DOCUMENT RESUME

ED 352 307 SO 022 821

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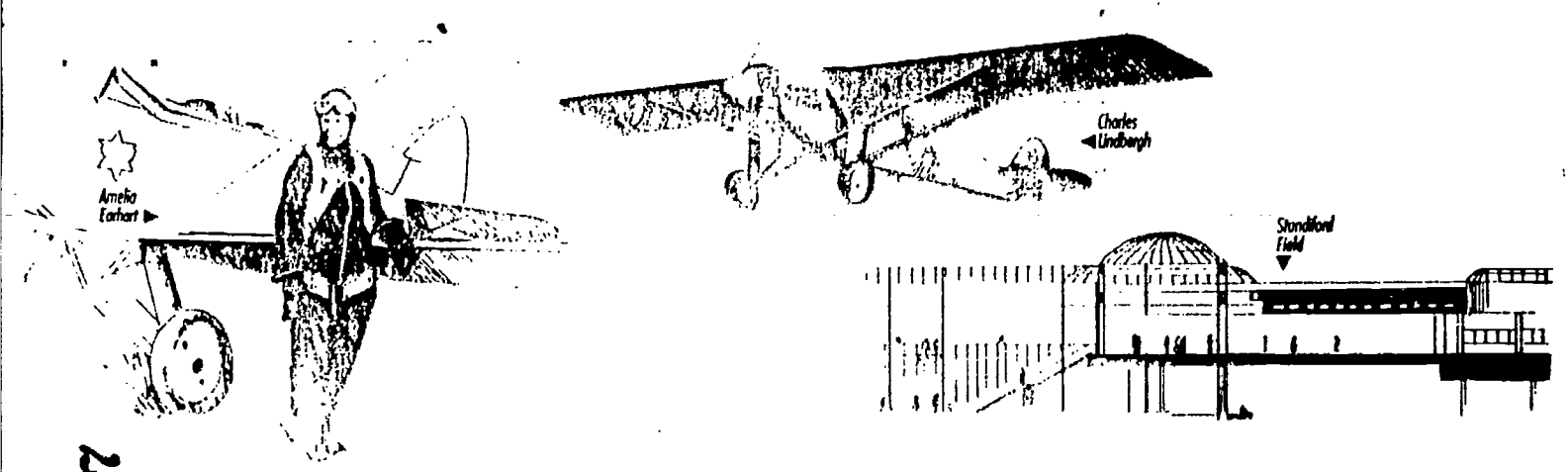
TITLE	Curriculum Package: Elementary [School] Social Studies Lessons. [A Visit to the Louisville, Kentucky Airports: Standiford and Bowman Fields.]
INSTITUTION	Regional Airport Authority of Louisville and Jefferson County, KY.
PUB DATE	[91]
NOTE	68p.; For related documents, see SO 022 822-823. For another set of related documents, see SE 053 418-419.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Airports; Aviation Education; Class Activities; Elementary Education; Elementary Schools; Elementary School Students; *Field Trips; Instructional Materials; *Social Studies
IDENTIFIERS	*Kentucky (Louisville)

ABSTRACT

These lesson plans are designed for use by elementary school social studies teachers who take their classes to tour the regional airports of Louisville, Kentucky. Fifteen lesson plans are included: "That's My Team"; "Who Said That?" "Me? Fly?"; "I Know It's Around Here Someplace!"; "How Far Did You Say?"; "Weather or Not"; "I Read About It!"; "Where Did We Go?"; "It's Time!"; "Which Way Did They Go?" "By the Numbers Now!"; "Parts Are Parts"; "Introducing the Regional Airport Authority"; "Where in the World"; and "Who Is a Helper?" Each lesson includes the following information for teachers: title, grade level, skills, performance objectives, materials, and procedures. A bibliography is provided along with an appendix that lists organizations from which educational resources about aviation and aerospace are available. (DB)



CURRICULUM PACKAGE

Elementary Social Studies Lessons

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Standiford Field & Bowman Field

ACKNOWLEDGEMENT

The Regional Airport Authority of Louisville and Jefferson County wishes to thank the following organizations for their generous support in providing us educational materials to help in the development of these curriculum packages. All of the materials were invaluable in creating these lesson plans for use by teachers and for distribution by the Regional Airport Authority of Louisville and Jefferson County.

Academy of Model Aeronautics
Aerospace Education Services Program
Beechcraft Aircraft Corporation
Cessna Aircraft Company
Estes Industries Hi-Flier Manufacturing Co.
Kentucky Aviation Association
NASAO Center for Aviation Research & Education
NASA
National Audiovisual Center
National Headquarters Civil Air Patrol
The Ninety-Nines, Inc.
Robert Riggs
Saint Louis University Parks College
Smithsonian Institution
U.S. Department of Transportation

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ELEMENTARY SOCIAL STUDIES LESSONS

LESSON TITLE: THAT'S MY TEAM

GRADE LEVEL: 1, 2, 3, 4, 5

SKILLS:
- Collect data from media sources
- Record data on maps and charts

PERFORMANCE OBJECTIVES:
- The student will trace the movement of a team, recording the travel on a map. The student will record data on a retrieval chart.
- The student will utilize a variety of media sources to collect data on and about travel.

MATERIALS:
Map of U.S. (individual)
Yarn
Team Travel Chart (A or B)
Newspapers/Magazines
Team schedule (Redbirds, Pirates, Lakers)

PROCEDURE:

1. Discuss "favorite teams" (baseball and pro-basketball teams work best), and ask which teams the students follow.

2. Give each student a map and a chart. Demonstrate how each is used (marking and connecting game sites on the map; recording data on the chart or locating games).

3. Have each student trace the travel of his/her favorite team for a set period (1 - 2 weeks). Grades 1 and 2 may, with teacher/parent help, may simply mark their map and fill in chart "A". Grades 3, 4 and 5 should mark and connect game sites and complete chart "B".

4. Once the maps/charts are completed, students can give a summary of their teams' travel (orally or in writing).
- Which team traveled the most?
- Which won the most games?
- Which played in the most time zones?

TEAM TRAVEL CHART

Chart "A"

TEAM_____

TEAM PLAYED	HOME/AWAY	WON/LOST

TEAM TRAVEL CHART

Chart "B"

CITY/TEAM_____ NICKNAME_____

DATE	OPPONENT	GAME LOCATION	WON/LOST/SCORE	MILES TRAVELED

TOTAL MILES TRAVELED_____

LESSON TITLE: WHO SAID THAT?

GRADE LEVEL: 3, 4, 5

SKILLS:

- Collect data from environmental resources
- Record data on retrieval charts
- Summarize main point of reading/story

PERFORMANCE OBJECTIVES:

- The student will conduct a media search on a given topic (the airport).
- The student will identify the source and summarize the main point of the story.
- The student will keep a media log of stories on the assigned topic.

MATERIALS: Media Search Log
Newspapers/Magazines

PROCEDURE:

1. Pose the question "If we wanted to find out about something happening now, where would we look?" Brainstorm a list of resources.

2. Assign the airport as a research topic. Divide the class into groups and have each member of the group research one or more sources. Have the group members record their discoveries on a collective media log. List the major airport-related stories found (e.g., new air services, expansion plans, new board members) and identify the who, what, when, where, and how facts.

3. Analyze the logs. Are the stories the same? Did all of the media sources cover a story? Was the story of local or national interest?

MEDIA SEARCH LOG

SUBJECT _____

DATE	SOURCE	SUMMARY/TOPIC (Who, What, When, Where, Why, How)

LESSON TITLE: ME? FLY?

GRADE LEVEL: 3, 4, 5

SKILLS:

- Uses interview techniques
- Records data on organizational charts
- Transfers data to graphs/charts

PERFORMANCE OBJECTIVES:

- The student will interview subjects to generate data on a given subject.
- The student will record data on an organizational chart.
- The student will transfer data to charts/graphs.
- The student will draw conclusions from data collected.

MATERIALS:

Destination Analysis Chart
Tally Sheet

PROCEDURE:

1. Watch an interview/interview program. Note that there are a number of reasons to interview someone, but generally interviews are conducted because a person has information that we find interesting, we need, or we are curious about.

2. Interview a student who has been to the airport. Some interview questions:
   - Why did he/she go?
   - Has he/she flown?
   - How often?
   - How old was he/she when he/she flew for the first time?

3. Demonstrate how the answers can be summarized on a tally sheet. Have each student practice interviewing and tallying.

4. Have each student interview/tally five subjects.

5. Collect the tally sheets and demonstrate how conclusions can be drawn from the interviews. Show how graphs can help analyze data.

6. Use the graphs to reorganize data and generate conclusions.

TALLY SHEET

SUBJECT	M /F	AGE GROUP A. 0 - 19 B. 20 - 39 C. 40 - 59	AGE FIRST FLIGHT	FREQUENCY A. FREQUENT FLYER B. 2 - 3 TIMES A YEAR C. RARELY FLIES D. NEVER FLIES	DESTINATION

DESTINATION ANALYSIS

RESPONSES

50
45
40
35
30
25
20
15
10
5
0

#1 #2 #3 #4 #5 #6 DESTINATION

LESSON TITLE: I KNOW IT'S AROUND HERE SOMEPLACE!

GRADE LEVEL: 3, 4, 5

SKILLS:

- Read street maps
- Use street maps to find routes to a location

PERFORMANCE OBJECTIVES:

- The student will use a Louisville street map to find routes to the airport.

MATERIALS: Louisville City Map

PROCEDURE:

1. Discuss the importance of knowing how to get from one place to another. Note the importance of maps in helping find routes from one place to another.

2. Demonstrate first how to locate places (here and there), then how to trace routes from one place to another. Model the process using City Hall as a destination. Trace the route and then mark it on the map.

3. Divide the class into groups. Give each group a street map of Louisville. Have them locate the school and an airport. Note that there are two. Mark both locations on their maps. Have each group examine routes from school to the airport and select the one they think best. Have each group explain their route telling why it is best.

LESSON TITLE: **HOW FAR DID YOU SAY?**

GRADE LEVEL: 3, 4, 5

SKILLS:
- Read data from charts and graphs
- Locate places on maps

PERFORMANCE OBJECTIVES:
- The students will locate cities on a U.S./Western Hemisphere map.
- The student will read the distances between cities from a mileage chart.

MATERIALS:
Mileage Chart from Any Atlas
U.S. Map or Map of Western Hemisphere
Distance Worksheet

PROCEDURE:

1. Brainstorm with students to generate a list of places that they have visited. Ask "Which are farthest from Louisville?" List the places that students think are the farthest.

2. Using an overhead projector, display the mileage chart and demonstrate how it is used by reading the mileage between Louisville and the destination selected. Were they really the most distant?

3. Distribute maps and mileage charts to the students. Give each a distance worksheet. Divide the class into teams and have them complete the worksheet and draw each trip on the map.

4. Once the exercise is completed, use the data to determine:
   - Which trip was the longest?
   - Which was the shortest?
   - Which covered the most time zones?

DISTANCE WORKSHEET

Use your mileage chart to determine the total distance for the trip listed. Then draw the trip on your map.

1. Louisville to Chicago miles_____
2. Louisville to New Orleans miles_____
3. Louisville to Atlanta miles_____
4. Louisville to Denver miles_____
5. Louisville to San Francisco miles_____
6. Louisville to Cincinnati to New York miles_____
7. Louiville to Nashville to Phoenix miles_____
8. Louisville to Atlanta to Mexico City miles_____
9. Louisville to New Orleans to Buenos Aires miles_____
10. Louisville to (pick your own)_____ miles_____

Which trip was the longest? _____

Which trip was the shortest?_____

Which trip crossed the most time zones?_____

Which trip crossed the equator?_____

LESSON TITLE: **WEATHER OR NOT**

GRADE LEVEL: 2, 3, 4, 5

SKILLS:

- Observes and records weather data
- Evaluates flying conditions

PERFORMANCE OBJECTIVES:

- The student will conduct daily weather observations.
- The student will record weather observations on an organizational chart.
- The student will analyze weather data to predict flying conditions.

MATERIALS: Flying Conditions Chart

PROCEDURE:

1. Ask the class the weather forecast for the day. Note the things that they mention---e.g. temperature, cloud cover, precipitation, wind.

2. Point out that pilots must know weather conditions and that ideal conditions include light winds, high visibility, and moderate temperatures. Note that airports use meteorologists to predict weather conditions for flyers.

3. Distribute the Flying Conditions Chart and have the students (working in groups) record daily weather data and estimate the flying conditions for the day. If a weather station can be set up, exact data can be recorded. If not, estimates will have to be used. (Note - the process here is more important than the product. Having a student make and defend an evaluation of flying conditions is more important than 100% accuracy.)

4. Cable weather channel can be used as well as the National Weather Service (361-1407).

FOR THE TEACHER: Aircraft at Standiford Field cannot land when visibility is down to 1600 foot minimum due to fog, heavy rain or snow.

When the weather gets very hot, the air traffic control tower may need to switch runways and use the longer runway

because the air is heavier and it takes a fully-loaded aircraft longer to lift off the ground. Sometimes the wind changes direction or speed and the control tower might need to use another runway because aircraft have to land and take-off into the wind.

FLYING CONDITIONS

DATE	WEATHER CONDITIONS			FLYING CONDITIONS
	TEMP.	VISIBILITY	WIND	EVALUATION

LESSON TITLE: I READ ABOUT IT!

GRADE LEVEL: K, 1, 2, 3, 4, 5

SKILLS:

- Collects media stories related to a given subject
- Reports on media stories collected

PERFORMANCE OBJECTIVES:

- The student will conduct a media search (print, T.V.).
- The student will summarize stories.
- The student will report to class on media coverage.

MATERIALS:

Media Search Worksheet
Environmental Resources (magazines, newspapers, T.V.)

PROCEDURE:

1. Ask the class how one finds out what is happening. Generate a list of resources that can be used.

2. Give each student a work sheet. Give individuals or groups a specific area to search (magazines, newspapers or T.V.). Ask the students to conduct a search on:
   - airports,
   - types/uses of aircraft,
   - air travel.

3. Have students summarize their findings in oral reports to the class. Display the work sheets.

4. This activity can be extended by looking for movies about air travel or T.V. shows about air travel/airports. If possible, have the students plan a film festival on these subjects.

MEDIA SEARCH WORKSHEET

DATE _____ SOURCE _____

SUBJECT _____

SUMMARY _____

_____

_____

_____

_____

_____

_____

_____

_____

Attach available clippings.

LESSON TITLE: WHERE DID WE GO?

GRADE LEVEL: K, 1, 2, 3, 4, 5

SKILLS:
- Relates travel experiences
- Locates places on a map

PERFORMANCE OBJECTIVES:
- The student will describe travel experiences (places to which he/she has flown).
- The student will locate his/her travel experience on a map.

MATERIALS:
Wall Map of U.S.
Yarn
Pins

PROCEDURE:

1. Ask the students if they have flown on an airplane. From those who have, ask where they boarded their plane and where they went. Generate a list of destinations.

2. Using the wall map, yarn and pins, locate each destination and connect it to Louisville with yarn and pins. Create a visual record of class travels.

3. This activity can be expanded. Allow each student to pick some place or some person they would like to visit. Have them explain their trip to the class, and connect their destinations to Louisville using the map, yarn and pins.

LESSON TITLE: IT'S TIME!

GRADE LEVEL: 4, 5

SKILLS:

- Recognizes time sheets
- Determines differences in time/time zones
- Records data charts

PERFORMANCE OBJECTIVES:

- The student will locate cities on a map.
- The student will identify time zones.
- The student will determine the time zone of a city.
- The student will relate time/time zones.

MATERIALS:

Map of U.S. with time zones
Time Zone Chart
Scrap paper for computing

PROCEDURE:

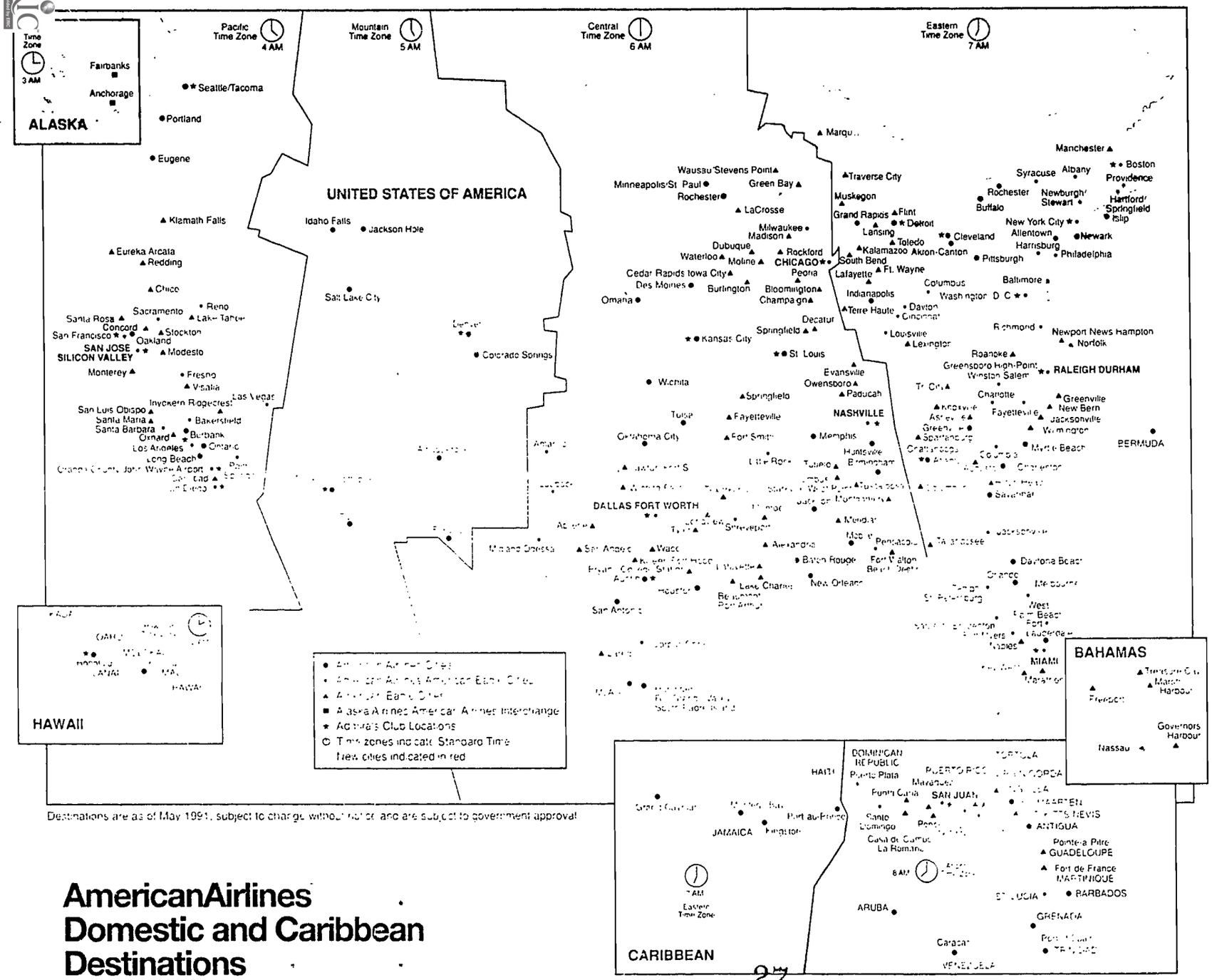
1. Ask what time a T.V. show comes on. Review the T.V. announcement "9:00 EST, 8:00 CST" and use that to introduce time zones.

2. Provide a map that has time zones labeled and review the different time zones of the Western Hemisphere.

3. Distribute the Time Zone Chart and have students individually or in groups complete the chart.

TIME ZONE CHART

CITY	TIME ZONE	TIME WHEN 3:30 P.M. IN LOUISVILLE
ATLANTA, GEORGIA		
SAN FRANCISCO, CA.		
CHICAGO, ILLINOIS		
NEW YORK, NEW YORK		
DALLAS, TEXAS		
CHEYENNE, WYOMING		
PORTLAND, OREGON		
NEW ORLEANS, LA.		
MIAMI, FLORIDA		
DENVER, COLORADO		
MINNEAPOLIS, MI.		
INDIANAPOLIS, IN.		
NASHVILLE, TN.		
OWENSBORO, KY.		
LITTLE ROCK, AR.		
HONOLULU, HAWAII		
JUNO, ALASKA		
MEXICO CITY, MEXICO		
TORONTO, CANADA		
HALIFAX, CANADA		



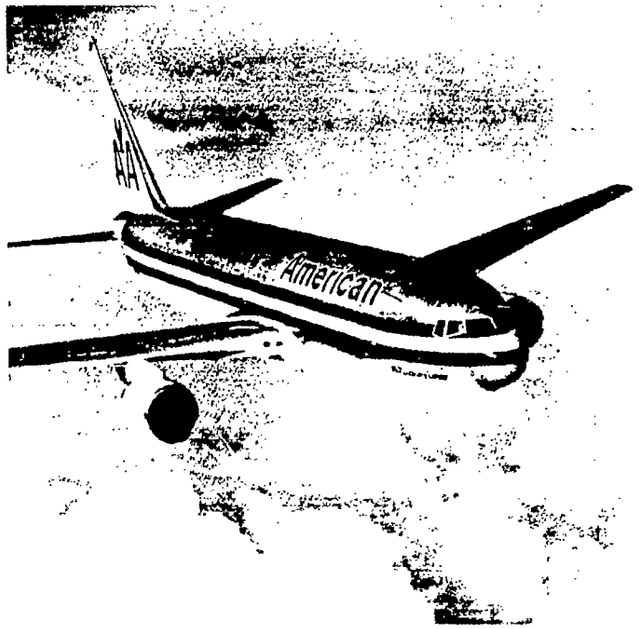
Destinations are as of May 1991, subject to change without notice and are subject to government approval

AmericanAirlines Domestic and Caribbean Destinations

AmericanAirlines®

World Destination Map

Spring 1991



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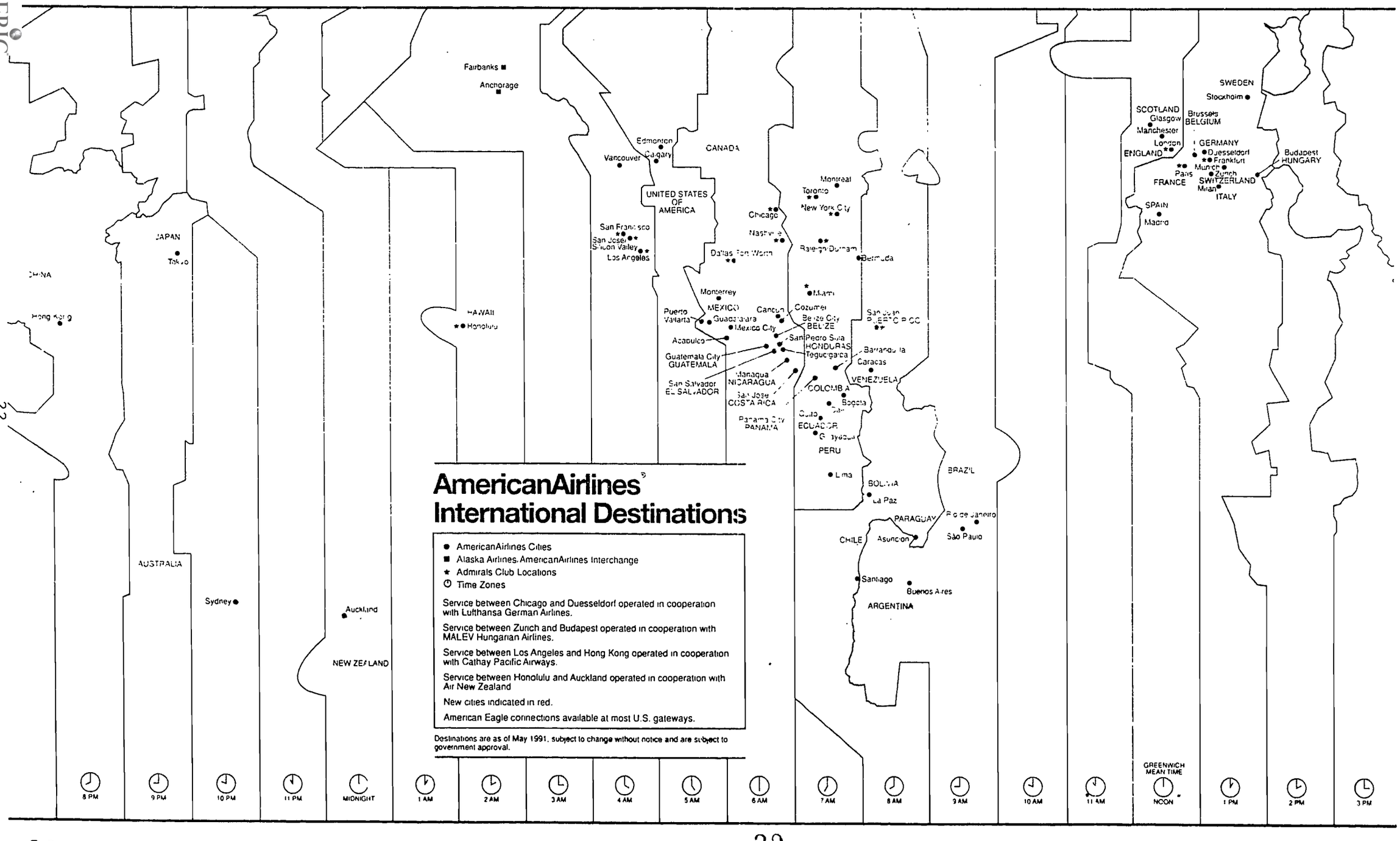
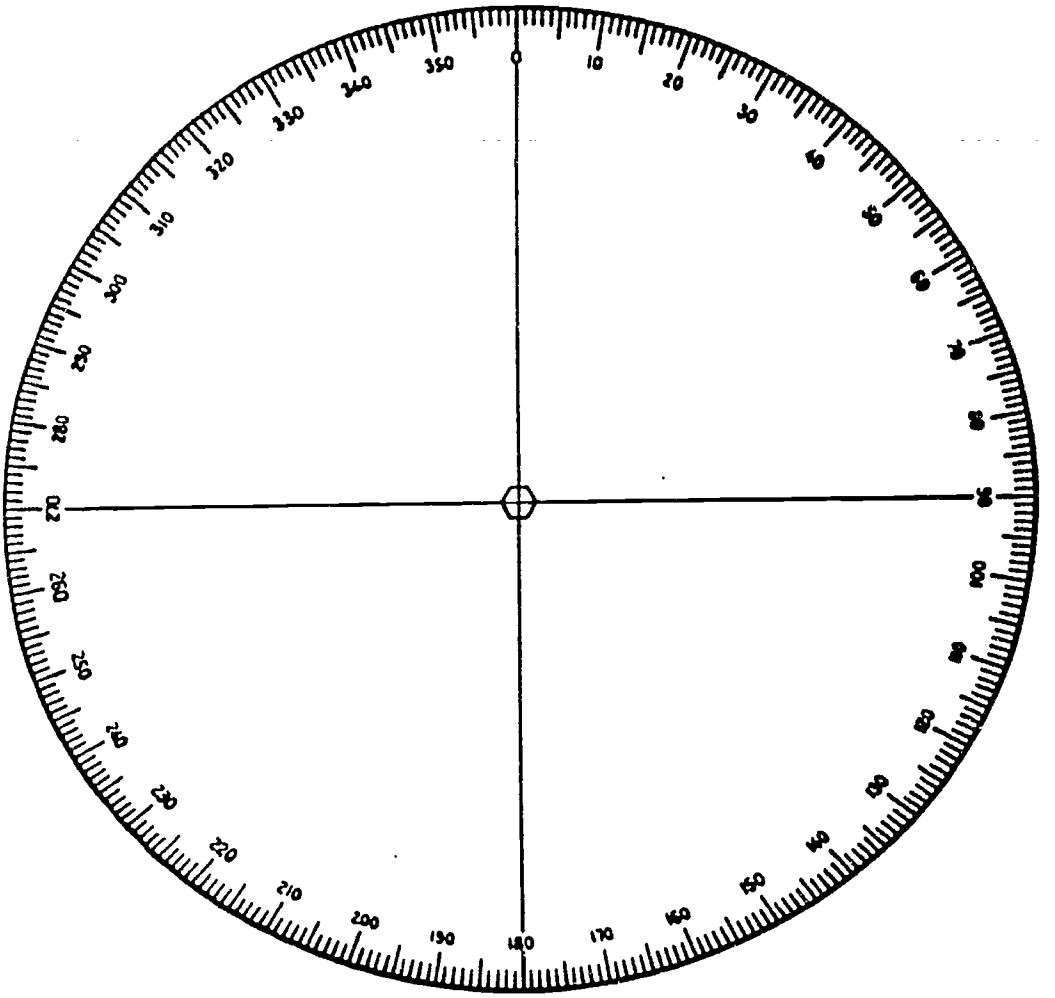


LESSON TITLE:	**WHICH WAY DID THEY GO?**
GRADE LEVEL:	3, 4, 5
SKILLS:	. Identifies regions of the U.S. . Locates places on maps . Records data on charts . Determines directionality
PERFORMANCE OBJECTIVES:	. The student will locate cities on a map. . The student will determine the direction of travel from Louisville to other cities. . The student will identify the region in which the city is located.
MATERIALS:	Map of U.S. with major cities Destination Direction Chart Compass Rose
PROCEDURE:	1. Select a city in the news, and determine the region of the U.S. where the city is located. Discuss the news story. Ask the students the direction you would travel to get from Louisville to the city. Demonstrate how to locate a city on a map and how to use the compass rose to determine direction from Louisville. 2. Distribute the maps and chart, and have the students locate the cities, their regions and their direction from Louisville. 3. This activity can be cumulative and tied to current events.

DESTINATION DIRECTION CHART

DESTINATION	DIRECTION FROM LOUISVILLE	REGION
NASHVILLE, TN.		
NEW YORK, NEW YORK		
PORTLAND, OREGON		
PHOENIX, ARIZONA		
CLEVELAND, OHIO		
DENVER, COLORADO		
ATLANTA, GEORGIA		
BOSTON, MASS.		
MIAMI, FLORIDA		
CHEYENNE, WYOMING		
NEW ORLEANS, LA.		
SAN FRANCISCO, CA.		
DETROIT, MICHIGAN		
SALT LAKE CITY, UT.		
LAS VEGAS, NEVADA		
SAVANNAH, GEORGIA		
MINNEAPOLIS, MINN.		
HARTFORD, CONN.		
COLUMBUS, OHIO		
INDIANAPOLIS, IN.		
DALLAS, TEXAS		

THE COMPASS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LESSON TITLE: BY THE NUMBERS NOW!

GRADE LEVEL: 4, 5

SKILLS:

- Read data from charts/graphs
- Record data on charts/graphs
- Interpret data represented on charts/graphs

PERFORMANCE OBJECTIVES:

- The student will read statistical data from a chart.
- The student will record data on a set of graphs.
- The student will analyze the graphs drawn.

MATERIALS:

Airport Data Sheet
Graph Paper

PROCEDURE:

1. Note that people determine how busy a place is by the types and amount of activity found there. Use the classroom as an example, and show what activities keep students busy and how these activities can be measured to show how busy they are.

2. Extend the discussion to airports asking, "How could we tell how busy it is?" List number of passengers, operations, amount of cargo, arrivals and departures as possible indicators. Ask which is busier---Standiford Field or Bowman Field.

3. Distribute the Airport Data Sheet and graph paper. Have students graph the data on the Data Sheet. Assist them in designing a graph to fulfill the assignment. Bar or line graphs can be used.

4. With the class, interpret the graphs.
   - Which is busier---Standiford Field or Bowman Field?
   - Which year saw the biggest increase in cargo/passengers at Standiford Field?
   - Which year recorded the biggest decrease?
   - What was the busiest year at Standiford Field? Why?

AIRPORT DATA SHEET

STANDIFORD FIELD

YEAR	TOTAL PASSENGERS (thousands)	AIR CARGO IN TONS	OPERATIONS
1987	2,167	526,892	154,491
1986	1,992	513,622	162,609
1985	1,968	401,518	171,164
1984	1,852	251,545	155,60
1983	1,859	144,128	135,982
1982	1,847	48,570	122,206
1981	1,902	25,568	124,247
1980	2,236	26,499	125,018
1975	1,713	20,718	128,231
1970	1,837	27,210	146,600
1965	1,171	11,574	105,398
1960	826	5,508	114,245

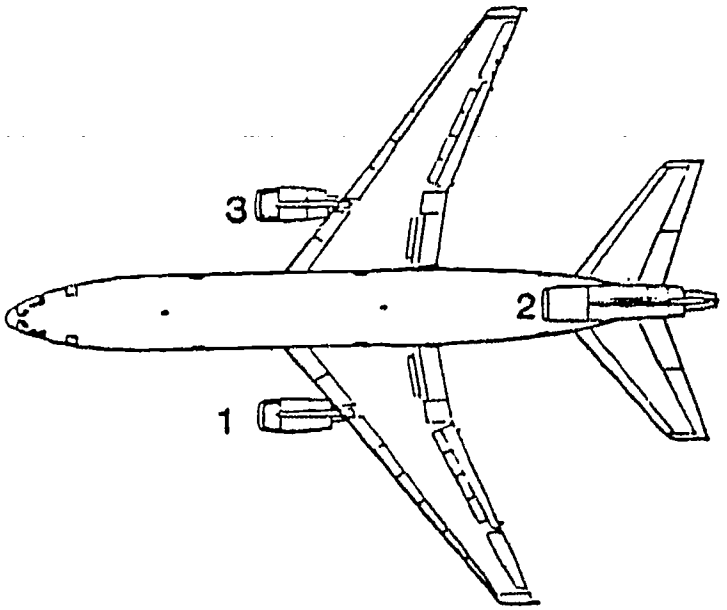
BOWMAN FIELD

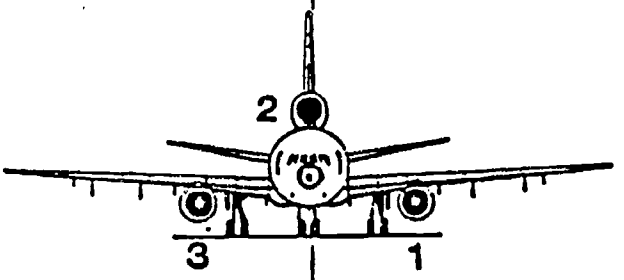
1987	212,585
1986	201,434
1985	210,140
1984	175,424
1983	170,752
1982	176,855
1981	200,479
1980	202,210
1975	247,091
1970	344,163
1965	216,865
1960	201,159

LESSON TITLE:	**PARTS ARE PARTS.**
GRADE LEVEL:	1, 2, 3, 4
SKILLS:	. Identifies parts of an aircraft
PERFORMANCE OBJECTIVES:	. The student will identify parts of an aircraft. . The student will relate an aircraft part and its purpose/function.
MATERIALS:	Picture/Diagram/Drawing of an aircraft or a model aircraft Parts of an Aircraft Chart
PROCEDURE:	1. Introduce the idea of design. Note that tools and machines have a function and that parts of the tool/machine are designed to help it perform that function. Demonstrate this concept with a pencil (establish function, identify parts, note purpose). 2. Distribute Picture/Diagram/Drawing and review the basic parts of an aircraft establishing the purpose for each part. Give each student a copy of the Parts of an Aircraft Chart, and have them record the purpose of each aircraft part. 3. Again using a Picture/Diagram/Drawing, have the students locate an aircraft part and describe its purpose.

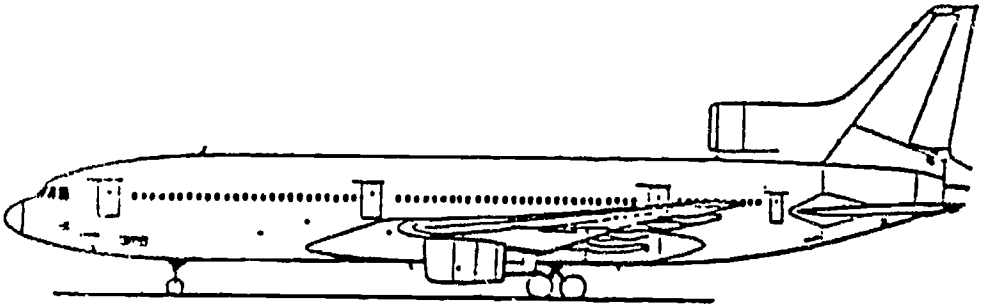
PARTS OF AN AIRCRAFT CHART

PART	PURPOSE
FUSELAGE	
WING	
ENGINE	
PROPELLER	
LANDING GEAR	
RUDDER	
ELEVATOR	
COCKPIT	
STABILIZER	
FUEL TANK	





Douglas DC-10 Series 30



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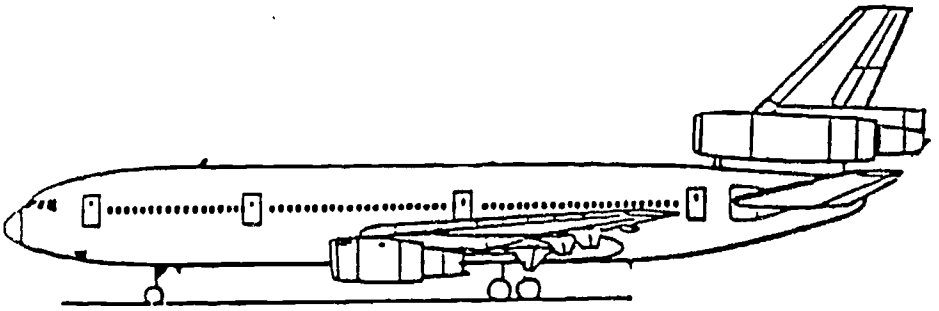


McDonnell Douglas DC-10

LESSON TITLE: INTRODUCING THE REGIONAL AIRPORT AUTHORITY

GRADE LEVEL: 3, 4, 5

SKILLS:

- Record data on retrieval or organizational charts
- Compare and contrast organizations
- Identify the role(s) of the Regional Airport Authority

PERFORMANCE OBJECTIVES:

- The student will identify characteristics of cities.
- The student will identify the role(s) of the Regional Airport Authority.
- The student will compare/contrast roles using a retrieval chart.

MATERIALS:

Textbook
City/Airport Comparison Chart
Materials on airports/the Regional Airport Authority

PROCEDURE:

1. Review the function of cities and brainstorm to generate a list of city related activities. (See retrieval chart.)

2. Using the chart and written materials on cities, fill out the city side of the retrieval chart.

3. Conduct a discussion on airports:
   - Who has ever been to an airport?
   - Who has flown?
   - What do you expect to see at an airport?
   - Where are airports located?

4. Distribute materials on airports/Regional Airport Authority. Discuss the materials. Then as a class, fill out the rest of the City/Airport Comparison chart.

5. Use the chart to compare/contrast cities and airports.

If the class plans a tour of the airport, they can be told that they will complete the airport segment of the

chart upon their return. If the class is not planning a tour of the airport, they should be provided with reading material about airports. Then, either as a class or as a homework assignment, students should complete the chart.

Key for Teachers

Where does the money come from?

The airport is self-funded from leases, landing fees, business privilege fees, concessions, etc.

Where do the people work?

The people work in a variety of places: terminal, airfield, air traffic control tower, fire stations, maintenance facilities, fixed base operators, and tenant organizations.

Who makes the rules?

Rules are made by an eleven member board composed of the Mayor, County Judge, Kentucky Secretary of Economic Development and eight appointees.

Who sees that people obey the rules?

Rules are enforced by airport police, the FAA, the local, state and federal enforcement officials.

Where do the people live?

Some people live near the airport; some live in the airport's forty county market area of Kentucky and southern Indiana.

Where do the people shop? eat? play?

Airport customers can shop, eat and play at the airport in the restaurants, gift shops, and outdoor volleyball and picnic area.

What types of services are provided to the people?

Services provided to the people include police and fire protection, EMT, food service, retail shops, car rentals, public transit, air transportation, freight and package shipping, baggage assistance, etc.

CITY/AIRPORT COMPARISON CHART

QUESTIONS	CITY	AIRPORT
Where does the money come from?		
Where do the people work?		
Who makes the rules?		
Who sees that people obey the rules?		
Where do the people live?		
Where do the people shop? eat? play?		
What types of services are provided to the people?		

Company Profile: REGIONAL AIRPORT AUTHORITY OF LOUISVILLE & JEFFERSON COUNTY
Standiford Field
P. O. Box 9129
Louisville, Kentucky 40209-9129
(502) 368-6524

Chief Officer: Robert S. Michael
General Manager

The Regional Airport Authority of Louisville and Jefferson County is an independent public agency, established by a special act of the State Legislature in 1928. It operates both Standiford and Bowman Fields in Louisville. An eleven-member Board, appointed by the Mayor of Louisville, the Jefferson County Judge/Executive and the Governor, make major decisions by setting Authority policy. The Board members serve without pay.

Board policies are implemented and day-to-day operations and maintenance handled by a staff of about 142 under the direction of the General Manager.

Some of the jobs performed by the Airport Authority staff are:

- Airfield, electrical, structural and heating, plumbing and air-conditioning - also vehicle maintenance
- Airport Rescue Fire Fighting
- Security and communications
- Engineering, drafting and survey work
- Construction inspection
- Accounting and bookkeeping
- Contract and lease preparation
- Air Service development and promotion
- Purchasing
- Personnel and employee program management
- Public relations
- Marketing
- Information Specialists
- Secretarial

The Airport Authority has nothing to do with the everyday operations of the individual airlines. Each of them is operated separately by airline management and other personnel. The airlines, along with other companies and agencies, lease space from the Airport Authority to conduct business at the airports.

Although the airlines' employees get special discounts and privileges when traveling by air, Airport Authority employees do not. The Airport Authority does not own any aircraft. Airplanes are owned by the airlines, flying services or private individuals who use airport facilities.

The Authority's annual budget is $16.6 million. Income for operation of the airports is derived from landing and field use fees, ground transportation and lease revenue; the Authority does not receive tax dollars to support the facility. Through the operation of the airports, it is estimated that airport employees contribute over $13.9 million in State and local taxes.

The Authority has received tremendous support by the federal government in grant money for the improvement of facilities at both Standiford and Bowman Fields. In the 1988 and 1989 fiscal years, over $10 million was awarded toward the completion of Standiford Field projects, to include taxiway and apron construction and airport Rescue service needs.

In 1988, the Authority announced plans to improve Standiford Field through the expansion to a parallel runway system. This expansion will provide an estimated 27,000 additional jobs for the community and have an economic benefit estimated at over $40 million in taxes alone by 2010. Expansion of the airport will allow the addition of improved service, greater efficiency in airline operations and improved economic viability.

Bowman Field

* Named for A. H. Bowman, an aviation pioneer, who formed the first flying service on the airfield.
* Operated as the only airport serving Louisville from 1918 through 1947 with service by Trans World Airlines, American Airlines and Eastern Air Lines initiating in 1928.
* First paved runway built in 1938, now a network of three runways and nine taxiways complete with lights and navigational aids are in use.
* Military groups have been stationed at the airport since 1922 when the Air Corp Reserve group arrived. In the 1940s, the Glider Pilot Combat Training and a nurses training school established operation relative to World War II needs and at present the United States Army Reserve is based at the airport.
* During World War II, Bowman was considered the busiest airport in the country and today remains the busiest airport in Kentucky with over 190,000 aircraft operations annually.
* Today a multitude of services are available with flight instruction, aircraft charter and aircraft repair as just a few.

Standiford Field

* Named for Dr. Elisha David Standiford, a former president of the L&N Railroad, who owned a portion of the original airport acreage.
* Serves commercial, military, air cargo and general aviation aircraft.
* Opened in 1947 to handle air carrier service, today served by ten airlines with over 80 commercial flights daily and over two million passengers served annually.
* Standiford has experienced tremendous growth and improvement over the years such as:

  - 1950 Lee Terminal constructed
  - 1969 First cargo facility completed
  - 1971 Lee Terminal expanded
  - 1973 FAA Air Traffic Control Tower opened
  - 1981 FAA Airway Facilities Sector Field Office and National Weather Service facility opened
  - 1982 United Parcel Service began operation
  - 1983 10,000 ft. runway completed
  - 1984 Second cargo facility constructed
  - 1985 Landside Terminal and parking lot/roadway system completed
  - 1989 Airside Terminal completed

* The passenger terminals comprise over 225,000 sq. ft. and are designed to accommodate anticipated growth well into the next century.
* The airport consists of two runways and fifteen taxiways and handles over 150,000 operations a year, the airport currently ranks ninth in the world and fifth in the U.S. in the total amount of cargo handled.

LESSON: WHERE IN THE WORLD

GRADE LEVEL: 3, 4

SKILLS:

- Read data from charts and maps
- Record data on charts and maps
- Use charts and maps to analyze a topic/concept

PERFORMANCE OBJECTIVES:

- The student will define air routes.
- The student will read data from airline schedules.
- The student will locate air routes on a map.
- The student will use math/map skill to describe/analyze air routes.

MATERIALS:

U.S. Map
World Map
Pins
Yarn
Distance chart/mileage chart
Airline route/schedule
Airline Destination Inventory Chart

PROCEDURE:

1. Review with the students the concept of transportation. Brainstorm with them to establish a list of ways that people and goods are transported.

2. Note how improved transportation methods have changed travel/travel times---e.g. Louisville to Washington
   - 1787 - 2 weeks by coach/boat
   - 1859 - 4 days by train
   - 1950 - 2 days by train or 4 hours by air
   - 1990 - 1 hour by air

3. Discuss air travel as it relates to the students. How many have flown? How many airlines do they know by name? Where do you board aircraft in Louisville?

4. Introduce Standiford Field as the hub of air travel for this area. Divide the students into groups, and give each group an airline schedule and a copy of the Airline Destination Inventory Chart.

5. Introduce the Where In The World

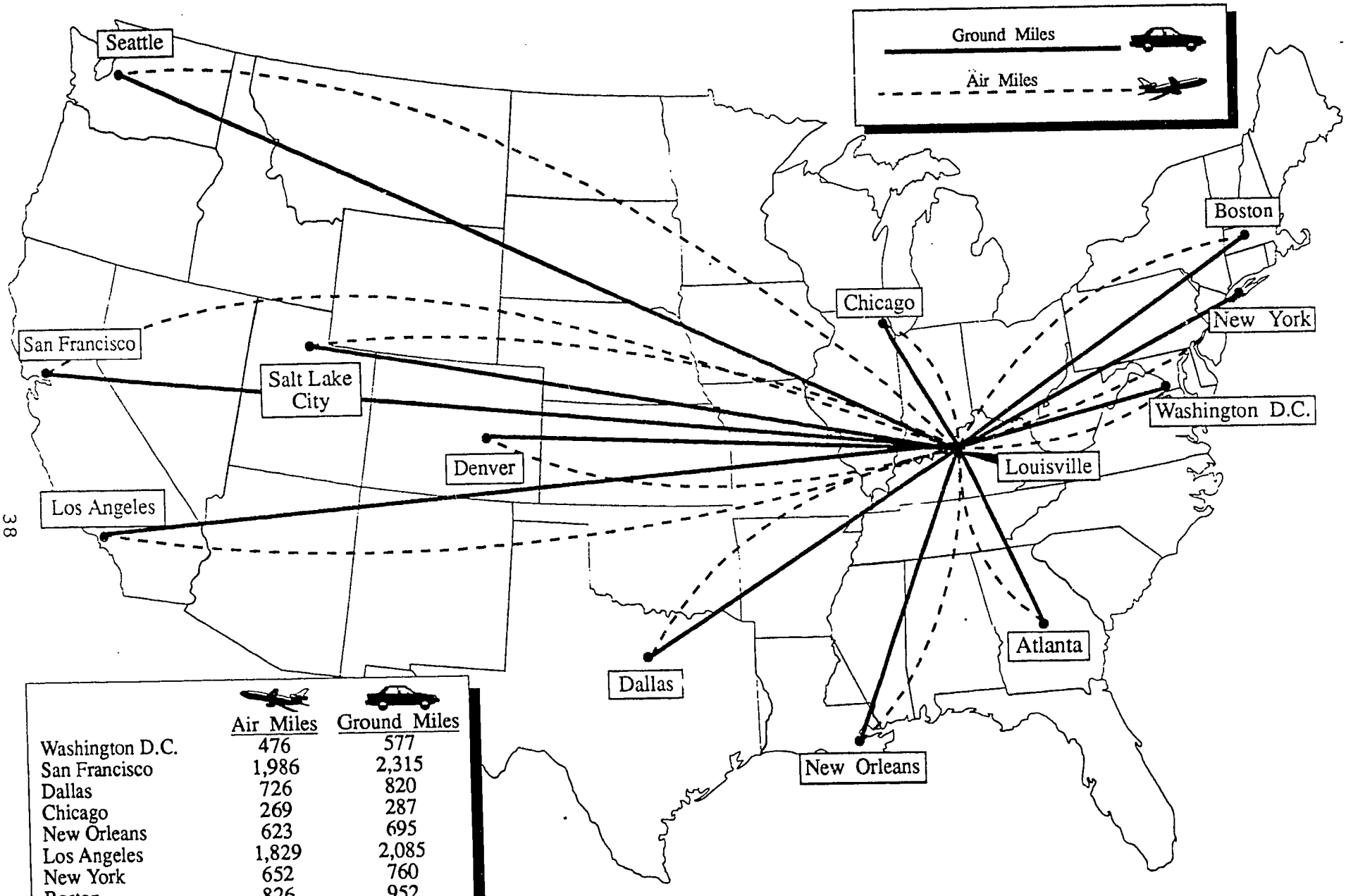
activity and demonstrate it for the students. List destinations/mileage on a retrieval chart. Then illustrate the routes by connecting Louisville to each destination using the pins and yarns. Give each group a chart, a map, pins and yarn.

6. Have each group report to the class on its airline and display the illustrated maps on a bulletin board. Use the reports/maps to discuss air travel/air routes. Sample Questions:

- Which airline has the most destinations?
- Which travels farthest from Louisville?
- What is the distance difference between the closest and farthest destinations in the U.S.A.?
- Which airlines have destinations outside the U.S.A.?

7. This activity can provide a basis for the study of:

- time zones;
- distance/time/rate problems;
- geography lessons (place/movement/cultures);
- weather/climate.



	Air Miles	Ground Miles
Washington D.C.	476	577
San Francisco	1,986	2,315
Dallas	726	820
Chicago	269	287
New Orleans	623	695
Los Angeles	1,829	2,085
New York	652	760
Boston	826	952
Seattle	1,943	2,293
Denver	1,038	1,114
Salt Lake City	1,402	1,573
Atlanta	321	398

Air mileage information was obtained from INFORMATION PLEASE ALMANAC.
Ground mileage information was obtained from RAND McNALLY STANDARD HIGHWAY MILEAGE GUIDE.

AIRLINE DESTINATION INVENTORY CHART

AIRLINE _____

DESTINATION	MILES FROM LOUISVILLE	AIR TIME	NUMBER OF FLIGHTS

LESSON TITLE: **WHO IS A HELPER?**

GRADE LEVEL: 1, 2, 3, 4, 5

SKILLS:

- Record data on charts
- Identify airport helpers and their responsibilities

PERFORMANCE OBJECTIVES:

- The student will define helpers.
- The student will organize data on a retrieval chart.
- The student will identify airport helpers and their jobs.

MATERIALS:

Helpers Chart
Texts
Materials on Airports

PROCEDURE:

1. Review the idea of helpers. Using the chart provided, identify school helpers and their jobs. Pictures can be used if needed.

2. Brainstorm a list of helpers found at the airport. This can be effectively done in conjunction with a guest speaker or as an airport tour activity. With the students, complete the chart on airport helpers.

3. A number of follow up activities are possible:
   - Generate a similar list of city helpers.
   - Have each student select the job he/she would like to have and explain, either in writing or orally, why he/she would like that job.
   - Give each student one job and have each role play what he/she would do at the airport.

HELPERS CHART

HELPER	SERVICE/JOB	TOOLS/WORK PLACE

BIBLIOGRAPHY

BIBLIOGRAPHY

ACADEMY OF MODEL AERONAUTICS
Director of Marketing
1810 Samuel Morse Drive
Reston, Virginia 22090

AEROSPACE EDUCATION SERVICES PROGRAM
NASA Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135

BEECHCRAFT AIRCRAFT CORPORATION
P.O. Box 85
Wichita, Kansas 67201-0085

CESSNA AIRCRAFT COMPANY
Supply Division
P.O. Box 1521
Wichita, Kansas 67201

ESTES INDUSTRIES HI-FLIER MANUFACTURING CO.
P.O. Box 227
Penrose, Colorado 81240

KENTUCKY AVIATION ASSOCIATION
Robert Riggs
P.O. Box 39
Frankfort, Kentucky 40602

NASAO CENTER FOR AVIATION RESEARCH & EDUCATION
8401 Colesville Road
Ste. 505A
Silver Spring, Maryland 20910

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
300 North Cordell
Oklahoma State University
Stillwell, Oklahoma 74078-0422

NASA
Langley Research Center
TWS Bld. 1206
M/F: L93681 C
Hampton, Virginia 23665-5225

NATIONAL AUDIOVISUAL CENTER
8700 Edgeworth Drive
Capitol Heights, Maryland 20743-3701

NATIONAL HEADQUARTERS CIVIL AIR PATROL
United States Air Force Auxiliary
Director of Educational Programs
DCS, Aerospace Education
Maxwell Air Force Base, Alabama 36112-5572

THE NINETY-NINES, INC.
International Women Pilots
P.O. Box 59965
Will Rogers Airport
Oklahoma City, Oklahoma 73159

SAINT LOUIS UNIVERSITY PARKS COLLEGE
Cahokia
Illinois 62206

SMITHSONIAN INSTITUTION
National Air and Space Museum
Office of Education P-700
Washington, D.C. 20560

U.S. DEPARTMENT OF TRANSPORTATION
Federal Aviation Administration
Director of Aviation Education
Office of Public Affairs
800 Independence Ave., S.W.
Washington, D.C. 20591

APPENDIX

March 1991

Information from General Aviation Manufacturers Association

Suite 801
1400 K Street NW
Washington, DC 20005
(202) 393-1500

AVIATION EDUCATION RESOURCES

Academy of Model Aeronautics
1810 Samuel Morse Drive
Reston, VA 22090
703-435-0750
Provides information on building and flying model aircraft.

Aerospace Industries Association of America (AIA)
1250 Eye Street, NW
Washington, DC 20005
202-371-8400
Provides information on aerospace manufacturing, including aircraft, missiles, spacecraft, helicopters and related equipment.

Air Line Pilots Association (ALPA)
535 Herndon Parkway
Herndon, VA 22070
703-689-2270
Provides educational, safety, and pilot career information.

Air Traffic Control Association (ATCA)
220 North 14th Street, Suite 410
Arlington, VA 22201
703-522-5717
Provides information on national air traffic control.

Air Transport Association of America (ATA)
1709 New York Avenue, NW
Washington, DC 20006
202-626-4000
Provides information concerning the scheduled airline industry.

Aircraft Electronics Association (AEA)
P.O. Box 1981
Independence, MO 64055
816-373-6565
Provides information on installation of avionics.

Aircraft Owners and Pilots Association (AOPA)
421 Aviation Way
Frederick, MD 21701
301-695-2000
Provides information on general aviation from the pilot's perspective, careers, regulations, safety, and value of community airports.

American Institute of Aeronautics & Astronautics
370 L'Enfant Promenade, SW
Washington, DC 20024
202-646-7400
Promotes aeronautics and astronautics through educational material.

Aviation and Space Education Newsletter
1000 Connecticut Ave, NW, Suite 9
Washington, DC 20036
202-822-4600
Monthly newsletter profiles person, programs, students, and teachers who are making an impact in aviation education.

Aviation Distributors & Manufacturers Assoc. (ADMA)
1900 Arch Street
Philadelphia, PA 19103
215-564-3484
Provides information on aviation products, distributors and careers.

Aviation Exploring Division - Boy Scouts of America
National Office
1325 Walnut Hill Lane
Irving, TX 75038-3096
214-580-2427
Provides information on national BSA aviation exploring program.

Aviation Maintenance Foundation Inc. (AMFI)
Box 2826
Redmond, WA 98073
206-828-3917
Provides vocational guidance, books, and technical materials.

Aviation Technical Education Council (ATEC)
229 South 4th Street
Steelton, PA 17113
717-939-0620
Provides information on aviation maintenance technician training.

Civil Air Patrol (CAP)
Building 714
Maxwell AFB, AL 36112-5572
205-293-6019
Provides aerospace education programs on regulations and safety. Trains youth ages 13-21 in volunteer Cadet program for safety patrol.

Embry-Riddle Aeronautical University
Teacher Resource Center, Aeronautical Science Dept.
Daytona Beach, FL 32114
904-239-6499
Permanent collection of developed aviation curricula.

Experimental Aircraft Association (EAA)
Wittman Field
Oshkosh, WI 54903-3086
414-426-4800
Provides information on sport and recreation aviation, aerobatics, and how to restore old planes. Sponsors Project School Flight.

Federal Aviation Administration (FAA)
Aviation Education, APA-100
800 Independence Avenue, SW
Washington, DC 20591
202-267-3465
Provides information on aviation education materials and films.

Future Aviation Professionals of America (FAPA)
4959 Massachusetts Blvd.
Atlanta, GA 30337
800-538-5627
Provides pilot and aviation career information.

General Aviation Manufacturers Association (GAMA)
1400 K Street NW, Suite 801
Washington, DC 20005
202-393-1500
Provides information on general aviation statistics, learning to fly, teaching units, and general information.

Helicopter Association International (HAI)
1619 Duke Street
Alexandria, VA 22314-3406
703-683-4646
Provides general information on helicopters.

International Air Transport Association (IATA)
2000 Peel Street
Montreal, PQ, Canada H3A 4R4
Provides information on air transportation. Deals with air traffic and safety regulations.

Jeppesen Sanderson
55 Inverness Drive East
Englewood, CO 80112-5498
303-799-9090
Provides aviation education materials in the form of textbooks, videos, overheads and classroom support items.

National Aeronautics & Space Administration (NASA)
Educational Programs Office CODE XEE
400 Maryland Ave, SW
Washington, DC 20546
202-453-1000
Provides information on career and educational opportunities.

National Agricultural Aviation Association
115 D Street, SE, Suite 103
Washington, DC 20003
202-546-5722
Promotes interests of agricultural aviation through public education.

National Air & Space Museum
Office of Education
Washington, DC 20560
202-786-2106
Provides educational information on aviation and space activities.

National Air Transportation Association (NATA)
4226 King Street
Alexandria, VA 22302
703-845-9000
Provides information on airport service organizations (FBOs), air [illegible]er and flight training.

4-H Aerospace Education Program Leader
USDA Extension Service, Rm 3860 South Bldg.
Washington, DC 20250-0900
202-447-5516
Provides information on aerospace materials and state level 4-H aerospace program assistance.

National Association of State Aviation Officials
Metro Plaza One
8401 Colesville Road, Suite 505
Silver Spring, MD 20910
301-588-1286
Provides educational materials for all sectors of aviation.

National Business Aircraft Association, Inc, (NBAA)
1200 18th Street, NW
Washington, DC 20036
202-783-9000
Promotes aviation related interests of businesses, companies & individuals using aircraft for business.

National Intercollegiate Flying Association (NIFA)
Box 3207
Delta State University
Cleveland, MS 38733
601-846-4205
Promotes collegiate aviation education and safety.

National Transportation Safety Board (NTSB)
Office of Public Affairs
800 Independence Avenue, SW
Washington, DC 20591
202-382-6500
Provides information on air traffic safety.

The Ninety-Nines, Inc.
Box 59965, Will Rogers World Airport
Oklahoma City, OK 73159
405-685-7969
Contributors to educational, charitable and scientific activities.

Professional Aviation Maintenance Assoc. (PAMA)
500 NW Plaza, Suite 809
St. Ann, MO 63074
314-739-2580
Educational materials on professional aircraft mechanics.

Soaring Society of America, Inc.
P.O. Box E
Hobbs, NM 88241
505-392-1177
Provides information on soaring and gliding.

University Aviation Association (UAA)
3410 Skyway Drive
Opelika, AL 36801
205-844-2434
Provides information on college level aviation curricula and schools.

Young Astronaut Council (YAC)
1211 Connecticut Ave, NW, Suite 800
Washington, DC 20036
202-682-1984
Provides educational packets to YAC chapters nationwide.

Beech Aircraft Corporation
P O Box 85
Wichita KS 67201-0085 USA

316 681 7111
Telex 71 203603

Beechcraft
A Raytheon Company

SELECTED ELEMENTARY TEACHER RESOURCES 1989

Beech Aircraft Corporation
Aviation Education
Department 95
9709 East Central
Wichita, Kansas 67201

- Teacher's Free Packet (A collection of pictures and information about the Beechcraft product line.)
- Teacher's Workbook (Enrichment material organized by aviation subjects including exercises and teaching strategies.) $5.00
- Teacher Packet on Beech History (Covers the history of general aviation related to Beech airplanes.)

Cessna Aircraft Company
Air Age Education Department
P.O. Box 1521
Wichita, Kansas 67201

- International Air Age Education Packet (Includes 6 posters and teacher's guide.) $2.00
- Order Form (Listing current available booklets, charts, and teacher aids.)

General Aviation Manufacturers Association
1400 K Street NW, Suite 801
Washington, DC 20005

- General Aviation Activities and Resources (Material developed to assist teachers in constructing a unit on general aviation history and its modern application.)
- Learning to Fly (A booklet describing the training required for pilot certificates, answering questions, and illustrating basics of flight.)
- Aviation Education Resource List (List of aviation organizations providing materials to educators.)

Civil Air Patrol
Maxwell AFB, Alabama 36112-5572

- Teaching Materials Pamphlet (Listing of available elementary aerospace education kits, packets and booklets for teacher use.)

Federal Aviation Administration
Office of Public Affairs
Aviation Education Program (APA-100)
800 Independence Avenue, SW
Washington, DC 20591

- FAA Aviation Education Programs and Materials Booklet (Lists elementary level pamphlets, teacher guides, demonstration aids and regional FAA contacts in aviation education.)

Wayne Teague
State Superintendent of Education
Department of Education
State Office Building
Montgomery, Alabama 36130

- Aerospace Curriculum Guide (K-3) Bulletin 1988, No. 65 Single Copies Free

Dr. David Housel
Oakland University
Rochester, Michigan 48309-4401

- Come Fly With Me! Book 1 (K-6)
- Come Fly With Me! Book 2 (7-9) (Graded lesson units based on single to complex science teaching activities using aviation/aerospace concepts.) $10.00 per copy

Beech Aircraft Corp.
PO Box 85
Wichita, KS 67201-0085
USA

316 676 7111
Telex 203603 Beech UR

Beechcraft
A Raytheon Company

AEROSPACE EDUCATION VIDEO SOURCES

America's Achievements in Space Series	Two 90-minute video tapes every other month. $29.95 per tape The Eustin Press 47 Richards Avenue Norwalk, CT 06857 (800) 424-3800
Aviation Week Video Club	Selection of Aviation and Aerospace subjects. $29.95 per tape Aviation Week Video Club McGraw-Hill Aerospace and Defense Group P.O. Box 308 Mt. Olive, NJ 07828 (800) 433-0880
ABC Wide World of Flying Video Magazine	Four 90-minute videos at the rate of one every three months. $99.95 per year ABC Wide World of Flying P.O. Box 1719 Riverton, NJ 08077-9719 (800) 999-8783
Flight and Space Films and Videos	Selected historical and current subjects. Also available are Space Science NOVA Programs. Rental and purchase costs vary from $40. Coronet/MTI Film and Video 108 Wilmot Road Deerfield, IL 60015-5196 (800) 621-2131

Air Combat Series	Series of 13 - 50 minute video tapes. Initial tape entitled "War Aces" offered for $4.95 - others $29.95 plus $2.50. Air Combat P.O. Box 5079 Clifton, NJ 07015
CNN Science & Technology Week (Saturday and Sunday Cable Casts)	Video link for both science and news as well as teacher guides available weekly. Call (404) 939-4596 for sign up sheets and on-line information.

NASA and NASM Resource Centers

Teacher Resource Centers have been established to provide educators with NASA-related educational materials for use in the classroom. The materials include NASA publications, lesson plans, teacher guides, filmstrips, computer software, and audio cassettes, video tapes, 35-mm slides, and other reference materials.

Please contact the nearest Teacher Resource Center for further information.

NASA Ames Research Center
ATTN: Teacher Resource Center
Mail Stop 204-7
Moffett Field, CA 94035

NASA Goddard Space Flight Center
ATTN: Teacher Resource Laboratory
Mail Code 130.3
Greenbelt, MD 20771

NASA Jet Propulsion Laboratory
ATTN: Teacher Resource Center
JPL Education Outreach
Mail Stop CS-530
Pasadena, CA 91109

NASA Johnson Space Center
ATTN: Teacher Resource Room
Mail Stop AP-4
Houston, TX 77058

NASA Kennedy Space Center
ATTN: Educator Resource Library
Mail Stop ERL
Kennedy Space Center, FL 32899

NASA Langley Research Center
ATTN: Teacher Resource Center
Mail Stop 146
Hampton, VA 23665-5225

NASA Lewis Research Center
ATTN: Teacher Resource Center
Mail Stop 8-1
Cleveland, OH 44135

NASA Marshall Space Flight Center
ATTN: Teacher Resource Room
The Space & Rocket Center
Tranquility Base
Huntsville, AL 35807-0680

NASA National Space Technology Laboratories
ATTN: Teacher Resource Center
Building 1200
NSTL, MS 39529

The Education Resource Center of the National Air and Space Museum in Washington, D.C., is open to educators on a walk-in or through-the-mail basis. An extensive collection of videos, computer software, slides, audio cassettes, and written materials are available for review and duplication.

Contact:
The Education Resource Center
Office of Education P-700
National Air and Space Museum
Smithsonian Institution
Washington, D.C. 20560
202/786-2109

PAPER DOLL ACTIVITIES

These activities focus the students' attention and maximize the students' tour of the airport. The activities can be completed pre- or post- tour, but should be introduced to the students before the tour, so that the students can listen and learn the needed information to complete the activities.

The paper doll activity, designed for primary students, is suitable for use with ungraded primary teams. The paper dolls encourage young students' creativity. In addition to coloring, cutting and pasting skills, students explore vocational interests, study community helpers, relate uniforms and tools to jobs and make visual, oral or written presentations.

Activities can stand alone, can be used to prepare for an airport tour, establish accountability for the tour, or as a post-tour activity to debrief students. The retrieval chart included can be used to direct student thinking, as a pre-writing activity, or as a visual display of student vocational studies.

Some sample activities for the job dolls include:

. **A VOCATIONAL CHOICE** - Have each student decide which job(s) that they would like to have. Have them explain to others why they would like to have that job and place their job doll on a bulletin board.

. **A WORK PLACE STUDY** - Have the study teams analyze the jobs they see in a particular part of the airport (e.g terminal, hangar, apron, control tower) and put together a "site profile" with paper dolls representing each type of work.

. **A JOB STUDY** - Have study groups identify jobs and make a job profile using the retrieval chart for each job.

. **A ROLE PLAYING EXERCISE** - Have each group of students or an individual student dress a doll and then act out what the doll does. Have the other students try to guess the job of the doll.

. **A JOB COLLAGE** - Use a job doll to stimulate a picture scavenger hunt. Put the doll on a bulletin board and have other students collect a student's picture, stories and photos related to the job and create a job collage.

. **A HALL OF FAME** - After jobs/careers have been identified and dolls created for each, invite guest speakers to come to talk to the class about the jobs. Take a polaroid picture of speaker and post it beside the appropriate job doll.

MY JOB IS:

I WORK IN THE:

I DO THESE THINGS:

(paste
doll
here)

SOME TOOLS I USE ARE:

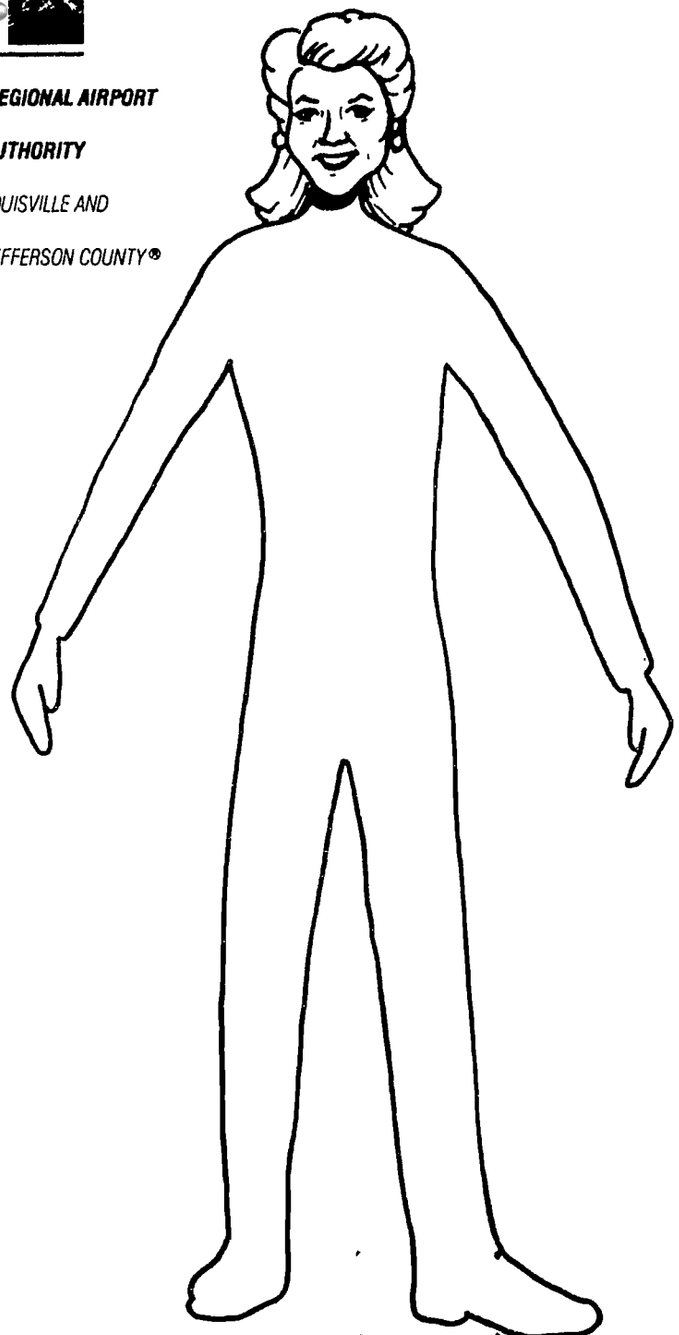
SOME THINGS I LIKE ABOUT MY JOB ARE:

REGIONAL AIRPORT

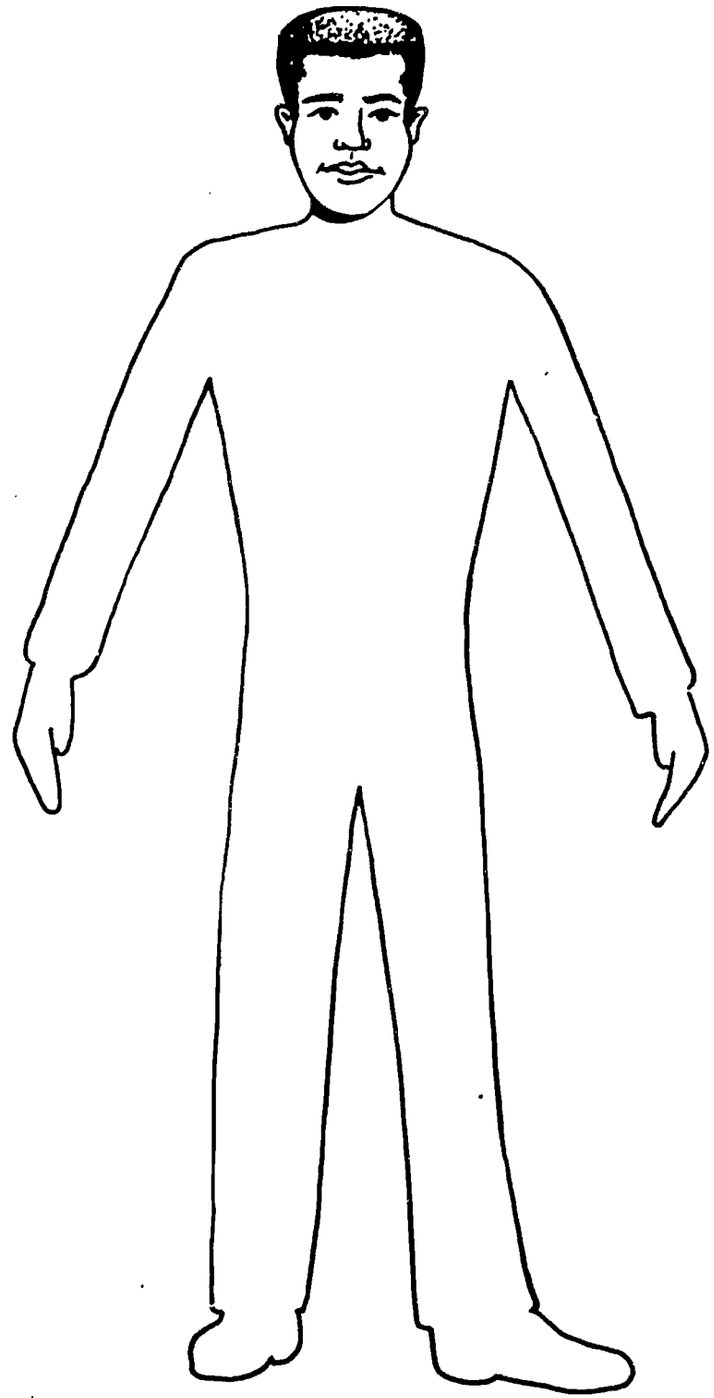
AUTHORITY

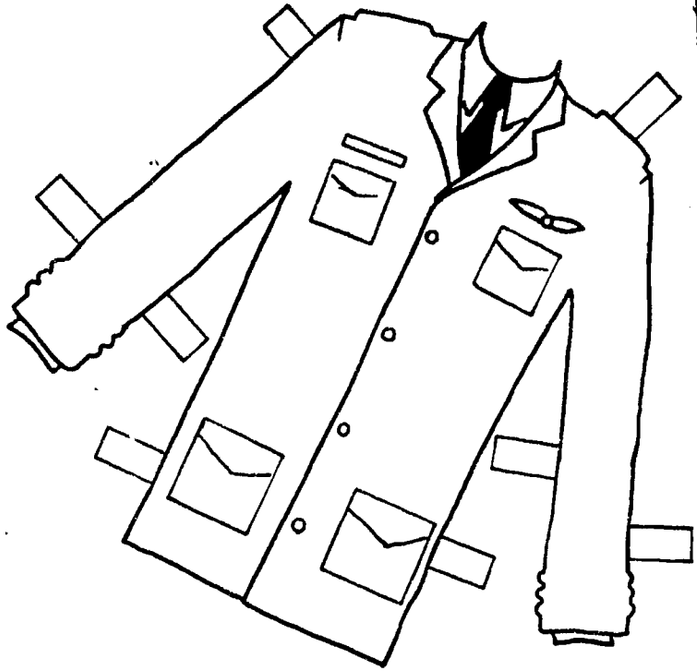
LOUISVILLE AND

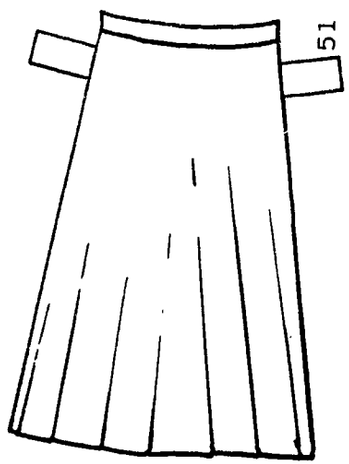
JEFFERSON COUNTY®



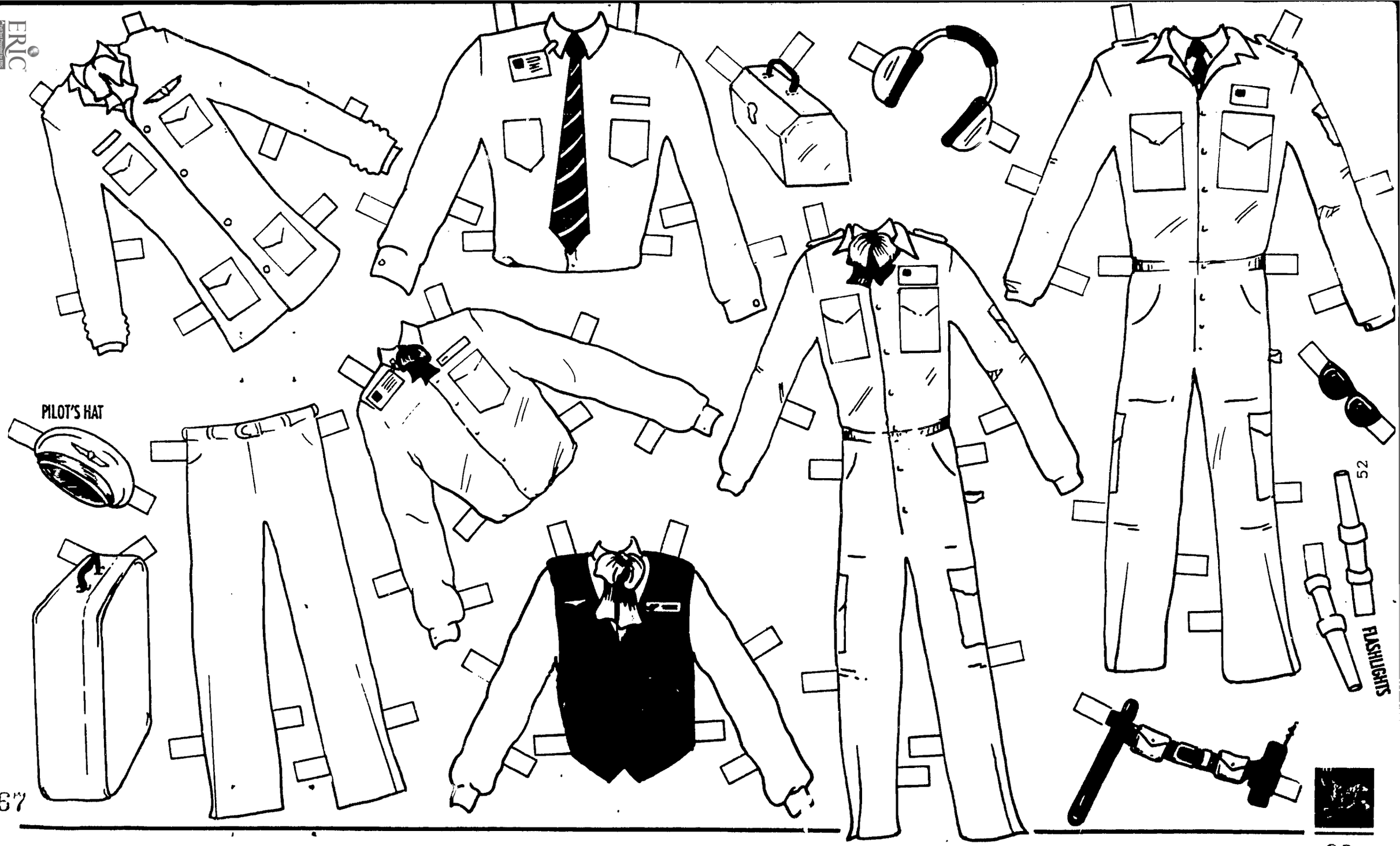
65







66 **SKY CAP OR POLICEMAN'S HAT**


PILOT'S HAT
52
FLASHLIGHTS