



Subject:
Mathematics

Age of students:
17 years old

Topic/objective:
Statistics and Data Analysis through Surveys

Time:
2 class periods (90 minutes)

Materials needed:

- Students smartphones
- Survey apps (e.g. Google Forms, SurveyMonkey)
- Access to Excel or Google Sheets
- Whiteboard and markers

Description of the lesson/activity:

In this two-part lesson, students will engage in a hands-on project that combines mathematics with real-world data collection and analysis.

Part 1: Creating and Conducting Surveys (45 minutes)

1. **Introduction (10 minutes):** The teacher introduces the concept of statistics, emphasizing the importance of data collection and analysis in various fields. Students will discuss what makes a good survey and the types of questions that can be asked (closed vs. open-ended).
2. **Group Work (15 minutes):** Students will form groups of 3-4 and brainstorm topics for their surveys, such as social media usage, study habits, or favorite activities. Each group will create a list of 5-7 well-structured questions designed to gather meaningful data.
3. **Conducting Surveys (20 minutes):** Using their smartphones, students will distribute their surveys to peers within the classroom or school.



The goal is to gather at least 15-20 responses per group. This hands-on activity encourages collaboration and communication skills.

Part 2: Data Analysis and Presentation (45 minutes)

4. **Data Entry and Analysis (15 minutes):** Once the surveys are completed, students will input their data into Google Sheets or Excel. The teacher will guide them through the process of calculating statistical measures such as mean, median, mode, and standard deviation. Students will also learn how to create simple graphs (bar charts or pie charts) to visualize their findings.

5. **Interpretation of Results (15 minutes):** Each group will analyze their data and discuss what the results reveal about their survey topic. They will consider questions like: What trends do they see? Are there any surprising findings? How might these results vary in a larger population?

6. **Group Presentations (15 minutes):** Finally, each group will present their survey topic, methodology, findings, and interpretations to the class. This presentation fosters public speaking skills and encourages peer feedback and discussion. Students will reflect on the implications of their findings and the importance of statistics in understanding real-world issues.

Conclusion: The lesson culminates in a discussion about the role of data in decision-making and how statistical literacy is essential in today's data-driven society. Students will also complete a short survey on their learning experience, allowing them to reflect on what they gained from the project.

This lesson not only reinforces mathematical concepts but also enhances critical thinking, teamwork, and digital literacy, making math more relevant and engaging for students.