

ROUNDUP

Lyndon B. Johnson
Space Center

NASA

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Frosch to step down

January 20 to be last day

Dr. Robert A. Frosch has informed President Carter that he plans to leave his post as Administrator of NASA on January 20. He is the fifth man to head the nation's civilian space agency.

Frosch will be taking over as the first president of the American Association of Engineering Societies (AAES) a federation, created in January 1980 of the major engineering societies in the United States.

The association covers 39 professional societies representing more than 1 million engineers. It includes such organizations as the National Society of Professional Engineers, the American Society of Civil Engineering, the American Society of Mechanical Engineers, the American Institute of Chemical Engineers, the Institute of Electronic and Electrical Engineers, and the American Institute

of Mining, Metallurgical, and Petroleum Engineers.

Frosch was nominated by the President to become Administrator of NASA on May 23, 1977, and he took his oath of office on June 21, 1977. Previously, he had been Associate Director for Applied Oceanography at Woods Hole Oceanographic Institution from 1975 until mid-1977.

Earlier posts included: Assistant Secretary of the Navy for research and development; Assistant Executive Director of the United Nations Environment Program; and deputy director of the Defense Department's Advanced Research Projects Agency.

A native of New York City, Frosch earned a bachelor's degree in 1947, a master's degree in 1949, and a doctorate in 1952 in theoretical physics, all from Columbia University, New York.



Administrator Frosch at 1977 JSC press conference

He received the Arthur S. Fleming Award in 1966, the Navy Distinguished Public Service Award in 1969, the Defense Meritorious Civilian Service Medal in 1973, and the Neptune Award of the American Oceanic Organization in 1973.

STS status Breakthroughs in test engine burns

Progress was made the week of October 6 in preparation for the eleventh static firing of the main propulsion test cluster now set for November 4. The week saw six successful firings of test engines at the National Space Technology Labs in Mississippi and two at the Rocketdyne facility in California.

On October 7 test engine 0009 completed a 520-second burn as programmed, and it repeated the performance October 10. Test engine 0006 completed two firings October 11 and 13. The engines are now cleared for use in the November 4 cluster firing.

At Rocketdyne test engine 0007 completed two tests on October 7 and 11 proving new procedures and engine modifications in support of the November 4 cluster firing.

At the Cape, the engines have been removed from the orbiter for minor modifications and they should be reinstalled in mid-November. There are very few tests remaining, and work continues on schedule for a November 23 rollout from the Orbiter Processing Facility to the Vehicle Assembly Building.

At JSC the Shuttle Avionics Integration Lab (Building 16) is continuing verification of the Kennedy Space Center launch processing system software in preparation for the Shuttle Interface Test now scheduled for November 30 through December 16.

During this test the crew will be in the orbiter throughout the period running procedures for each configuration of a Space Shuttle mission — such as ascent, abort

See Shuttle Page 4

NASA offers book of Mars photographs

All but one of the four Viking spacecraft sent to explore Mars are silent now, but they have left a legacy of hundreds of remarkable photographs of the Red Planet.

Some of the best of these photographs are included in a new NASA paperback publication entitled "Images of Mars: The Viking Extended Mission." Collected by Nancy Evans of the Jet Propulsion Laboratory, Pasadena, California, and Michael H. Carr of the U.S. Geological Survey, the pictures illustrate the varied landscape of one of the Earth's closest planetary neighbors.

The Viking spacecraft, launched in 1975, reached Mars in 1976 and transmitted back to Earth hundreds of photos of the Martian surface from orbit as well as from the surface itself.

The 30 black and white photographs in "Images," some as recent as 1979, were selected not just for their visual im-

pact, but for what they tell the viewer about the terrain they depict.

Soaring volcanos, mysterious channels, tremendous chasms that could swallow the Grand Canyon, rocks, boulders and sand—all are shown in vivid clarity. The notes accompanying

each photograph explain, in layman's terms, what each image shows.

This armchair guide to another world was produced by NASA's Scientific and Technical Branch. NASA SP-444 is available for \$2.25 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.



Space Shuttle student project kicks off

One teenager from the East Coast wanted to see if a spider could spin a web in zero gravity. A New Jersey day school class wanted to study libration clouds and a junior high school boy from Oklahoma wanted bacteria and spores to be photographed at different times during the mission.

The students' experiments flew on Skylab, and now a similar project is underway for the Space Transportation System.

The Shuttle Student Involvement Project kicked off this summer when NASA with the National Science Teachers Association sent out 130,000 packages announcing a nationwide competition for secondary students to devise scientific experiments to be flown on operational Shuttle missions.

As of October 1 over 50,000 teachers have returned the accompanying

postcard requesting further information, and requests are coming in to Headquarters at a rate of 2000 a day.

And that's just for this year. The project will be an annual competition opening up in September with 10 winners being selected each May.

The experiments will fly on orbiters on a "space available" basis.

JSC will have the task of finding space for the experiments in the crew compartment. "When we have Cargo Integration Reviews 18 months before each mission, we will propose as many of these experiments to fly as there is space for," said Chris Perner of the Integration Section of the Spacecraft Design Division.

"We will look at the concept and objective and make the experiment compatible with the mid-deck."

The NSTA has divided the country into 10 regions from which 20 semi-finalists

will be chosen. Those 20 will come to NASA centers for briefings, and be narrowed down to 10. The 10 final nationwide winners will be chosen from the pool of approximately 100 regional choices.

NASA retains final decision on whether it is possible to fly a particular experiment.

The plan is to minimize crew participation. The astronauts should not have to do more than turn a switch, hook up a piece of equipment, or at the most take a few pictures; and it is crucial that the crew's involvement come during a slow period in the flight timeline.

Winning proposals will be selected based on engineering or scientific merit and originality. They will be incorporated into Shuttle flights in a number of ways.

If a student's project closely parallels See Student Project Page 4

Saturn encounter update

Voyager 1 begins its Saturn encounter November 6. The "Far Encounter One" phase began October 24 and runs through November 2. The start of this phase corresponds to the beginning of four-frame narrow-angle mosaics of the full Saturn disk. The phase ends when the full disk cannot be assured in those narrow-angle mosaics.

Bulletin Board

Your Christmas Card Purchase Could Help Pediatrics Clinic

M. D. Anderson's pediatric Christmas cards are designed by children with cancer. They have become a festive Houston tradition at Christmas time. Sales have increased from 9000 cards sold the first year to more than 400,000 in 1979.

Each fall many young patients participate in a card-drawing contest. Five or six designs are selected in January for printing that year.

Proceeds from the card sales go into a special fund used throughout the year to benefit the pediatric unit.

In Clear Lake City the cards will be available at United Methodist Church through November. Stella Kiefer at 488-4080 is selling the cards, and she can always use more volunteers.

Toastmaster Has Answers To Many Questions

As your career grows with your organization, do you have a need to develop your communications skills? Have you ever had specific opportunities during your formal education to learn communications skills? Have you thought of communication as speaking, listening, and leadership?

Toastmasters can offer you an excellent opportunity to learn what communications is all about and how you can effectively apply it to your home, organization, or work. Why don't you visit with the Spaceland TM Club at the next meeting?

Toastmasters meets every first and third Wednesday at Franco's (Flying Pizza), 1100 NASA Road One. For more information call Steve Jacobs, x-3561, or Emmitt Fisher, x-3278.

Fall Is Fun Flying

Come join the Aero Club and fly at very advantageous rates. Contact Jerry Haptonstall for details at x5285.

Call Today for Next AIAA Dinner Meeting on Economics

"Economic Values of Space Activities" is the topic of the next dinner meeting of the American Institute of Aeronautics and Astronautics, Tuesday, October 21.

Klaus P. Heiss, will speak at 8 p.m.; social hour starts at 6, and dinner is at 7. Heiss is President of ECON, Inc., an economic consulting group. He specializes in applying economic principles to social and technological issues.

Innovative analyses of such programs as the Space Transportation system, remote sensing of agricultural crops, and projects of the U.S. aerospace and defense industries have resulted from economic studies Heiss has directed.

Dinner reservations can be made by calling Francie at 483-4121 by noon October 17.

There is no charge to attend the program only.

Get Some Christmas Shopping Done Early

The Bay Area Military Officers' Wives Club is holding a bazaar Thursday and Friday October 23 and 24 from 10 a.m. to 6 p.m. at the Armand Shopping Center at Bay Area and Space Center Boulevards (next to Minimax). There will be arts and crafts, a Christmas booth, a country store, a plant booth, and a flea market boutique. Proceeds go into the Club's general fund, a portion of which is used on local welfare projects.

Shows on PBS of Interest To Space Program Workers

Sunday October 19 Astronaut Frank Borman narrates a "nerve-tangling" account of persons through history who have risked death to further human knowledge, at 7 p.m. on "The Ultimate Risk."

Carl Sagan's "Cosmos" follows at 8 p.m. comparing Earth to other planets.

On Saturday October 25 "Connections" *Faith in Numbers* covers the intricate connection between the invention of the modern computer and the Medieval waterwheel, hosted by techno-sleuth James Burke.



The Space and Life Sciences Directorate's Rita Rapp received the Distinguished Alumna Award from the University of Dayton October 3. Rapp specializes in the engineering of nutritious meals for astronauts during space missions, working in the Shuttle Support Branch food lab.

CORRECTION

Richard P. Parten's job title was printed incorrectly in the last issue of *Roundup*. He is now Deputy Director of Data Systems and Analysis, no longer Chief, Spacecraft Software Division, as identified. *Roundup* apologizes and regrets the error.

Rec Center offering more programs

Basketball Officials Needed - if you are interested in officiating Men's or Women's Basketball this fall and winter please contact Carl McCollum or Ken Keller at 483-3594.

Hatha Yoga - a free introduction to Hatha Yoga will be held Tuesday, October 21 5:15 - 6:45 p.m. This class is designed to introduce you to the basic concepts of Hatha Yoga including stress reduction and weight control. If interest is sufficient, a class will form from this group.

Intermediate Auto Mechanics - this course emphasizes how to perform a tune-up, carburetor overhaul and/or a brake job, as well as other repairs. Course meets on four consecutive Thursday's beginning October 23 7:15 - 9:15 p.m. Course also includes two Saturday labs November 1 and 8. Cost is \$33.50 per person.

Halloween Party - A Halloween party will be held for children October 31 - 6:30 - 9:30

p.m. at the Gilruth Recreation Facility Assembly Hall (Room 104). Festivities include a costume contest with prizes in various categories. The movie shown will be "THE CAT FROM OUTER SPACE." There will be Halloween treats, popcorn, and cokes. Cost for this FUN & SAFE Halloween is only \$1 per person.

NOTE - for any information regarding sports or leisure time classes please contact Carl McCollum or Ken Keeler at x3594.

Cookin'

Week of October 20 - 24

Monday: French Onion Soup; Beef Chop Suey; Polish Sausage w/German Potato Salad; Breaded Veal Cutlet (Special) Okra & Tomatoes; Green Peas. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Split Pea Soup; Shrimp Creole; Salisbury Steak; Fried Chicken (Special); Mixed Vegetables; Beets; Whipped Potatoes.

Wednesday: Seafood Gumbo; Fried Catfish w/Hush Puppies; Braised Beef Ribs; BBQ Plate; Weiners & Beans; Shrimp Salad; Stuffed Bell Pepper (Special); Corn O'Brian; Rice; Italian Green Beans.

Thursday: Chicken Noodle Soup; Beef Stroganoff; Turkey & Dressing; BBQ Smoked Link (Special); Lima Beans; Buttered Squash; Spanish Rice..

Friday: Seafood Gumbo; Broiled Turbot; Liver w/Onions; Seafood Platter; Fried Shrimp; Meat Sauce & Spaghetti (Special); Green Beans; Buttered Broccoli; Whipped Potatoes.

Week of October 27 - 31

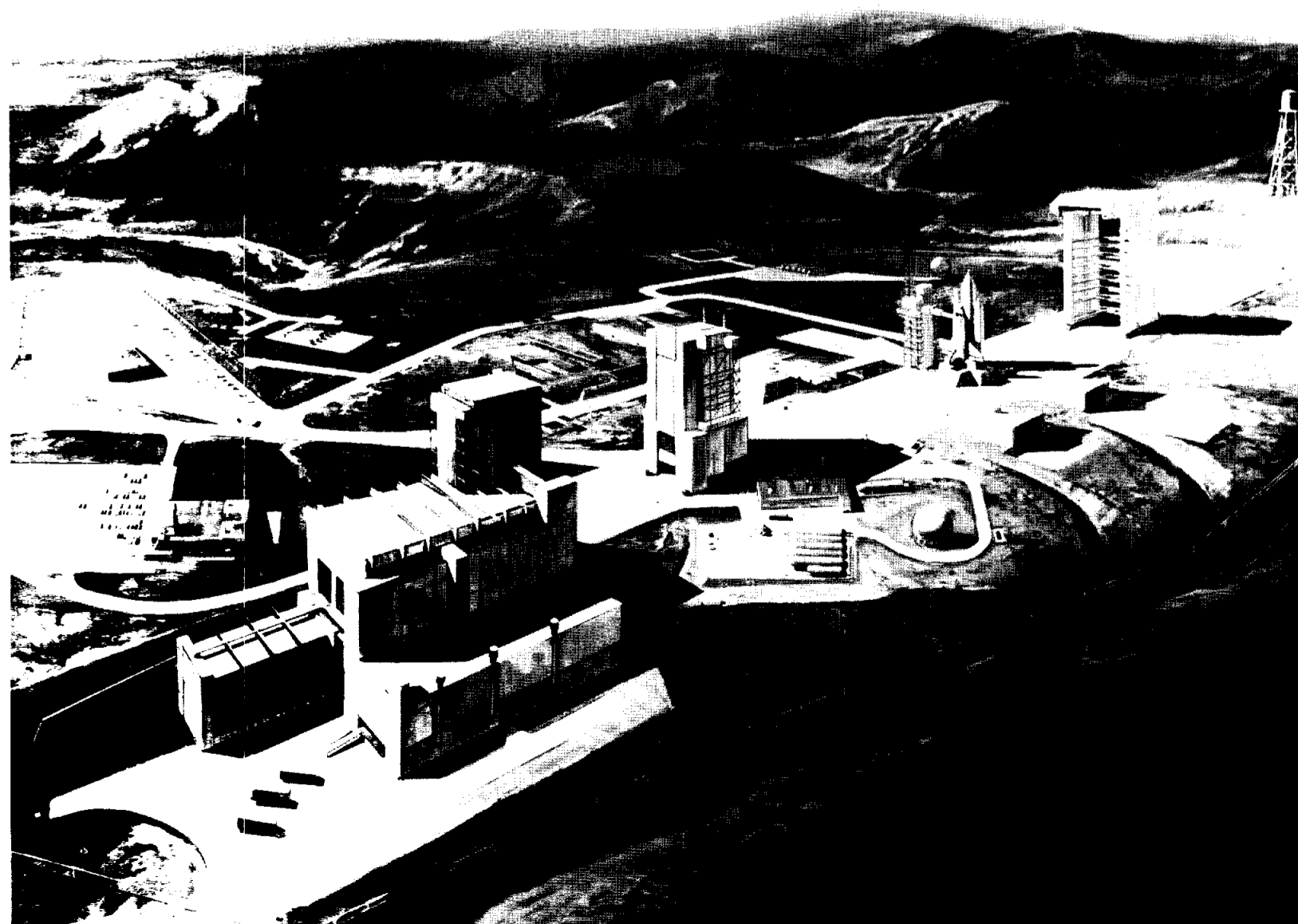
Monday: Beef & Barley Soup; Beef Chop Suey; Breaded Veal Cutlet w/Cream Gravy; Grilled Ham Steak; Weiners w/Baked Beans (Special); Whipped Potatoes; Brussels Sprouts; Buttered Rice. Standard Daily Items: Roast Beef; Baked Ham; Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches and Pies.

Tuesday: Celery Soup; Fried Shrimp; Turkey a la King; Pork Chop w/ Applesauce; Chinese Pepper Steak (Special); Au Gratin Potatoes; Breaded Squash; Buttered Spinach.

Wednesday: Seafood Gumbo; Fried Catfish; w/Hush Puppies; Braised Beef Ribs; Mexican Dinner (Special); Spanish Rice; Ranch Beans; Buttered Peas.

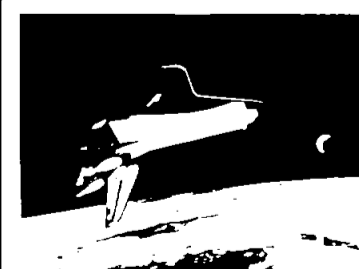
Thursday: Green Split Pea Soup; Corned Beef w/Cabbage & New Potatoes; Chicken & Dumplings; Tamales w/Chili; Hamburger Steak w/Onion Gravy (Special); Navy Beans; Buttered Cabbage; Green Beans.

Friday: Seafood Gumbo; Deviled Crabs; Broiled Halibut; Liver & Onions; BBQ Link (Special); Buttered Corn; Green Beans; New Potatoes.



A ROCKWELL International artist recently accomplished this rendering of Space Shuttle support facilities presently under construction at Vandenberg Air Force Base north of Los Angeles. In the near future Vandenberg will be used for the launch of south-north, or polar orbit, Space Shuttle flights.

Roundup deadline is the first Wednesday after publication.



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Editor..... Kay Ebeling

Driving Smarter

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To monitor your miles-per-gallon, you must keep a record of the exact mileage and gallons each time you add gas. Then do your figuring over three fill-ups to allow for variations in driving patterns and different levels of "full." One tankful will not give an accurate measurement.

Use the first month's average as your baseline, and try to improve it.

In the next article we'll suggest ways to reduce the miles that you drive. Later articles will explain how you can improve your miles-per-gallon rating. In the meantime, you should start your record-keeping.

Shuttle Status

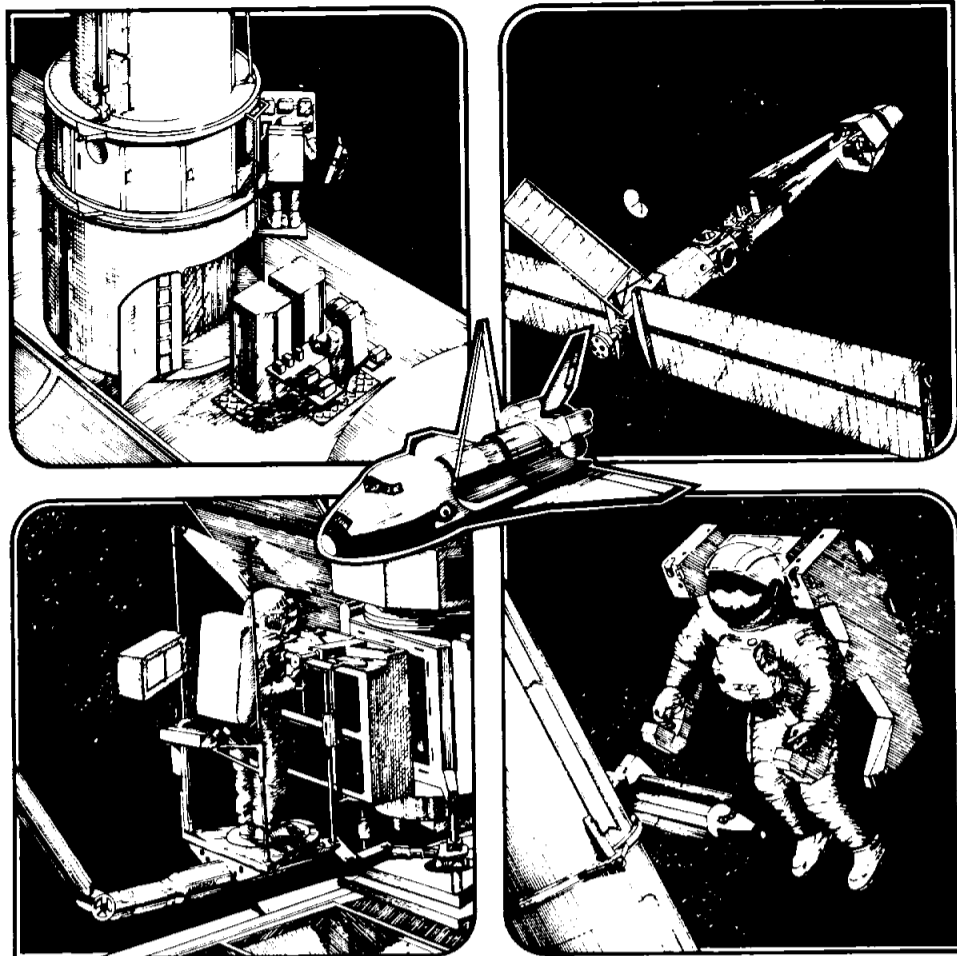
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once-around, backup descent, and return to launch site.

The tests will be run on a complete Shuttle stacked vehicle—with the solid rocket boosters and external tank attached—in the Vehicle Assembly Building.

Other news: the SRB recovery vehicle *Liberty* is scheduled for delivery to the Cape November 17.

UNDER THE AUSPICES of JSC, Lockheed Missiles and Space Company, Inc., along with Grumman Aerospace, are studying service requirements of current and future spacecraft, and defining ways the Space Shuttle can be used to perform these services in orbit. This artist's concept from Lockheed depicts various outer space satellite servicing operations. Initially, the Shuttle-mounted Remote Manipulator System will provide some initial satellite maintenance, placement, and retrieval capabilities. However, projects such as the Space Telescope will require more diverse services and equipment.



3-2-1 Contact—a child discovers science

It's five o'clock, Mom. Forget about talking to your children. They are probably concentrating on a science lesson coming over the television screen.

3-2-1 CONTACT on PBS has swept the under 12 age bracket Nielsen ratings, and, now in its second year, the show seems to have accomplished its objective: "To use the power and impact of television to help make science and technology more understanding and inviting to children."

A surprising picture emerged when the Nielsen ratings came in. The Childrens Television Workshop created the show for 8 to 12 year olds, but a large number of adults are tuning in.

"Apparently we not only succeeded with our target audience, but with many adults," said Joan Ganz Cooney, president of CTW. "While nearly 17 million households with children under 17 reported watching the show in its first season, so did 6.3 million households with no children present."

So, mom, put the dinner on simmer and sit down with the children. You may learn something, too.

"When we first began developing the concept of 3-2-1 CONTACT, we did it with the belief that if, instead of making science into a remote and academic subject, we could translate it into terms that related to children's everyday experience, we could make science exciting and interesting for all children," Cooney said.

"Apparently there are many adults whose own scientific education may have missed that meaningful connection with real life."

3-2-1 CONTACT whets scientific appetites by letting the viewers share the adventures of three youthful co-hosts—Mark, Lisa, and Trini—whose curiosity about the world around them takes them on excursions to more than 70 locations ranging throughout the U.S. and Puerto Rico.

Each week's programs center on a specific theme—focusing on opposites in nature, communication, surfaces, or natural forces. Mark, Lisa, and Trini experience the effects of scientific principles in action, become interested, and seek out explanations.

The week of November 3-7 NASA will be featured as part of the show's theme: "Near/Far: Navigation and perception—the ways we find our way."

Thursday's show that week is titled "Space Shuttle," and it includes interviews with Astronauts Kathy Sullivan and Ron McNair. Friday's show recaps the

week, where the show has covered navigation, tracking patterns, and optical illusions.

The show is unique in its method of demonstrating concepts in science. Mark, for example, rides a roller coaster that hurtles through vertical loops. He wonders why people don't fall out and visits the designer in his shop to learn about the forces involved.



Trini feels the effect of natural forces through a ride in a blimp, a snorkeling lesson, and a brush with a hurricane. Lisa finds out about sound waves by watching dolphins communicate silently, visiting a school for the deaf, and sitting in on a music session with trumpeter Dizzy Gillespie.

Along the way the trio and their viewers gain a new understanding of how science affects everyday living and meet many kinds of scientists at work, broadening their view of potential careers in the field.

The location segments are presented as mini-documentaries in a magazine format that also includes animation and guest stars. Then at the end of each program comes the adventures of "The Bloodhound Gang," a fictional mini-mystery in which three young detectives demonstrate that powers of observation and logic can unravel baffling clues.

The show has stimulated interest in

science careers in many children, as evidenced by excerpts from letters CTW has received: "I would like to be a scientist because they are open-minded. They find out stuff that we could not."

Or: "I would like to be a scientist who tries to cure diseases. I know it would be very hard and take a lot of work, but I am willing to do it."

Or: "I would like to be a scientist

because I like inventions and nature. I would invent a lot of things, like a dish wiper so I wouldn't have to wipe dishes after my mom washed them. I would like to invent a homework machine so I wouldn't have to do all my homework."

Not every child is a potential scientist. And not every children's TV program is healthy for a child to watch. But the Childrens Television Workshop has hit the target with 3-2-1 CONTACT. A discerning parent who limits his child's TV viewing time has no need to worry if the child wants to watch 3-2-1 CONTACT.

And if you are a scientist or engineer yourself, you can add to the child's learning by sitting down and watching with him.

HIGHS AND LOWS of temperature was the theme for the show September 22-26, and Vicki Johnson explained how astronauts are protected from temperature extremes in space. Johnson is an engineer at Hamilton Standard headquarters in Windsor-Locks, Connecticut. The episode will air again the week of January 19 next year.

Student Project

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an experiment already planned for Shuttle, NASA may arrange for the student to receive data from the professional experiment. For experiments that require new hardware, a sponsor will be sought out from industry or universities to develop and construct the machinery.

"NASA will make every effort to see that the student receives enough information to write a final report," said Glen Wilson, special assistant for student activities at Headquarters.

Because of weight limitations, only the mid-deck crew compartment will be available for early student experiments. However, in the future, the students will be able to make use of the crew compartment, Spacelab, the orbiter cargo bay, and eventually even the Long Duration Exposure Facility.

Ed Gibson to leave NASA

Scientist-astronaut Dr. Edward G. Gibson will leave the NASA Johnson Space Center effective October 31 to join TRW Defense and Space Systems Group, Redondo Beach, California, as advanced systems manager.

Gibson was selected as an astronaut in June 1965 and was science pilot on the 84-day Skylab 4 mission in 1973-1974.

An eminent scientist in the field of solar physics, Gibson is author of the textbook, *The Quiet Sun*.

He left NASA in 1974 to join Aerospace Corporation as senior staff scientist, and later was consultant to the West German aerospace firm of ERNO Raumfahrttechnik GmbH in Bremen. Gibson re-joined NASA in March 1977.