

Scheduling a CLC Mission

Challenger Learning Center missions are not “mere field trips.” They are comprehensive learning experiences that include four to six weeks of pre-mission preparation by students, as well as up to two weeks of post-mission follow up. As such, teachers must attend and participate in a teaching training workshop prior to beginning the CLC curriculum. These workshops provide teachers with a mission orientation, training in the use of curriculum materials, and a short mission experience.

Challenger Learning Center at Prairie Aviation Museum

Call (309) 661-1621 and speak with the office assistant to book or confirm your mission date/time and register for a Teacher Training Workshop if necessary. Book early. Mission slots fill very quickly.

Supplementing the CLC Mission Experience

To maximize the educational value of the CLC learning experience, teachers might want to consider additional field trips to the Prairie Aviation Museum, the Illinois State University Planetarium, Physics in the Classroom, or the Sugar Grove Observatory. When booking your CLC mission, check with the office assistant about package options. Arrangements can be made for scheduling field trips to the Prairie Aviation Museum and the Illinois State University Planetarium.

Prairie Aviation Museum provides an interesting look into the past, present, and future of aviation and spaceflight. It is located approximately 1/4 mile to the east of the Challenger Learning Center. For detailed information about their field trips and other offerings, visit their web site at www.prairieaviationmuseum.org.

Illinois State University Planetarium has programs specifically tailored to meet the education needs of students participating in a CLC mission. More information about the planetarium’s offerings can be found on the Planetarium’s web page at www.phy.ilstu.edu/planet.html. For more information about the planetarium program, call (309) 438-8756. To schedule a planetarium program before or after your Challenger Learning Center school mission, call the Challenger Learning Center at (309) 661-1621.

Children’s Discovery Museum is located in uptown Normal, Illinois. Students can explore, imagine, create and play with three floors of amazing hands-on exhibits. More information about the museum’s offerings can be found on the Museum’s web page at www.childrensdiscoverymuseum.net.

Physics on the Road can arrange a trip to your school to give a presentation on physics topics with exciting demonstrations and fun hands-on activities that will engage your entire class. Possible topics include (but not limited to): electricity, solar power, astronomy, light, sound, waves, physics of sport). For more information about this program, contact Dr. Jay Ansher by phone at 309-438-5247, or with e-mail at jansher@ilstu.iedu.

Sugar Grove Observatory was erected by the Twin City Amateur Astronomers at Sugar Grove Nature Center near Funks Grove, Illinois. Private evening viewing sessions may be arranged for school and social groups. Students may also attend public observing sessions as well. To find out more about the Twin City Amateur Astronomers and their observing sessions and schedule, visit their official web site at www.twincityamateurastronomers.org.

Mission Checklist

BEFORE YOUR MISSION:

1. Call (309) 661-1621 to:
 - a. book or confirm your mission date/time and package option arrangements,
 - b. register for Teacher Training Workshop, and
 - c. schedule package option with Prairie Aviation Museum and ISU Planetarium, or Avanti's Lunch
2. Attend Teacher Training Workshop
3. Make transportation arrangements.
4. Complete a minimum of 18-30 class periods with your astronauts in training.*
5. Assign your students to each of the eight teams.*
6. Design class mission patch.*
7. Complete the Crew Manifest sheet.*
8. Send copies of Media Release and Gift Shop Order forms home with students.
9. Confirm transportation arrangements.
10. Send payment two full two weeks prior to mission.
11. Send/Fax legible copy of Crew Manifest two weeks prior to mission.
12. Confirm package options, Avanti's order, and lunchroom facilities two weeks prior to mission.
13. Notify the CLC of any students with special needs.
14. Discuss code of conduct with students.

*Items discussed in more detail at the Teacher Training Workshop

MISSION DAY:

1. Schedule bus arrival time fifteen (15) minutes prior to your scheduled mission time.
2. Bring the following materials with you on the day of the mission.
 - Two (2) copies of the Crew Manifest
 - Driving directions to the Challenger Learning Center
 - Signed Media Release forms
 - Student envelopes with gift shop order form & exact payment (optional)
 - One copy of the class mission patch (optional)
 - An excited crew of Mission Specialists

AFTER YOUR MISSION:

1. Post-mission classroom activities:
 - a. Debriefing
 - b. Press conference
2. Book your next mission.

Student Code of Conduct

The Challenger Learning Center at Prairie Aviation Museum strives to give all mission participants a positive and educational experience while visiting. All students need to be aware that they represent their school and the Challenger Learning Center at all times. Their behavior must reflect positively on the program, school and, most importantly, themselves. Students are expected to treat all Challenger Learning Center equipment and personnel with respect. A positive attitude and enthusiastic participation are also expected from students.

If at any time during the Mission or activities a discipline problem should arise, the following steps will be taken:

1. Warning from flight director
2. Teacher intervention
3. Dismissal from activity/mission

Again, the Challenger Learning Center at the Prairie Aviation Museum strives to give all participants an exciting experience. Our belief is that all students will rise to their greatest potential and realize what a valuable life experience their visit will be.

Media Release Form/Photo Agreement

Lights! Camera! Action!

The students who visit the Challenger Learning Center often have the opportunity to work with the news media. Photographers from newspapers and television stations like to feature students in special news releases.

Please indicate below if you do or do not give permission for your child to be photographed and/or interviewed by members of the press.

Photo/Interview Agreement

Student name

School

Check one of the following:

My child may be photographed/interviewed during a visit to the Challenger Learning Center. I agree to give all privileges for copyright and publication of my child's images/responses for use in the promotion of advertisement of the Challenger Learning Center and for use in the media.

My child may not be photographed and/or interviewed by the press/CLC staff.

Parent/Guardian Signature

Date

Gift Shop Order Form

Student Name _____

Challenger Learning Center at Prairie Aviation Museum Gift Shop Order Form

Return form along with payment to the Challenger Learning Center at Prairie Aviation Museum on the day of your mission, checks payable to Challenger Learning Center. The CLC attempts to keep all gift shop items in stock. However, the CLC cannot guarantee that all items will be in stock at all times. In the event that stock items lapse/discontinued, the CLC will substitute or refund that portion of the order.

Item	Price (tax included)	Quantity	Total
International Space Station Postcard ----- (land) ----- (water)	\$1.00		
Shuttle Shaped Lollipops	\$1.00		
Space Flip Cube	\$2.00		
Mars Mud	\$2.00		
Space Shuttle Bentcil	\$3.00		
CLC Lapel Pin	\$3.00		
CLC Keychain	\$3.00		
CLC Astronaut Sipper Bottle	\$3.00		
Astronaut Ice Cream	\$3.00		
Space Shuttle Sour Gummis	\$3.00		
Team Badge ----- COM DATA ISO LS MED ----- NAV PRESS PROBE REM	\$3.00 ----- Comet ----- Mars		
Micronaut Badge	\$3.00		
CLC Lanyard	\$5.00		
CLC Coffee Mug	\$5.00		
CLC Pen with Blue Highlighter	\$5.00		
CLC Sunburst Light-up Pen	\$5.00		
Challenger Learning Center Patch	\$5.00		
NASA Vector Patch	\$5.00		
Challenger STS 51-L Mission Patch	\$5.00		
Columbia STS 107 Mission Patch	\$5.00		
CLC T-shirt Color: ----- BLACK (Flew a Mission) BLUE (Rocket Science) GREEN (Astronaut Training) Size: ----- YL S M L XL XXL	\$15.00 (YL-XL) \$18.00 (XXL)		
TOTAL			\$

**New items added to gift shop throughout the year!
Pictures and prices of current gift shop items are available at our website!**

Revised 9/07

Package Options Form

Many exciting educational opportunities are available in the Bloomington–Normal area should you decide to extend your day. If you would like to contact other venues, please feel free to make any of the necessary arrangements. However, the Challenger Learning Center at Prairie Aviation Museum has a package option available for your group(s) in order to extend your CLC experience! This package option also provides great activities for your students if you are bringing two groups to the CLC in one day. While one group is in a CLC mission, the other group can take advantage of the Prairie Aviation Museum and ISU Planetarium offerings:

Package Option Includes:

A forty–five minute tour at the Prairie Aviation Museum and a sixty minute program at the Illinois State University Planetarium. See the ISU Planetarium webpage for available programs, www.phy.ilstu.edu/planetfiles/school/html

Or

A forty–five minute tour at the Prairie Aviation Museum and a sixty minute exploration of the Children’s Discovery Museum. (5th grade only)

Package Cost:

Cost of the PAM/ISU package option is \$3.00 per student and \$4.00 for the PAM/CDM package option, payable to the Challenger Learning Center at least two weeks prior to your mission (along with your mission balance). Also, all transportation among CLC, Museum, and Planetarium must be provided by your school/organization.

To register for a package option, call the office assistant at 309.661.1621, or fill out the following form and return it to the Challenger Learning Center **at least four weeks prior to mission date**. After receipt of your registration form, you will be mailed an invoice and confirmation packet with any additional details. Package payment is due the day of the mission, payable to Challenger Learning Center.

Challenger Learning Center at Prairie Aviation Museum
2901 East Empire Street, Bloomington, Illinois 61704
Phone: 309.661.1621 Fax: 309.661.1652
www.challengerlearningcenter.com

Contact Person: _____ Organization: _____

Organization Address: _____

Daytime Phone: _____ Best Time to Call: _____

Fax Number: _____ Email Address: _____

Challenger Learning Center mission date/time (if already confirmed): _____

of students: _____ PAM/ISU Pkg (\$3/student): \$_____ PAM/CDM Pkg (4/student): \$_____

Planetarium Program: _____

Driving Directions for Package Options

From the Challenger Learning Center:

To Prairie Aviation Museum:

Go NORTH out of the CLC parking lot on Carnahan Drive.
Turn EAST (right) onto the access road before you reach Rte. 9/Empire St.
Museum will be on your right. Look for the red canopy leading to the door.

To Illinois State University Planetarium:

Go NORTH out of the CLC parking lot on Carnahan Drive.
Turn WEST (left) onto Illinois Route 9/Empire Street. (0.7 miles)
Turn NORTH (right) onto BUSN-55/Veterans Parkway. (1.5 miles)
Turn WEST (left) onto College Avenue. (1.4 miles)
College Avenue will become Mulberry Street. (0.5 miles)
Turn SOUTH (left) onto School Street. (0.1 miles)

The ISU Planetarium will be on your right. Look for the white dome.
Drop the students off along School Street at the Planetarium.
Then buses may park in ISU lot G82:
Continue WEST on College Avenue.
Turn NORTH (right) on Main Street.
The G82 parking lot is just north of Horton Field House on your left.

From the Illinois State University Planetarium:

To the Prairie Aviation Museum:

Go EAST on College Avenue. (1.9 miles)
Turn SOUTH (right) onto BUSN-55/Veterans Parkway. (1.5 miles)
Turn EAST (left) onto Illinois Route 9/Empire Street. (0.7 miles)
Turn SOUTH (right) onto Carnahan Drive.
Turn immediate EAST (left) onto access road.
Museum will be on your right. Look for the red canopy leading to the door.

To the Challenger Learning Center:

Go EAST on College Avenue. (1.9 miles)
Turn SOUTH (right) onto BUSN-55/Veterans Parkway. (1.5 miles)
Turn EAST (left) onto Illinois Route 9/Empire Street. (0.7 miles)
Turn SOUTH (right) onto Carnahan Drive.
Continue straight ahead.
The Challenger Learning Center is located in the former airport terminal.

Driving Directions for Package Options

From the Children's Discovery Museum:

To the Prairie Aviation Museum:

Go EAST on Beaufort Street
Turn North on Linden Street.
Go EAST on College Avenue. (1.5 miles)
Turn SOUTH (right) onto BUSN-55/Veterans Parkway. (1.5 miles)
Turn EAST (left) onto Illinois Route 9/Empire Street. (0.7 miles)
Turn SOUTH (right) onto Carnahan Drive.
Turn immediate EAST (left) onto access road.
Museum will be on your right. Look for the red canopy leading to the door.

To the Challenger Learning Center:

Go East on School Street.
Turn North on Linden Street.
Go EAST on College Avenue. (1.5 miles)
Turn SOUTH (right) onto BUSN-55/Veterans Parkway. (1.5 miles)
Turn EAST (left) onto Illinois Route 9/Empire Street. (0.7 miles)
Turn SOUTH (right) onto Carnahan Drive.
Continue straight ahead.
The Challenger Learning Center is located in the former airport terminal.

TEACHER Order Form for Avanti's Lunch

	Item Cost	Quantity		Total Cost
		baked chips applesauce	plain chips cookie	
1/2 Gondola (Ham, Salami, American Cheese, Lettuce)	\$4.00			
1/3 Gondola (Ham, Salami, American Cheese, Lettuce)	\$3.50			
1/2 Turkey (Turkey, Swiss Cheesem Tomatoes, Lettuce)	\$5.00			
Pizza Bread (Pizza Sauce and Mozzarella Cheese)	\$4.00			
Grilled American Cheese	\$4.00			
Regular Salad Only (Crisp Lettuce and Tomato)	\$2.50			
Dressing Choices:				
<input type="checkbox"/> Ranch <input type="checkbox"/> French <input type="checkbox"/> Italian				
Total Due				

Lunches include:

Soda or Water (choice can be made at the Challenger Learning Center)
Napkins, Plasticware
Mustard and Salad Dressing Packets for Cold Sandwiches

Pizza, pasta, and other sandwiches also available, please call for details.

School Name: _____

Contact Name: _____

Phone Number: _____

Mission Date(s) & Mission Time(s): _____

**MINIMUM OF 2 WEEKS PRIOR TO MISSION
RETURN TEACHER ORDER FORM TO CLC:
2901 EAST EMPIRE
BLOOMINGTON, ILLINOIS 61704
FAX 309.661.1652**

STUDENT Order Form for Avanti's Lunch

Name: _____ Order & Money Due: _____

Sandwiches:	Sides: (Check One)	Cost:	Quantity:	Total:
1/2 Gondola (Ham, Salami, American Cheese, Lettuce)	<input type="checkbox"/> baked chips/applesause <input type="checkbox"/> plain chips/cookie	\$4.00		
1/3 Gondola (Ham, Salami, American Cheese, Lettuce)	<input type="checkbox"/> baked chips/applesause <input type="checkbox"/> plain chips/cookie	\$3.50		
1/2 Turkey (Turkey, Swiss Cheese, Tomatoes, Lettuce)	<input type="checkbox"/> baked chips/applesause <input type="checkbox"/> plain chips/cookie	\$5.00		
Pizza Bread (Pizza Sauce and Mozzarella Cheese)	<input type="checkbox"/> baked chips/applesause <input type="checkbox"/> plain chips/cookie	\$4.00		
Grilled Cheese (White Bread and American Cheese)	<input type="checkbox"/> baked chips/applesause <input type="checkbox"/> plain chips/cookie	\$4.00		

Salads:	Dressings: (Check One)	Cost:	Quantity:	Total:
Regular Salad (Crisp Lettuce and Tomato)	<input type="checkbox"/> Ranch <input type="checkbox"/> French <input type="checkbox"/> Italian	\$2.50		

Total Due:

Lunches include:

Soda or Water (choice can be made at the Challenger Learning Center)
 Napkins, Plasticware
 Mustard and Salad Dressing Packets for Cold Sandwiches

Information for Teachers/Chaperones

Payment of Mission and Package Options/Avanti's Lunch should be made payable to the Challenger Learning Center. Mission payment should be sent two weeks prior to the mission date. Package option and Avanti's lunch payment should be brought the day of the mission with checks payable to the Challenger Learning Center.

Buses should pull up to the west door of our building. After your students leave the bus, the driver will be instructed where to park in the lot until your mission is over. Plan to arrive fifteen (15) minutes prior to your scheduled mission time.

Restrooms are available, but there will not be time during the mission to use the restrooms. Your fifteen (15) minute early arrival will ensure time for your students to use the restrooms before their mission.

Chaperones are required, one adult per eight (8) students, and a maximum of four (4) per mission. These can be parents, teachers or administrators who will supervise the students, but not do the tasks for them. Teachers and chaperones must remain with their students at all times. Please remind chaperones that they are **observers** of the mission and should refrain from communicating with students during the mission.

Snow make-up days are scheduled into our yearly calendar. You may reschedule your mission only if your school or the Challenger Learning Center closes.

Do bring cameras, still and video—Students may take pictures after the mission, teachers and chaperones during. Nametags for students are helpful, but not required. Remind students with reading glasses that they will need them for this trip. We also remind you to bring a first aid kit and any required medications. We will have a coat area for students who bring coats.

Don't bring gum, candy, radios, cassette/CD players, iPods, backpacks, purses, hats, pencils, pens, paper or small children. Neither hats nor hoods may be worn during the mission.

Shoes: no open-toed shoes or sandals.

Lunch facilities: The lunch pad and departure area are reserved for lunch purposes from 11:30am to 12:00pm for missions starting at 12:15pm, and 12:00pm to 12:30pm for missions starting at 9:00am. Times may vary. You may use these areas to eat your lunch before or after your mission. Use of these rooms includes tables, chairs, vending machines, and a refrigerator. Please clean your area before you leave. **ABSOLUTELY NO CANDY, REFRESHMENTS, OR FOOD ARE PERMITTED OUTSIDE THE LUNCH PAD AND DEPARTURE AREA.**

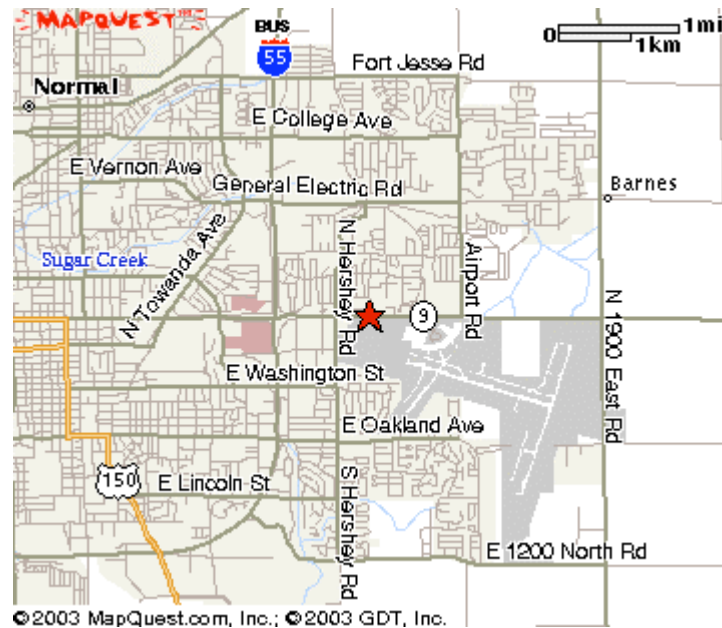
Gift Shop Orders: When ordering from the gift shop, all orders should be completed with student name and the exact amount of money before arriving at the Challenger Learning Center. Please place each student's order form and payment in an envelope to avoid any loss or confusion.

Options: A program package is available. The Planetarium/Museum Package includes visiting the ISU Planetarium and Prairie Aviation Museum. If interested, call the Challenger Learning Center to make arrangements. Any other off-site arrangements will need to be made by the teacher and/or school staff.

Questions: Call us at (309) 661-1621, or visit <http://www.challengerlearningcenter.com/>

We appreciate your time and expertise in preparing your class for *Rendezvous with a Comet*. We hope that you, as a professional educator, will view the Challenger Learning Center mission experience as an opportunity to assess your students in a non-traditional classroom setting. Upon completion of the flight, you will receive the data sheets your students created during the mission, which should be helpful to you in the post-briefing process back in your classroom.

Directions to Challenger Learning Center at Prairie Aviation Museum



The Challenger Learning Center at Prairie Aviation Museum is located in the former terminal building of the Central Illinois Regional Airport. Our facility is approximately one mile west of the current Central Illinois Regional Airport terminal. When traveling on an interstate, airport exit signs will direct in the direction of the Challenger Learning Center as well. The entrance to the Challenger Learning Center is located near the west end of the former terminal building of the Central Illinois Regional Airport. The CLC is located at 2901 E. Empire St. in Bloomington, Illinois. Ample parking is available for cars and buses immediately in front of the CLC. The Prairie Aviation Museum is located just east of the IL Route 9 entrance to the former terminal building. Turn east onto the service road paralleling Route 9 and continue for about 1/4 mile to visit the Prairie Aviation Museum. The Museum is prominently marked by the presence of several display aircraft and a red canopy over the entrance door.

FROM THE NORTHWEST

Travel 1-74E toward Bloomington-Normal.
Merge onto 1-55N via exit number 127 toward Chicago.
Merge onto Business Loop 1-55N Veteran's Parkway exit number 167.
Travel south on Veteran's Parkway.
Turn east onto Route 9/Empire St.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

FROM THE NORTH

Travel 1-39S/US-51S toward Bloomington-Normal.
Merge onto 1-55N via the exit on the left towards airport.
Merge onto Business Loop 1-55N Veteran's Parkway exit number 167.
Travel south on Veteran's Parkway.
Turn east onto Route 9/Empire St.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

Directions continued next page ...

FROM THE NORTHEAST

Travel 1-55S toward Bloomington-Normal.
Merge onto Business Loop 1-55N Veteran's Parkway exit number 167.
Travel south on Veteran's Parkway.
Turn east onto Route 9/Empire St.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

FROM THE EAST

Travel Route 9 toward Bloomington-Normal.
Turn south at the 1st stoplight (Carnahan Drive) after the Airport Road and Route 9 intersection.
Follow the access road south to the Challenger Learning Center.

FROM THE SOUTHEAST

Travel 1-74W toward Bloomington-Normal.
Take the Business Route US-5 IN/Main Street exit number 13 5.
Travel north on Business Route US-5 IN/Main Street.
Turn east onto Business Loop 1-55N Veteran's Parkway ramp.
Travel north on Veteran's Parkway.
Turn east onto Route 9/Empire St.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

FROM THE SOUTH

Travel US-5 IN toward Bloomington-Normal.
Continue traveling north as US-5 IN becomes Business Route US-5 IN/Main Street.
Turn east onto Business Loop 1-55N Veteran's Parkway ramp.
Travel north on Veteran's Parkway.
Turn east onto Route 9/Empire St.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

FROM THE SOUTHWEST

Travel 1-55N toward Bloomington-Normal.
Merge onto Business Loop 1-55N Veteran's Parkway exit number 157B.
Travel north on Veteran's Parkway.
Turn east onto Route 9/Empire St.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

FROM THE WEST

Travel Route 9 toward Bloomington-Normal.
Travel through Bloomington to Veteran's Parkway and Route 9 intersection.
Continue traveling east on Route 9.
Turn south at the 7th stoplight, Carnahan Drive.
Follow the access road south to the Challenger Learning Center.

Questions?

If you have any questions about directions, please call the Challenger Learning Center at (309) 661-1621. Detailed maps can be generated using Yahoo! Maps and our street and city address (2901 E. Empire St., Bloomington, Illinois). Access Yahoo! Maps at <http://maps.yahoo.com/>

Meeting State and National Learning Standards

Illinois Learning Standards

Each of the activities described in this teacher's guide and the accompanying resource guides is in some way directly connected to the Illinois Learning Standards. First and foremost, they are connected to the Applications of Learning. Through Applications of Learning, students demonstrate and deepen their understanding of basic knowledge and skills. These applied learning skills cross academic disciplines and reinforce the important learning of the disciplines. The ability to use these skills will greatly influence students' success in school, in the workplace, and in the community.

Applications of Learning	
<p>SOLVING PROBLEMS</p> <p>Recognize and investigate problems; formulate and propose solutions supported by reason and evidence.</p>	<p>Asking questions and seeking answers are at the heart of scientific inquiry. Following the steps of scientific inquiry, students learn how to gather evidence, review and understand their findings, and compare their solutions with those of others. They learn that there can be differing solutions to the same problem, some more useful than others. In the process, they learn and apply scientific principles. They also learn to be objective in deciding whether their solutions meet specifications and perform as desired.</p>
<p>COMMUNICATING</p> <p>Express and Interpret information and ideas.</p>	<p>Scientists must carefully describe their methods and results to a variety of audiences, including other scientists. This requires precise and complete descriptions and the presentation of conclusions supported by evidence. Young science students develop the powers of observation and description. Older students gain the ability to organize and study data, to determine its meaning, to translate their findings into clear understandable language and to compare their results with those of other investigators.</p>
<p>USING TECHNOLOGY</p> <p>Use appropriate instruments, electronic equipment, computers and networks to access information, process ideas and communicate results.</p>	<p>Technology is invented and improved by the use of scientific principles. In turn, scientists depend on technology in performing experiments, analyzing data and communicating the results. Science students learn to use a range of technologies: instruments, computer hardware and software, on-line services and equipment, primary source data and images, and communication networks. They learn how technology, in turn, is the result of a scientific design process that includes continual refinements and improvements.</p>
<p>WORKING ON TEAMS</p> <p>Learn and contribute productively as Individuals and as members of groups.</p>	<p>The practical application of science requires both individual and group efforts. Individuals bring unique insight and focus to the work of inquiry and problem solving. Working in groups, scientists pose questions, share hypotheses, divide their experimental efforts, and share data and results. Science students have the opportunity to work both ways as individuals and as members of teams organized to conduct complex investigations and solve problems.</p>
<p>MAKING CONNECTIONS</p> <p>Recognize and apply connections of important information and ideas within and among learning areas.</p>	<p>Science has many disciplines, all interrelated. Understanding the functioning of living things depends on knowing chemistry; understanding chemistry depends on knowing physics. In the same way, science itself is highly dependent on mathematics—and it also relates strongly to medicine, geography, physical development and health, social trends and issues, and many other topics. Science, at its best, provides knowledge and skills that improve the understanding of virtually all subjects.</p>

The activities in this teacher's guide and the accompanying resource guides are linked to Illinois Learning Standards.

Meeting State and National Learning Standards

Project 2061 Benchmarks

The American Association for the Advancement of Science (AAAS) founded Project 2061 in 1985 to help all Americans become literate in science, mathematics and technology. Its work has earned the project a reputation as the “single most visible attempt at science education reform in American History” (Organization of Economic Cooperation and Development, 1996). Or as journalist Julia Steiny recently described it in the *Providence Journal*, “Project 2061 is the ultimate science project.”

With its 1989 landmark publication *Science for All Americans*, Project 2061 set out recommendations for what all students should know and be able to do in science, mathematics and technology by the time they graduate from high school. *Science for All Americans* laid the groundwork for the nationwide science standards movement of the 1990s. *Benchmarks for Science Literacy*, published in 1993, translated the science literacy goals in *Science for All Americans* into learning goals or benchmarks for grades K–12. Many of today's state and national standards documents have drawn their content from *Benchmarks*.

Scientists and educators with Project 2061, a long-term reform initiative to improve science, mathematics and technology education, worry that today's students aren't being prepared well enough to live in tomorrow's science-oriented world.

It is clear that the future will depend upon adults who can make wise use of science and technology,” stated Dr. George Nelson, a former astronaut who is now Director of Project 2061. “We need to make sure we are educating our students to take an active part in that world,” he said.

The concern is well founded. The Third International Mathematics and Science Study found that while American fourth graders do well versus their counterparts throughout the world in mathematics and science, the relative performance of U.S. eighth graders was well below that of the fourth graders.

That is why Project 2061 has created a set of ten questions parents can ask their local schools to help them determine whether their child is gaining the knowledge and skills they will need as adults in the 21st century.

The training curriculum provided to teachers by the Challenger Learning Center at Prairie Aviation Museum is a product that will help educators demonstrate how these benchmarks are being put into practice in their child's school.

See the following page for information on how the CLC/PAM curriculum can help you answer some of those questions.

10 QUESTIONS TO ASK YOUR NEIGHBORHOOD SCHOOL ABOUT LOCAL SCIENCE EDUCATION

Is science literacy for all high-school graduates a major goal of the K-12 program? Throughout their school years, all students – not just those with scientific careers in mind–should be gaining knowledge and skills in science and mathematics to prepare them to live in a world increasingly shaped by science and technology. Challenger Center's programs blend math, science and technology into a simulated space mission that requires several weeks of intensive pre-training to complete. The curriculum guide provides many mission-related labs that show students how science can affect our lives.

What provisions are made in the curriculum for students of different interests, talents and ambitions? Depending on the “application process,” students will get to select and apply for one of the eight teams needed to complete a successful mission. Although the mission is science-based, the different focus of each team provides a variety of choices for students.

What is the proportion of females and minorities enrolled in advanced classes? The CLC is a partnership that crosses all community boundaries for the sake of its young people. The center is the catalyst by which educators, higher education, parents corporate executives, community leaders, government officials and others join forces to provide the tools to students of all genders and backgrounds as they prepare for their future endeavors.

Do teachers at different grade levels work together to clarify what ideas will be learned when? The Challenger Learning Center at Prairie Aviation Museum currently runs two mission scenarios – *Rendezvous with a Comet* and *Voyage to Mars*. Teachers can coordinate bringing the students in at several grade levels, expanding upon the training and extending the experience.

Are students learning connected concepts rather than simply memorizing isolated facts, formulas and technical terms? The science concepts and skills practiced during training and used during the mission are actually based on the real-life science used during an actual mission. Students will experience the whole picture by seeing the connections between the science they learn in the pre-flight training classroom and the science used by professionals everyday.

Is the learning active? Students are actively involved in applying for a job that correlates with their future career ambitions. During the pre-flight training, the activities in the Center's teacher guides allow the students to observe, collect, sort and use tools to measure, design, record and analyze.

Do teachers welcome curiosity, reward creativity and encourage healthy questioning? Students should be encouraged to think and work in ways that are characteristic of science and mathematics and by training for and flying a mission at the CLC, students become engaged in the storyline of the mission itself. The learning comes naturally as students role-play and work together to research, experiment and solve problems to keep the mission running smoothly.

Are teachers given encouragement, time and resources to update their own skills and knowledge? The Challenger Learning Center offers professional development workshops for teachers prior to the *Rendezvous with a Comet* scenario. The center will also be offering workshops for the astronomy-based learning program, ARIES. The center also offers teachers links to resources and information for many NASA-based programs. CPDU's are associated with all CLC teacher workshops.

Do teachers look for and deal with students' misconceptions about how the world works? The mission curriculum contains several hands-on explorations designed to guide students into figuring out the how's and the why's of many science concepts. In addition, the ARIES program is designed to help teachers help their students understand scientific views by finding out about their ideas and addressing them directly.

What guidelines do teachers and school administrators use to improve student learning? The Challenger Learning Center at Prairie Aviation Museum has information to help educators access documents such as *Science for All Americans*, Benchmarks for Science Literacy, and *National Science Education Standards* as well as the *Illinois Learning Standards*.