

CONSULT



4

KIDS

Flight
Unit for 4th – 5th Graders

Flight

Purpose: The purpose of this unit is to help students learn about the story of flight, from Greek mythology regarding Icarus' challenge when flying, to DaVinci's drawing of a gyrocopter, to Orville and Wilbur Wright's flight at Kitty Hawk, to space travel timelines, to the importance of flight in our global environment.

Lessons:

There are 5 lessons in the Unit. Each of the lessons can certainly take place over 1 or 2 days. Each lesson contains background information and one or two activities for the youth do to which will drive understanding of the topic forward. At the end of each lesson you should be certain to debrief the learning experience to ensure the greatest learning.

Lesson #1: The Greek Myth of Icarus

Man has been interested in flight since it was first wondered why birds could fly and people could not. A variety of methods for flying were tried and failed, and stories grew up about this topic.

One of the first stories can be found in Greek mythology and it is the Story of Icarus. Icarus was the son of Daedalus who was a master craftsman. Daedalus had been employed by King Minos to build a labyrinth on the Island of Crete to trap the minotaur—the creature that is half horse and half man). Daedalus built the labyrinth, but fell into disfavor with the King and he and his son, Icarus, were imprisoned in the labyrinth. Well, Daedalus decided that he should create a set of wings for both himself and his son Icarus. It was the father's plan that he would build two pair of wings and that both he and his son would be able to escape the labyrinth.

Daedalus used all of his skills to craft two pair of wings from a combination of wax and feathers. When the wings were completed, Daedalus spoke with Icarus and admonished him that when he flew out of the labyrinth he should be careful NOT to get too close to the sun so his wings would stay intact.

When the fateful day arrived, Icarus soared into the sky. As he beat his wings against the air he flew higher and higher, forgetting the warning from his father. As he got nearer the sun, what he found was that his wings were beginning to melt and the feathers fall to the ground. Once the process had begun, all the feathers quickly

disintegrated and Icarus realized he was trying to fly using only his arms. Icarus plunged into the sea and drowned.

Activity #1

There are four characters in this story: Daedalus, Icarus, King Minos, and the Narrator. Divide students into groups of 4. Invite students to write a script to retell the story of Icarus. Instruct them to tell the story through conversation or dialog and the use of a narrator. For example the script might begin like this:

King Minos	“Daedalus, create a labyrinth for me on the Island of Crete so that I may trap the deadly minotaur”
Daedalus	With pleasure your majesty. Come Icarus, we shall build a labyrinth to trap the minotaur.
Icarus	Yes, father.
Narrator	And so it was that Daedalus, a master craftsman, set about to create a labyrinth. When he had completed his work, Daedalus came back to stand before the king.
King Minos	Daedalus, have you finished the labyrinth.

After students have completed the script, have them practice the reader’s theater script and share it with the class in reader’s theater format.

Activity #2

1. Divide students into partners or teams of 3.
2. Give students large paper and either colored pencils or marking pens
3. Have students illustrate the story of Icarus
4. Have students share the illustration with the rest of the class

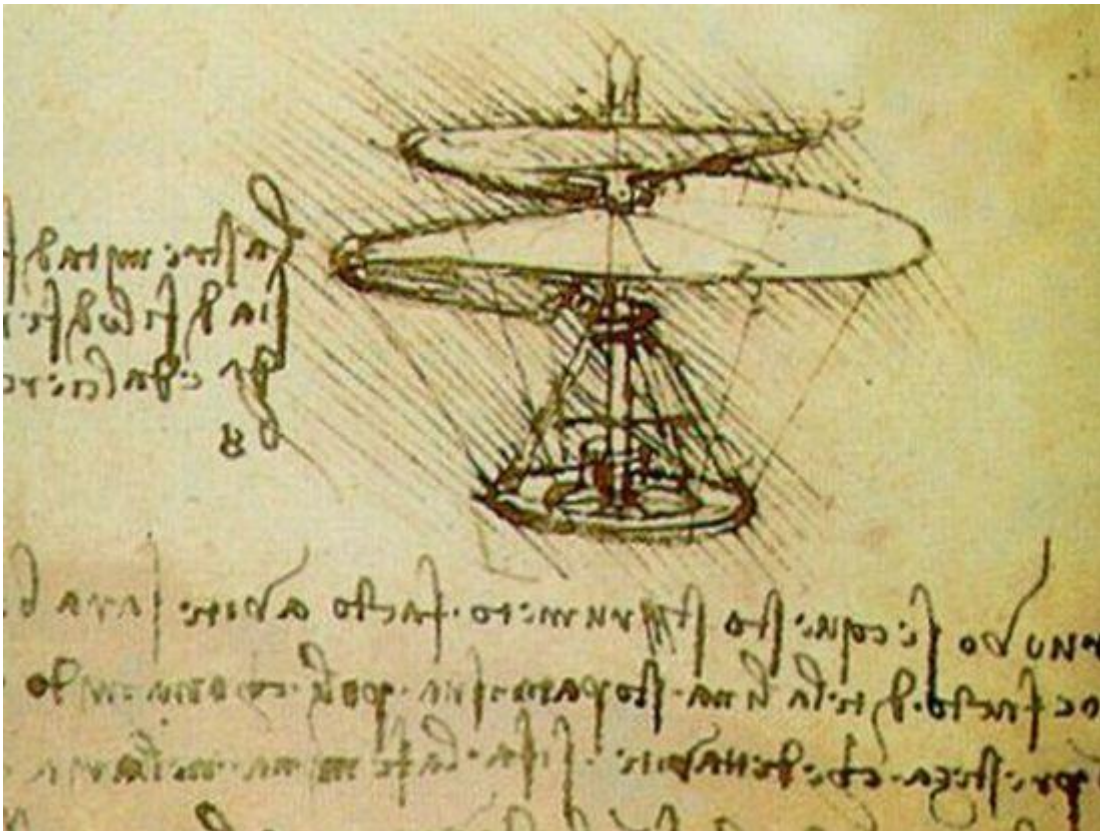
Lesson #2 **Leonardo DaVinci**

Leonardo DaVinci was a skilled painter, sculptor, architect and engineer. He was born near Florence, Italy on April 15, 1452. As a frame of reference, this was 40 years before Columbus sailed to the west to arrive in the east, and instead, discovered America. By the age of 15, DaVinci was quite skilled, and he soon began to develop a reputation for excellence.

During his life he painted a variety of pictures depicting different aspects and teachings of the Christian religion. He lived in both Italy and France. Toward the end of his life he created the work of art he is probably most famous for: The Mona Lisa.

At the end of his life, DaVinci lived in France, and when he died in 1519 he was buried there. During the French Revolution much of his final resting place was destroyed. By the 19th century, the entire cemetery was completely obliterated.

One of DaVinci's most famous drawings is that of the gyrocopter. This drawing displays rotating, curving, sail-like cloths that were supposed to propel the craft into the air. Here is a picture of his drawing:



http://www.google.com/imgres?imgurl=http://www.instablogsimages.com/images/2009/02/09/da-vinci-helicopter_cPb8n_48.jpg&imgrefurl=http://defenceforumindia.com/showthread.php%3Ft%3D17088%26page%3D5&usq=__rwTUOw2azBoKhDcj0PCVc9NOLzg=&h=415&w=550&sz=46&hl=en&start=1&zoom=1&tbnid=S74_K295VxBN_M:&tbnh=100&tbnw=133&ei=OZtITdOIMtKjtgee4sGHBg&prev=/images%3Fq%3Ddavinci%2Bgyrocopter%26hl%3Den%26biw%3D1004%26bih%3D554%26gbv%3D2%26tbs%3Disch:1&itbs=1

We now know that the gyrocopter could not have flown the way it was designed in this picture; however, we do know that DaVinci was way ahead of his time in even thinking about such a hover craft.

Activity #1

Kites

While there is a variety of kites that kids can make, diamond, barn door, and sled are probably the most simple. Have a contest with the students and have them individually or in partners make a kite that they can enter into a contest as the smallest, largest, most colorful, highest flier, most durable, most original, or highest flyer. Receive the recognition as the judge's favorite for the kite that you most like. Directions for building these kites can be found at www.activitytv.com

You will need some simple supplies, dowels or balsa sticks or other lightweight wood, (for small kites you may want to use toothpicks) lightweight cloth or plastic, glue, scissors, string, and so forth.

You might want to talk about the basics of kite making and design and then let the kids be creative in how they make the kite that they will enter into the contest. Begin with simple kites and if students are interesting then you can move on to more complicated kites.

Activity #2

Draw Like DaVinci

Show students the DaVinci drawing of the gyrocopter. Talk with them about the details of the drawing. After that discussion, have students try drawing like DaVinci. Select quality drawing paper and a sharp pencil for students to work with. Give each student a copy of the gyrocopter so that they might replicate the drawing. Ask them how it was to try to copy a master like DaVinci.

Lesson #3

Orville and Wilbur Wright

It would not be possible to talk about flight and not talk about the Wright Brothers. Wilbur Wright, the oldest brother, was born on April 16, 1871 in Millville, Indiana. Orville was born 4 years later on August 19, 1871 in Dayton, Ohio. Orville and Wilbur were interested in the mechanics of a variety of different things including the printing press, motors of all sorts, and bicycles. It was probably their work with bicycles that most helped them develop the first airplane.

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At Kitty Hawk, North Carolina, on a cold December morning in 1903, the Wright brothers were responsible for flying the first successful airplane. This heavier than air vehicle stayed in the air for 12 seconds—a simple beginning for an amazing invention. Less than one year later, the Wright brothers had adapted this first plane into a fixed wing plane that stayed aloft for more than 5 minutes. In 1908, despite several setbacks, the Wright brothers were flying passengers, even though passenger flight had accounted for several deaths.

The Wright Brothers applied for a patent for a system of aerodynamic control which most agree was the key to their success. The Wright Brothers also did comprehensive tests in wind tunnels which provided them the data needed to develop a quality air design that would stay airborne.

Wilbur died in 1912, but his brother Orville lived until January 30, 1948.

Activity #1

Paper Airplanes

The students will enjoy making and flying paper airplane. Once you have completed the airplanes, you can have the students fly them for distance and also to time how many seconds the plane stays aloft. You will want students to make more than one plane so you can check on the effectiveness of design as well.

There are a variety of internet sites that will be referenced below that you can go to for directions on making paper airplane. No matter which plane your students fold (and then fly) here are some tips for creating great planes.

1. Try a variety of papers, with different weights, when making planes. Determine if lighter or heavier weight paper fly further.
2. When folding the airplane, folds that are sharp and clean and flat will be better than those which are not.
3. Students should try to make both of the sides of the plane exactly the same—the same size, the same folds, etc. so that the plane will be equally level. Watch the flaps as well; it is easy for them to not be the same.
4. Paper that has been folded only once will create better planes than ones who have been folded and refolded.
5. Let students practice more than one. The more times they practice folding an airplane the better the planes will be.

Here are some websites you might want to visit for plane directions.

<http://www.kidsturncentral.com/links/airplanelinks.htm>

<http://www.origami-kids.com/>

<http://www.funpaperairplanes.com/>

If you would like to find more website resources simply “Google” paper planes kids.

Activity #2

Fact Cards

1. Divide students into teams. Have them create “fact cards” for the Wright Brothers, DaVinci, and the Icarus story.
2. On one side of the card the student should write a question.
3. On the other side, the student should write the answer to the question.
4. Use these cards to play games. One game can be like Jeopardy—post the answer and have the student create the picture. Or, have the student ask the question and then another student can answer.

Lesson #4

Space Travel

While you may think of space travel as relatively recent (beginning in the 1950s and 1960s) but the facts are that space travel goes much further back. The timeline below is begins in 1942.

Date	Event
October 3, 1942	1 st vehicle reaches 62 miles from Earth’s surface (Germany)
May 10, 1946	1 st space research flight (USA)
October 10, 1946	1 st picture taken from 62 miles high (USA)
1947	First animals in space (USA)
August 21, 1957	1 st intercontinental ballistic missile (USSR)
November 3, 1957	1 st animal in orbit, dog Laika (USSR—Sputnik 2)
August 7, 1959	1 st picture of Earth from orbit (USA)

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September 13, 1959	1 st impact with moon (USSR)
August 19, 1960	First plants and animals return from space (USSR)
April 12, 1961	First manned space flight (USSR—Yuri Gagarin)
June 16, 1963	1 st woman in space (USSR—Valentina Tereshkova)
July 19, 1963	1 st reusable manned spacecraft (USA)
December 15, 1965	1 st orbital rendezvous (USA)
December 21, 1968	1 st human orbiting moon (USA)
July 21, 1969	1 st man on the moon (USA Neil Armstrong)
1982	Venus soil samples obtained
1983	Orbital Observatory in place
2004	Mars Rover
Future	?????????

Activity #1

Illustrated Timeline—Space from 1942-2011

1. Students can create an illustrated timeline of the last 70 years in space.
2. Divide students into pairs
3. Use butcher paper (18" wide and about 4 feet long)
4. Students draw a line down the center of the paper, dividing the line into regular incremental spaces
5. Students list dates and events
6. Students draw picture to illustrate the events

Activity #2

Illustrated Timeline—Space from 2011-2081

The timeline created in Activity #1 charted the past of the space industry. Activity #2 is about the creation of the timeline for the next 70 years. The manner of the timeline drawing is the same. Students should add something new at least every 5 years. Ask students to be as creative as possible. Where will space travel take us? Will we visit all

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of our solar system planets? Will we colonize one of Jupiter's moons? Will we zoom past the Milky Way? Will we discover other life? What do they think? This is what they should record on the Timeline 2011-2081.

Lesson #5

Air Travel in a Global World

Air travel is becoming more and more a part of our daily lives. In the United States today, well over 1,000,000 people have to link with other cities and countries to accomplish their work. The globe is shrinking because of the increasing efficiency of the airlines. From Los Angeles International Airport to Beijing, China is approximately 13.5 hours, to Heathrow in London, England about 15 hours. Here are some other pertinent facts:

42% of adults report travel for pleasure rather than travel for business. Those who fly for pleasure list these reasons for flying to almost anywhere:

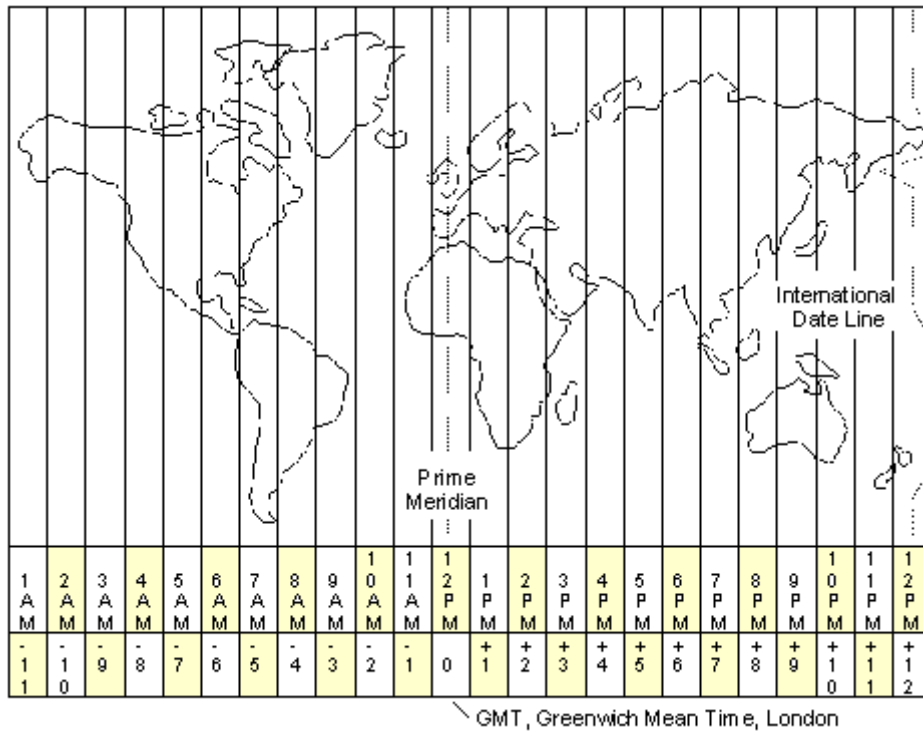
1. friends and relatives
2. sightseeing
3. beaches and waterfronts
4. visiting zoos, aquariums, and science museums
5. National parks
6. State parks
7. going on a cruise
8. theme parks
9. visiting city or mountain area

As of February 13, 2011 there were:

1,748 active airlines in the world

3,562 now defunct airlines that had been around in the last decade

With air travel becoming more prevalent, it is important that youth understand about time zones. Here is a simple flat map of the world that shows the international time zones:



http://www.google.com/imgres?imgurl=http://www.logisticsworld.com/images/wtzs.gif&imgrefurl=http://www.logisticsworld.com/worldtime.asp&h=372&w=465&sz=11&tbnid=byOtdwnHOB_yjM:&tbnh=102&tbnw=128&prev=/images%3Fq%3Dtime%2Bzones%2Bworld&zoom=1&q=time+zones+world&hl=en&usq=_YJENfxY-0YijvLb3OqECZdGz96M=&sa=X&ei=FZZITdiwGpS4tqeCnvCjBg&ved=0CDAQ9QEwAg

Two key lines on the map are the International Date Line and the Prime Meridian. Airports around the world tell time based on Greenwich Time which is based on the Prime Meridian. In the movies or on television when you hear the word “Zulu”, this refers to the time at the Prime Meridian.

While the Prime Meridian is a straight line, the International Date Line is not quite so straight, as it attempts to make sense of international borders. The time zone surrounding the Prime Meridian does have some flexibility to acknowledge international borders as well. Other idiosyncrasies include all of China being considered in the same time zone by government official, even though it would have 3-4 time zones if calculated accordingly.

Activity #1

Travel Brochure

1. Divide students into groups of 2 or 3
2. Have them create a travel brochure that will take students to at least 5 countries
3. Have them create an airline that will take them on this trip
4. If you have access to the internet, have students research a variety of countries selecting ones that they would like to visit
5. If you do not have access to the internet, talk with a local travel agency and ask for a collection of travel brochures for students to look at
6. When brochures are completed, have students share with the other students.

Activity #2

Global Time Zone Map

1. Have students create a flat world map and label each of the time zones.
2. Have them answer questions about the map such as, "If it is 5:00 p.m. in Los Angeles, what time is it in Hawaii?" In Paris? In Beijing?



For more information, contact
Consult 4 Kids at
www.consultfourkids.com

