

TAKE FLIGHT

the science of aviation
at the iowa children's museum

FOCUSED FIELD TRIP

THE IOWA
CHILDREN'S
MUSEUM



What's In My



Focused Field Trip Packet?

For Educators:

- Name Tags for all children and adults will be mailed with confirmation letter
- General Information about Focused Field Trip
- Overview of "Take Flight" Focused Field Trip
- Description of Activity Centers
- Iowa CORE Curriculum Standards Reflected in the Field Trip
- "Take Flight" Language Arts Bibliography

- Pre-Visit Activity:
 Create a Flying Skimmer

- Post-Visit Activity:
 Aviation Trading Cards Timeline

For Chaperones: Please copy and distribute to chaperones

- Museum Welcome Letter to Field Trip Chaperones

For Bus Drivers: Please copy and distribute to your bus drivers

- Coral Ridge Mall map to indicate parking areas

GENERAL INFORMATION

The Take Flight Focused Field Trip gives students an opportunity to explore the “Take Flight: the science of aviation” exhibit (closed to the public) while engaging in specially designed hands-on, minds-on activities with a Museum Educator that stimulate learning, creative problem solving, and fun!

SPECIFIC FIELD TRIP INFORMATION

Field Trip lasts 2 hours: 90 minutes of focused activities in the Take Flight exhibit and 30 minutes of free exploration of the entire museum.

- Minimum group size is 10 students. Maximum size is 40 students.
- One adult chaperone must accompany every 5 students. Chaperones are required to stay with their small group during the free exploration portion of the field trip.
- Each student and adult must wear an ICM nametag while in the museum (enclosed).
- Field Trip group needs to be divided into two small groups before arrival at the museum.
- Chaperones act as active small group leaders. It is very important for your chaperones to receive the enclosed chaperone materials to prepare them for their responsibilities during the museum field trip.

The Take Flight Focused Field Trip offers students hands-on opportunities to immerse themselves in an aviation themed interactive exhibit. Students participate in science, technology, engineering, and math activities aimed to enhance their conceptual understandings of STEM concepts. Problem solving challenges stretch students’ understandings of the forces of flight including gravity, drag/friction, lift and thrust; as well as buoyancy and Bernoulli’s Principle.

This field trip is a great supplement to science classroom instruction on forces. Iowa CORE Curriculum Standards are reflected in the subject areas of science and 21st Century skills.

FIELD TRIP OVERVIEW

- 15 minutes **Orientation to The Iowa Children’s Museum**
Welcome and Museum Behavior Expectations
Video Introduction to the Forces of Flight
- 60 minutes **Take Flight Activity Areas**
(30 minute rotations through two Activity Areas)
Area #1: Flight Simulators Area #2: The Search for Forces
- 15 minutes **Forces of Flight Game** (facilitated by Museum Educator to gather assessment data required of museum by NASA grant award)
- 30 minutes **Free Exploration of ICM**, Please Note: If your group arrives late for your scheduled field trip, this time block will be shortened.

DESCRIPTION OF ACTIVITY CENTERS

“Flight Simulator” Activity Area #1

BIG IDEAS = Careers, Forces of Flight, Technology, and Problem Solving

Students rotate through each of these three activities.

1. Be a Pilot in a Flight Simulator
2. Be a Navigator in a Flight Simulator
3. Fly a Remote Control Flight Simulator

“Search for Forces” Activity Area #2

BIG IDEAS = Careers, Forces of Flight, Technology, and Problem Solving

Each student will be given an “Experience Forces” Scavenger Hunt sheet to complete directing each student to perform the following activities and record their findings and understandings.

1. The Air Rocket Challenge
2. The Paper Airplane Challenge
3. Test Bernoulli’s Principle
4. The Pig Parachute Experiment
5. Explore the Air Blaster
6. The Air Traffic Control Tower Slide

Note: The field trip group will be divided into two small groups. While Group #1 completes Activity Area #1 Flight Simulator activities, the other group completes Activity Area #2. After 30 minutes in the activity area, the groups switch Activity Areas.

Anchor Standards and Essential Skills Incorporated in Take Flight!

Iowa CORE Curriculum Areas:	Grades K-2	Grades 3-5
Science		
<u>Science as Inquiry</u>	<ul style="list-style-type: none"> • Ask questions about objects, organisms, and events in the environment. • Plan and conduct simple investigations. • Use data to construct reasonable explanations. • Communicate investigations and explanations. 	<ul style="list-style-type: none"> • Identify and generate questions that can be answered through scientific investigations. • Recognize that scientists perform different types of investigations. • Plan and conduct scientific investigations. • Use evidence to develop reasonable explanations.
<u>Physical Science</u>	<ul style="list-style-type: none"> • Understand and apply knowledge of observable and measureable properties of objects. 	<ul style="list-style-type: none"> • Understand and apply knowledge of how to describe and identify substances based on characteristic properties. • Understand and apply knowledge of sound, light, electricity, magnetism, and heat.
<u>Life Science</u>	<ul style="list-style-type: none"> • Understand and apply knowledge of the basic needs of plants and animals and how they interact with each other and their physical environment. • Understand and apply knowledge of basic human body structures (human body parts and their functions). 	<ul style="list-style-type: none"> • Understand and apply knowledge of basic human body systems and how they work together.
21st Century Skills		
<u>Employability Skills</u>	<ul style="list-style-type: none"> • Communicate and work appropriately with others to complete tasks. • Recognize different roles and responsibilities and is open to change. • Learn leadership skills and demonstrate integrity, ethical behavior, and social responsibility. • Develop initiative and demonstrate self-direction in activities. • Work productively and are accountable for their actions. 	<ul style="list-style-type: none"> • Communicate and work productively with others emphasizing collaboration and cultural awareness to produce quality work. • Adjust to various roles and responsibilities and understand the need to be flexible to change. • Practice leadership skills, and demonstrate integrity, ethical behavior, and social responsibility in all activities. • Demonstrate initiative, creativity, self-direction, and entrepreneurial thinking to produce successful outcomes. • Demonstrate productivity and accountability by producing quality work.

GREAT BOOKS FOR KIDS ABOUT AVIATION!

Blackburn, Ken. KIDS PAPER AIRPLANE BOOK. Workman Publishing Company, 1996.

A book of simple, bright, innovative planes with bold graphics. Teaches children how to design their own plane, do stunts, and build a 3-D airport with things from around the house, along with sixteen models, seventy-six full color planes, and colorful pull-out airport poster.

Millard, Anne. DK BIG BOOK OF AIRPLANES. DK Children; Illustrated edition, 2001

Jumbo jets and seaplanes; the tiny "Gee Bee" and the space plane X-33—all are included in this oversize, fact-packed picture book. Combined with technical and historical information are details kids will love: they'll learn, for example, where the waste from a jet's toilet is stored.

Mitton, Tony and Parker, Ant. AMAZING AIRPLANES. Kingfisher Publishing, 2002.

Rhyming text introduces air travel, from the airport to the flight deck, with information about how planes fly, safety rules, in-flight entertainment, and air traffic control.

Berger, Melvin & Gilda and Babb, Paul. HOW DO AIRPLANES FLY- Discovery Reader. Ideals Publications, 2001.

A very simple introduction to the topic of going to the airport for a flight, the history of flight, and an explanation of how propellers and jet engines help airplanes and helicopters to fly.

Barton, Byron. AIRPORT, FROM THE EXCITEMENT OF ARRIVAL TO THE WONDER OF TAKING OFF. Harper Collins Publishing, 1987.

A picture book that captures in joyous and powerful images all the magic of an airport.

Burkett, Molly. GREAT EXPLORERS PIONEERS OF THE AIR. Barron's Educational, 1998.

Aviation pioneers, from Lindbergh to Yeager, fly high in this illustrated history, which combines full-color illustrations and text in a magazine-style format.

Hagedorn, Dan and Keenan, Sheila . THE STORY OF FLIGHT: EARLY FLYING MACHINES, BALLOONS, BLIMPS, GLIDERS. Scholastic Publishing, 1969.

A history of aviation highlights such topics as the Wright Brother's workshop and wartime plane motors while profiling such important figures as Da Vinci, Lindberg, and Earhart, and provides reusable stickers of cockpit panels, warplanes, and blimps.

Bellville, Cheryl Walsh. THE AIRPLANE BOOK, Carolrhoda Books, Inc. 1993.

Highlights airplanes of the last 100 years and discusses the principles of flight, early aviation, the growth of modern airliners, and current design challenges.

Moss, Marissa. SKY HIGH: THE TRUE STORY OF MAGGIE GEE. Tricycle Press, August 11, 2009.

Inspirational biographical picture book based on the life of a female Chinese-American WWII pilot. Gee describes her love of airplanes as a child and her dreams of someday flying over places such as the Eiffel Tower and the pyramids. Several years later, she was one of the few chosen to train as a WASP.

Langley, Wanda. WOMEN OF THE WIND: EARLY WOMEN AVIATORS, Morgan Reynolds Publishing, 2006.

This thoughtful collection captures the true spirit and strength of 20th-century women who, despite the odds against them, pursued their intellectual curiosity and became known as Women of the Wind.

Johnson, Angela. WIND FLYERS, Simon & Schuster Books for Young Readers, 2007.

Three-time Coretta Scott King Award-winning author Johnson presents this bittersweet story about a young boy inspired by his great-great uncle, who was a member of the Tuskegee Airmen, an elite squadron of black pilots during World War II.

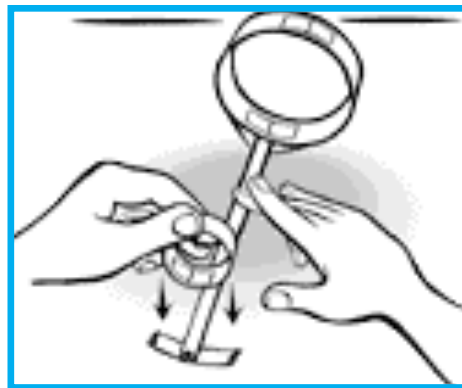
TAKE FLIGHT PRE-VISIT ACTIVITY

Create a Flying Skimmer Activity

What do you do?

Challenge kids to work in teams or individually to make a straw and paper flier that can fly across your ocean (two lines marked on the floor with tape). The invention has to fly and has to have at least one straw – no crumpling up the materials around a rock and throwing it across the ocean!

Start by showing kids your pre-made flier. It's just two rings of paper strips taped to a straw.



Materials:

Varieties of paper
Tape

Straws
Paper Clips

Scissors

The Ideal Flier! The flier that soars best has:

- a larger paper ring on the back creating larger surface area and drag
- a paper clip stuck onto the front ring helps to guide the flier
- the paper rings must be parallel to each other
- rear paper ring is 1" by 8"; front paper ring is $\frac{3}{4}$ " x 6"

Instructions

Don't give your student pre-cut paper strips – let them experiment! Just show them your skimmer and encourage innovation and creativity. Several different versions of the skimmer will fly!

TAKE FLIGHT POST-VISIT ACTIVITY

Aviation Trading Card Timeline

What you need:

- Take Flight Aviation Trading Cards (provided by ICM Educator at your field trip)
- A long strip of paper
- Markers
- Tape
- Pictures of flying machines, from books, online, or drawn by students

What to do:

1. Draw a horizontal line across the strip of paper.
2. Arrange the cards in chronological order along the line, writing the date(s) under each card.
3. Draw or copy pictures of flying machines to add to the timeline.
4. Display for everyone to enjoy!

LETTER TO CHAPERONES

Dear Parent/Caregiver Chaperones,

Thank you so much for being a part of your school's Take Flight: the science of aviation field trip experience to The Iowa Children's Museum. The following notes will help prepare you for a highly interactive, fun field trip that depends on adult chaperones like you to be successful.

- Your Take Flight focused field trip will last 2 hours: 90 minutes in the Take Flight exhibit doing guided activities and the last 30 minutes exploring the entire museum at your own pace.
- Your school group will be divided into two small groups before your visit by your classroom teacher
- One or more chaperones will be assigned to each small group of students
- Chaperone Duties are:
 1. Travel to exhibit activity centers with your small group. You'll spend 30 minutes in each of two different Take Flight exhibit areas.
 2. Help to facilitate student interaction with the exhibit activities.
 3. Stay with your group during the free exploration portion of the field trip.

As chaperones, we want you to feel comfortable with your role during this field trip. If you have any questions please call your classroom teacher or Nicole Palmer, Community Relations Coordinator at the Iowa Children's Museum (319) 625-6255, ext. 216.

"The evidence is now beyond dispute. When schools work together with families to support learning, children tend to succeed not just in school, but throughout life." -From The Family is Critical to Student Achievement, Nat'l Committee for Citizens in Education.

The Iowa Children's Museum is working to help provide these meaningful opportunities for parents and families to engage in their child's informal learning experiences. Thank you for your support!

Nicole Palmer
Community Relations Coordinator

ATTENTION BUS DRIVERS!

IMPORTANT INFORMATION

REGARDING YOUR FIELD TRIPS TO THE IOWA CHILDREN'S MUSEUM IN THE CORAL RIDGE MALL, CORALVILLE, IOWA

The Coral Ridge Mall requires ALL buses to park on the Northeast section of the Coral Ridge Mall parking lot by Best Buy.

