Core Skills Analysis

Mathematics

- Mateo developed skills in spatial reasoning by designing levels, understanding how platforms and obstacles fit together in a coherent layout.
- He utilized concepts of measurement and proportions to create levels that are balanced in difficulty, ensuring they are challenging yet accessible.
- Through iterations in level building, Mateo engaged in trial and error, fostering a deeper understanding of problem-solving and logical thinking.
- The use of score zones and enemy placements mirrors concepts of ratios and fractions as he balanced point gains against difficulty.

Geometry

- Creating diverse landscapes in Mario Maker 2 allowed Mateo to practice recognizing and manipulating shapes and their properties.
- He explored transformations such as rotation and reflection by arranging elements within his levels, enhancing his understanding of geometric concepts.
- Mateo's engagement with platform heights and angle adjustments facilitated a grasp of angles and their relationships in a two-dimensional space.
- By designing unique level layouts, he honed his skills in understanding area and perimeter through strategic placement of blocks and obstacles.

Computer Science

- Mateo learned basic programming logic and sequencing by arranging game elements systematically to ensure functionality within his levels.
- He developed an understanding of algorithms as he had to plan the pathways that characters would take, considering various outcomes based on player interactions.
- The ability to test and debug his levels cultivated essential skills in critical thinking, helping him identify issues in design and gameplay mechanics.
- By sharing levels with others, Mateo experienced collaboration and feedback processes analogous to real-world software development.

Art and Design

- The creative aspect of level design allowed Mateo to express his artistic vision through color schemes, themes, and character choices.
- By choosing different backgrounds and objects, he developed an appreciation for aesthetics and the importance of visual storytelling in design.
- His engagement with designing fun and alluring levels enhanced his skills in visual composition and balance, fundamental principles in art.
- Mateo also explored concepts of user experience, learning how to create levels that are not only visually appealing but enjoyable and intuitive for players.

Tips

To further Mateo's exploration and improvement in the concepts learned through Mario Maker 2, it is suggested to integrate cross-disciplinary projects that can connect mathematics and geometry with art through real-life design challenges. Parents or teachers could encourage him to sketch out level designs or even collaborate with family members in creating themed levels based on historical events or literature plots. Other activities like visiting local art exhibitions or parks can inspire creativity in his levels, while geometry games and puzzles could reinforce mathematical concepts.

Level Up Learning: How Mario Maker 2 Enhances Math, Design, and Computing Skills / Subject Explorer / LearningCorner.co

Book Recommendations

- <u>The Art of Game Design: A Book of Lenses</u> by Jesse Schell: An accessible guide that introduces the concepts of game design in a fun and engaging way, appropriate for young creators.
- <u>Super Mario: How Nintendo Conquered America</u> by Jeff Ryan: A captivating read that dives into the history of Super Mario, ideal for understanding the cultural impact of the series and its design.
- <u>Video Game Design: A Beginner's Guide</u> by Michael H. Gallo: A suitable book for young readers interested in game design, it provides insights into the principles of creating engaging games.

Learning Standards

- CCSS.MATH.CONTENT.5.G.B.3: Understand the division of shapes into parts and find the area.
- CCSS.MATH.CONTENT.5.MD.B.2: Collect data by measuring and represent it to solve problems.
- CCSS.ELA-LITERACY.W.5.3: Write narratives to develop real or imagined experiences.
- CCSS.ISTE.S.2: Students will engage in computational thinking and programming to design and develop projects.
- CCSS.ARTS.CONTENT.5.S.I.1: Create works of art that communicate ideas and emotions.