

“DISNEY’S WORLD OF PHYSICS: PROPERTIES OF MOTION”

PHYSICAL SCIENCE

Grade Levels: 3rd-12th
Program Length: 3 hours

This program is aligned with National Standards.

Meeting Location:
(Morning) The *Magic Kingdom*® Transportation and Ticket Center Bus lot.

The *Space Mountain*® learning experience is not available on mornings with *Magic Kingdom*® Park extra magic hours.

OBJECTIVE

While experiencing select *Magic Kingdom*® Park attractions, students will come face to face with science at work in an exploration of the forces that keep roller coasters and Audio-Animatronics in motion. Students will discover the role of physics in generating thrills and chills as they examine speed, velocity, acceleration, centripetal force, hydraulics, and pneumatics at the most magical place on Earth!

KEY LEARNING HIGHLIGHTS

Science in Motion

- Onboard the *Wait Disney World*® Resort Monorail Transportation System students are introduced to inertia and Newton’s First Law of Motion.
- Students gain knowledge of OHERC, an acronym for one version of the Scientific Method.

Physics at Work

- Select *Magic Kingdom*® Park attractions set the stage for student’s discovery of the role of physics in generating thrills and chills.
- Students examine how speed, velocity, and acceleration influence roller coaster design elements.
- Through the use of model roller coaster elements, students uncover the interplay of potential and kinetic energy in attraction design.
- Students use OHERC and apply knowledge gained through the model activity to an up-close experience on a select *Magic Kingdom*® Park attraction.
- On select days students discover the geometric process of indirect measurement.
- Using simple tools, students will demonstrate and calculate centripetal force.
- Students will observe and experience airtime, positive g-force, and lateral g-force when they fasten up for an exercise on a Disney Mountain.

Hydraulics and Pneumatics

- At a select *Magic Kingdom*® Park attraction, students discover the role of hydraulics and pneumatics in Audio-Animatronics technology.

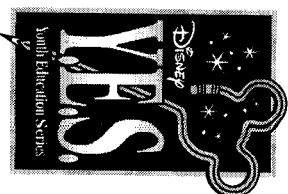
THE DISNEY DIFFERENCE

- This program begins prior to the opening of the *Magic Kingdom*® Park.
- Trained and knowledgeable Disney Y.E.S. Cast Members facilitate this high-quality and educationally sound program, while never forgetting that fun is a vital part of learning.

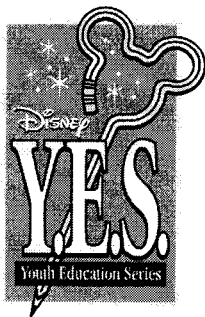


Disney Y.E.S. programs are accredited by Northwest Association of Accredited Schools.

All programs subject to availability. Program content, times, attractions, and locations subject to change due to inclement weather, availability, or group dynamics.



Toll-free Phone: 877-FIELDTRIP (877-343-5387) • Web: www.DisneyYES.com



Disney Youth Education Series

Disney's World of Physics: Properties of Motion

National Standards

Understands energy types, sources, and conversions, and their relationship to heat and temperature

Grades 6–8

- Knows that energy is a property of many substances
- Understands that energy cannot be created or destroyed only changed from one form to another

Grades 9–12

- Knows that all energy can be considered kinetic energy, potential energy, or energy contained by a field

Understands forces and motion

Grades 3–5

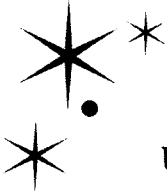
- Knows that when a force is applied to an object, the object either speeds up, slows down, or goes in a different direction
- Knows the relationship between the strength of a force and its effect on an object
- Knows that the Earth's gravity pulls any object toward it without touching it
- Knows that an object's motion can be described by tracing and measuring its position over time

Grades 6–8

- Knows that an object's motion can be described and represented graphically according to position, direction of motion, and speed
- Understands effects of balanced and unbalanced forces on an object's motion
- Knows that an object that is not being subjected to a force will continue to move at a constant speed and in a straight line
- Understands general concepts related to gravitational force

Grades 9–12

- Knows that the laws of motion can be used to determine the effects of forces on the motion of objects
- Knows that laws of motion can be used to determine the effects of forces on the motion of objects.



Understands the nature of scientific knowledge

Grades 3–5

- Knows that although the same scientific investigation may give slightly different results when it is carried out by different persons, or at different times or places, the general evidence collected from the investigations should be replicable by others
- Knows that good scientific explanations are based on evidence (observations) and scientific knowledge

Grades 6–8

- Knows that all scientific ideas are tentative and subject to change and improvement in principle, but for most core ideas in science, there is much experimental and observational confirmation

Understands the nature of scientific inquiry

Grades 3–5

- Plans and conducts simple investigations
- Uses simple tools to gather scientific data and extended senses
- Knows that good scientific explanations are based on evidence and scientific knowledge
- Knows that different people may interpret the same set of observations differently

Grades 6–8

- Knows that there is no fixed procedure called “the scientific method,” but that investigations involve systematic observations, carefully collected, relevant evidence, logical reasoning, and some imagination in developing hypotheses and explanations
- Designs and conducts a scientific investigation
- Uses appropriate tools and techniques to gather, analyze, and interpret scientific data
- Establishes relationships based on evidence and logical argument

Grades 9–12

- Understands the use of hypotheses in science
- Uses technology and mathematics to perform accurate scientific investigations and communications
- Knows that scientists conduct investigations for a variety of reasons

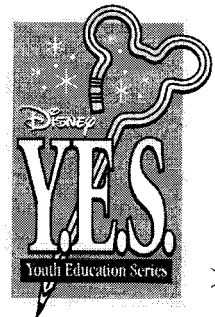
Understands the scientific enterprise

Grades 3–5

- Knows that scientists and engineers often work in teams to accomplish a task

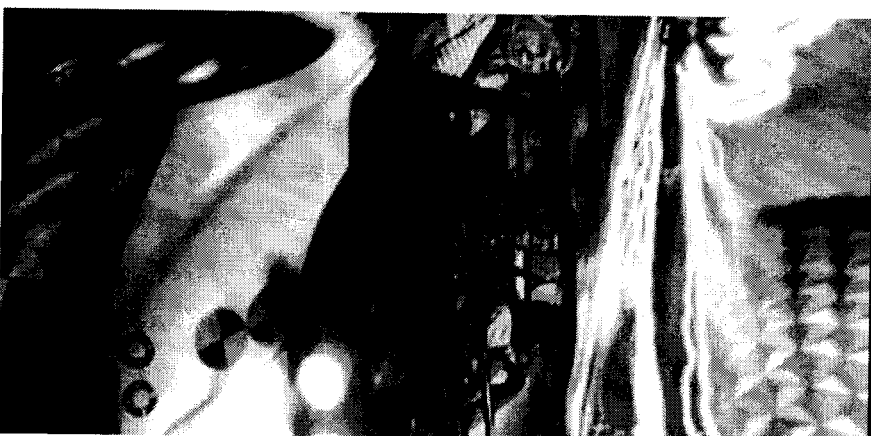
Grades 9–12

- Knows that creativity, imaginations, and a good knowledge base are all required in the work of science and engineering



DISNEY Y.E.S. PROGRAM

DESCRIPTION



EVERYDAY CHEMISTRY

PHYSICAL SCIENCE

Grade Levels:
4th-9th

Program Length:
3 hours

This program is aligned with National Standards.

Meeting Location:

(Morning) Outside *Epcot*® Main Entrance near the Group Sales Ticketing Window

(Afternoon) Inside *Epcot*® at the Innoventions Tip Board located in Innoventions Plaza.

OBJECTIVE

In one way or another, we all do chemistry. It happens in the kitchen, when we clean our homes, in fact almost everything around our homes has benefited from the application of modern chemistry. Set in *Future World* at *Epcot*®, this exploration of chemistry will take students on a journey of discovery as they investigate the many facets of this incredible science. Students will learn that everything around us is made up of chemicals, discover some of the amazing effects that chemistry has on our way of life, and uncover the fascinating world of what scientists often call the "central" science.

KEY LEARNING HIGHLIGHTS

This is Chemistry?

- Through an experiment with two similar chemical compounds, students learn that chemistry is all about understanding the properties of elements, how they react with one another, and how different combinations can create substances for a variety of uses.

So What is Chemistry?

Students learn that while it is true that chemistry takes place in scientific labs, it is also true that it is happening all the time and all around us.

- Students are introduced to the fact that everything in the world, whether natural or human-made, is composed of one or more of about 100 elements.
- Students are introduced to the versatile elements of hydrogen, carbon, and oxygen.

In the Beginning

At *Ellen's Energy Adventure* attraction students gain knowledge of the interconnectivity of carbon, hydrogen, and oxygen in the formation of energy that keeps us moving, working, and playing.

- Students learn the role of photosynthesis in their everyday lives.
- Students discover the value of understanding the chemical make-up of things.

- Students gain an appreciation of fossil fuels as a limited resource.

Polymers and Plastics

- Students construct a model of a polymer.
- Students discover three classifications of polymers.
- Students will discover that an understanding of chemistry can aid in producing substitutes for limited resources, reduce waste, and improve efficiency.

Putting Chemistry to Work

- Students examine how chemistry is at work for humankind everyday.
- At *Test Track* students get a glimpse into chemistry at work in the manufacturing of automobiles.
- Students are introduced to solar energy as an alternative to fossil fuels.
- Students learn that chemistry has been around for thousands of years and how it still produces surprising results in today's world.

THE DISNEY DIFFERENCE

- This program has been developed in conjunction with the Education Division of the American Chemical Society.
- Trained and knowledgeable *Disney Y.E.S.* Cast Members facilitate this high-quality and educationally sound program, while never forgetting that fun is a vital part of learning.



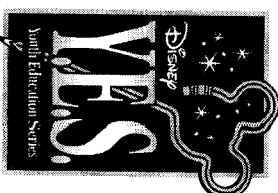
The *Disney Y.E.S.* program, Everyday Chemistry, has been developed in conjunction with the Educational Division of the American Chemical Society

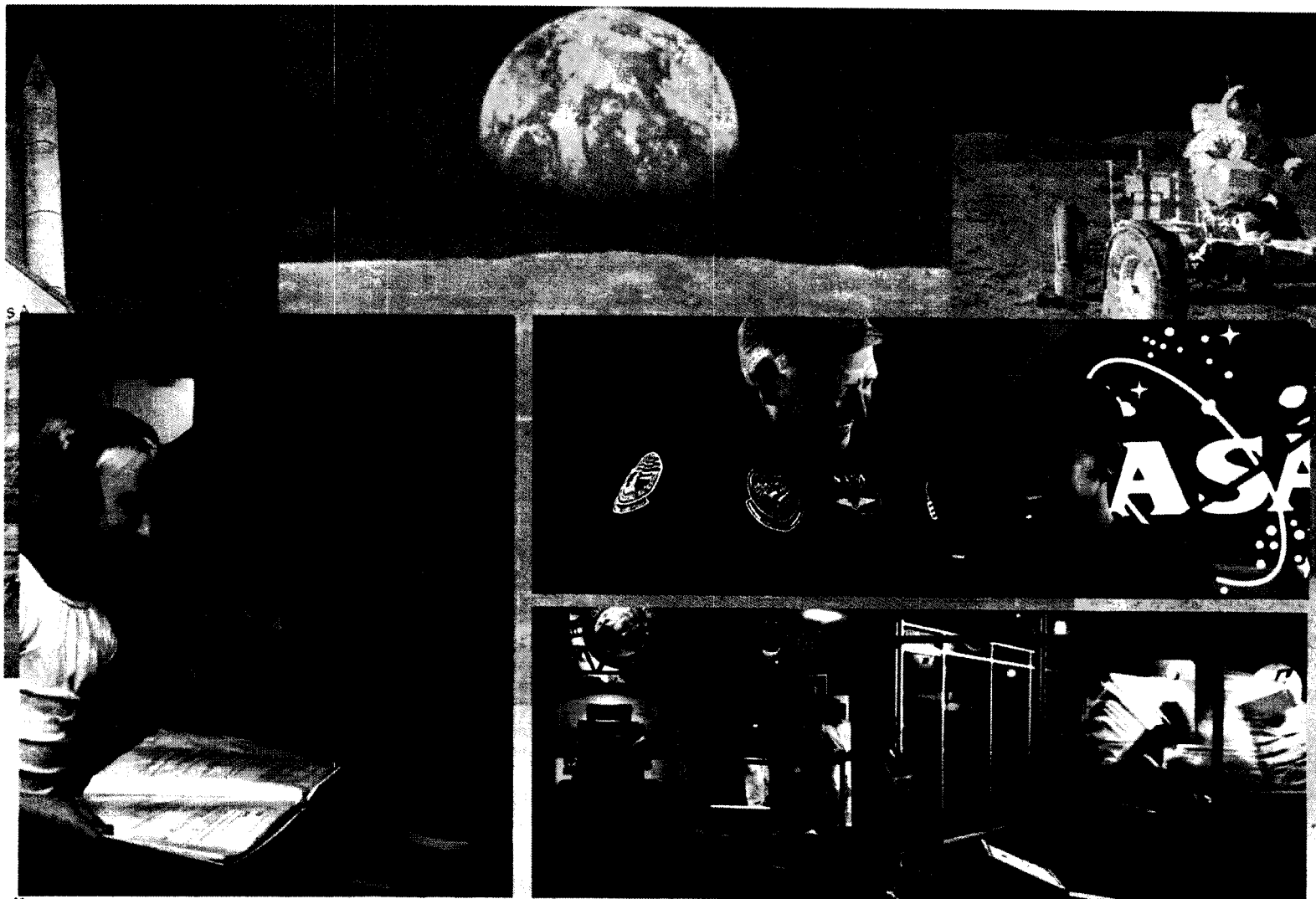


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STUDENT ATX*

(ASTRONAUT TRAINING EXPERIENCE)

Student ATX immerses your students in the world of today's astronauts as they experience a mission simulation and hands-on space activities. At the U.S. Astronaut Hall of Fame*, students engage in space exploration briefings, hands-on training, motion-based simulators and a full-scale space shuttle mission simulation, all designed to prepare your students for the rigors of spaceflight.

DATES: Call for 2010 times and availability.

TUITION: *\$45.00 (plus tax) per student.

Non-participant chaperone rate of *\$17.00 (plus tax), which includes admission to the U.S. Astronaut Hall of Fame.

**All rates subject to change.*

SALUTE TO SCIENCE

Attend a private, interactive briefing to learn about important science concepts relating to space exploration. Science students will enjoy a private meeting with an astronaut and engage in a hands-on, minds-on Team Engineering Challenge. The admission ticket includes special activities, lunch, IMAX* films, the KSC Tour, Shuttle Launch Experience, all shows, and exhibits. Perfect for groups of 100 or more.

DATES: Call for dates and availability.

TIME: Check-in between 9 – 9:30 a.m.

Program runs throughout the day.

TUITION: *\$31.50 (plus tax) per person

**All rates subject to change.*

SALUTE TO HOMESCHOOLERS

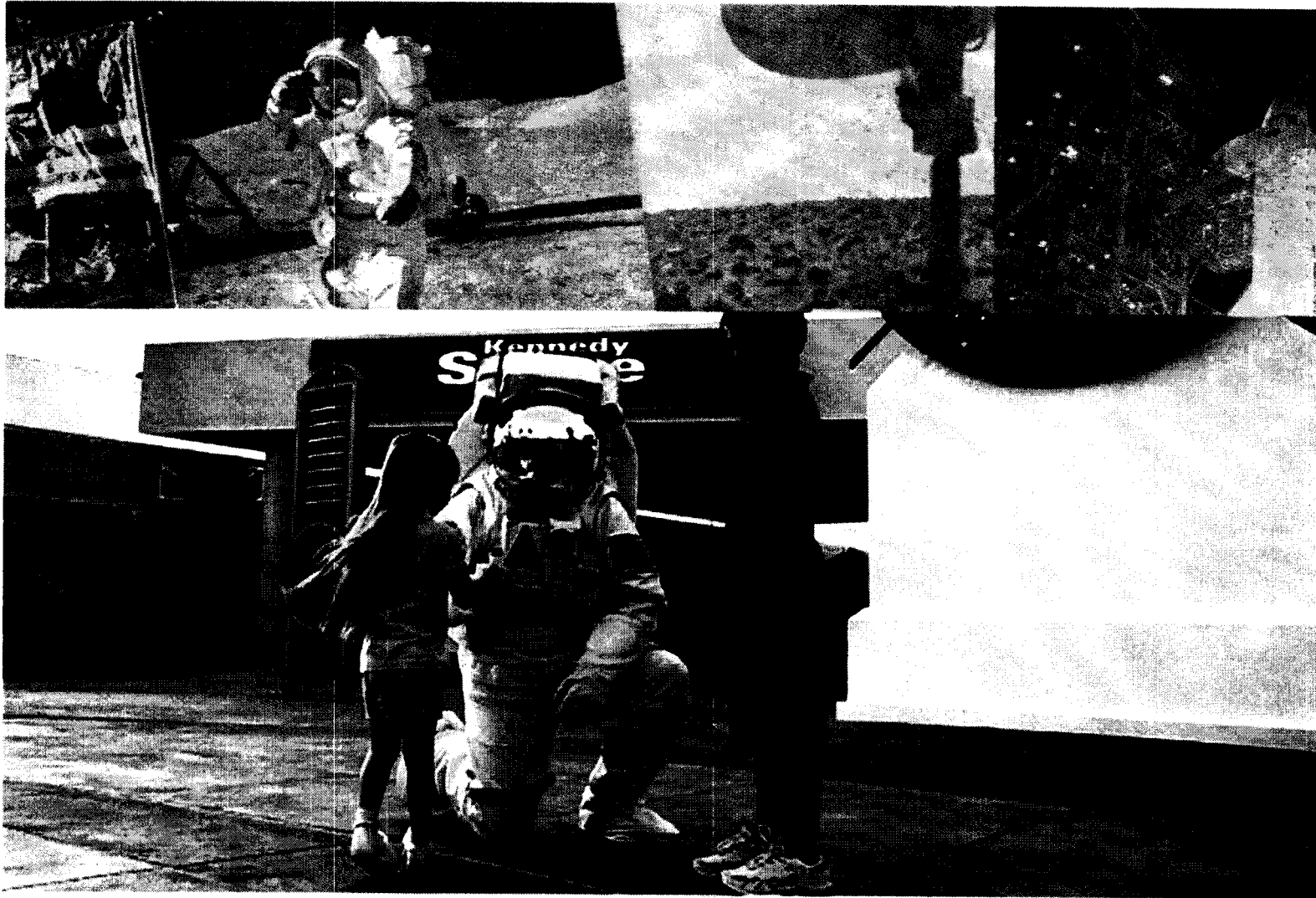
Attend a private, interactive briefing about the latest NASA accomplishments and meet an astronaut with a special message to homeschool teachers and students. Salute activities include a family hands-on, minds-on Team Engineering Challenge. The admission ticket features lunch, IMAX films, the KSC Tour, Shuttle Launch Experience, all shows, exhibits and more. Homeschool teachers can also pick up a packet of NASA education materials to help students reach for the stars.

DATES: Thursday, April 22, 2010

TIME: Check-in between 9 – 9:30 a.m.

Program runs throughout the day. Homeschool ticket includes two-day admission (within a seven-day period) to KSC Visitor Complex and the U.S. Astronaut Hall of Fame.

TUITION: *\$31.50 (plus tax) per person



EDUCATIONAL FIELD TRIPS

GET VERTICAL ON SHUTTLE LAUNCH EXPERIENCE AND MAKE YOUR FIELD TRIP OUT-OF-THIS-WORLD.

Kennedy Space Center Visitor Complex™ provides you with exciting field trip experiences designed to inspire students and enlighten inquisitive minds.

Special rates allow students to tour KSC, meet a real astronaut, see larger-than-life IMAX® films, and witness exciting space exploration exhibits, interactive shows and briefings. Students gain a greater appreciation of NASA and leave encouraged to reach for the stars in their future careers.

DATES: Daily

TIME: 9 a.m. – dusk. Bus tours depart beginning at 10 a.m.

TUITION: Please call for rates.

Kennedy Space Center field trips meet Florida Sunshine State Standards, FCAT requirements and national science standards.

Educator's Activity Guides have been created to meet these standards for Kindergarten – 2nd grade, 3rd – 5th grade, 6th – 8th grade and 9th – 12th grade. The guides contain dynamic classroom-ready pre-trip, onsite and post-trip materials designed to promote cooperative learning, problem solving and guided research.

SHUTTLE LAUNCH EXPERIENCE:

Strap into the sights, sounds and sensations of a simulated space shuttle launch. *Included in most youth programs.*

***Height restrictions apply*

FIELD TRIP INFORMATION

Youth rate requirements: A group minimum of 15 youth is required to qualify for our special youth rate. No walk-up groups will be admitted at the youth rate – a ONE WEEK advance reservation is required. Pre-payment is preferred. Ask about shipping options for your tickets. Only Florida tax-exempt certificates can be accepted and must be faxed at the time of reservation.

Chaperones and youth must remain together during the entire field trip experience, regardless of age. Because of this requirement, special youth rates and complimentary admission are offered to chaperones based on the ratios below. Additional adults must pay the regular admission rate.

KENNEDY SPACE CENTER CHAPERONE POLICY:

- One chaperone discount for every 5 students grades K – 5.
- One chaperone discount for every 10 students grades 6 – 12.
- For every 30 students, one chaperone receives complimentary admission.
- Students must be supervised at all times.



SALUTE TO SCOUTS

Attend a private, interactive briefing about NASA's latest missions and meet an astronaut with a special message to scouts. Includes specific Boy/Girl Scout merit badge activities. Participants earn a commemorative Kennedy Space Center patch. Program features a hands-on, minds-on Team Engineering Challenge. The admission ticket includes activities, IMAX® films, the KSC Tour, Shuttle Launch Experience, and all shows and exhibits.

SALUTE TO BOY SCOUTS

DATES: Saturday, February 13, 2010

SALUTE TO GIRL SCOUTS

DATES: Saturday, March 13, 2010

TIME: Check-in between 9 – 9:30 a.m.

Program runs throughout the day. Scout ticket includes two-day admission (within a seven-day period) to KSC Visitor Complex and the U.S. Astronaut Hall of Fame®.

TUITION: *\$31.50 (plus tax) per person



LUNCH WITH AN ASTRONAUT

Lunch can be much more than just another meal! It's a great opportunity to inspire your group with the once-in-a-lifetime thrill of having lunch with a veteran astronaut. Hear stories about space exploration adventures first-hand from someone who has launched into orbit.

NEED A LITTLE MORE FLEXIBILITY?

Special student lunches are available to your groups at other prescheduled times. Select from chicken strips, pizza, hotdogs or hamburgers. Assorted soft drinks, potato chips and a special treat accompany each meal. Meal vouchers are also available.

EDUCATOR STUDY PASS

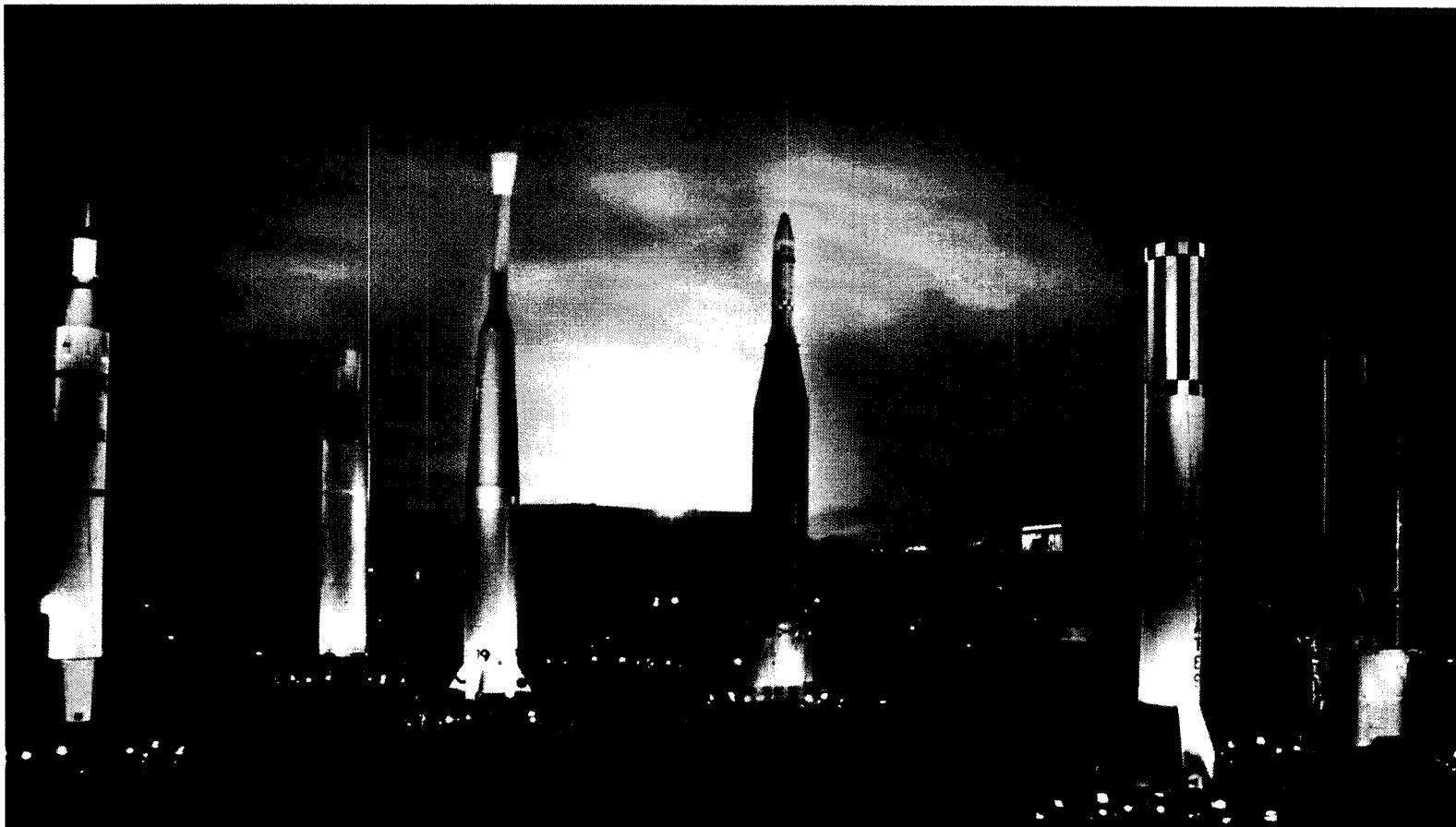
The Educator Study Pass offers Florida and Georgia K-12 educators a complimentary admission ticket (not valid on shuttle launch days) with year-round access to the Visitor Complex and KSC's Educator Resource Center (ERC). Teachers will discover helpful tips for field trips, learn about new education programs and discover interesting facts to integrate into their science, math and space exploration curriculum. Educators can call (321) 867-4090 prior to visiting for more details about the ERC.

To be eligible for an Educator Study Pass, educators must possess a valid Florida or Georgia teacher certificate and be currently employed at an accredited school as a full-time K-12 classroom educator. Please present the following when you arrive at the Visitor Complex Ticket Plaza:

- 1) A valid Florida or Georgia teaching certificate
- 2) A photo I.D.

CAMP KENNEDY SPACE CENTER® - Spring and Summer sessions available. Visit www.KennedySpaceCenter.com for dates.

ATTENTION: IMPORTANT RESERVATION INFORMATION ENCLOSED



KENNEDY SPACE CENTER VISITOR COMPLEX

Enrich today's youth with the inspiring stories of NASA. Take your students' imaginations to new heights with a trip to Kennedy Space Center Visitor Complex. Many programs, including Field Trips, Overnight Adventures and Student AIX, combine unique educational value with out-of-this-world adventure. Kids can strap into Shuttle Launch Experience and even meet a veteran astronaut.