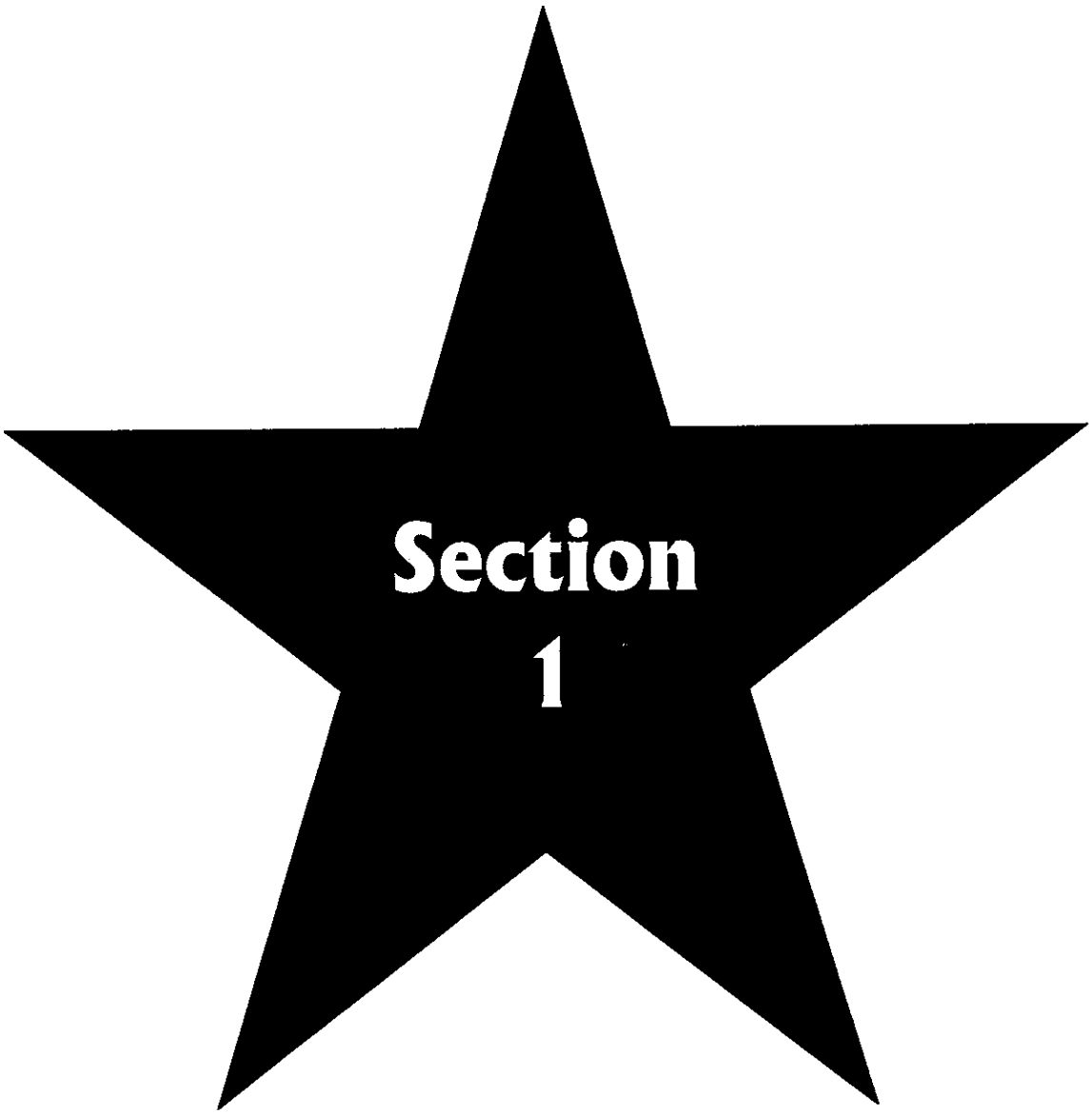
Teacher Background Information



PREPARE FOR LIFTOFF!

Challenger Learning Center Pre-Mission Prep Sheet

SAMPLE SCHEDULE

9:00 a.m.	Arrive at the Challenger Center to begin 4 ½ hour program*; restroom break; divide students into two groups consisting of 16-34 students (usually by class)	
9:15-11:15	Group # 1:	Space Mission Simulation
	Group # 2:	IMAX Movie & Interactive Exhibit Area
11:15-11:30	Lunch Break for both groups	
11:30 -1:30	Group # 1:	IMAX Movie & Interactive Exhibit Area
	Group # 2:	Space Mission Simulation
1:30 p.m.	Depart for school	

* We ask that every school be able to spend 4 ½ hours at the center for the full programming experience. The above arrival time is used for illustration. If your school cannot arrive until 9:30 a.m., we ask you to plan on leaving at 2:00 p.m. **If this time schedule is not allowed due to bus schedules, school policies, etc., please call the Challenger Center.**

CHAPERONES

Have a question about how many chaperones to bring when visiting the center for the day?

1 CHAPERONE FOR EVERY 10 STUDENTS

A general rule of thumb is one chaperone for every 10 students. This number, along with the classroom teacher, Challenger Center teachers and volunteers, is adequate for assisting students. Students who have special needs may require additional assistance. We kindly ask that you let us know in advance if you are bringing a student with special needs so that we may make any necessary arrangements.

Challenger Learning Center- A Brief History

January 28, 1986 is a day that will live in the memory of many Americans, especially those in the field of education. On that day, seven astronauts, including one civilian teacher, climbed aboard the Challenger Space Shuttle to embark upon the historic "Teacher in Space" mission. Shortly after takeoff, the Challenger Space Shuttle exploded, and the entire 51-L crew was lost.

In response to this tragic event, the families of the Challenger astronauts sought to create a memorial to the lives of these astronauts, and to continue their commitment to the promotion of math and science education. The fruit of their efforts is the Challenger Learning Center program.

This program is designed to use innovative techniques to inspire students in the areas of math, science and technology. The program involves a multi-week curriculum to be covered in the classroom, culminating in a visit to the Challenger Learning Center to fly a two-hour simulated space mission.

The Challenger Learning Center uses a space station and mission control module, individualized station assignments for each student, and a mission objective to introduce science and math concepts in a stimulating, hands-on format. The associated pre- and post-mission activities create the framework for a complete learning experience, focusing on concepts that align with the Illinois State Learning Standards and the Wisconsin Model Academic Standards.

Mission Overview

The year 1986 was not only the year of the tragic Challenger Space Shuttle Disaster, but also the last year the Halley's Comet came by the Earth. One component of the 1986 Challenger mission was to study this comet from space, and collect information as to the composition of these primitive bodies in space.

The importance of studying comets is that they may preserve the earliest record of the material that formed Earth and its planetary neighbors. Second, although scientists are certain that comets are primarily made of ice, they disagree on the actual composition of this ice. Many scientists believe this ice to be frozen carbon dioxide (dry ice), while others believe it to be frozen water, meaning that there are alternate water sources within our Solar System.

During this mission, team members will work together to rendezvous with a comet and complete the mission begun by the Challenger astronauts. The onboard astronauts, along with their counterparts in Mission Control, are tasked with sending a probe to intercept the comet and collect new data on a targeted short-period comet.

The small, maneuverable space station used for this rendezvous mission requires a great deal of maintenance and care, providing plenty of challenges for the crews in space and on the ground. It is essential that each of the eight stations takes his/her job seriously to guarantee the success of our mission.
Good Luck!

A CRASH COURSE IN COMETS:
COMETS 101

Parts of a Comet

The coma is the head of the comet. It contains the nucleus and a halo of gases and dust that boil off the icy nucleus as the Sun heats the comet.

Dust particles blow off the coma more slowly, forming a second, gently curving dust tail.

The solar wind blows a gas tail off the coma, directly opposite from the Sun.

Comets are literally dirty, cosmic snowballs - small, irregularly shaped, chunks of rock, various ices, and dust. The nucleus of a comet is usually only a few kilometers wide. When a gravitational force disturbs an "iceberg" in the Kuiper Belt or the Oort cloud, it begins a huge, highly elliptical orbit around the Sun.

Where do comets come from?

Short period (less than 200 year orbits) comets originate in the Kuiper Belt, located outside of Neptune's and Pluto's orbits.

Long period (more than 200 year orbits) comets originate in the Oort Cloud, which is hundreds of times farther away from Pluto than the Kuiper Belt, extending halfway to the nearest star.

Do all comets have tails?

No! Comets grow tails when they travel within the inner solar system - near Jupiter - because then the comet is close enough that the Sun's heat boils off the dirty ices into gases and dust.

Why are comets important?

Comets are the oldest, most primitive bodies in the solar system. They are remnants preserved from the earliest days of star and planetary formation. Containing volatile, light, organically-rich elements, comets may possibly provide clues about the building blocks of our solar system. In addition, the impact of a large comet could cause major changes in the climate of a planet or a moon.

How frequently do "spectacular" comets become visible?

"Spectacular" comets come along only a few times in a lifetime - roughly every 20 years or so. This assumes that "spectacular" is as bright or brighter than a crescent moon, which has a magnitude of -8 or so.

Interested in having a comet named after you?
Comets are normally named for their discoverers. Since amateur astronomers continually discover comets, you could have a comet named after you!

A Japanese amateur astronomer named Yuji Hyakutake discovered his second comet with a pair of 25 X 150 binoculars in January, 1996. The Central Bureau for Astronomical Telegrams designated it Comet C/1996 B2 (Hyakutake).

Legend	
C	Indicates a long period comet
1996	Indicates the year of discovery
B	Means that the comet was discovered in the second half-month of January. Half months are given as letters, with "A" covering Jan 1-15, "B" covering Jan 16-31, "C" covering Feb 1-15, etc.
2	Means it was the second comet discovered in 1996.

Small Bodies of the Solar System

COMETS vs ASTEROIDS	
Comets	**Asteroids**
Comets are icy bodies.	Asteroids are rocky bodies.
Mostly located in the outer solar system in the Kuiper Belt or the Oort cloud.	Mostly located in the inner solar system between the planets Mars and Jupiter.
Comets have highly elliptical orbits and can grow tails, depending on their orbital position.	Scientists speculate that near-Earth asteroids are the remains of comets depleted of gases and dust.

Meteoroids
Meteoroids are small rocky bodies orbiting the Sun that are smaller than asteroids.

Meteors
A meteor is a falling meteoroid, or "shooting star" entering Earth's atmosphere.

Meteorites
Meteorites are the remains of a meteor that survive travel through the atmosphere to land on Earth's surface.

Did you know?

A comet's coma can get as large as hundreds of thousands of kilometers across (roughly 62,000 miles, or the distance of 20 trips from Boston to Seattle) as it approaches the Sun. Comet Wild 2's coma is about 200,000 km across. The tail can stretch out for more than 10 million km (around 62 million miles).

An average suitcase could contain all of the particles in a comet's tail because they contain so few particles, and there would still leave enough room for a change of clothes.

Comets chase their tails as they hurdle away from the Sun! This is due to the solar wind blowing the tail away from the Sun (in the opposite direction, in front of the comet head).

Through the tail of a comet . . .

The Perseid meteor shower that occurs every year between August 9 and 13 is the result of Earth passing through the orbit of Comet Swift-Tuttle.

The Orionid meteor shower in October is a result of Earth passing through the remnant of Comet Halley's tail.

COMET HISTORY IN A CAPSULE

Curse of the Comet

The Greek used the word "kometes," meaning "hairy star" to describe comets, because the apparition looked like a star with a trail of long, flowing hair. The Chinese called comets "broom stars."

Throughout history, regardless of the culture, people viewed the appearance of a comet as a harbinger of death, trouble, and change. A glimpse into the history surrounding Comet Halley's appearance throughout the ages offers dramatic, albeit unfortunate incidents linked with the appearance of Comet Halley.

Famous Comets

Comet Halley
In 1705 the British astronomer Edmond Halley used Newton's newly formulated laws of motion to conclude that the comet seen in 1531, 1607, and 1682 were one and the same comet. He predicted its return in 1757-58. Upon its appearance on Christmas Eve of 1758 the comet was named in Halley's honor. Europe, Japan, and the U.S.S.R. sent five spacecraft to observe the comet in 1985. Comet Halley will next return in the year 2061.

Comet Shoemaker-Levy
From July 16 - 22, 1994, 21 discernible fragments of Comet P/Shoemaker-Levy 9 collided with Jupiter. This once-in-a-millennium event is the first collision of two solar system bodies ever to be predicted and observed. Large fragments impacted the planet at 60 kilometers (37 miles) per second, creating plumes thousands of kilometers high and leaving hot bubbles of gas in the atmosphere, and great dark scars which lasted for months after the collision. The largest fragments were estimated at 2 kilometers (1.2 miles) in diameter.

Comet Hyakutake (C/1996 B2)
This comet (pronounced "yah-koo-tah-kay") was most visible to those in the Northern Hemisphere during the end of March 1996. Comet Hyakutake has generated much excitement because no other comet has come as close to the Earth and will reach its perihelion so close to the Sun.

Comet Hale-Bopp (C/1995 01)
Comet Hale-Bopp crossed our skies most visibly in March-April of 1997. This comet was even brighter than Comet Hyakutake. Internet sites have posted images of amateur and professional astronomers around the world. You can join the star party.

Happenings Surrounding Comet Halley Sitings

60 AD - To thwart the curse of the comet, Emperor Nero had all possible successors executed.

1066 AD - A comet was sighted before the Battle of Hastings which was interpreted to mean King Harold would lose his throne to William, the Duke of Normandy. This came to pass.

1531 - In Peru, the siting of the comet preceded Francisco Pisarro conquest of the Incas.

1910 - Comet panic caused terror. In Chicago people sealed windows against the poisonous tail of the comet. Others committed suicide. In Oklahoma police saved a virgin from being sacrificed by a comet cult.

COMETS IN THE NEWS

To increase your celestial savvy about current comets in the news for the near future, here are some facts, dates, and mission information relevant to the comet community.

Recent and Future Comet Missions	
1994	Hubble Space Telescope, the Galileo spacecraft en-route to Jupiter, and all major ground-based telescopes imaged the collision of Shoemaker-Levy with Jupiter.
1996	USA Asteroid Probe NEAR imaged Comet Hyakutake on its voyage to asteroid 433 Eros.
1998	Japanese ISAS mission sent Sakigake to Comet Halley and Giacobini-Zinner. Spacecraft Suisei will flyby Temple-Tuttle.
1999	STARDUST launched on an expendable launch vehicle.
2004	STARDUST will rendezvous with Comet P/Wild 2 to collect material for analysis on Earth and take close-up images of the comet's nucleus.
2006	STARDUST capsule will reenter Earth's atmosphere with samples for analysis.
2011	The ESA's Rosetta Spacecraft will encounter Comet Wirtanen, dropping off two nucleus landers, including Champollion, to perform on-site measurements of the comet nucleus. Champolillion is a joint effort by NASA and the French Space Agency, CNES.

Fast Facts		
Comet Name	Orbital Period	Perihelion Date*
Hyakutake	65,000 years	1996-05-01
Wirtanen	5.46 years	1997-03-14
Hale-Bopp	4,000 years	1997-03-31
Wild 2	6.17 years	1997-05-06
Encke	3.3 years	1997-06-11
Temple-Tuttle	32.92 years	1998-02-27
*The point where a comet is closest to the Sun.		

Stardust

Spacecraft STARDUST

STARDUST is the most recent of four flight missions in NASA's Discovery program.. The goal of the Discovery program is to send small, less expensive spacecraft with specific scientific goals that can be built in 36 months or less, and cost less than $150 million dollars.

The spacecraft launched in February 1999 onboard an expendable launch vehicle and will rendezvous with comet Wild 2 in January 2004, coming within 150 kilometers (93 miles) of the comet's nucleus. The spacecraft will be the first to collect dust spewed from a comet and return it to Earth for detailed analysis. The comet samples are made up of ancient pre-solar interstellar grains and nebular condensates that were incorporated into comets at the birth of the solar system. A sample return capsule will reenter Earth's atmosphere and land on a dry lakebed in Utah in January 2006. This sample return mission from outside the Earth-Moon system is a historic first of its kind.

Aerogel: Cutting Edge Technology

Aerogel is an exciting silica material that will capture comet and interstellar dust. It has the unique distinction of being 85 percent transparent and 1000 times lighter than glass. An inch layer of Aerogel could insulate a house five times better than six-inches of fiberglass. Because of its transparency, micron (.000001 millimeters) and submicron dust particles will leave carrot shape tracks as it enters the aerogel and decelerates. Scientists will find the dust at the end of the trail. Using any other known material would make finding the miniscule dust as unlikely as finding a needle in a haystack.

Key Dates for the STARDUST Mission

1974 - Near miss of Jupiter causes Wild 2 to undergo a major change in orbit.

1978 - Wild 2 discovered by Paul Wild January of1978 on its first close approach to Earth.

1995 - NASA selects STARDUST mission to retrieve samples from Wild 2.

1999 - Launch of STARDUST spacecraft by an expendable launch vehicle.

2000 - 2001 STARDUST will collect interstellar dust for the first time.

2002 - STARDUST will collect interstellar dust for the second and final time.

2004 - STARDUST will encounter Wild 2, fly through Wild 2's tail, take pictures, and collect comet particles.

2006 – STARDUST will return to the Earth with cometary samples

RESOURCES

Many of the following Internet sites are award winning sites that will help you keep abreast of comet happenings, learn about currently visible comets, study star charts, join in virtual star parties, find the latest images, discover pointers on how to photograph comets, and share information with amateur astronomers all over the world. Be sure to visit Challenger Center's web site at:

http://www.challenger.org/

STARDUST Mission homepage:
http://stardust.jpl.nasa.gov/
Includes information on the mission, spacecraft, and comets. Will have educational materials and currently has terrific links to other sites.

Asteroid and Comet Page
NASA and National Space Science Data Collection
http://nssdc.gsfc.nasa.gov/planetary/planets/asteroidpage.html
http://nssdc.gsfc.nasa.gov/planetary/planetary_home.html
Contains fact sheets, FAQs, photo galleries, future mission information, and offers CD-ROMs

Comets and Meteor Showers
http://medicine.wustl.edu/~kronkg/index.html
Top 5% Site, Magellan 4 Star Site, IWAY 500 Winner site with loads of good stuff for the serious and casual observer. Contains weekly summaries of observations, photos, star charts, accurate information on currently visible comets, terrific links, and a search vehicle.

http://encke.jpl.nasa.gov
Magellan 3 Star Site, IWAY 500 Winner Site, Provides news about currently visible comets, lots of information about Comet Hale Bopp, new observations, definitions, instructions for photographing comets, and other links.

Space Image Libraries
NASA Aerospace Education Specialists Site
http://www.okstate.edu/aesp/image.html
Wic Select GNN Award, Magellan 4 Star Site, 4 Star Net Guide site. Offers latest pictures on rockets, probes, and spacecraft, Hubble Telescope, NASA-related sites, Space Agencies, Astrophotography, special missions, observatories, and events.

Alignment with Illinois State Learning Standards

ENGLISH / LANGUAGE ARTS

	STATE GOAL 1: Read with understanding and fluency
✓	**A. Apply word analysis and vocabulary skills to comprehend selections** 1.A.3b. Analyze the meaning of words and phrases in their context
✓	**B. Apply reading strategies to improve understanding and fluency** 1.B.3a. Preview reading materials, make predictions and relate reading to information from other sources 1.B.3c. Continuously check and clarify for understanding 1.B.3d. Read age-appropriate material with fluency and accuracy
✓	**C. Comprehend a broad range of reading materials** 1.C.3a. Use information to form, explain and support questions and predictions 1.C.3f. Interpret tables that display textual information and data in visual formats
	STATE GOAL 3: Write to communicate for a variety of purposes
✓	**A. Use correct grammar, spelling, punctuation, capitalization and structure** 3.A.3. Write compositions that contain complete sentences and effective paragraphs using English conventions
✓	**C. Communicate ideas in writing to accomplish a variety of purposes** 3.C.3a. Compose narrative, informative and persuasive writings for a specified audience 3.C.3b. Using available technology, produce compositions and multimedia works for specified audiences
	STATE GOAL 4: Listen and speak effectively in a variety of situations
✓	**A. Listen effectively in formal and informal situations** 4.A.3a. Demonstrate ways that listening attentively can improve comprehension 4.A.3b. Compare a speaker's verbal and nonverbal messages 4.A.3c. Restate and carry out multi step oral instructions 4.A.3d. Demonstrate the ability to identify and manage barriers to listening
✓	**B. Speak effectively using language appropriate to the situation and audience** 4.B.3a. Deliver planned oral presentations, using language and vocabulary appropriate to the purpose, message and audience; provide details and supporting information that clarify main idea; and use visual aids and contemporary technology as support 4.B.3b. Design and produce reports and multimedia compositions that represent group projects 4.B.3c. Develop strategies to manage or overcome communication anxiety and apprehension 4.B.3d. Use verbal and nonverbal communication strategies to maintain communications and to resolve conflict

	STATE GOAL 5: Use the language arts to acquire, assess and communicate information
✓	**A. Locate, organize, and use information from various sources to answer questions, solve problems and communicate ideas** 5.A.3. Identify appropriate resources to solve problems or answer questions through research
✓	**C. Apply acquired information, concepts and ideas to communicate in a variety of formats** 5.C.3c. Take notes, conduct interviews, organize and report information in oral, visual and electronic formats

MATHEMATICS

	STATE GOAL 6: Demonstrate and apply a knowledge and sense of numbers, including numeration and operations, patterns, ratios and proportions
✓	**A. Demonstrate knowledge and use of numbers and their representations in a broad range of theoretical and practical settings** 6.A.3. Represent fractions, decimals, percentages, exponents and scientific notation in equivalent forms
✓	**B. Investigate, represent and solve problems using number facts, operations and their properties, algorithms and relationships** 6.B.3a. Solve practical computation problems involving whole numbers, integers and rational numbers
✓	**C. Compute and estimate using mental mathematics, paper-and-pencil methods, calculators and computers** 6.C.3a. Select computational procedures and solve problems with whole numbers, fractions, decimals, percents and proportions 6.C.3b. Show evidence that computational results using whole numbers, fractions, decimals, percents and proportions are correct and/or that estimates are reasonable
	STATE GOAL 7: Estimate, make and use measurements of objects, quantities and relationships and determine acceptable levels of accuracy
✓	**A. Measure and compare quantities using appropriate units, instruments and methods** 7.A.3a. Measure length, capacity, weight/mass and angles using sophisticated instruments 7.A.3b. Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations
✓	**B. Estimate measurements and determine acceptable levels of accuracy** 7.B.3a. Construct a simple scale drawing for a given situation

	STATE GOAL 10: Collect, organize and analyze data using statistical methods; predict results; and interpret uncertainty using concepts of probability
✓	**A. Organize, describe and make predictions from existing data** 10.A.3a. Construct, read and interpret tables, graphs and charts to organize and represent data 10.A.3b. Compare the mean, median, mode and range, with and without the use of technology 10.A.3c. Test the reasonableness of an argument based on data and communicate their findings
✓	**B. Formulate questions, design data collection methods, gather and analyze data and communicate findings** 10.B.3. Formulate questions, devise and conduct experiments or simulation, gather data, draw conclusions and communicate results to an audience using traditional methods and contemporary technologies
✓	**C. Determine, describe and apply the probabilities of events** 10.C.3b. Analyze problem situations and make predictions about results

SCIENCE

	STATE GOAL 11: Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems
✓	**A. Know and apply the concepts, principles and processes of scientific inquiry** 11.A.3a. Formulate hypotheses that can be tested by collecting data 11.A.3c. Collect and record data accurately using consistent measuring and recording techniques and media 11.A.3d. Explain the existence of unexpected results in a data set 11.A.3e. Use data manipulation tools and quantitative and representational methods to analyze measurements 11.A.3f. Interpret and represent results of analysis to produce findings 11.A.3g. Report and display the process and results of a scientific investigation
✓	**B. Know and apply the concepts, principles and processes of technological design** 11.B.3a. Identify an actual design problem and establish criteria for determining the success of a solution 11.B.3b. Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety 11.B.3c. Select the most appropriate design and build a prototype or simulation 11.B.3d. Test the prototype using available materials, instruments and technology and record the data 11.B.3e. Evaluate the test results based on established criteria, note sources of error and

	STATE GOAL 12: Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences
✓	**B. Know and apply concepts that describe how living things interact with each other and with their environment** 12.B.3a. Identify and classify biotic and abiotic factors in an environment that affect population density, habitat and placement of organisms in an energy pyramid 12.B.3b. Compare and assess features of organisms for their adaptive, competitive and survival potential
✓	**D. Know and apply concepts that describe force and motion and the principles that explain them** 12.d.3a. Explain and demonstrate how forces affect motion 12.D.3b. Explain the factors that affect the gravitational forces on objects
✓	**F. Know and apply concepts that explain the composition and structure of the universe and Earth's place in it** 12.F.3a. Simulate, analyze and explain the effects of gravitational force in the solar system 12.F.3b. Describe the organization and physical characteristics of the solar system 12.F.3c. Compare and contrast the sun as a star with other objects in the Milky Way Galaxy
	STATE GOAL 13: Understand the relationships among science, technology and society in historical and contemporary contexts
✓	**A. Know and apply the accepted practices of science** 13.A.3c. Explain what is similar and different about observational and experimental investigations
✓	**B. Know and apply concepts that describe the interaction between science, technology and society** 13.B.3a. Identify and explain ways that scientific knowledge and economics drive technological development 13.B.3b. Identify important contributions that science and technology that have been made by individuals and groups from various cultures 13.B.3c. Describe how occupations use scientific and technological knowledge and skills 13.B.3d. Analyze the interaction of resource acquisition, technological development and ecosystem impact

Media Release Form

Challenger Learning Center for Science & Technology Photo Agreement

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 Name _____

Please check one of the following:

- ❑ My child may be photographed/interviewed during a visit to the Challenger Learning Center for Science & Technology. 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 for Science & Technology and for use in the media.

- ❑ My child may not be photographed/interviewed by the press or the Challenger Learning Center for Science & Technology Staff.

Parent/Guardian Signature_____ Date_____

CHALLENGER LEARNING CENTER FOR SCIENCE & TECHNOLOGY
COSMIC GIFT SHOP ORDER FORM

Student Name: _____ Phone Number: _____

Address, City, State & Zip: _____

E-mail: _____

Teacher Name & School: _____ Field Trip Date: _____

Item	Quantity	Unit Price	Total Price
Mission Badge (Identify Station) ___DATA ___LS ___MED ___REM ___NAV ___COM ___PROBE ___ISO		$ 3.00	
Mini Galactic Putty		$ 1.00	
"The Mission Continues" Bracelet		$ 2.00	
Astronaut Ice Cream		$ 3.00	
Star Pencil (silver)		$ 3.00	
Shuttle Pencil (white)		$ 3.00	
Bomber Pen (green)		$ 4.00	
Rocket Pen (black)		$ 4.00	
Mars Mud		$ 4.00	
Astronaut Water Bottle		$ 4.00	
Inflatable Earth Globe		$5.00	
Solar System Mobile Kit		$ 6.00	
		Subtotal	$
		Sales Tax (Add 5%)	$
		TOTAL AMOUNT DUE	$

Pictures of gift shop items will soon be available for viewing on our Web site at
www.challengerillinois.org

Make Check Payable To:
Challenger Learning Center
222 Church Street
Woodstock, IL 60098

Please return form along with exact amount of payment to the Challenger Learning Center on the day of your mission. The Challenger attempts to keep all gift shop items in stock, however occasionally we run out of items. In the event that a certain item is not available, we will refund that portion of the order or replace it with something of the same value.

Launch-Pad Lunch Form

Challenger Learning Center FOR SCIENCE AND TECHNOLOGY

School Name: Phone #:

Teacher Name: Date of Mission:

STUDENT/TEACHER/CHAPERONE NAME	HAM	BOLOGNA	PEANUT BUTTER & GRAPE JELLY
TOTAL			

$ 5.00 each sandwich x ______ sandwiches = $ ___________

All lunch packs include a ½ sandwich, juice box, fruit and chips.
Deadline to order Launch-Pad Lunches is **5 days** before your mission. Orders may be faxed in to (815) 338-7747.
Make checks payable to Challenger Learning Center. Checks must be presented on the day of the mission.