

Core Skills Analysis

Science

- Ashton learned fundamental principles of aerodynamics, such as lift, thrust, drag, and gravity, by applying them in the construction of an aircraft model.
- The activity introduced Ashton to materials science through the selection and manipulation of building materials suitable for flight.
- Ashton developed skills in physics by experimenting with weight distribution and balance to achieve stable flight.
- The hands-on task fostered understanding of engineering design processes, including problem-solving and iterative testing.

Tips

To deepen Ashton's understanding of aviation science, consider integrating real-world design challenges, such as building different types of aircraft models (e.g., gliders, helicopters) to compare how design changes impact flight. Incorporate simple physics experiments to measure forces acting on the model, such as using a small scale to test weight or wind tunnels made from household items to observe airflow. Encourage Ashton's creativity by having them design and test modifications to improve flight distance or stability, promoting iterative engineering thinking.

Book Recommendations

- [The Aviation Book for Kids: A Fun Introduction to Aircraft, Flight, and the Sky](#) by Jerry Pallotta: Engagingly explains the science and history of flight with vivid illustrations, perfect for young learners interested in aviation.
- [How Airplanes Work](#) by Chris Woodford: Breaks down the science behind airplanes in an accessible way to help kids understand core aviation concepts.
- [Make This Model Airplane](#) by A. G. Smith: A practical guide with step-by-step instructions encouraging hands-on learning through building model aircraft.

Learning Standards

- MS-PS2-2: Planning an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.
- MS-ETS1-2: Evaluating competing design solutions using a systematic process to determine how well they meet criteria and constraints of the problem.
- MS-PS1-3: Gathering and combining information to describe that synthetic materials come from natural resources and impact society (relating to materials used in model building).

Try This Next

- Create a worksheet where Ashton sketches different aircraft wing shapes and predicts their effects on lift.
- Develop a quiz testing key aviation terms and the forces involved in flight based on the building activity.

Growth Beyond Academics

Through aviation building, Ashton likely experienced growing confidence as tangible results reflected their efforts. The complexity of balancing design factors may have fostered perseverance and problem-solving skills, while the hands-on nature of the project promoted focused engagement and

independence.