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Frank G. Mitchell

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**LEARNING TAKES FLIGHT: AWARD-WINNING EDUCATORS USE AVIATION  
TO SPARK STUDENT ACHIEVEMENT**

Frank G. Mitchell

Eleven teachers from eight different states were chosen as 1991 winners of the General Aviation Manufacturers Association (GAMA) annual Award for Excellence in Aviation Education. The award honors grade school and high school teachers who bring general aviation into the classroom, either as a specific topic of discussion or as a teaching tool.

Most of the winning projects included activities spread over an entire semester or school year. From each winning entry, two or three of the most original or vivid ideas were selected for this article. Enough detail was included so that another teacher can take the ideas and develop his or her own teaching activity. Another intent of this article is to show that aviation-related themes work for all ages and kinds of learners. A summary of the award winners follows.

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**AVIATION TOPICS  
PROMOTE TEAMWORK**

by Sherilynn Admire  
Soldier Creek Elementary  
Midwest City, OK

Sherilynn Admire designed the unit "Teaching Aerospace Skills to Kids" (TASK) for disabled and non-disabled learners at the elementary level. She used monthly themes to introduce students to topics including the history of aviation, planets, rocketry, astronauts, and balloons. Two intriguing tasks were filing a flight plan and simulating a shuttle launch.

Teams of students used aeronautical charts of the state of Oklahoma to design their own flight path. They chose a city of origin and city of destination, filed a "flight plan," and filled out "flight logs."

A semester-long study of aerospace culminated in a shuttle launch simulation. Students made mock shuttle control panels of cardboard and chose their own shuttle name and mission; they even designed a patch and wrote a flight log. Admire said, "The flight simulation was accomplished through the power of their imaginations and a taped version of pre-launch, launch, and mission activities. The students learned to problem-solve while being members of a team, to cooperate with decisions, and to become aware of the importance of why they need

to attend school if they one day want to be scientists or astronauts."

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**AVIATION CONNECTS STUDENTS WITH  
POSSIBILITIES**

by Donna Sue Combs,  
Horace Mann Elementary School  
Shawnee, OK

Donna Combs' project "Connections" connected students with their own talents and goals while learning about aviation. Projects throughout the year included "The Great Airplane Fly-Off" in which students, teachers, and guests designed and constructed paper airplanes using four different weights of paper. Airplane races were held in each weight category and winners received a "pilot license." Bulletin boards displayed photographs of the winners and their airplanes.

In "Omniplex Field Trip" students, parents, and teachers enjoyed a field trip to the Air and Space Museum and Omniplex at Oklahoma City. Students sat in a real cockpit and experienced simulator flights.

For "Space Tomatoes" NASA supplied tomato seeds that had orbited in a satellite for 5 years. Students planted both the space seeds and seeds that had stayed on Earth, and compared the results. They talked about

different types of satellites as well as the careers of the people who flew the seeds into space.

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### ESL STUDENTS PRACTICE THE LANGUAGE OF FLYING

by Teresa Y. Hall  
Sierra Vista Elementary  
Madera, CA

Teresa Hall's "First Grade Frequent Fliers" introduces her students to the world of flight. About 75% of her students are learning English as a second language. The new aviation vocabulary is reinforced with student-made books and fun activities.

The class read the book *Me and My Flying Machine* by Mercer Mayer, then they talked about their own flying machines before they wrote stories with a partner. They drew pictures of their flying machines and published the stories in a class book.

In a science experiment, students played "Huff and Puff" in which they counted how many times they had to blow on an object to move it 3 feet. The results were written on a chart.

At recess time, the students enjoyed "airplane tag" which is played by running with arms extended like airplane wings.

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### ELEMENTARY SCHOOL "SOARS SKYWARD" WITH LEARNING AND FUN

by Summitt Faculty  
Virginia Stevens, Principal  
Summitt Elementary School  
Austin, TX

The Summitt Elementary School faculty involved all grade levels in "Soaring Skyward" with aviation-related studies.

- Kindergarten - Tako-kichi (Kite Crazy)
- First Grade - Up, Up, and Away (Hot Air Balloons)
- Second Grade - Going to Fly Now (Airplanes)
- Third Grade - Ignition--Blast Off (Rockets)
- Fourth Grade - We navigate the Sky (Navigation)

Their studies came together with a school-wide aeronautics enrichment activity. The school recruited

community resource persons representing the four methods of flight and set up NASA exhibits. The activities presented for the students during their special day were a tremendous success.

"Soaring Skyward Day" opened with the Windsock Parade during which children clipped windsocks they made in art class to the school fence. There were presentations by American Airlines, Travis County EMS, Bergstrom AFB, windsurfers, stunt kite fliers, and a remote control helicopter demonstration. The students also painted an aviation mural.

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### PRINCIPLES OF FLIGHT DEMONSTRATED WITH EVERYDAY MATERIALS

by Lois Wells  
Piedmont Elementary School  
Piedmont, OK

Lois Wells' "Flight Day" introduced second and third graders to the history and principles of flight, using demonstrations and experiments to help students understand sophisticated concepts. Three examples of these experiments are:

#### To Show That Air Takes Space

Fill a fish tank half full of water. Place one glass in the tank so that it fills with water. Place a second glass in the water upside down so that the air does not escape. Carefully tilt the air-filled glass under the water-filled glass. By doing this you are pouring air up in bubbles. Each bubble is a small bit of air.

#### To Show That Air Exerts Pressure

Fill a drinking glass to the top with water. The water should spill over the top a bit. Carefully lay a cardboard square to completely cover the top of the glass. Holding the cardboard on top, turn the glass over until it is straight upside down. Stop holding the cardboard and it will stay on by itself.

#### To Show That Air Has Weight

Blow up and tie two balloons that are exactly the same. Tie one balloon to each end of a yard stick. Balance them. Prick one balloon with a pin. As the air rushes out, the side with the broken balloon shoots up and the side with the heavier, air-filled balloon drops down.

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### **STUDENTS PLAN LUNAR LANDINGS**

by Chuck Arnold  
Clark Elementary School  
Erie, PA

In Chuck Arnold's class, each student was assigned devise a method of packaging a raw egg in a shoe box so that the egg would not break when dropped from an airplane at a height of 400 feet. The students imagined that they were suppliers for a lunar colony. Space vehicles would drop the building materials to the surface rather than land on the moon. The materials shipped to the colony must be packaged so that they wouldn't break on impact. Because of the lack of atmosphere, parachutes would be of little value, so the problem had to be solved by the method of packaging.

Students learned whether their solutions were effective when their prototypes were dropped onto the school parking lot. As a bonus, on the day of the egg drop, they observed a demonstration jump made by a local skydiver.

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### **"STAR" BRINGS AVIATION STUDIES TO RURAL SCHOOL**

by Betty Banks  
Leedey Public Schools  
Leedey, OK

Betty Banks' students in rural Oklahoma explored aviation with her "STAR" program--"Search for Tomorrow through Aviation Resources."

STAR helped satisfy students' natural curiosity about aviation and showed how aviation will affect their future. She used a multi-media approach, starting with the "Let's Fly" video from the FAA, and NASA films. The science unit included visits from an FAA representative who brought an airplane simulator to school. A licensed pilot allowed students to sit in a plane and observe a flight. A local veteran talked to them about helicopters. NASA's Education Specialists brought a mobile resource center to town and presented programs for both elementary and secondary students.

Students made their own air pressure demonstrations with plastic bags and straws, and designed aircraft, using paper plates, styrofoam cups, plastic bottles, etc.

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### **REAL FLIGHT IS HIGHLIGHT OF AVIATION STUDY**

by Anne Collinsworth  
Clark Elementary  
Wichita, KS

Anne Collinsworth taught her fourth and fifth grade students about aviation, including different types of airplanes and principles of flight. They focused on the meanings in English and Spanish of a 40-word list. "But why do all this if they can't actually get in a plane?" she thought, so she arranged for students to take a real flight.

The airplane ride was sponsored by Anne and her husband, Gary, who is president of the Beech Employees Flying Club.

Students were well prepared for Flight Day. Speakers visited classes, including a mechanic and an experimental flight pilot. On the flight, not one student needed an airsickness bag. Collinsworth gave the Saturday event high marks. "I had them so prepared they weren't afraid," Anne said.

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### **AIRPORT SIMULATION TEACHES TEAM SKILLS AND CAREER OPTIONS**

by Mary Nell McNeese  
Oak Grove Elementary  
Hattiesburg, MO

In Mary McNeese's class, students applied concepts learned in the Language Arts, Math, Social Studies, Art, and Science to their role playing during an airport simulation. Each student chose a different general aviation career and/or aircraft to research. Working in teams they designed and constructed child-sized model aircraft.

The students designed an airport and used non-permanent spray paint to mark an outdoor playing field with runway lights and map directions. They played the roles they had researched to simulate a busy airport. After proper communication with the control tower, each "pilot's" aircraft departed, flew the assigned route and landed successfully. The AOPA Air Safety Foundation's IFR Communication Procedure Book was used as an example of correct wording. The pilots recorded their progress in their pilot flight logbooks.

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### **HANDS-ON PROJECTS MAKE AVIATION UNIT COME ALIVE**

by Susanne Paper  
Lakewood Elementary School  
Rockville, MD

Susanne Paper's "Airlift for Young Minds" used aviation to interrelate the learning of science, computer literacy, math, social studies, writing, art, and music. The first activity was to introduce the story of flight to science students. They learned myths and the legend of Daedalus. History came alive for them when an actor dressed as Leonardo Da Vinci came to the school and demonstrated Da Vinci's recorded thoughts on aviation.

Students made kites and constructed seven-foot tissue paper hot-air balloons. They did several experiments heating air in a bottle. A balloon over the lip of the bottle was heated and students saw that hot air made the balloon rise. Another experiment was to place the bottle in ice; they saw that the cold air condensed into the bottle. They realized that to fly their tissue paper balloons they would have to heat the inside air.

They constructed gliders from recycled styrofoam lunch trays. For a big project, they built a usable airplane desk out of plywood and donated it to the library.

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### **AVIATION MINI-COURSE BUILDS TEAM SKILLS AND SELF-ESTEEM**

by Patricia Galarce and Jim Ryan  
Keystone School  
Newton, MA

"Flight" was a week-long mini-course for Patricia Galarce's and Jim Ryan's students at Keystone, a small residential school that provides services for emotionally disturbed students ages 13 to 20. The course stressed peer cooperation, and goals were to expose students to aviation and space, to build group skills, to provide a positive school experience, and to have fun.

Each day started with one of Time/Life's videos on space. A class then introduced the day's concepts, leading into a hands-on activity. After lunch, everyone joined for the concluding activities. Students followed directions to complete projects such as gliders, hot air balloons, and model rockets. They developed positive peer relationships and respect by working together on difficult tasks. The week built confidence in their own knowledge and abilities to explore ideas and develop theories. □

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**Frank G. Mitchell** has been involved in aviation education for 28 years. Currently, he directs Beech Aircraft Corporation's aviation education programs as well as Marketing training programs for the Beech retail distribution organization. He is a member of the Kansas Commission on Aerospace Education and currently serves as chairman of the General Aviation Manufacturers Association Education Committee. □

Teachers interested in submitting programs for the award should write to the General Aviation Manufacturers Association, Education Office, 1400 K Street NW, Suite 801, Washington, DC 20005, or call: (202) 393-1500.

Want more aviation education ideas? GAMA lists several in the brochure "Activities and Resources to Use in General Aviation Teaching Units." For counselors, GAMA publishes a "Career Brochure" that gives an overview of general aviation careers. You can ask for them by writing to the General Aviation Manufacturers Association, Education Office, 1400 K Street NW, Suite 801, Washington, DC 20005.