let's go fly a kite

by: Marco Melito
for: D. Woodbridge

let's go fly a kite

Table of Contents

let's go fly a kite

Statement of Purpose

Kites are one of mankind's most enduring inventions and certainly our first venture into the field of aviation. The appeal of kites is universal. Whether it's a large delta wing kite, a box kite, or a simple bow kite, the thrill of watching your kite climb into the sky is a pleasure that few of us outgrow.

Kites have been around for thousands of years. The Chinese were the first to record the use of kites and are credited with their invention. Many famous inventors of the 19th and 20th centuries used kites to assist them in their research. Almost everyone has heard of Benjamin Franklin's remarkable experiments with kites on a stormy day. (What's really remarkable is that he didn't get himself killed doing them. Others who tried to duplicate his experiment were killed.)

Today, kites are used mostly for recreational purposes. Look into the sky on a breezy summer's day and you're likely to see one of these colourful tethered aircraft happily flying high above you.
This unit has two purposes:

1. To help you learn about kites, kite making, kite flying and aviation
2. To help you learn how to use the internet to collect and present useful information.

The internet is a vast, sometimes overwhelming resource. In order to make the most of the net and its capabilities every student should know the techniques that can help narrow their search. A series of information aid sheets, entitled "internet know how," has been prepared to help students formulate their queries in an efficient manner. We will use these techniques as we complete the unit assignment on kites and aviation.

This document has been created partly to meet the course requirements of the E30/E31 course curriculum. It is intended to develop an awareness in technological student teachers of the increasing role of computerization in design and communications. It is essential that teachers

let's go fly a kite

have the knowledge to integrate computer applications into their subject areas and also to be able to teach students how to use the computer to solve their problems.

The document is written for the Faculty of Education at the University of Western Ontario, the students who might experience this unit, and for me, the teacher.

This unit has been created to provide the student teacher, me, with the opportunity to work with and manipulate computer graphics and also to help develop an appreciation for how this can be incorporated into a teaching unit.

This document includes lesson plans, reference sheets for students, an exercise sheet, an assignment sheet for students to complete, a marking rubric. The document will be included in the course curriculum catalogue. Hopefully it will also be used and developed in the classroom. It is also a likely candidate for my professional portfolio.

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Statement of Prior Knowledge

As previously stated, this unit has two purposes:

3. To help you learn about kites, kite making, kite flying and aviation
4. To help you learn how to use the internet to collect and present useful information.

In order to complete the Kites and Aviation Assignment which follows it is necessary students have a working knowledge of Microsoft Word. Students must be comfortable with such commands as Copy, Paste, Save. Students should also be comfortable using the school's intranet and have their own log in password.

In the kite making assignment students are expected to know how to measure the materials they use so as to reduce wastage. Because the design of the kites has not yet been determined, it is unlikely that students will be familiar with all the equipment that could be used in their construction. It is expected that students will not work on a piece of equipment that they have not been trained to use safely.

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let's go fly a kite

Learning Expectations

By the end of this unit, students will:

- become aware of why flight happens;
- demonstrate skill in constructing kites;
- be given the opportunity to work individually and in teams;
- be involved in a class project:
- be introduced to the “bill of material”
- identify kite safety issues;
- become aware of the historical significance of kites;
- become proficient in the use of internet search engines;
- become proficient in creating documents containing graphics from internet sources;
- communicate their ideas using a variety of methods including sketches, drawings, written reports;
- demonstrate knowledge of the physical characteristics of the materials used in the design of kites;
- develop strategies to effectively choose materials that will meet the design criteria
- further develop their measuring skills;
- describe the role of aesthetics in the design of kites.

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A LEARNING PLAN FOR COLLABORATIVE LEARNING	
Subject: Technological Design	Course Number: TDJ2O
Topic and Objective: Kites, Aviation and the Internet. Through a series of internet searches, students will learn about kites and aviation. The intention is to create an engaging activity that will help students acquire new research skills and have some fun.	
Context: Kites and kite flying are universally appealing and an economical way to introduce students to the topic of aviation. There is also considerable information about them on the internet so the research assignments should be relatively simple yet effective.	
References: 1. This is what the students will have to find out!	
Expectations: Students will learn new, universally applicable research techniques as well as some interesting facts about kites and aviation. The building of kites will enhance their motor skills and the flying of kites should be fun.	
Questions: 1. Why is it important to plan research conducted on the internet? 2. As per the assignment. 3. What safety concerns are related to kite flying? 4. What is so remarkable about the tetrahedron?	
Student Activities: Review the information aid sheets. Conduct research on the internet. Present a plan, bill of materials, and equipment list for a kite design for approval. Build a kite and participate in the class project kite.	
Student Recording and Presenting Requirements: Properly save their assignment in the specified file. Build and fly their kite.	
Instructor's Name and Comments: Marco Melito. This unit should take about 2 weeks to complete. Most of the time will be spent building the kites. I hope it's breezy when we need it to be.	

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let's go fly a kite

Kites and Aviation

Use only the internet as your information source. The information package entitled "internet know how" is intended to help you complete this assignment.

Create a Word document called "kites_aviation" and save it in your system memory drive, drive H:. **Do not save the information on drive C:!** The contents of drive C: are automatically erased every day; therefore your work will be lost. Each of the following items should be added to document "kites_aviation" and saved. Remember to label your graphics and to include your references.

5. Graphics (pictures) of six different kinds of kites.
6. Answer the question, "Why do kites fly?" Include illustrations.
7. What are the safety concerns related to kite flying?
8. Graphics of Leonardo da Vinci's sketch of an airplane and his sketch of a helicopter.
9. Graphics of the following:
    a. Orville and Wilbur Wright's first flight.
    b. A Sopwith Camel.
    c. A Zepplen.
    d. A WWII fighter plane.
    e. A 737 Passenger Jet.
    f. A Hot Air Ballon.
    g. The Space Shuttle.
    h. The Avro Arrow.
10. Answer the question, "Why do planes fly?" Include illustrations.
11. A History Lesson: Homan Walsh and Paul Garber both became famous because they used kites to solve problems. What problems did they solve and how did they do it?

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let's go fly a kite

Kite Making Assignment

Find a kite plan on the internet that you would like to build and submit the following for approval:

a. Working drawings or sketches.
b. The materials you'll need for its construction.
c. The equipment you'll need to build it.

The construction of the kites will be done in teams. Those who are interested in a similar type of kite will be grouped together. You will each have the opportunity to build a kite.

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Class Project

History Lesson II:

Alexander Graham Bell (the telephone guy), invented a kite he hoped to use as a man carrier. Bell combined tetrahedrons (sort of a triangular pyramid) that were covered on two sides to make these huge kites.

Each of us will make a tetrahedron kite panel. These panels will then be joined together to make a class kite. We'll test the kite to see how much it can lift. The tetrahedron kite on the following page is made of 64 panels; ours will be a lot smaller but still impressive.

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Tetrahedral Kite in Flight

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Assessment Rubric

Expectation	1	2	3	4	Total
Understanding of concepts	Student demonstrates limited understanding of concepts	Student demonstrates some understanding of concepts	Student demonstrates considerable understanding of concepts	Student demonstrates thorough and insightful understanding of concepts	
Inquiry skills	Student applies few of the skills involved the inquiry process	Student applies some of the skills involved the inquiry process	Student applies most of the skills involved the inquiry process	Student applies all or almost all of the skills involved the inquiry process	
Communication of information	Student communicates information with limited clarity	Student communicates information with some clarity	Student communicates information with considerable clarity	Student communicates information with a high degree of clarity	
Application of skills	Student applies skills with limited effectiveness	Student applies skills with some effectiveness	Student applies skills with considerable effectiveness	Student applies skills with a high degree of effectiveness	
Application of equipment and procedures	Student uses procedures and equipment safely and correctly only when supervised	Student uses procedures and equipment safely and correctly with some supervision	Student uses procedures and equipment safely and correctly	Student demonstrates and promotes the safe and correct use of procedures and equipment	

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