Core Skills Analysis

Engineering and STEM

- Will learned how to follow detailed instructions to assemble complex mechanical or electronic components, which develops his sequential thinking and attention to detail.
- The activity introduced Will to basic engineering concepts such as building structures, understanding mechanisms, and possibly electronics if the kit included circuits.
- Will gained problem-solving skills by identifying and rectifying any assembly errors, enabling resilience and analytical thinking.
- The hands-on nature of the kit helped him understand cause-and-effect relationships within engineering systems.

Tips

To expand Will’s engineering understanding, encourage him to design his own modifications to the kit or create a new project using similar components. Integrating a journal where he documents the assembly process, challenges, and solutions can enhance reflection and communication skills. Engaging with basic coding or robotics projects can build on the mechanical knowledge gained. Additionally, exploring biographies or documentaries about engineers like Mark Rober can inspire deeper curiosity about how engineering impacts the world.

Book Recommendations

- Maker Lab: 28 Super Cool Projects by Jack Challoner: This book offers exciting science and engineering projects that help children explore STEM concepts through hands-on building and experimentation.
- Girls Who Code: Learn to Code and Change the World by Reshma Saujani: Though focused on coding, this book empowers young learners to think creatively and logically, complementing engineering kit experiences.
- The Way Things Work Now by David Macaulay: A beautifully illustrated guide to machines and mechanical systems, this book explains principles that underpin many engineering kits.

Learning Standards

- CCSS.ELA-LITERACY.RST.6-8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
- CCSS.MATH.PRACTICE.MP1: Make sense of problems and persevere in solving them.
- NGSS MS-ETS1-2: Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

Try This Next

- Create a step-by-step photo journal or video tutorial explaining the engineering kit assembly and the functions of each component.
- Design a mini quiz that tests knowledge of parts used in the kit and their purposes, encouraging recall and comprehension.

Growth Beyond Academics

Through assembling the kit, Will likely demonstrated persistence and focus as he carefully manipulates materials and troubleshoots issues. Successfully completing the project may boost his confidence in handling technical challenges and promote an independent problem-solving mindset.