand)

Statistical analysis allows us to notice, wonder about, and answer questions about variation.

Learning Standards

(DO)	(KNOW)
Learning Standards - Curricular Competencies	**Learning Standards - Content**
• Reasoning and modelling Estimate reasonably and demonstrate fluent, flexible, and strategic thinking about number Model with mathematics in situational contexts Think creatively and with curiosity and wonder when exploring problems	**Posing a question about an observed variation, collecting and interpreting data, and answering the question**

• Understanding and solving Apply flexible and strategic approaches to solve problems Solve problems with persistence and a positive disposition • Communicating and representing Explain and justify mathematical ideas and decisions in many ways Represent mathematical ideas in concrete, pictorial, and symbolic forms Use mathematical vocabulary and language to contribute to discussions in the classroom Take risks when offering ideas in classroom discourse • Connecting and reflecting Connect mathematical concepts with each other, other areas, and personal interests Use mistakes as opportunities to advance learning	

Instructional Objectives & Assessment

Instructional Objectives (students will be able to…)	Assessment
• **Understand mean, median and mode** • **Have an idea of how to organize data** • **Tell the similarities and differences between two sets of data.**	• **worksheet**

Prerequisite Concepts and Skills:

- **Calculate average of data**

Indigenous Connections/ First Peoples Principles of Learning:

There is no Indigenous Connection for this lesson.

Universal Design for Learning (UDL):

I will write down all the definitions. I will write down and underline all new vocabulary. I will use different colors of pens. I will always ask if anyone needs more time for copying notes. There is discussion time so that everyone is able to share their ideas. During work time, anyone is welcome to ask me questions about anything they don't understand. I will ask if anyone need the hardcopy of notes.

Differentiate Instruction (DI):

I will be adjusting amount of work for those students with IEP and allowing them to work in LAC and getting extra time and support.

Materials and Resources

Chapter 5: Statistics worksheet

Lesson Activities:

Teacher Activities	Student Activities	Time
Introduction (anticipatory set – "HOOK"): I will introduce myself again. I will talk about my rules, my expectations and hopes. I will ask a question: Now I am teaching three blocks, about 70 students in total. If I know every student's height, and I want to select 20 students with relatively equal height, what is the best way to choose students? Discuss with your neighbor about your thought.	Students will discuss with neighbors.	8 min
Body: After discussion, I will ask them to rise up hand to share their thoughts. I expect students to suggest some method using the idea of "mean", "mode" and "median". If no, I will slowly guide them to think. I will distribute worksheets. On the tablet, I will write down the definition of mean, media mode, and central tendency. While explaining, I will use the hook question as reference. I will write down the definition of range and outlier, and explain. After making sure every understand those definitions, I will do example one with them I will let them try example 2, then solve it with them.	Students will share ideas with class Students will copy down notes.	10 min 5min 10min 10min 10min
Closure: If there is more time left: I will distribute the homework self-assessment sheet for this chapter. I will give them homework with my expectations. If there is not much time left, I will do it next class, and there will be no homework for today. I will circulate and ensure every student gets the concept	Students will do homework and ask questions.	10 min

Organizational Strategies:

- **Worksheets will be prepared for students in advance**
- **Students have to write down their names on left side of board if they want to borrow a textbook, and erase it when return books back**

Proactive, Positive Classroom Learning Environment Strategies:

- Providing expectations for students

- Students can work with other students they are comfortable with and have worked with previously
- Teacher will be circulating to answer questions and observe students

Extensions:

- **Challenging homework questions will be prepared for extensions. P211 1-3**

Reflections (if necessary, continue on separate sheet):