

Math Technology Lesson Plan

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Standards/Performance Indicators/Skills

Identify the state and national standards, performance indicators, and skills addressed by the lesson.

3.D.1.1 Collect and organize a data set with multiple categories using a frequency table, line plot, pictograph, or bar graph with scaled intervals.

Verb: Collect.

Learning Objectives/Goals


Describe the lesson's objectives and the learning outcomes that are appropriate for meeting curricular/classroom needs.

Students will use an online dice roller to roll a die and gather data on how many times each number is rolled using a frequency chart.

Students will participate in a group discussion about their observations of the differences of their own data versus the data of the whole class. Students will be able to see that in the short run, data varies a lot, and in the long run, the data evens out.

Assessment (the type[s] of assessment used throughout the lesson)

Identify the assessment that occurred before, during, and after the lesson.

Rubric:  Horse Derby Rubric

Pre-Test:

Informal assessment: The teacher will also observe the students during the discussion to check for the understanding of frequency and how in the short run, data varies, but in the long run the data evens out.

10 Questions

1. Name
2. What is frequency?
3. How is frequency used in the activity?
4. Explain why the frequency of rolling a 6 on a die is the same as rolling a 1 on a die.
5. With one throw of a 6-sided die, what's the frequency of rolling a 5?
6. When two 6-sided dice are rolled, what is the frequency that the sum is 7?
7. What is the theme of this lesson?
8. There is a bag of green and red marbles. (6 red and 4 green). What could you change to make the frequency of drawing a green marble higher?
9. How can you determine the frequency of your horse winning?
10. With the outcome, do you believe your chosen horse will win the race?

Lesson Structure and Procedures

Describe the sequence of events of the lesson elements, including the before, during, and after of the lesson (i.e., the engagement/opening, the procedures used, the activities for guided practice, and the conclusion).

As a cross-curriculum option in the subject of science, the students will practice making hypotheses or predictions based on the data from the activity. The Derby Race activity works well for this because each group is gathering separate data. Choosing which horse will win is the main prediction the students will be making. After the results of each group are displayed the whole class will see how their predictions match up to those of the other groups.

Engage: The instructors will start off by asking questions about frequency and data collection. Ex: What do yall know about frequency?

Explore: Students will participate in the activity "Get All 6" to explore and observe frequency. Students will use an online dice roller to roll one die and record their rolls on a frequency chart. They will keep rolling until they have rolled each number at least once.

Explain: Students will then pool all their data together by writing their data on the whiteboard. Then, the class will participate in a group discussion about their observations of the data. Many students will have rolled each number on the die in 10 rolls, while other students may have rolled the die 25 times before they rolled each number once. Some students may have gotten more rolls for one number than other students. Students will discuss relative frequencies for the numbers and should come to the conclusion that in the short run, data varies a lot, but in the long run, the data evens out.

Elaborate: The students will then participate in the second activity "Derby Race" where they will each pick a horse they want to win and take turns rolling the die. If the die lands on their number then they get the point for their horse. The horse to reach 10 points first wins. This activity will be done in small groups (2-6 students). The students will do this activity up to 10 times to determine if the data evens out in the end.

Evaluate: Another discussion about the second activity will take place to ensure that students understand frequency and frequency charts. Students will discuss in their small groups which horses won the most and least and why they think that happened.

Instructional Strategies (Teaching Strategy – what teachers do)

Describe the teacher's approach to achieving the learning objectives and meeting the student's needs.

Guided practice- While the teachers introduce the topic and activity, the students are asked to pull up the dice roller website that will assist them in their "Get All 6" activity. The teachers instruct the students on how the activity works and the student will be responsible for going through the process independently.

Group discussions- After each frequency activity, the students and teachers participate in a whole class discussion over their results. They discuss how or if the results evened out when all of them are displayed on the board.

Learning Activities

Describe the opportunities provided for the students to develop the skills of the objective.

Get all 6 - The "Get All 6" assignment will be used by students to investigate and observe frequency. Students will roll one die using an online dice roller and log their results on a frequency chart. They will continue rolling until each number has been rolled at least once.

Derby Race - The children will then take part in another exercise, "Derby Race," in which they will each choose a horse to win and take turns rolling the die. If the die falls on their number, they receive a point for their horse. The horse with the most points wins. Small groups will participate in this activity (2-6 students).

Resources and Materials

List the materials used to plan and deliver the lesson.

Access to a computer

Print out of the activity

Pencils

White board & markers

Technology

Describe the instructional and/or assistive technology that was incorporated into the lesson to enhance instruction and student learning.

Online Dice roller

Dice Roller: <https://www.roomrecess.com/Tools/OnlineDice/roller.html>

Differentiation/Accommodations/Modifications/Increases in Rigor

Describe the modifications made to meet the needs of all learners and to accommodate differences in students' learning, culture, language, etc.

Focus Student #1 does not receive Special Education services, but scored near the bottom of the pre-test for the lesson. She has little confidence in her abilities in this subject.

The teacher will use guided practice at the beginning of the lesson to show students how to complete the activity and then students will work in groups. The learning activities for this student would be changing the process of rolling the dice to get their answer. Instead of using two die and having the students subtract the numbers, allow students to use only one dice and use the number that they roll with the dice to complete the activity.

Focus Student #2 is learning English as a Second Language. He understands spoken English better than reading the textbook, and quickly catches on to new learning once explained within his language abilities.

The teacher would use explicit instruction to help the student with understanding the vocabulary used during the lesson. The teacher will provide vocabulary in both their language and in English. When students participate in the frequency/ frequency chart, it will be labeled in both English and Spanish. The website that the dice is located on, contains pictures that will help the students in their own language abilities.

Classroom Management

Identify the strategies used that are consistent with the learning objectives of the lesson and that also meet student behavior needs to help keep the students on task and actively engaged.

Extensions

Describe the activities for early finishers that extended the students' understanding of and thinking about the learning objectives/goals by having them apply their new knowledge in a different way.

Follow-Up Activity to the Lesson

Describe a quick activity for review or for building on the lesson that will deepen student understanding and interconnect concepts. (The activity may be incorporated in class the next day or throughout the unit.)

Derby Race Activity:

https://mail.google.com/mail/u/0?ui=2&ik=bb40e80903&attid=0.2&permmsgid=msg-f:1749229334541668748&th=184682cfdc0c918c&view=att&disp=inline&realattid=f_lacw8fo01

Additional Information

Identify any area or lesson component that was not covered by this lesson plan format but that you feel is vital to include in a description of the lesson.

Dice Roller: <https://www.roomrecess.com/Tools/OnlineDice/roller.html>

Frequency table:

https://docs.google.com/document/d/1NK1o1aOKUX0wycuQiqyly77jJV46IPiaCfGtK_KoZxQ/edit?usp=sharing

Derby Race Activity:

https://mail.google.com/mail/u/0?ui=2&ik=bb40e80903&attid=0.2&permmsgid=msg-f:1749229334541668748&th=184682cfdc0c918c&view=att&disp=inline&realattid=f_lacw8fo01

Video Link:

https://drive.google.com/file/d/15EEcv_CI3PGtmVxauc0bZj5rM5MMcRa1/view