Lesson Title: Exploring VR Eye Tracking Accuracy
Grade Level: 6-8
Subject: Computer Science

Wyoming Computer Science Standards:

8.DA.CVT.01 Using computational tools, transform collected data to make it more useful and reliable.
8.DA.IM.01 Refine computational models based on generated data.
8.CS.HS.01 Design and refine a project that combines hardware and software components to collect and exchange data.
8.CS.D.01 Recommend improvements to the design of computing devices based on an analysis of how a variety of users interact with the device.

Lesson Objectives:

1. Students will understand the concept of VR eye tracking accuracy.
2. Students will collect data on the use of VR eye tracking accuracy.
3. Students will create a spreadsheet to organize and analyze the collected data.
4. Students will draw conclusions based on the data analysis.

Materials:

- Computers or laptops with internet access
- Virtual Reality (VR) headsets with eye tracking functionality (if available)
- Spreadsheet software (e.g., Google Sheets, Microsoft Excel)

Procedure:

1. Introduction (10 minutes):
    1. Begin the lesson by discussing the concept of virtual reality (VR) and its applications in various fields.
    2. Introduce the topic of eye tracking in VR and explain its significance in enhancing user experiences.
    3. Discuss the importance of eye tracking accuracy and its impact on the effectiveness of VR applications.
2. Data Collection (20 minutes):
    1. Divide the students into pairs or small groups.
    2. Provide each group with a VR headset equipped with eye tracking functionality (if available).
    3. Instruct the students to perform a predefined task or interact with a VR application that involves eye tracking.
    4. Ask the students to collect data on the accuracy of eye tracking by recording the number of successful and unsuccessful eye tracking instances during their task or interaction.
    5. Encourage the students to note down any observations or challenges they encountered while using the eye tracking feature.
3. Data Analysis (20 minutes):

1. Instruct the students to transfer their collected data into a spreadsheet.
2. Demonstrate how to create a spreadsheet using the chosen software (e.g., Google Sheets or Microsoft Excel).
3. Guide the students in setting up columns for data entry, such as "Participant ID," "Successful Eye Tracking Instances," and "Unsuccessful Eye Tracking Instances."
4. Assist the students in inputting their collected data into the respective columns.
5. Show the students how to use basic spreadsheet functions to calculate the total number of successful and unsuccessful eye tracking instances.

4. Data Interpretation and Conclusion (15 minutes):
    1. Facilitate a class discussion on the trends and patterns observed in the collected data.
    2. Encourage students to analyze the data by calculating percentages of successful and unsuccessful eye tracking instances.
    3. Guide the students in drawing conclusions based on the data analysis, such as identifying factors that may influence eye tracking accuracy.
    4. Discuss the potential applications and implications of improving eye tracking accuracy in VR technology.
    5. Encourage students to consider the ethical and social implications of using eye tracking technology in VR.
5. Wrap-up (5 minutes):
    1. Summarize the key points discussed during the lesson.
    2. Emphasize the importance of data collection, organization, and analysis in making informed decisions and drawing conclusions.
    3. Provide an opportunity for students to ask questions or share their insights.

Extensions:

1. Extension Activity: Design Challenge
    - Challenge students to brainstorm and propose ideas to improve VR eye tracking accuracy based on their data analysis and conclusions.
    - Students can create concept sketches, write design briefs, or develop prototypes of potential solutions.
2. Real-World Application:
    - Discuss real-world applications of VR eye tracking

Assessment:
https://docs.google.com/forms/d/1aK8T8bJFNKvkwqWClkMfoIQ9jntba9H-Nwn1KzRVqp0/edit