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AUTHOR Schunkert, Michael A.
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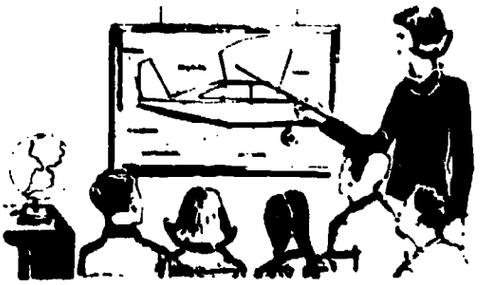
ABSTRACT

The report is a compilation of aerospace educational statistical data and information of potential interest to the State's secondary curriculum decision-makers. The information was obtained from a six-item questionnaire which was sent to 155 district school superintendents (except in those districts with on-going aerospace education programs) with the purposes of: (1) advising planners of the availability and nationwide popularity of secondary aerospace education, and (2) soliciting input concerning their interest in and on-site capability of supporting a one or two-semester aerospace elective in their high schools. A survey item description and response tabulation comprise the five pages of the report; appended are a list of Montana's secondary aerospace program-sponsoring schools, a complete copy of the survey instrument, a description of Montana's Flying Classroom Program, and information pertaining to the Montana Youth-in-Aviation Scholarship Award. (AJ)



AVIATION EDUCATION

DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION
OFFICE OF GENERAL AVIATION/WASHINGTON, D.C. 20591

STATE AEROSPACE EDUCATION RESOURCE/INTEREST SURVEY SUMMARY

by

Michael A. Schukert, Chief
Aviation and Space Education Bureau

MONTANA DIVISION OF AERONAUTICS

William E. Hunt, Administrator
Helena, Montana 59601

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FOREWORD

This report represents the second compilation of aerospace educational statistical data and information of potential interest to the state's secondary curriculum decision-makers. The first such effort was based on a survey of the thirteen aerospace education elective courses of study offered by eleven Montana high schools and two vocational-technical centers during the 1972-1973 school year.[1]

The information contained herein was obtained from a six-item questionnaire which was sent to 155 district school superintendents. Districts with on-going aerospace education elective programs were not included in this report.[2] A copy of the survey instrument is provided on pages 9 and 10.

The purpose of the present study was twofold: to advise Montana's secondary program planners of the availability and nationwide popularity of high school aerospace education offerings; and to solicit input concerning their interest in and on-site capability of supporting a one or two-semester aerospace elective in their high schools.

The data presented in this report was extracted from questionnaires received from eighty-eight districts prior to the survey's January 15, 1974 cut-off date. A composite list of responding school personnel is provided on pages 1 and 2.

Although this summary would appear to suggest certain curricular shortcomings and/or course developmental possibilities, a detailed treatment of either has been deliberately avoided. It is felt that the findings contained in this report are not in and of themselves sufficient to warrant the taking of any further action at this time beyond responding to the expressed needs and desires of the survey's participants. Hopefully, however, this study will help to generate the increased support needed to elicit administrative interest in the myriad of academic and career implications of aerospace education for Montana's secondary school-age population.

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[1]Michael A. Schukert, "1972-73 Montana High School Aviation/Aerospace Education Status Survey" (Helena: Office of the Superintendent of Public Instruction, 1973).

[2]Schools currently offering secondary aerospace education elective programs are listed on page 8.

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SURVEY RESPONDENTS LIST

District/City[3]	Zip Code	Respondent: Superintendent	Respondent: H.S. Principal	Respondent: Other
Absarokee	59001			Clerk
Anaconda	711	x		
Augusta	410	x		
Bainville	212	x		
Baker	313			H.S. Teacher
*Box Elder	521	x		
Brady	416	x		
Bridger	014	x		
*Browning	417		x	
Charlo	824	x		
Chester	522		x	
*Chinook	523	x		
*Colstrip	323		x	
Columbia Falls	912		x	
Corvallis	828	x		
Custer	024	x		
Dillon	725		x	
Dixon	831	x		
*Dutton	433	x		
Ekalaka	324	x		
*Ennis	729	x		
Fairfield	436		x	
Flaxville	222	x		
*Florence-Carlton	833		x	
Fort Benton	442	x		
Froid	226	x		
*Geraldine	446	x		
*Gildford	525			H.S. Teacher
Glendive	330		x	
Hamilton	840	x		
Hardin	034			H.S. Counselor
*Harlem	526	x		
Harlowtown	036		x	
Harrison	735		x	
Havre	501	x		
Helena	601			Dir. Instruction
*Hingham	528			H.S. Teacher
*Hobson	452	x		
Hot Springs	845	x		
Joliet	041	x		
Joplin	531	x		
*Judith Gap	453	x		

[3]Entries preceeded by an asterisk evidenced an interest in aerospace education elective programs

SURVEY RESPONDENTS LIST (con't)

District/City	Zip Code	Respondent: Superintendent	Respondent: H.S. Principal	Respondent: Other
Lambert	59243	x		
Laurel	044	x		
Lewistown	457		x	
*Libby	923	x		
Lima	739	x		
*Livingston	047	x		
Malta	538	x		
Medicine Lake	247	x		
*Nashua	248	x		
*Opheim	250		x	
Outlook	252	x		
Park City	063	x		
Peerless	253	x		
Plains	859	x		
Plevna	344	x		
Polson	860	x		
Power	468	x		
*Rapelje	067	x		
*Reedpoint	069	x		
Roberts	070	x		
Roundup	072	x		
*Roy	471	x		
*Rudyard	540		x	
Sand Coulee	472	x		
*Savage	262	x		
Scobey	263	x		
Shepherd	079	x		
*Sidney	270	x		
*Stanford	479	x		
*St. Regis	866	x		
Stevensville	870	x		
Sunburst	482	x		
Thompson Falls	873	x		
*Three Forks	252	x		
*Turner	542	x		
Twin Bridges	754		x	
Valier	486	x		
Victor	875	x		
West Yellowstone	758		x	
Westby	275	x		
*White Sulphur Springs	645			H.S. Teacher
Whitefish	937	x		
Whitewater	544	x		
Wilsall	086	x		
Wolf Point	201			H.S. Teacher
Worden	088		x	

SURVEY ITEM DESCRIPTION
AND RESPONSE TABULATION

ITEM 1 - PRIOR DISTRICT AEROSPACE EDUCATION EXPERIENCE

The purpose of this question item was to obtain historical information concerning previous high school-sponsored aerospace educational programs.

Question: Has your high school ever offered an accredited aerospace education course or non-credit club activity?

YES - 10 (11%) NO - 78 (89%)

ITEM 2 - PROGRAM DEVELOPMENT IMPEDIMENTS

This item presented school officials with an alphabetized listing of nine secondary aerospace education program development constraints revealed in a recent nationwide study.[4]

The following list, prioritized in descending order of importance, shows what Montana educators feel to be the major impediments to the development of high school aerospace education elective programs. The results also provide an opportunity to compare the Montana sample with the national findings.

State Ranking		(National Ranking)
1	Money	(1)
2	Finding a qualified teacher	(3)
3	Liability for flying activities	(5)
4	Lack of instructional materials	(4)
5	Classroom space	(7)
6	Lack of support from community	(6)
7	Lack of student interest	(9)
8	Lack of interest on the part of school administrators	(2)
9	Absence of state-level concurrence or approval	(8)

Question: Would you like a copy of the NAEA Survey?

YES - 60 (68%) NO - 28 (32%)

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[4]National Aerospace Education Association, High School Aviation Aerospace Status Report, (Washington: National Aerospace Education Association, 1973), pp. 14-15.

ITEM 3 - LOCAL RESOURCE IDENTIFICATION

This item was included to promote awareness of, and to obtain data pertaining to, three frequently overlooked groups of aerospace-oriented school district employees.

Resource	Number of Districts Possessing
Pilots	30 (34%)
Military-trained Aeronautical Personnel	5 (6%)
College Aerospace Education Workshop Attendees	8 (9%)

ITEM 4 - COLLATERAL PROGRAMS AND ACTIVITIES

The purpose of this item was to permit school authorities to register their desire to learn more about ten popular youth-oriented aerospace education programs available to Montana's high school students. Listed below are the programs and the information request figures for each.

Program	Number of Requests
Montana Flying Classroom*	35 (40%)
Montana Youth-In-Aviation Scholarship*	28 (32%)
NASA Space Science Lecture-Demonstration	26 (30%)
Delta Dart Model Airplane Building Project	19 (22%)
Civil Air Patrol Cadet/High School Program	16 (18%)
School aircraft construction projects	16 (18%)
4-H Aviation/Aerospace Projects	12 (14%)
Air Force Junior ROTC	10 (11%)
Scouting merit badge programs (Aviation, Space Exploration, and Weather)	8 (9%)
Air Explorers	7 (8%)

*Montana's two programs are described on pages 11-13.

ITEM 5 - AEROSPACE EDUCATION COURSE DEVELOPMENT INTEREST

This was a forced-response item requiring the respondents to indicate the statement which would best summarize their present feelings relative to the development of an aerospace education elective at their high school.

Response	Number Choosing
"I am definitely interested.···"	8 (9%)
"I am interested, but would like more information···"	19 (22%)
"I would like more time to discuss this matter with others.···"	25 (28%)
"I am not interested."	24 (27%)
No response	2 (3%)
Other Comments:	10 (11%)

"Some interest, but not likely in so small a community; financing very important."

"···we are not disinterested. However, realistically we have other, higher priorities."

"Until we get more space and more budget, we could not afford a program."

"Slightly interested. Feel we have other problems that need attention."

"Until we are able to enlarge our facilities, we cannot expand the curriculum."

"We lack the facilities to offer such a course."

"Lack of time on my part dictates non-interest. Am Supt., also guidance counselor."

"Interested, but haven't the building capacity or teacher."

"Funds for such a program would add a greater burden on the taxpayer at the local level without state aid."

"If there was more student interest we most likely would still have an aerospace program."

ITEM 6 - Question: Would you like a copy of the summary of responses to this survey?

YES - 67 (76%) NO - 21 (24%)

TO BE ALIVE

To be alive in such an age
    With every year a lighting page,
When miracles are everywhere,
    And every inch of common air,
Throbs a tremendous prophecy,
    Of greater marvels yet to be.

Just to be alive in such an age--
    To live in it--
To give to it--
    Thank God with all thy flaming heart.
Crave but in it to have a part.

--Angela Morgan

APPENDIX

MONTANA'S SECONDARY AEROSPACE

PROGRAM-SPONSORING SCHOOLS

School	Teacher
Billings West High School Billings, 59102	Morris Welchlin
Broadview High School Broadview, 59015	Robert Woodward
Broadwater County High School Townsend, 59644	Randolph Vogel
Circle High School Circle, 59215	Glen Mader
C. M. Russell High School Great Falls, 59401	Fred Oke
Cut Bank High School Cut Bank, 59427	William Wadman
Flathead High School Kalispell, 59901	Jack Foust
Glasgow High School Glasgow, 59230	Francis Irle
Great Falls High School Great Falls, 59401	Russell Steinebach
Hingham High School Hingham, 59528	Joseph Minnehan
Rosebud High School Rosebud, 59347	Richard Morissette
Red Lodge High School Red Lodge, 59068	Perry Scheidecker

STATE AEROSPACE EDUCATION

RESOURCE/INTEREST SURVEY

Directions Please respond to the following six items as thoroughly as possible. If more space is required, additional sheets may be used. Request return no later than January 15, 1974. Send to the Superintendent of Public Instruction, Helena, Montana 59601, Attention: Supervisor, Aviation and Space Education.

Respondent's Name _____ Date _____

Title _____

Office Address _____

_____ Zip _____ Telephone _____

1. Has your high school ever offered an accredited aerospace education course or non-credit club activity?

   ____ Yes ____ No Please describe the program(s) and indicate the date(s) of operation _____

   _____

2. A recent survey sponsored by the National Aerospace Education Association (NAEA) uncovered the following impediments to secondary aerospace education program development. Please rank in numerical order (one being the most important) those perceived to be most pertinent to the situation in your district.

   ____ Absence of state-level concurrence or approval
   ____ Classrcom space
   ____ Finding a qualified teacher
   ____ Lack of instructional materials
   ____ Lack of interest on the part of administrators
   ____ Lack of student interest
   ____ Lack of support from community
   ____ Liability for flying activities
   ____ Money

   Would you like a copy of the NAEA Survey? ____ Yes ____ No

3. Indicate if any of your district staff are:

	Name and Details (if known)
____ Pilots	_____
	_____
	_____

Name and Details (if known)

___ Military Flight Crew Retirees or Reservists _____

_____

___ Former College Aerospace Education Workshop Attendees _____

_____

4. Indicate if you would like information regarding any of the following:

___ Air Explorers
___ Air Force Junior ROTC
___ Civil Air Patrol Cadet/High School Program
___ Delta Dart Model Airplane Building Project
___ Montana Flying Classroom Program
___ Montana Youth-In-Aviation Scholarship Award
___ NASA Space Science Lecture-Demonstration Program
___ School Aircraft Construction Projects
___ Scouting Merit Badge Programs (Aviation, Space Exploration and Weather)
___ 4-H Aviation Project

5. Please check the item below which best summarizes your present feeling concerning the development of an aerospace education elective program in your high school:

___ A. I am definitely interested. Call me on (date/time) _____

___ B. I am interested, but would like more information regarding the following: _____

_____

___ C. I would like more time to discuss this matter with others. Contact me again after (date) _____

___ D. I am not interested.

___ E. Other (please indicate) _____

_____

6. Would you like a copy of the summary of responses to this survey?

___ Yes ___ No

Thank you for your assistance.

MONTANA'S FLYING CLASSROOM PROGRAM

The concept of airborne classes is not new; in fact, as long ago as 1934 this quotation was heard on a radio program sponsored by the Bank of America: "The youth of tomorrow will get his economics and his geography from the cabin of an airplane flying ten thousand feet above the earth's surface and cruising at a speed of five hundred miles per hour. From this broad vantage point, you cannot fail to be impressed by the unlimited natural wealth unrolling beneath your eyes in all its tremendous significance, in all its capacity to make a great nation self-sustaining. This is the gift of the airplane to humanity and the enlargement of man's sympathy, the greatening of his capacity to see big things in the big."

Montana's Flying Classroom Program was established in 1962, and although we neither fly at ten thousand feet nor at a speed of five hundred miles per hour, we believe that we have a program which can achieve all of the above benefits plus others of more immediate importance to the state's secondary curriculum decision-makers.

The Flying Classroom Program has a twofold objective: to enhance and enliven the teaching of high school subjects dealing with the earth's surface, e.g., agriculture, conservation, earth science, economics, geography, forestry and state history; and to acquaint Montana's high school students and voting citizenry with general aviation and its potential usefulness to education and other non-aeronautical fields of endeavor.

The program is implemented through the cooperative efforts of the Montana Division of Aeronautics, the Office of the Superintendent of Public Instruction, local airport operators, and the program-sponsoring school.

The program is essentially a flying field trip. It is usually conducted during the spring of the year, using light, single-engine 4-6 place airplanes which are flown either singly or in a loose formation of two or more. The airplanes are flown by commercial pilots and carry three to five passengers (students, teachers, school administrators, etc.). The planes fly at a low but safe altitude over a carefully planned route which permits the occupants to observe many local, but often remote examples of previously studied land features. The flights typically last forty-five minutes to one hour. During the flight, the teacher provides a "running commentary" to insure that his students get the full significance of the pre-selected sightings. When more than one airplane is used, the in-flight commentary is provided by the teacher in the lead airplane using the aircraft radio. The plane's occupants are encouraged to bring their cameras, take notes, and ask questions (over the airplane's radio if necessary).

Schools planning to offer a flying classroom should negotiate aircraft rental costs with their closest airport operator. The latter might be willing to provide airplanes and pilots at greatly reduced rates in view of the activity's publicity and business stimulation possibilities.

During the 1960's, the cost of a school's first flying classroom program was assumed by the Division of Aeronautics. Unfortunately, the state's Aeronautics Agency is no longer able to provide this financial assistance. However, schools wishing to sponsor a flying classroom program for the first time are encouraged to submit their proposals and requests for assistance to the Division of Aeronautics, Box 1698, Helena, Montana 59601. Every effort will be made to provide project guidance, recommendations, and if scheduling permits, a pilot and airplane to conduct a route survey flight prior to the date of the actual flying classroom. (See item 5 below.)

Advanced planning is the key to a successful flying classroom program. A wealth of advice and suggested "do's" and "don'ts" can be obtained from schools which have offered the program in the past. Suggested contacts include school district superintendents in Inverness, Fort Benton, Culbertson, Bainville, Havre, Red Lodge, Custer, Kalispell, Plentywood, Columbus, Lewistown and Broadus.

The following are minimum flying classroom program requirements:

1. The Supervisor of Aviation and Space Education must have a letter from the superintendent of schools or high school principal stating that the flight is an authorized school project.

2. Each student must have a signed parental permission form to participate. These should be checked before each flight. (A sample form is available on request.)

3. A locally prepared letter should be sent to the parents of each student explaining the project, what it involves, and the anticipated benefits to be derived.

4. To help the students better understand the airplane and flight itself, a field trip to the airport prior to the flight is desirable. The airport operator will usually be glad to explain the features of aircraft, what makes them fly, airport safety considerations and answer any questions the teacher or students might have.

5. The teacher should make a survey flight to establish the exact route and flying time involved. It is suggested that the survey be conducted during the week prior to the actual Flying Classroom.

6. A map or chart showing the sightings (check points) along the route should be reproduced and distributed to the pilot(s) and all participants. (Sample flight route charts are available.)

7. Finally, class instruction during the weeks prior to the flight should reflect some awareness of the upcoming event, what the student will see, as well as the important part aviation can play in the monitoring of efficient land use and resource management.

School personnel desiring more information concerning the Montana Flying Classroom Program should contact the Supervisor of Aviation and Space Education, Office of the Superintendent of Public Instruction, Helena, Montana 59601.

THE MONTANA YOUTH-IN-AVIATION SCHOLARSHIP AWARD

This very popular program is funded by the Division of Aeronautics and was implemented for the first time in January, 1968. The award makes it possible for young Montanans to take the first step toward an exciting career in aviation and/or a lifetime of avocational and recreational enjoyment known only by those who fly.

During the spring of each year, one student from each high school which offers an accredited aviation/aerospace elective course of study is chosen to receive a fully paid 10-hour flight training award. The winning student is selected by the school's aerospace teacher on the basis of his score on an objective 100-item examination, class performance and other locally determined criteria.

Winners must complete their flight training during the calendar year in which the scholarship is awarded.

Although the winning student may choose to take his flying instructions at any properly certified flight training facility in the state, the training is usually accomplished at the airport serving the student's home community thereby stimulating the local airport operator's business and insuring his support of future school-sponsored aeronautical activities.

Additional information concerning the Youth-In-Aviation Award can be obtained by writing to the Montana Division of Aeronautics, P. O. Box 1698, Helena, Montana 59601.

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