

The  
**ADVANCE BOOK**  
*for*

The  
**Mobile**  
**Discovery Center**

Sponsored by the  
National Science Center  
and the U.S. Army



The National Science Center  
One Seventh Street  
Augusta, GA 30901

(706) 821-0200  
FAX (706) 821-0269  
[www.NationalScienceCenter.org](http://www.NationalScienceCenter.org)

## General Information Mobile Discovery Center



**The National Science Center (NSC)**, located in Augusta, Georgia, takes Science on the road with its Mobile Discovery Centers. Housed in 18-wheelers, the mobile centers travel across the country, presenting programs designed to show young people that studying science and math is fun as well as essential to their future. The complete program presented during a van visit consists of fun, hands-on, interactive science demonstrations. Educational outreach is the mission of the National Science Center and The Mobile Discovery Centers play a key role in the accomplishment of this mission by taking our programs to schools across the nation.

Designed by the National Science Center and staffed by U.S.Army soldiers and Department of Army civilian personnel, Mobile Centers are capable of multiple uses. They are mobile classrooms providing training for students and teachers and mobile, walk-through exhibit halls showcasing small interactive exhibits and displays. The science demonstrations are fun and exciting for both students and teachers.



## Coordination Responsibilities

### Mobile Discovery Center

**The National Science Center:** At least two weeks prior to a scheduled Mobile Discovery Center visit, the program manager will contact each site to finalize the details of the visit and address any issues or questions.

**Host Site Point of Contact:** The school coordinator should determine the best route for the van to travel to your site. Ensure that tractor-trailers are authorized and make sure that the route is free of overhangs/overpasses (trees, rails, power lines, bridges, tunnels, etc.). Side clearances should ensure passage of a 9-foot wide vehicle. This information can be obtained from local police and city planners.

**The Mobile Discovery Center:** About one week prior to arrival at the site, a member of the Mobile Discovery Center exhibit team will contact the site coordinator to finalize the arrival time and setup requirements.

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If for any reason the Mobile Discovery Center is unable to reach a scheduled destination, a member of the Mobile Discovery Center team will contact the site coordinator to explain the reason for the delay and coordinate an alternate arrival time.

National Science Center  
One Seventh Street  
ATTN: Mobile Discovery  
Center Manager  
Augusta, GA 30901

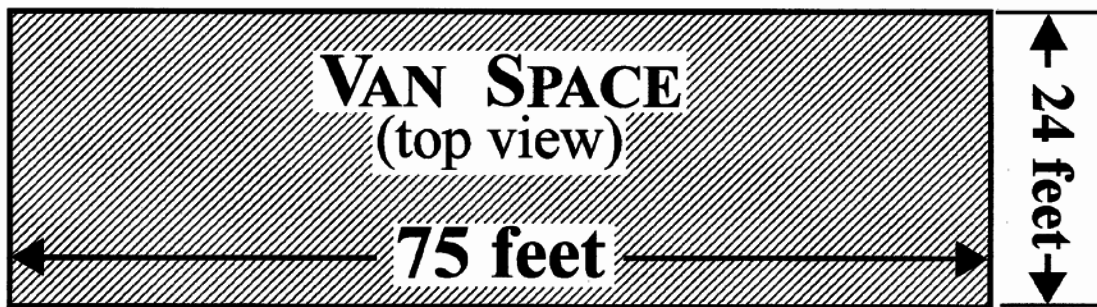
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(706) 821-0219 • FAX (706) 821-0250  
[stewartw@nscdiscovery.org](mailto:stewartw@nscdiscovery.org)

## SET-UP Information

# Mobile Discovery Center

- 1. Van Placement:** The Mobile Discovery Center should be placed on level, solid ground (Paved or Concrete).
- 2. Space Requirements for Parking:** 24 feet wide by 75 feet long by 14 feet high. (This equals two adjacent rows of seven parking spaces - - a total of 14 spaces). Space should be located away from inbound and outbound traffic and away from student and bus pick-up zones.



- 3. Power Requirements:** "NONE" - The Mobile Discovery Center is totally self-contained.
- 4. Size:** The Mobile Discovery Center Van is 8 feet wide by 65 feet long and 14 feet high. The Van's sides expand to 16 feet wide.
- 5. Seats:** The Mobile Discovery Center will seat 35-40 students depending on age level.

# **Mobile Discovery Center Program**

## **Current Mobile Discovery Center Program**

### **Science Demonstrations**

This 45-minute program uses numerous physical science demonstrations to actively engage the student in the learning process. Demonstrations of Van De Graff generators, plasma ball and Tesla coils are used to create “hair raising” experiences during the demonstrations. Frequency, sound, and resonance are all covered during the exciting Electronic Glass Breaker demonstrations. Persistence of Vision is demonstrated with the “I thought I saw something” Light Stick. Last but not least is the “Seeing in the Dark” demonstration where the principles of night vision are demonstrated. Throughout the demonstration program, numerous students (and occasionally, a brave teacher) will be asked to assist the demonstrators.

The complete program consists of fun, interactive science demonstrations. The entire program is approximately 50 minutes in length. Routinely, 6 presentations can be scheduled during a traditional school day. Each session will seat approximately 35 - 40 students, depending on age.

# Mobile Discovery Center Demonstrations

## MDC Demonstrations

### 1. Electricity\* and Magnetism

- a. Van De Graff Generator (Static Electricity)
  - 1) Student Hair Stand
  - 2) Confetti Fly
  - 3) Balloon on hair
- b. Tesla Coil (AC/DC)
  - 1) Student lights incandescent bulb
  - 2) Students light fluorescent bulb around "Queen"
- c. Plasma Ball
  - 1) Student lights fluorescent bulb
  - 2) Students linked to light fluorescent bulb
- d) Magnetism
  - 1) Electromagnet (Student Tug of War)
  - 2) Lodestone Magnet
  - 3) Stacked ring magnets (Levitation)

### 2. Light & Vision \*

- a. Light Stick (Multiple preprogrammed images)
- b. Night Vision (Thermal Tricks)
  - 1) Student image in video and IR
  - 2) Student video & IR image through obstacles (glass, plastic, smoke, etc.)
- c. Persistence of Vision
  - 1) "Green" flag
  - 2) Mona Lisa

### 3. Sound \*

- a. Acoustical Glass Breaker
- b. Singing Rods
- c. Singing Straws
- d. Pencil/Slinky
- e. Train Whistle
- f. Tuning Fork/ Wine Glasses
- g. Whoopi Cushions/Balloons

**MDC Demonstrations continue on next page**

# Mobile Discovery Center Demonstrations

## MDC Demonstrations (Continue)

### 4. Table-Top Demos

- a. Center of Mass (Balancing Nails)
- b. Hoop Swoop (Newton's Law)
- c. Needle in a Balloon (Surface Tension)

### 5. Best of the Best

- a. Electromagnetic Spectrum
- b. Acoustical Glass Breaker (7<sup>th</sup> and up)
- c. Van de Graaff Generator (4<sup>th</sup> and up)
- d. Plasma Ball (4<sup>th</sup> and up)
- e. Persistence of Vision

\* Electromagnetic Spectrum

## Your NSC

### National Science Center

**Background:** The National Science Center (NSC) is the joint effort of a partnership between the U.S. Army and a private foundation, NSC, Inc. Located in Augusta, Georgia, NSC features an exhibit facility, Fort Discovery, on the Riverwalk by the Savannah River. This is also the home base of the various educational programs that reach out across the nation. The primary mission is to improve technical literacy and stimulate an interest in the physical sciences and math inherent in today's technology.

The concept of the National Science Center was affirmed in a Memorandum of Understanding that created the partnership, and was further endorsed by Congress in 1985 with Public Law 99-145. The law gives the Army authority to operate educational programs and do educational programming for Fort Discovery and authorizes the private partner to own, operate, and maintain the building and exhibits.

**Fort Discovery:** A 128,000 square foot building, Fort Discovery, houses over 270 exhibits depicting physical sciences and math concepts. All are interactive, offering hands-on or "minds-on" activities for the visitor. Exhibit topics cover the range of the fundamentals of electricity to the complexities of biomedical equipment. Interaction in the high-tech theater depicts dramatic stories of technology and communications. The visitor can take part in the demonstration area where lightening bolts from the giant Tesla Coil will spark their imagination. Also available is the KidScape area for the very young scientist, Discovery Labs, a Science Store, and a dining facility overlooking the Riverwalk.

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For additional information on  
the National Science Center programs,  
visit our web site...

[www.NationalScienceCenter.org](http://www.NationalScienceCenter.org)

Share our web site address with your peers  
and check the site often. We are continually  
developing new programs for you.