

Careers Exploration

Curriculum Unit Overview

Summary

The National Aviation Hall of Fame (NAHF) is made up of people who made significant contributions to the world of flight. Naturally, many of these people were, or are still, aviators. However, some of the enshrinees were not directly involved in flight. Some of the enshrinees were never on an airplane. Some of the enshrinees were well known for accomplishments outside of the world of aviation.

Career exploration is a thematic focus for eighth grade curriculum in the state of Ohio. In this unit, eighth grade students will explore a variety of careers, and will work together in teams to plan, organize, and start their own business. Students will identify the interaction between different occupations in order to make a business successful. This unit will require approximately 15 class days.

Big Picture

Students will be given a list, generated by the FAA, of occupations associated with aviation. Students will research activities and requirements for different careers associated with aviation. After the trip to the NAHF, students will work with a small group to plan, organize, and develop their own aviation related business.

Preparation for the Unit

Teachers will gather and prepare materials needed for a career research assignment. A guest speaker from the aviation field, a small business owner, or an entrepreneur could be lined up.

Overview

On the following page is a summary of the unit including brief summaries of each Authentic Learning Task (ALT). This table provides an overview of the tasks in the unit sections and shows how the activities in the different teaching areas relate to each other.

Table of Contents

	page
Curriculum Unit Overview – narrative	3
Summary Chart.....	4
Section One.....	5
Pre-Visit Activities	
Section Two.....	15
NAHF Visit Activities	
Section Three.....	22
Post-Visit Activities	
Transfer Activity.....	26
Project X-35	
Appendix.....	27

**CAREER EXPLORATION
UNIT SUMMARY**

Reading	Writing	Math	Science	Social Studies
ALT 1 Research occupations in aviation. Predict outlook.	ALT 1 Research report	ALT 1 “Rocket Racer” activity (hand out) data calculations	ALT 1 “Rocket Racer” activity (hand out)	ALT 1 Identify character traits that would enhance job
ALT 2 Identify occupations of enshrines.	ALT 2 Note taking	ALT 2 Research the amount of money earned by early pioneers, calculate to today’s dollar.	ALT 2 Interactive displays at the NAHF Identify pioneers in rocketry	ALT 2 Identify cultural backgrounds and character traits of enshrines.
ALT 3 Vocabulary Non-fiction manuals	ALT 3 Resume’ Design job application Write job descriptions Write manual	ALT 3 Graph outlook for business	ALT 3 “Project X-35” activity (hand out)	ALT 3 Develop a new business in aviation field

Transfer Activity

The culminating activity for this unit will be the formation of a business. Students will work cooperatively to plan, organize, and develop an aviation related business. Students will use reading skills to research careers, individual achievements, and business plans in this activity. They will use writing skills to put a proposal together. They will use math skills to calculate financial needs, record data, and graph business outlook. They will use science skills to organize information and to glean information from the interactive displays at the NAHF. They will use social studies skills to demonstrate understanding of economic systems and to identify cultural background and character traits of the enshrines in the NAHF.

Section One: Career Exploration

ALT One: Pre-NAHF Visit Activities

Reading: Aviation Careers Research

Summary

Students will conduct a research project, finding information about various careers in aviation. This research will be done in the library or the computer lab.

Competencies:

1. Reading: Given a nonfiction selection, the student will
 - a. respond to questions dealing with a problem and solutions,
 - b. select the main idea implied in a passage,
 - c. identify both stated and inferred cause and effect relationships,
 - d. distinguish between fact and opinion,
 - e. predict whether certain information is likely to be included in a source,
 - f. cite specific sentences supporting the main idea,
 - g. determine whether the author's purpose is inform, persuade, or entertain,
 - h. follow directions,
 - i. use skills/processes including alphabetic ordering; skimming; scanning; reading charts, tables, diagrams, graphs, maps, labels, and signs in reference sources.

Time

Class 1:

Introduce assignment, hand out assignment, research questions, discuss expectations: 20 minutes

Take class to library, or computer lab, instruct students as to where to find resources: 20 minutes

Class 2:

Research in library or computer lab: 45 minutes.

Class 3:

Research in library or computer lab: 45 minutes.

Class 4:

Research in library or computer lab: 45 minutes.

Materials

Occupations list, research questions, access to library and/or computer, list of helpful websites.

Instructions

Students will be given a list of three careers, chosen from the FAA list, to research. These three careers will come from different categories of occupations. Teachers will give the students a set of career research guiding questions (hand out). These questions will direct the students' search. The students will find the information requested by the questions in the library (school or community), the classroom, or on computer.

Evaluation/Assessment of Students' Competency

Students' research papers will be graded.

Closure

Use research to write papers in writing class.

Section One: Career Exploration

ALT One: Pre-NAHF Visit

Math: “Rocket Racer” measurement

Summary

Students will manipulate, use, and graph the results of the “Rocket Racer” activity.

Competencies

The student will be able to:

- j. select appropriate notation and methods for symbolizing the problem statement and the solution process,
- k. extend the application of previously learned strategies to a variety of problems,
- l. validate and generalize problem solutions,
- m. understand, represent, and use numbers written in a variety of equivalent forms in real world and mathematical problem solving situations,
- n. use and relate tables, graphs, and equations to solve problem situations,
- o. collect data and create appropriate graphs to illustrate.

Time

Graph measurements from activity: 15 minutes.

Graph measurements from follow up activity: 15 minutes.

Compare and analyze data: 20 minutes.

Materials

Graph paper, Data Sheet from rocket activity.

Instructions

Students will bring measurements and results from “Rocket Racer” activity in Science class. Students will graph different trials. On the following day, students will bring results from follow up activity. Once again, students will graph results of trials. Teacher will explain different uses for graphs, show how results can be compared.

Evaluation/Assessment of Student's Competency

Students' graphs and assignments will be graded.

Closure

Teachers will lead class discussion of how these results might be useful. Teacher should lead discussion to include how scientists, including NAHF enshrines, and researchers use graphs and other pictorial representation of data.

Section One: Career Exploration

ALT One: Pre-NAHF Visit

Science: “Rocket Racer”

Summary:

Students will construct a balloon-powered rocket racer from a Styrofoam tray, pins, tape, and a flexible straw. The students will then test their racer along a measured track on the floor. Students will be placed in teams in order to build the “Rocket Racer” (see hand out). Each student will be given a job to do on the team.

Competencies

2. Science: The student will:
 - a. formulate personal explanations and inferences based on reliable data,
 - b. investigate evidence of relative motion,
 - c. analyze features related to the constancy and rates of change represented, when presented with a structure or series of events,
 - d. construct a device that takes advantage of or enhances personal performance.

Time

Placing students in teams and discussion of team responsibilities and goals: 10 minutes.

Construction of rocket racers: 20 minutes.

Testing rocket racers: 15 minutes.

Rocket Racer races: 20 minutes.

Materials

Science: pins, Styrofoam meat tray, masking tape, flexible straws, scissors, compass, marker, small balloons, ruler, design sheet.

Instructions

See enclosed hand out for “Rocket Racer” activity.

Evaluation/Assessment of Students’ Competency

Student’s participation in activity.

Lab report.

Measurements of results.

Closure

Students will take results to Math class. Apply discussion of teamwork to discussion of character traits in Social Studies class. Apply discussion of teamwork and responsibilities to career research in Reading class.

Section One: Career Exploration

ALT One: Pre-NAHF Visit

Social Studies: Character Traits

Summary

Students will read and discuss different character traits. Students will discuss character traits that are conducive to being successful in a variety of careers. Students will be asked to think about and discuss what it takes to be a problem solver.

Competencies

The student will:

- a. select historical changes which occurred during a time period, and discuss the importance of these changes,
- b. place these changes in a timeline and raise questions about cause and effect relationships,
- c. explain the contributions of significant developments in history to the cultural heritage of the U. S.,
- d. explain the significance of political, economical, or ideological connections between different parts of the world.

Time

Discussion of positive traits: 15 minutes.

Discussion of negative traits: 15 minutes.

Discussion of problem solving, risk taking, and traits: 10 minutes.

Discussion of careers associated with traits: 5 minutes (possible homework assignment).

Materials

List of character traits (hand out).

Instructions

The students will be given a list of positive character traits compiled by the Georgia State Board of Education. The teacher will lead a discussion about what each of these traits means. The discussion should include consideration of careers that would be associated with each trait. Then the students will be asked to think about negative character traits. The class will then discuss situations when negative character traits may be helpful.

Students will be asked what it means to be a problem solver. What does it take to solve problems? The students will be asked to consider whether “risk taking “ is a positive or negative trait. Students will be asked to think about what kinds of traits a problem solver would possess.

Evaluation/Assessment of Student’s Competency

Students’ participation in class discussion. Possible homework assignment.

Closure

Transfer and apply information from discussion to research assignment in Language Arts.

Section Two: Career Exploration

ALT Two: NAHF Visit Activities

Reading: Occupation Search

Summary

Students will identify occupations of enshrinees.

Competencies

Given a nonfiction selection, the student will

- e. respond to questions dealing with a problem and solutions,
- f. select the main idea implied in a passage,
- g. identify both stated and inferred cause and effect relationships,
- h. distinguish between fact and opinion,
- i. predict whether certain information is likely to be included in a source,
- j. cite specific sentences supporting the main idea,
- k. determine whether the author's purpose is inform, persuade, or entertain,
- l. follow directions,
- m. use skills/processes including alphabetic ordering; skimming; scanning; reading charts, tables, diagrams, graphs, maps, labels, and signs in reference sources.

Time

Length of visit to NAHF.

Materials

Paper and writing implement. NAHF Search Sheet.

Instructions

While at the NAHF students will read the enshrinee plaques and identify the various occupations of the enshrinees. Students will notice the different careers, and fill in NAHF Search Sheet (hand out).

Evaluation/Assessment

Completion of NAHF Search Sheet. Students' participation in subsequent class discussion.

Closure

Students will use these observations and this information in their projects following their visit to NAHF.

Section Two: Career Exploration

ALT Two: NAHF Visit Activities

Math: Finance Search

Summary

Students will look through the NAHF to find information about financial matters concerning enshrines. This information could include wages, investments, money lost, etc. Students will note the time period these financial transactions took place.

Competencies

The student will be able to:

- n. select appropriate notation and methods for symbolizing the problem statement and the solution process,
- o. extend the application of previously learned strategies to a variety of problems,
- p. validate and generalize problem solutions,
- q. understand, represent, and use numbers written in a variety of equivalent forms in real world and mathematical problem solving situations,
- r. use and relate tables, graphs, and equations to solve problem situations,
- s. collect data and create appropriate graphs to illustrate.

Time

Length of visit to NAHF.

Materials

Paper and writing implement. NAHF Search Sheet.

Instructions

While at the NAHF students will read the enshrinee plaques and identify the various occupations of the enshrines. Students will notice the different careers, and fill in NAHF Search Sheet (hand out).

Evaluation/Assessment

Completion of NAHF Search Sheet. Students' participation in subsequent class discussion.

Closure

Students will use these observations and this information in their projects following their visit to NAHF.

Section Two: Career Exploration

ALT Two: NAHF Visit Activities

Science: Interactive Exhibits

Summary

Students will manipulate the interactive exhibits at the NAHF. Students will identify the aviation pioneers associated with each exhibit.

Competencies

3. Science: The student will:
 - a. formulate personal explanations and inferences based on reliable data,
 - b. investigate evidence of relative motion,
 - c. analyze features related to the constancy and rates of change represented, when presented with a structure or series of events,
 - d. construct a device that takes advantage of or enhances personal performance.

Time

Length of visit to NAHF.

Materials

Paper and writing implement. NAHF Search Sheet.

Instructions

While at the NAHF students will read the enshrinee plaques and identify the various occupations of the enshrinees. Students will notice the different careers, and fill in NAHF Search Sheet (hand out). Students will manipulate the interactive exhibits. Students will identify the aviation pioneers associated with each exhibit.

Evaluation/Assessment

Completion of NAHF Search Sheet. Students' participation in subsequent class discussion.

Closure

Students will use these observations and this information in their projects following their visit to NAHF.

Section Two: Career Exploration

ALT Two: NAHF Visit Activities

Social Studies: Character Traits and Cultural Heritage

Summary

Students will identify character traits and cultural background of enshrinees.

Competencies

The student will:

- e. select historical changes which occurred during a time period, and discuss the importance of these changes,
- f. place these changes in a timeline and raise questions about cause and effect relationships,
- g. explain the contributions of significant developments in history to the cultural heritage of the U. S.,
- h. explain the significance of political, economical, or ideological connections between different parts of the world.

Time

Length of visit to NAHF.

Materials

Paper and writing implement. NAHF Search Sheet.

Instructions

While at the NAHF students will read the enshrinee plaques and identify the various occupations of the enshrinees. Students will notice the different careers, and fill in NAHF Search Sheet (hand out). Students will notice different character traits and cultural background of enshrinees.

Evaluation/Assessment

Completion of NAHF Search Sheet. Students' participation in subsequent class discussion.

Closure

Students will use these observations and this information in their projects following their visit to NAHF.

NAHF Search Sheet

Guiding Questions

1. Which enshrines are flyers?
2. Which are not?
3. Which are American?
4. Which are not?
5. Which enshrines had you heard of before?
6. Which had you heard of associated with a field other than aviation?
7. What jobs did they have, other than pilot?
8. Who invented something new?
9. Identify character traits.
- 10.

Career Research Questions

1. What are the day to day activities performed in this occupation? What does a person in this job do when they go to work each day?
2. What are the time requirements for this occupation? How many hours per week? How many days per week? Vacation time?
3. What are the educational requirements for this occupation?
4. What kinds of subjects, hobbies, or interests would be helpful to a person doing this job?
5. What personality or character traits would be helpful to a person doing this job?
6. What is the average starting salary for this occupation? How do people in this occupation get pay raises? What is the average salary for someone in this occupation at retirement age?
7. What is the outlook for this occupation in the near future (5 years)? What is the outlook for this occupation in the more distant future (10 years and beyond)?
8. What do you think you would like about this job?
9. What do you think you would dislike about this job?

References

The TIES educators who developed this unit submitted various hard copies of additional materials to be used as supplemental resources with the unit. The TIES coordinator reviewed these documents, and compiled the following list of references as an aid for those instructors interested in using the unit.

FAA Aviation Education – numerous resources including career guides and curriculum resources: www.faa.gov/education

Inventing Flight, Dayton, OH: www.inventingflight.com

Spacelink from NASA instructional materials and online educational activities:
<http://spacelink.nasa.gov>

“Rockets: A Teacher’s Guide with Activities in Science, Mathematics, and Technology”, EG-1999-06-108-HQ, NASA (Source of Project X-35, Rocket Racers, Altitude Tracking, Bottle Rocket, and Bottle Rocket Launcher activities)