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IDENTIFIERS Career Day; *Site Visits

ABSTRACT

This instructor's guide outlines a model program designed to provide middle school students with an opportunity to participate in exploratory activities regarding the world of work and to understand the relationships between education and work. Described in the first part of the manual are the following futures week activities: a job interviewing skit; a futures career day; a business, industry, or government field trip; and a parent program. The second half of the guide consists of classroom materials for use in helping 9th- and 10th-grade students investigate careers while developing writing, social studies, reading, and math skills. Included in this section of the guide are a series of lesson plans, suggested learning activities, student exercises and handouts, information and guide sheets, and answers to selected activities. (MN)

FUTURES WEEK
MIDDLE SCHOOL PROGRAM

-INSTRUCTOR'S GUIDEBOOK-

AUGUST, 1984

This publication was prepared through a contract with the Texas Education Agency in Sex Equity in Vocational Education under Title II. The opinions expressed herein should not be construed as representing the opinions of the United States Government, the State of Texas or the Texas Education Agency.

DISCRIMINATION PROHIBITED

No person shall, on the basis of race, color, creed, national origin, sex or handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity.

FUTURES WEEK

A middle school program to provice students with the opportunity to investigate future careers, especially nontraditional careers.

August, 1984

Ysleta Independent School District
8445 Valdespino
El Paso, Texas 79907

Armenia Smith
Vocational Equity Project

TABLE OF CONTENTS

INTRODUCTION

Exploring the world of work and increasing occupational awareness can provide students with a base of information to make future education and career decisions.

Implementing a school-wide "Futures Week," creates an opportunity for students to take part in exploratory activities regarding the world of work and allows students to see clearly the relationships between the academic content he/she is being asked to master and his/her tentative occupational choices.

This guidebook is the product of the Ysleta Equity Program. This model program was implemented at the Summer School Program held at Ysleta Junior High School for approximately 300 middle school students who were two or more years behind and at least 15 years of age. This was an excellent place to test "Futures Week."

This project was funded under contract for the U. S. Department of Education, under the Discretionary Funding of Vocational Program Improvement Activities of the Texas Education Agency.

Ms. Susan Crews, a counselor in the program, was responsible for implementing "Futures Week." Special thanks go to Ms. Crews for providing her talent and support for this project.

Armenia Smith
Vocational Equity Project
Ysleta Independent School District

Strategies: Training

FUTURES WEEK

Purpose: To provide students with an opportunity to investigate future careers, especially non-traditional careers.

Sponsor: Vocational Equity Project

Time: One Week

Place: Middle School

Methodology:

1. The sponsor should meet with school administrators and counselors to discuss details and plans for Futures Week.

2. Each of the following tasks should be coordinated by the sponsor, counselors, and faculty.

    a. Announce to staff the plans for Futures Week
    b. Set up Schedule of Events (attached)
    c. Provide classroom materials to each teacher
    d. Implement
        1) Special classroom activities
        2) Field Trip
        3) Our Future Careers Day
        4) Parent Program

FUTURES WEEK - SCHEDULE OF EVENTS

Monday	Tuesday	Wednesday	Thursday	Friday
All Writing Classes "Job Interviewing Skit" ↓ ALL DAY ↓	TEAM B. I. G. Field Trip - ½ day	TEAM II B. I. G. Field Trip - ½ day	TEAM III B. I. G. Field Trip - ½ day	"Our Future Careers" ↓ ALL DAY ↓
		7:00PM - Parent Program		

CLASSROOM ACTIVITIES BY SUBJECT MATTER

Writing - 1. "Vocational Education Pays"

- 2. "Forms for the Future"

Reading - "A Guide to Today's Hottest Careers--Job Market"

Social Studies - "Career Game"

Math - "Odds on You"

Science - (2 day presentation) - "Family Planning/Decision Making"

Strategies: Training

"Job Interviewing Skit"

Purpose: To help students recognize a proper as well as an improper job interview.

Sponsor: Vocational Equity Project

Time: One class period

Place: Lecture Room

Methodology:

1. The classroom teacher and sponsor of Futures Week invited two college students (male and female) to role play a job interview.

2. The following tasks should be completed by the classroom teacher:

   a) Schedule a meeting place for all participating classes.
   b) Invite interested teachers.
   c) Provide an orientation to each class regarding a job interview.
   d) Coordinate activities for the day of the skit.
   e) Send thank-you letters to presenters.

Strategies: Interactive Activities

OUR FUTURES CAREER DAY

Career days have become a common event in the high schools and have been useful in helping students to understand the world of work; however eighth grade students are being asked to make critical decisions about their futures as they leave the middle school and to on to high school. Therefore, a career day was held at the Summer School Program held at Ysleta Junior High School for approximately 300 middle school students.

Purpose: To expose the students to as many careers as possible and to get them to think about a career in nontraditional ways.

Sponsor: Vocational Equity Project

Time: One Day

Place: Middle School

Methodology:

Identification of Speakers

By sending out request forms to parents and faculty members, a variety of speakers' names and phone numbers were collected. Each person was contacted by phone to see if they would consider being involved with the career day. The confirmation of speakers took approximately two weeks.

Scheduling

After the list had been completed, a schedule was developed for the class presentations.

Student Preparation and Participation

The program was explained to the students several days before it took place. Signs were placed in the hall listing the speakers according to each career cluster.

Program and Presentation

People began arriving at 7:30 AM in the library. Each presenter was given a packet of materials which included the following:

1) name tag
2) an outline to following during their presentation
3) class schedule
4) thank-you letter
5) lunch ticket

After signing in and receiving their materials, the speakers were greeted by the teacher whose class they were to address. The teacher then escorted them to the appropriate classroom.

Comments

- The program was very successful. Seventy-seven speakers participated.

Welcome Career Day Guests

TIME LINE FOR "OUR FUTURES CAREER DAY"

Responsibilities	Person in Charge	Completion Date
1. Post chart in lounge asking for speakers.		
2. Notes to faculty and students asking for speakers.		
3. Collect request forms two to three weeks prior to activity.		
4. Call suggested speakers.		
5. Make chart of rooms by period.		
6. Assign speakers to rooms.		
7. Pass out to teachers the student dittos.		
8. Make card on each speaker w/phone # and room assignments.		
9. Make posters of career clusters for hall with sign with arrow (directing speakers) on front doors.		
10. Make a folder for each speaker.		
11. Address thank-you letters.		
12. Arrange for packets at table in library.		
13. Folder, thank-you letter, room assignment, map, nametag, suggested speakers outline.		
14. Order lunch and arrange for coffee and refreshments in reception area for speakers.		

POSTER IN FACULTY LOUNGE

HELP !!!

We need speakers for Career Day, Friday, June 29, 1984. If you have relatives, friends or acquaintances who would be willing to speak to S.S.P.P. students for 1 hr. or more please sign their name, profession and your name. Thanks. We need as many "legitimate" fields as we can find.

Speaker	Profession	Phone #	Your Name

SPEAKER REQUEST FORM TO FACULTY

FACULTY

Our Future Career's Day will held Friday, June 29, 1984 from 8:30 - 3:30. We need 252 presentations in order to provide two presentations per class, so we need your help!

Please contact your relatives, friends, and acquaintances who would speak for one period or more (at their convenience). If you will list the information below, we'll contact them with all details. We need this back by Friday. (June 22).

Thank You.

Name of Speaker	Occupation	Phone # where speaker can be reached

Speaker Request Form to Students

Name of parent _____

Name of company where parent works _____

_____

Work telephone number _____

Home telephone number _____

Career Clusters

Agri-Business and Natural Resources

Business and Office

Communications and Media

Construction

Consumer and Homemaking Education

Environment

Fine Arts and Humanities

Health

Hospitality and Recreation

Manufacturing

Marine Science

Marketing and Distribution

Personal Services

Public Services

Transportation

Posters in Hall/Speakers by Career Cluster

Hospitality and Recreation

1. Tere Alvarado, Restaurant Owner
2. Gary Mazziotti, Track Coach
3. George Rivero, Waiter, Sombra Del Pasado

Fine Arts and Humanities

1. Becky McVay, Actress
2. Michael Myers, Actor

Construction

1. Tony Hidalgo, Sales Manager, Feather Corp. Bldg. Products
2. Walt Hammar, Skilled Laborer
3. Jim Nelson, Heating, Air Conditioning & Ventilating
4. Albert Alvarado, Pipeliner

Communications & Media

1. Johnny Thompson, KFIM Radio
2. Denise Quintana, Photographer
3. Margie Bullis, Pro. Director ETCOM Radio
4. Raul Gonzalez, Chief of Cartography
5. Miriam Rodriguez, Liason, Packard Elec.
6. Jeffrey Scott, KLAQ Radio
7. Frank Lopez, El Paso Electric

Health

1. Jim Moore, Nurse
2. Richard Marquez, Dentist
3. Penry Hamilton, Lab. Tech.
4. Art Gutierrez, Dentist
5. Chip Ponsford, Doctor-VET
6. Kathy Paxson, Nurse
7. Jose Rodriguez, M. D.
8. Lupe Rey, Dental Assistant
9. C. Jaime, MSW

Transportation

1. Greg Garcia, Mechanic
2. Pat Hernandez, Transportation, Tonka Toys

Public Services

1. Officer Acosta, Police Department
2. Margie Bullis, ETO, Radio Program Director
3. Randy Bullis, Lawyer
4. Richard Contreras, Lawyer
5. Capt. R. J. Figueroa, Fire Dept.
6. Robert Duran, Judge
7. Jorge Rascon, Army Recruiter
8. Tomas Silva, Criminal Investigator Immigration
9. Rosa Morales, Volunteer, Social Wek. Goal Setting
10. Rita Peregrino, PIC
11. Carlos Sermeno, Detective
12. Waynenne Spradlin, Utilities
13. Lt. Col. William Robert, U. S. Army
14. Sp4 James S. McDowell
15. Sp5 Durred Francher
16. MSG Arthur Chandler
17. SSG Ruben Madrid

Agri-Business and Natural Resources

1. Joe Carrasco, The Feed Store
2. Peggy Madrid, Water District #1

Personal Services

1. Carrie Allbert, Mortgage Banker
2. Kaylene Beech, Bartender
3. Cecilio Jaime, Counselor, La Fe
4. Cathy Riggs, Cafeteria Manager
5. Luis Rojas, Orthodontist
6. Irma Monroy, Cosmetologist
7. Phyllis Armijo, Asst. Hospital Director, Thomason Hospital

Marketing & Distribution

1. Alan Hammar, Branch Mgr., Bowles & Edens
2. Ruben Mata, Real Estate
3. Margaret Valdez, Real Estate
4. Sammy Gonzalez, Buyer, Merchandising
5. Marta Provenghi, Supply Coordinator
6. Danny Simental, Warehouseman

Business & Office

1. Gary Ivory, Dept. of Research & Evaluation
2. Mary Yanez, Print Shop
3. Bob Guidry, Public Relations, El Paso International Airport
4. Adrian Armijo, Insurance Executive

CLASS SCHEDULE

1st Period 8:30-9:20

S. Knipp I 124 Off. Acosta	Mott I 127 Math Lab	Ansara I 131 Numerology	Munkatchy I 108 RJ Figueroa	D. Serna I 142 Rosa Morales	E. Gil I 122 Writing Becky McVeigh Mike Myers	E. Gonzalex II 125rd Ruben Mata RE Tomas Silva	S. Davis II 128 Math Lab	G. Martinez 137 Math Carrie Allberg Phyllis Armijo Adrian Armijo
R. Johnson II 110 Science Waynene Spradlin	L. Vanley II 139 S. Studies Richard Contreras	D. Judy 123 II Writing Alan Hammer Army	C. Vass 126 III RD Denise Quintana Kaylene Beech	S. Hopson 130 III Math Lab	R. Bilbe 109 III Math Army	G. Toothman 103 III Science Greg Garcia Jim Nelson	M. Dickson 138 III Soc. Studies Carlos Sermeno	V. Casas 143 III Writing Miriam Rodriguez

CLASS SCHEDULE

2nd Period 9:25-10:15

M. Phillips I Rd. Lab Carlos Sermeno	S. Knipp I 124 Rd Tere Alvarado Judge Duran	H. Mott II 127 Math Lab	K. Ansara I 131 Math Numerology	J. Munkathcy 108 Science Driven S-4 EOD	D. Serna I 142 Soc. Studies	V. Vass II 116 Rd. Lab Walt Hammer	E. Gonzalez II Ruben Mata RE Tomas Silva	S. Davis II 128 Math Lab
G. Martinez II 137 Math Cook Aviator	R. Johnson II 110 Science Waynene Spradlin	L. Vanley II 139 Soc. Stu. Richard Contreras	I. Ortiz III 117 Rd. Lab RJ Figueroa	C. Vass III 126 Rd Denise Quintana Kaylene Beech	S. Hopson III 130 Math Lab	R. Bilbe III 109 Math Jorge Rascon	G. Toothman 103 Sci III Becky McVay Mike Myers	M. Dickson III 138 Soc. Stu Danny Semental

CLASS SCHEDULE

3rd Period 10:20-11:10

V. Casa III 143 Writing Tomas Silva Rod	I. Ortiz 117 Rd. Lab RJ Figueroa	C. Vass III 116 Rd Kaylene Beech Denise Quintana	S. Hopson III 130 Math Lab	R. Bilbe III 109 Math Jorge Rascon	G. Toothman 103 Sci. III Ruben Mata RE Lupe Mendez	E. Gil I 122 Writing Becky McVay Mike Myers	M. Phillips 122 Rd. Lab Richard Contreras Det. Sermeno	S. Knipp I 124 Rd Officer Acosta
H. Mott I 127 Math Lab	K. Ansara I 131 Math Numerology	Munkatchy I 108 Science Irma Monroy	D. Judy II 123 Writing Cook Aviator Truck Driver	V. Vass II 116 Rd. Lab Walt Hammer	E. Gonzalez 123 Writing George Rivero Ruben Mata	S. Davis II 128 Math Lab	G. Martinez 137 Math III Danny Semental Driver S-4	R. Johnson 110 Science Waylene Spradlin

CLASS SCHEDULE

4th Period 11:15-12:05

D. Serna I 142 Soc. Stu. Rosa Morales Truck Driver Aviator	E. Gil I 122 Writing Becky McVay Mike Myers	M. Phillips I 111 Rd Lab Waynene Spradlin	S. Knipp I 124 Reading Officer Acosta	H. Mott I 127 Math Lab	K. Ansara I 131 Math Numerology	L. Vanley II 139 Soc. Stu. Luis Rojas Raul Gonzalez EOD	D. Judy II 123 Writing Bob Guidry Sammy Gonzalez	V. Vass I 116 Rd. Lab Johnny Thompson Walt Hammer Det. Sermen
E. Gonzalez II 125 Rd. Jim Moore Richard Contreras	S. Davis II 128 Math Lab	G. Martinez II 137 Math Margaret Valdez RE Penny Hamilton	M. Dickson 138 Soc. Stu. Art Gutierrez Dentist Danny Semental	V. Casas III 143 Writing Tony Hidalgo Joe Carrasco	I. Ortiz III 117 Rd. Lab RJ. Figueroa Richard Contreras Driver	C. Vass III 126 Rd. Kaylene Beech Denise Quintana Cook	S. Hopson III 130 Math Lab	R. Bilbe I 109 Math Jorge Rasco Irma M[illegible]oy

CLASS SCHEDULE

5th Period 12:45-1:35

Munkatchy I 108 Science Art Gutierrez Dentist	D. Serna I 142 Soc. Stu. Rosa Morales	E. Gil I 122 Writing Margie Bullis	M. Phillips I 111 Rd. Lab Frank Lopez	S. Knipp I 124 Reading Kathy Paxson Office Acosta	H. Mott I 127 Math Lab	R. Johnson II 110 Science Richard Marquez Dentist Irma Monroy	L. Vanley II 139 Soc. Stu. Jeffrey Scott	D. Judy I 123 Writing
V. Vass II 116 Rd. Lab Randy Bullis Lupe Mendez	E. Gonzales 125 Reading Jorge Rascon	S. Davis II 128 Math Lab Gary Ivory	G. Toothman 103 Science Dr. Pensford Vet.	M. Dickson III 138 Soc. Stu. Mary Yanez	V. Casas III 143 Writing Dr. Rodriguez Cecilio Jaime	I. Ortiz III 117 Rd. Lab RJ Figueroa	C. Vass III 126 Reading Penny Hamilton	S. Hopson I 130 Math La

CLASS SCHEDULE

6th Period 1:40-2:30

K. Ansara I 131 Math	Munkatchy I 108 Science	D. Serna I 142 Soc. Stu.	E. Gil I 122 Writing	M. Phillips I 111 Rd. Lab	S. Knipp I 124 Reading	G. Martinez II 137 Math	R. Johnson II 110 Science	L. Vanley II 139 Soc. Stu
Numerology	Jeffrey Scott	Rosales Morales	Margie Bullis	Frank Lopez	Kathy Paxson		Richard Marquez	Rita Peregrino
D. Judy II 123 Writing	V. Vass II 116 Rd. Lab	E. Gonzalez II 125 Reading	R. Bilbe III 109 Math	G. Toothman 103 Science	M. Dickson 138 Soc. Stu.	V. Casas III 143 Writing	I. Ortiz III 117 Rd. Lab	C. Vass III 126 Reading
Marta Provenghi	Randy Bullis	Jorge Rascon	Gary Ivory	Irma Monroy	Mary Yanez	Dr. Rodriguez Cecilio Jaime	RJ Figueroa	

CLASS SCHEDULE

7th Period 2:35-3:30

H. Mott I 127 Math Lab	K. Ansara I 131 Math Numerology	D. Serna I 142 Soc. Stu. Rosa Morales	E. Gil I 122 Writing Margie Bullis	M. Phillips I 111 Rd. Lab Frank Lopez	S. Davis II 128 Math Lab	G. Martinez 137 Math Peggy Madrid	R. Johnson II 110 Science Richard Marquez	Munkatchy I 108 Science Cathy Rigg Irma Monroy
L. Vanley II 139 Soc. Stu. Rita Peregrino	D. Judy II 123 Writing Marta Provenghi	V. Vass II 116 RD. Lab Randy Bullis	S. Hopson III 1 0 Math Lab	R. Bilbe III 109 Math	G. Toothman 103 Science Jeffrey Scott	M. Dickson 138 Soc. Stu. Mary Yanez	V. Casas III 143 Writing	I. Ortiz III 117 Rd. Lab RJ Figueroa

Dear Faculty & Staff of SSPP:

Friday, June 29, 1984, is "Our Future Careers" Day.

The following are the speakers assigned to your classroom.

Good Luck and enjoy the day.

Susan Crews

Student Form to Complete for each guest speaker

CAREER AWARENESS

Name of occupation _____

Education required: High School _____
Technical Vocational Training _____
Community College _____
4 Year University _____
Graduate School _____
Post Graduate School _____

Approximate cost of education _____

Recommended classes to take in high school to prepare for this job _____

_____.

Part-time jobs or volunteer work that applies to this job _____

_____.

Areas of the country where these jobs are located _____

_____.

What are the hours for this occupation _____.

Special requirements for this job: Physical _____
Mental _____
Language _____
Special equipment (is it provided) _____.

Cost of equipment _____

Salary range for this occupation _____

Advancement opportunities in this field _____

Employment outlook_____

Related jobs _____.

What are the benefits and hazards/advantages of job_____

_____.

How do you get a job like this? _____

_____

_____.

Letter to Guest Speaker

Career Awareness Day Friday, June 29, 1984

Thank you for volunteering to speak to our students.
The students will be trying to acquire the following information about your career:

Education required
Approximate cost of education
Recommended classes to take in high school to help prepare for this job.
Part-time or volunteer work that applies to this job
Areas of the country where these jobs are located
What are the working hours for this occupation
Special requirements for this job - physical, mental language, special equipment, cost of equipment
Salary range for this occupation
Advancement opportunities in this field
Related jobs
Employment outlook for this profession
The benefits, hazards and advantages of this job
How do you get a job like this?

You will be meeting with at least 15 students for approximately 50 minutes, per presentation

Thank you for your contributions to our program.

YSLETA INDEPENDENT SCHOOL DISTRICT
8445 VALDESPINO STREET
EL PASO, TEXAS 79907-6099
(915) 859-7971

June 29, 1984

"Our Future Careers"

Dear

Thank you for participating in the Ysleta Independent School District Summer School Pilot Program Career Awareness Day, Friday, June 29, 1984 at Ysleta Junior High School.

Your sharing of the details of your profession helped our students better understand the world of work.

We really appreciate your interest in the youth of El Paso.

Thank you for your time and effort.

Yours truly,

Principal
Staff & Faculty of the SSPP

SC/dc

YSLETA INDEPENDENT SCHOOL DISTRICT
8445 VALDESPINO STREET
EL PASO, TEXAS 79907-6099
(915) 859-7971

June 29, 1984

Commanding General
U.S. Army Air Defense Center & Ft. Bliss
Ft. Bliss, TX 79906

I would like to express my appreciation to the soldiers of the 70th Ordnance Battalion who participated in our Job Fair on July 29, 1984.

These soldiers added greatly to our understanding of the U.S. Army and its members. They all represented the U.S. Army in an outstanding manner and clearly explained how they became involved with the service. Our students certainly have a better appreciation of what it takes to be a soldier today.

Again, thank you and please extend our thanks to the soldiers who came to talk with us.

Sincerely yours,

Carol Allen, Principal

Strategies: Interactive Activities

Business, Industry and Government Field Trip (see next page)

Some of the most beneficial learning experiences that students value the most come as the result of their participation in field trips. First-hand experiences obtained by participating in real-life situations and on-the-job working conditions provide the students with insights that can hardly be matched by traditional teaching methods, such as lecturing or classroom discussions. Whenever it is feasible or possible, teachers should arrange to take their classes to visit community organizations, businesses, etc. that will reinforce how the educational concepts learned in school are used in "the real world." This form of application of the learning concepts to the world around us serves as an excellent tool, especially when a teacher wishes to help the students to learn the application of basic skills or to explore the basic educational requirements for certain careers. There are eye opening experiences just waiting to be discovered in the community. Help bring those experiences to the students by letting field trips bridge the gap between the school and the outside world. Source: A Handbook on Techniques for Coordinating Vocational and Academic Education by Dr. Norma Milanovich. New Mexico State Department of Education, 1982.

Purpose: To help students learn as much as possible about job opportunities that are available in El Paso.

Sponsor: Vocational Equity Project

Time: Half a Day

Place: City of El Paso

Methodology:

Bus transportation and tour guides were provided by Gray Line Tours. The tour was a view of El Paso which focused on the major businesses and industries in El Paso (see attached outline).

Comments: The students learned a great deal, and enjoyed visiting places they had never seen before.

BUSINESS/INDUSTRY/GOVERNMENT BIG FIELD TRIP

(Information provided to students during field trip.)

I. Business

29 Boot Factories

Tony Lama makes 4,400 pairs of boots per day

165 Electronic Assembly Plants

Farah puts out 100,000 pants per day

We have 300 pant factories

25% of all copper in the <u>world</u> is refined here in El Paso

II. Industries

These are the five top money-making industries in El Paso. Rank them in order by greatest money maker to the 5th greatest.

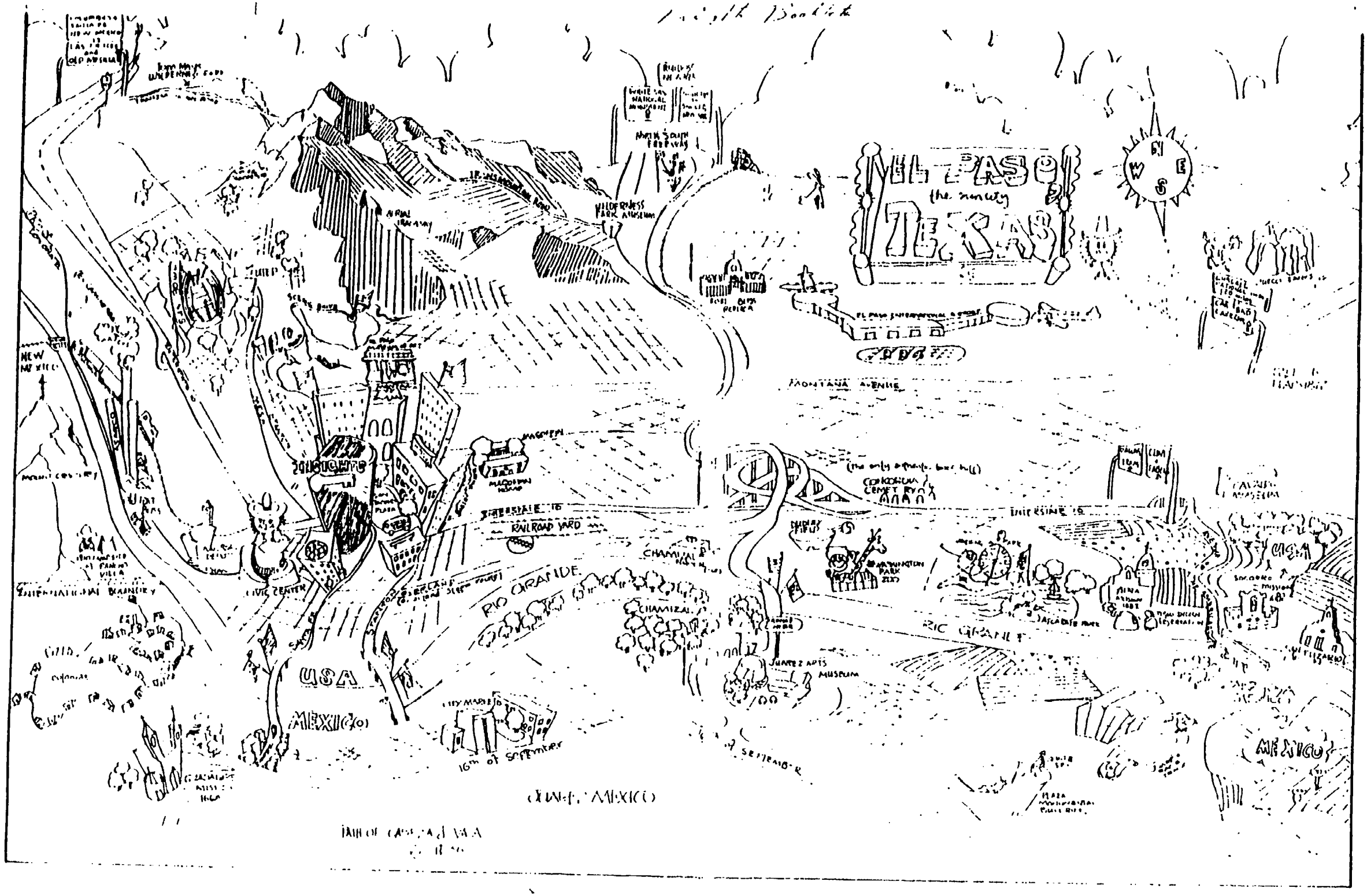
a. Boots
b. Electronics plants
c. Tourism
d. Pants
e. Ft. Bliss

III. Government

Ft. Bliss has 100,000 inhabitants including White Sands Missle Ranch, Biggs, and Holloman Base. It is the largest air defense center in the free world.

Ft. Bliss was established in 1848.

Ft. Bliss has had six sites.



C. Age Makeup

1. Use newspaper obituaries, births, marriages - plot information on maps, graphs, etc.

2. County Health Department - find out causes of death in El Paso.

3. Using phone book - find number of churches - religious percentages.

4. Discussion over the age breakup of El Paso - use last census.

5. Research life expectancy changes of man and the role science has played to change it.

6. Graphs to illustrate man's physical changes and how better nutritional habits have helped.

D. Business/Industry of Special Interest and Importance

1. What are the major industries in El Paso, their products, profits, etc?

2. Using phone book and/or newspapers, list the oldest, newest businesses in El Paso.

3. Guest speakers from ASARCO and other industry.

4. Discuss value of advertisement to industry business.

5. Using classified ads, newspapers - figure cost ot running ad - locate advertisement under subjects - etc.

6. Classified ads - project - find a job, find a place to live, figure budget, etc.

7. Discussion - how science has aided business and industry.

E. Post - Secondary Educational Opportunities

1. Professional - nonprofessional careers in science, etc. (Work with counselors.)

2. Guest speakers - notice provided later.

3. Graph -or numbers - post-graduation occupation.

4. Using phone book, find out about schools beyond secondary.

Strategies: Information Dissemination

PARENT PROGRAM

A parent program was held on Wednesday night to provide information about vocational education and high school graduation requirements.

Purpose: To provide information to middle school parents regarding various high school programs.

Sponsor: Vocational Equity Project

Time: One Hour

Place: Middle School

Audience: Parents

Methodology:

Invitations were mailed to the homes of all 300 students. The counselor designed the following agenda:

AGENDA - PARENT PROGRAM
PRESENTATION BY COUNSELOR'S

I. Information and introduction of program

II. Educational Plans

III. Sample of Graduation Plan

IV. Vocational Programs - Slide/Tape Presentation

V. Grading System

VI. Question/Answer

VII. Tips for Parents

Refreshments were provided as well as hand-out materials.

Comments: The program was presented in Spanish. Approximately twenty parents attended. Most parents stayed after the presentation and asked the vocational counselor many questions.

INVITATION TO PARENTS

What's Available for my Child in High School in the Ysleta I.S.D. in the Future

Wednesday, June 27, 1984

7:00 p.m.

Ysleta Junior High School

Topics include vocational ed., high school planning, new requirements for freshmen, much more.

Refreshments & Nursery provided

INVITATION
(Spanish Translation)

De que puede aprovechar mi hijo e hija en la escuela secundaria del distrito escolar de ysleta?

Miercoles 27 de junio del 1984

7:00 de la noche

Ysleta Junior High School

Temas

1) Educacion de vocaciones.

2) Nuevos requisitos para estudiantes del grado nueve.

Refrescos se serviran!

HIGH SCHOOL GRADUATION PLANS

GENERAL

Courses	Credits
English	4
Mathematics	3
U.S. History	1
World History/Geog	1
Economics	½
Government	½
Science	2
Physical Education	1½
Health Education	½
Speech	½
Electives	7½
	22

ADVANCED

Courses	Credits
English	4
Mathematics	3
U.S. History	1
World History/Geog	1
Economics	½
Government	½
Science	3
Physical Education	1½
Health Education	½
Other Languages	2
Computer Science	1
Fine Arts	1
Electives	3
	22

ADVANCED with HONORS
(must have a minimum of 6 honors courses)

Courses	Credits
English	4
Mathematics	3
U.S. History	1
World History/Geog	1
Economics	½
Government	½
Science	3
Physical Education	1½
Health Education	½
Other Languages	2
Computer Science	1
Fine Arts	1
Electives	3
	22

Sample Planning Sheet for Students Schedule

Grade 9	Grade 10	Grade 11	Grade 12
Semester 1	Semester 1	Semester 1	Semester 1
Semester 2	Semester 2	Semester 2	Semester 2

New Grading System

95-100	A
85-94	B
75-84	C
70-74	D
69-Below	F

Only numerical grades will be used

Other Topics of Concern

1. TABS
2. Diploma and transcripts
3. Attendance
4. Summer School
5. Evening School
6. Reading Program
7. Special Education
8. English for Speakers of Other Languages

Tips for Parents

1. Get to know your son's/daughter's counselor.
2. Be informed about the new graduation requirements.
3. Get directly involved with your son's/daughter's selection and planning of high school classes.
4. Read the student handbook issued to your son/daughter at registration.
5. Visit your son's/daughter's teacher whenever there is a concern.
6. Become aware of other school services (tutoring, evening classes, summer school, etc.)

Counselors

Care

July 2, 1984

Dear America

Thank you for being a vital part of our successful "Future Career Day. Your help was invaluable and deeply appreciated.

Sincerely

Doris, Susan, Bonnie, Tony
CARLOS

Classroom Materials utilized for "Futures Week"

I. Writing

1) Job Interviewing Skit
2) Vocational Student Handbook
3) Bright Idea - Day Dreams
4) Magazine Survey: Instructions and Data Sheet

II. Social Studies

1) B. I. G. Field Trip (Business, Industry and Government Tour of El Paso)
2) Population/Business and Industry/Education

III. Math

1) Who's Where in the Workface
2) Odds on You
3) Year 2,000

IV. Reading

1) How to Locate Job Openings
2) Your Interview
3) "A Guide to Today's Hottest Careers, Job Market"

V. Science

1) Guest Speaker - Family Planning Expert

VI. Other Resources

1) Film from Local Educational Service Center
2) Idea #23

VOCATIONAL STUDENT HANDBOOK

The Ysleta Equity Program, Division of Instruction, Ysleta Independent School District developed a vocational handbook for students. It was prepared under the Discretionary Funding of Vocational Program Improvement Activities of the Texas Education Agency.

Vocational Education Pays is a handbook of activities and information for use with 9th and 10th grade students. The activities are designed to enhance student's awareness of vocational education and career planning. It also encourages them to explore nontraditional career choices. The content includes information on vocational education, interests and abilities, inventories, and national and state employment opportunities.

To help students investigate their career choices, there is also a comprehensive career list grouped into the areas of mathematics, science, speech, arts and crafts, homemaking and foreign language.

District Vocational Counselors and five English teachers helped develop the book. Students did the art work and layout.

This handbook is designed to be used with vocational students as well as students in their regular academic classes. Recruitment efforts into vocational programs are facilitated by integrating this handbook into the regular curriculum.

Information regarding the handbook is available from:

Marilyn Money
Equity Specialist

Armenia Smith
Equity Specialist

Ysleta Equity Program
Ysleta Independent School District
8445 Valdespino
El Paso, Texas 79907-6099

"VOCATION EDUCATION PAYS"

Lesson Plan

Teachers should read the handbook and lesson plan carefully so that you will be familiar with the content as well as the activities in the handbook. Also, the teacher should be aware of the jobs that are pertinent to their particular vocational course (See handout -- Activity Five).

At the conclusion of this unit, encourage students to take their handbooks home and share them with their parents.

I. Activity One

A. Introduction

1. Complete a brainstorming activity (Brainstorming includes all responses from students. No evaluation of the correctness of a response should be done. Encourage "far-out" or unconventional responses). Have students brainstorm vocational education.

2. Provide the students the following definition of vocational education:

   Vocational education is a program of instruction designed to prepare individuals for paid or unpaid employment in a specific occupation.

B. Take a quick survey. The questions can be read orally to the class and as they answer, the teacher can write their responses on the board. Use the following questions.
   1. What electives are you taking?
   2. What extracurricular activities are you involved in?
   3. What is your favorite academic subject?
   4. What job would you like to have in the future?

II. Activity Two

A. Pass out a copy of the handbook to each student.

B. Give the names and locations of appropriate academic and vocational counselors and have them place the information on the bottom of page 24.

C. Preview the book by having the students first look at the front cover and back cover. Discuss with the students the following:
   1. What is the title of book?
   2. What message is the front cover conveying?
   3. What message is the back cover conveying?

D. Have the students look through the entire book and read major headings and pictures. Give the students several minutes to do this and then ask the following:
   1. What headings caught your attention? (List on Board) (The teacher should pay careful attention that all major headings are identified by the students)
   2. Give the students the following definitions.

   A nontraditional occupation for a man refers to an occupation in which the majority of the jobholders are women. Examples of men in nontraditional areas are male secretaries, nurses and elementary teachers.

   A nontraditional career for a woman is a career usually held by men such as doctor, drafter and astronaut. Look at pictures on page 8,10,12,15,16,19,20, and 22. Have the students list the pictures that are depicting nontraditional jobs. (Example on page 8 is the woman who is the welder. Example on page 10 is the man who is the make-up artist.)

III. Activity Three

A. Ask the students to turn to the cartoon on page 3. Have the students read it and answer the following questions:
   1. What is the artist's viewpoint?
   2. What does the cartoon mean to you?

B. Ask the students to read pages 2-5. Before reading these pages, place the following questions on the board, and tell the students to be prepared to answer them.
   1. What is vocational education?
   2. Why do you need to graduate from high school?
   3. Why should women prepare for work?
   4. Why combine vocational and academic programs?
   5. What is the difference between a job and a career?
   6. Why is it important to develop "career awareness" ?
   7. What are the 3 R's of yesterday?
      What are the 3 R's of today/tomorrow?
   8. Where will the jobs be in the future?

   After the students have completed this reading assignment, place the students in groups of 4 to 5 members. Give each group 5-10 minutes to share their answers. Have each group select a group reporter. Depending on the number of groups, assign each group one or two of the questions. Have the reporter of each group answer their assigned question.

C. Have the class or in small groups discuss the following statements: (If small groups are used, groups should report findings to class)
   1. The typical 25 year old woman will work for 34 years.
   2. Eighty eight percent of job openings in Texas are related to vocational education.
   3. People can expect to change careers 6 times in a lifetime.
   4. Besides the jobs that we know about now there will be three to four times as many new jobs that we do not yet know about.

IV. Activity Four

A. Have students read the bottom of page 5 to the class. Explain that on pages 6 and 7 the students will be identifying their personal interests and abilities.

B. Have the students place a check mark after each interest or ability. Have the students rank order the subjects in school they like by placing a "1" by the subject you like best, "2" by the next best, etc.

C. After the students have completed this activity, have them write one or two paragraphs about what things they enjoy and what things they do well.

V. Activity Five

A. Have students read the bottom of page 7.

B. Have the students look through pages 8-23.

C. Have each student turn to the page of the course they most enjoy. Ask them to read the paragraph after the subject heading. Do their interest and abilities correspond? If so, have them read the career list and place a check mark beside those careers they are most interested in.

D. Have a few students share their choices.

E. At this time, the teacher could highlight jobs for high school graduates using the attached lists.
F. Or have students complete one or more of the following activities:
   1. A visit from the vocational counselor to discuss specific careers
   2. Career films
   3. Guest speakers
   4. Handouts on specific careers
   5. Books - at their home school
   6. Library Activity - read about or research a specific career of their choice.

VI. Activity Six
   A. Have students turn to page 24 and complete the blanks. After the students have completed this activity, the students could share their responses in small groups. Each group should select a reporter who will report. The teacher should stress that individual names and responses should not be mentioned in this summary report.

VII. Activity Seven
   A. Have students turn to page 26 and check off the courses they have completed and are presently enrolled. Have students list what subjects they will need to take to graduate from high school.
   B. Have students complete the crossword puzzle on page 27.

VIII. Activity Eight
   A. Place the following incomplete statements on the board and have the students complete and turn in as an evaluation:
      1. The things that I liked best about this handbook were_____ _____ _____.
      2. The things that I learned about careers were_____ _____.
      3. I suggest that this handbook be _____ _____.
      4. Other Comments_____ _____.

Jobs for High School Graduates

The Bureau of Labor Statistics, U.S. Department of Labor, has developed five pamphlets that discuss job opportunities for a group of occupations for which a particular educational or training background is applicable. The titles in this series are —

Jobs for Which You Can Qualify If You're a High School Graduate

Jobs for Which You Can Train Through Apprenticeship

Jobs for Which You Can Qualify If You're Not A High School Graduate

Jobs for Which You Probably Will Need Some College or Specialized Training

Jobs for Which You Probably Will Need a College Education

These pamphlets give an excellent overview of job opportunities based on various levels of education and should be a good resource for high school counselors and teachers as they work with students.

The pamphlet on job opportunities for high school graduates was published in 1979 and contains a long list of occupations selected from the 1978-79 *Occupational Outlook Handbook*. Job availability will vary from community to community, but review of this pamphlet by students could assist them in realizing the many career opportunities that are available to them. Most of the jobs listed for high school graduates require nothing more than a high school diploma, but some of the jobs require skill training in high school such as drafting, typing, shorthand, auto mechanics, machine shop, vocational agriculture, or other vocational training. Some of the jobs do not necessarily require high school graduates, but high school graduates are preferred. In some cases an individual can train for a job by on-the-job training (OJT) or an apprenticeship program. Listed below is a sample of the many jobs for high school graduates that the Bureau of Labor Statistics has identified.

Occupations in Transportation Activities

Flight Attendants
Reservation, Ticket and Passenger Agents
Merchant Marine Sailors
Locomotive Engineers
Station Agents
Busdrivers
Truckdrivers

Mechanics and Repairers

Line Installers and Cable Splicers
Telephone and PBX Installers and Repairers
Appliance Repairers
Electric Sign Repairers
Farm Equipment Mechanics
Locksmiths
Shoe Repairers

Health Occupations

Dental Assistants
Medical Record Technicians and Clerks
Optometric Assistants
Physical Therapist Assistants

This list is just a small sample of the thousands of jobs that are available to high school graduates.

Industrial Production and Related Occupations

Machinists
Assemblers
Automobile Painters
Blue-Collar Worker Supervisors
Boilermaking Occupations
Forge Shop Occupations
Furniture Upholsterers
Photographic Laboratory Occupations
Production Painters
Wastewater Treatment Plant Operators

Office Occupations

Bookkeepers
Cashiers
Collection Workers
File Clerks
Postal Clerks
Receptionists
Secretaries and Stenographers
Computer Operating Personnel
Bank Clerks

Service Occupations

Building Custodians
Hotel Housekeepers and Assistants
Pest Controllers
Telephone Operators
Cooks and Chefs
Food Counter Workers
Waiters and Waitresses
Police Officers
Guards
Firemen
Construction Inspectors (government)

Education and Related Occupations

Teacher Aides
Library Assistants

Sales Occupations

Automobile Parts Counter Workers
Automobile Sales Workers
Models
Route Drivers
Travel Agents
Wholesale Trade Sales Workers
Retail Trade Sales Workers

Construction Occupations

Bricklayers
Carpenters
Construction Laborers
Drywall Installers and Finishers
Floor Covering Installers
Painters and Paperhangers
Plasters
Roofers

Jobs Requiring Specialized Training Beyond High School

Jobs requiring specialized or technical training currently offer the greatest opportunities for high school graduates. In fact, technicians are more in demand than college graduates. These jobs require training in an apprenticeship program, a vocational-technical program in a community/junior college, or a trade and technical school. Listed below are samples of jobs available to individuals who have some specialized training beyond high school. A college degree is usually not required for these jobs.

Industrial Production and Related Occupations

- Patternmakers
- Molders
- Instrument Makers (Mechanical)
- Tool-and-die Makers
- Lithographers
- Photoengravers
- Printing Press Operators
- Millwrights
- Motion Picture Projectionists
- Welders

Office Occupations

- Computer Personnel
- Office Machine Operators
- Executive Secretaries
- Claim Representatives
- Buyers

Service Occupations

- Meatcutters
- Barbers
- Cosmetologists
- Funeral Directors and Embalmers

Sales Occupations

- Real Estate Agents and Brokers
- Automobile Service Advisers
- Insurance Agents

Construction Occupations

- Cement Masons and Terrazzo Workers
- Electricians
- Elevator Constructors
- Glaziers
- Structural Ironworkers
- Operating Engineers (Construction Machinery Operators)
- Plumbers and Pipefitters
- Sheet-Metal Workers

Occupations in Transportation Activities

- Air Traffic Controllers
- Airplane Mechanics
- Airplane Pilots

Scientific and Technical Occupations

- Forestry Technicians
- Broadcast Technicians
- Drafters
- Engineering and Science Technicians
- Surveyors

Mechanics and Repairers

- Computer Service Technicians
- Instrument Repairers
- Television and Radio Service Technicians
- Air-Conditioning, Refrigeration and Heating Mechanics
- Automobile Body Repairers
- Automobile Mechanics
- Diesel Mechanics
- Jewelers
- Piano and Organ Tuners and Repairers

Health Occupations

- Dental Hygienists
- Dental Laboratory Technicians
- Electrocardiograph (EKG) Technicians
- Electroencephalographic (EEG) Technicians
- Emergency Medical Technicians (EMT's)
- Medical Laboratory Workers
- Radiologic (X-ray) Technologists
- Respiratory Therapy Workers
- Licensed Practical Nurses

The sources of the above list were the Bureau of Labor Statistics' pamphlets entitled *Jobs for Which You Can Qualify If You're A High School Graduate* and *Jobs for Which You Probably Will Need Some College or Specialized Training*. This list is just a sample of the great variety of jobs available to individuals who have some kind of specialized training. The jobs listed do not require a baccalaureate degree, but they do require specialized training. The salaries for individuals filling these positions are usually excellent. High school students need to be aware of the fine opportunities that will be available to them if they develop a specialized skill.

CROSSWORD PUZZLE

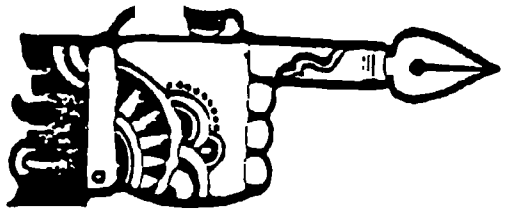
ANSWERS

Across

1. Vocational
11. Skills
18. Painter
21. Hair
22. Career
24. Abilities
27. Pays
28. Science
31. Reading
32. Math
35. Advancement
39. Welder
41. Chef
42. Goals
44. Government
46. Tools
47. Job
49. Drafter
50. Dentist
51. Hospital
52. Write

Down

1. Veterinarian
3. Carpenter
5. Typing
8. Newspaper
10. Librarian
11. Sales
13. Ideas
15. Lawyer
17. People
19. Teach
20. Works
23. Repairer
25. Interest
26. Teacher
29. Speech
30. Plumber
32. Mechanic
33. Hands
34. Knowledge
36. Accounting
37. Choices
38. Masonry
40. Unskilled
43. Auto
45. English
48. Plant



Bright Idea #38

Writing

TITLE: Day Dreams

CONTRIBUTED BY: Betty Norman (Our Lady of the Valley - Catholic Diocese of El Paso)

APPROPRIATE TO GRADES: 6-8

OBJECTIVE:

The student will write an informative composition about what his/her future job will be or future home will look like.

MATERIALS NEEDED:

newspapers, magazines, paper, scissors, tape or glue

APPROXIMATE TIME NEEDED:

1 - 2 class periods

PROCEDURE:

1. PREWRITING

   Tell students to pick one of the topics - future job, future home - and begin gathering pictures from newspapers and magazines to make a poster that represents aspects of their topic.

   In groups or in front of the whole class, have students discuss their posters. Allow the group or class to comment on the clarity of the information and suggest additions that would help make the composition clearer.

2. WRITING

   Have each student write up a description. Remind them their purpose is informative, not expressive, and that they will be evaluated by their peers on how clearly the reader can understand the information.

3. POSTWRITING/EVALUATION

   Place the students into small groups and have groups exchange papers to read and evaluate one another's descriptions. Have students use a 5 point scale (5-very clear to 1-very unclear) to give each composition a score. The whole group must agree on the score. If the score for a paper is 3 or below, the group must identify the places in the composition that were not clear and why they were not clear.

Source: Unknown

MAGAZINE SURVEY: INSTRUCTIONS AND DATA SHEET

name _____

Step I: Select your people. Choose twenty people from a variety of backgrounds to survey. Find people from different age groups and educational levels. Include people from varying income levels with a range of occupations from unskilled to professional. Talk to men and women. If possible, include city dwellers, suburbanites, and people from rural areas. These descriptive categories are more clearly defined for you in Step II. If you consider all of these factors, you will have a fairly good sample of the population. Of course it won't be possible to cover all of these categories with only twenty people, but keep the categories in mind when you make your selections.

Step II: Describe your people. Describe each person you interview by filling in the first six boxes of the data sheet. Use the terms listed below in deciding how to describe someone.

Age: 6-12, 13-16, 17-21, 22-35, 36-50, 51-60, 61-70, 71 and older

Sex: F (female), M (male)

Education: grade school, high school, two-year college or technical school, four-year college, graduate school

Occupation: unskilled, semi-skilled, skilled, technical, professional

Income: high, middle, low

Residence: urban, suburban, small town, rural

Step III: Collect the magazine data. Ask each person the following question, "What two magazines do you read most frequently?" Be sure the person understands that the magazines do not have to be ones that are subscribed to for home delivery. Record the names of those two magazines in the last box of the data sheet.

Step IV: Draw your conclusions.

1. Make a bar graph showing the magazines most frequently read by the people you surveyed. Each magazine mentioned will not be included in this presentation. Choose the top five or eight or ten, depending upon the results of your tally.

2. Write a paragraph in which you draw a conclusion about the relationship between age or income or job categories and the magazines people read. Residence, sex, and education are other possibilities. Here's an example to get you started.

Most people in the middle and high income levels indicated that they read magazines related to their jobs. The magazines listed by these people were often professional journals or trade publications. For example, an English teacher listed *The English Journal*, an electronics engineer indicated she read *Solid State Technology*, and a graphic designer said he read *Communications Arts*. Eight of the twelve interviewed in the middle and high income groups named at least one professional or trade publication. People in the lower income level did not read as many job-related magazines. Only one of the eight low-income interviewees named a professional or trade publication. Therefore, it appears people with high and middle incomes are more likely to read publications related to their work than are people with low incomes.

Step V: Put it all together. Turn in the completed data sheet, the bar graph, and the paragraph of conclusion in a file folder or between covers of your own design.

Number	Age	Sex	Education	Occupation	Income	Residence	Magazine Choices
example	22-35	F	two-year college	technical dental-hygienist	middle	urban	*Time, Ebony*
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Magazine Survey: Instructions and Data Sheet

Taken from Summer Pilot Program, Curriculum Guide

III. Population/Business and Industry/Education

A. Population density

1. In El Paso in Pictures are pictures showing growth of El Paso - various exercises can be done with these.

2. Find out when your parents, grardparents, etc., lived and how large city was at that time.

3. Why did city expand into some areas and not others?

4. Find out what causes slum areas?

5. Conduct a survey of individual classes to determine average family size.

6. Discuss over-population vs population growth.

7. Graph population at different time periods.

B. Ethnic makeup

1. Take a poll of neighborhood and how ethnic makeup, age, number of people in family - graph.

2. Using phone book, find out ethnic makeup of business ownership.

3. Get a guest speaker from UTEP sociology department.

4. Trace the movement of your family as far back as you can go and illustrate with maps, charts, family tree, etc. A written narrative could be included.

5. Classify people into groups on a world scale and illustrate traits of races according to latitudes.

6. Genetic traits of groups to individuals.

7. Classify animals into groups by traits.

8. Written - or discussion - discuss rights and responsibilities of young adults between 2 groups of people, each speaking different languages.

9. Compile a booklet of folk tales from different languages. Can be in original language - can be illustrated.

10. Trace and graph the growth of business in El Paso.

11. Circular graph - showing population by ethnicity.

C. Age Makeup

1. Use newspaper obituaries, births, marriages - plot information on maps, graphs, etc.

2. County Health Department - find out causes of death in El Paso.

3. Using phone book - find number of churches - religious percentages.

4. Discussion over the age breakup of El Paso - use last census.

5. Research life expectancy changes of man and the role science has played to change it.

6. Graphs to illustrate man's physical changes and how better nutritional habits have helped.

D. Business/Industry of Special Interest and Importance

1. What are the major industries in El Paso, their products, profits, etc?

2. Using phone book and/or newspapers, list the oldest, newest businesses in El Paso.

3. Guest speakers from ASARCO and other industry.

4. Discuss value of advertisement to industry business.

5. Using classified ads, newspapers - figure cost of running ad - locate advertisement under subjects - etc.

6. Classified ads - project - find a job, find a place to live, figure budget, etc.

7. Discussion - how science has aided business and industry.

E. Post - Secondary Educational Opportunities

1. Professional - nonprofessional careers in science, etc. (Work with counselors.)

2. Guest speakers - notice provided later.

3. Graph for numbers - post-graduation occupation.

4. Using phone book, find out about schools beyond secondary.

F. Military

1. Recruiters to talk about educational opportunities in military.

2. Using maps, phone books, etc., find out size, population, etc. of Ft. Bliss.

3. Map of the Fort Bliss area and draw in points of interest.

*Refer to Teacher Directed Activites for Reading from computer lab for writing activities on cause/effect, logical order, compare/contrast, sequence of events, etc., on above activites.

*There is a set of cassettes and ditto masters available from Lind Morgan. They are consumer math - can be used for math, social studies, English. Also, it correlates with the Math Tabs. Has discussion questions.

1. Shopping
2. Paycheck
3. Budget
4. Savings
5. Checkbook
6. "Easy" Credit
7. Borrowing
8. Tax
9. Driving
10. Car Buying
11. Insurance
12. Housing

Also, word problems available for each of above topics.

HOW TO LOCATE JOB OPENINGS

SUGGESTIONS FROM FRIENDS AND RELATIVES

+ Let friends and relatives know you're looking for a job
+ Employees usually know about openings before outsiders do
+ More than one-half of the jobs are found this way

PERSONAL APPLICATIONS

+ Work hard - make as many calls as possible - choose your prospects carefully. You may request an interview even if you are unsure if there is an opening.
+ Sell yourself
+ Second best method of finding a job

CONTACTS WITH FORMER EMPLOYERS

+ Ask for advice and suggestions
+ Contact former teachers
+ Keep your contacts open with all former employers

EMPLOYMENT AGENCIES

+ Local employment office of your state employment service (Texas Employment Commission)
+ Private employment offices charge a fee - be sure of reliability
+ Check guidance counselor in your school

NEWSPAPERS

+ Read "Help Wanted" ads
+ Place a "Situation Wanted" ad yourself
+ Don't delay in answering "Help Wanted" ads

UNION HIRING HALLS

+ Contact the business agent or union representative
+ Procedures differ from industry to industry
+ Obtain information concerning - apprenticeships, probationary requirements, methods of hiring, and job opportunities

GOVERNMENT PERSONNEL OFFICES

+ Civil Service examination posted in Post Office or Newspaper
+ City and State government maintain personnel offices
+ Information at City Hall or County Seat

YOUR INTERVIEW

PERSONAL CLEANLINESS

1. Be sure your body is clean .
2. Clean and manicure your fingernails.
3. Comb your hair--it must be clean and well trimmed--no extremes.
4. Brush your teeth.

PERSONAL APPEARANCE

1. Shine your shoes.
2. Wear conservative business-like clothes.
3. Avoid loud colors and high school fads.
4. Girls--tailored dress, hose, suitable shoes. Avoid too much make-up or costume jewelry.
5. Boys--conservative trousers, shoes and shirt (coat and tie if job requires it.)

APPLICATION BLANK

1. Read carefully the entire blank before starting to write.
2. Write or print neatly in ink.
3. Spell words correctly.
4. Fill out all blanks, including date. If question does not apply, write "no" or "none".
5. Write and take with you:
   a. Social Security Number
   b. Names, addresses, and telephone numbers of three references
6. Answer all questions accurately, honestly, frankly, and promptly.
7. Don't cross out mistakes or erase--rewrite application.
8. Give a continuous record of all your jobs:
   a. Dates of employment
   b. Nature of your work
   c. Wages received
   d. Reason you left

INTERVIEW

1. Greet personnel director by name. Do not take anyone with you. The employer wants to talk only to you.

2. Introduce yourself--"I am John Smith from_____High School." Present referral slip or card given to you by the coordinator

3. Be able to state why you seek employment in this occupation and with this company.

4. Remain standing until requested to be seated.

5. Sit erect--do not sprawl.

6. Be pleasant, polite, courteous; smile and look at the person to whom you're speaking.

7. Do not smoke or chew gum, even though offered either one. Decline politely and thank person.

8. Speak distinctly and correctly--don't mumble. Speak with confidence and enthusiasm.

9. Be "at ease"--avoid mannerisms such as snapping handbag, tapping pencil, popping knuckles, twisting hair, giggling, or covering face with hands.

10. Never talk about your personal, family, or financial troubles. Do not criticize former employers or associates.

11. If hired, ask a few questions-day and hour you are to report for work, and what you should wear on the job.

12. Leave when employer seems satisfied with the information given him.

13. Thank him for the interview--"Thank you for the interview, Mr. Brown; I appreciate your consideration."

Do not be discouraged during your first interview. Most employers understand teenagers and make some allowances. Study your presentation after each interview and try to improve. Call your distributive education coordinator after each interview and report your progress.

GOOD LUCK

Questions frequently asked during the Employment Interview

1. What are your future vocational plans?

2. In what school activities have you participated? Why? Which did you enjoy the most?

3. How do you spend your spare time? What are your hobbies?

4. In what type of position are you most interested?

5. Why do you think you might like to work for our Company?

6. What jobs have you held? How were they obtained and why did you leave?

7. What courses did you like best? Least? Why?

8. Why did you choose your particular field of work?

9. What do you know about our company?

10. Do you feel that you have received a good general training?

11. What qualifications do you have that make you feel that you will be successful in your field?

12. What extracurricular offices have you held?

13. What are your ideas on salary?

14. Is it an effort for you to be tolerant of persons with a background and interests different from your own?

15. How did you rank in your graduating class in high school?

16. What do you think determine a man's progress in a good company?

17. What personal characteristics are necessary for success in your chosen field?

18. Why do you think you would like this particular type of job?

19. Are you looking for a permanent or temporary job?

20. Do you prefer working with others or by yourself?

21. What kind of boss do you prefer?

22. Are you primarily interested in making money or do you feel that service to your fellow men is a satisfactory accomplishment?

23. Can you take instructions without feeling upset?

24. Do you live with your parents? Which of your parents has had the most profound influence on you?

25. How did previous employers treat you?

26. What have you learned from some of the jobs you have held?

27. Can you get recommendations from previous employers?

28. What interests you about our product or service?

29. Do you feel you have done the best scholastic work of which you are capable?

30. What do you know about opportunities in the field in which you are trained?

31. How long do you expect to work?

32. Have you ever had any difficulty getting along with fellow students and faculty?

33. Have you saved any money?

34. Do you have any debts?

35. Do you like routine work?

36. Do you like regular hours?

37. What is your major weakness?

38. Do you have an analytical mind?

39. What do you do to keep in good physical condition?

40. Have you had any serious illness or injury?

41. What types of books have you read?

42. Have you plans for graduate work?

43. What types of people seem to "rub you the wrong way"?

44. What jobs have you enjoyed the most? The least? Why?

45. What are your special abilities?

46. What job in our Company do you want to work toward?

47. Do you like to travel?

48. How about overtime work?

49. What kind of work interests you?

50. What are the disadvantages of your chosen field?

A Guide to Today's Hottest Careers

JOB MARKET

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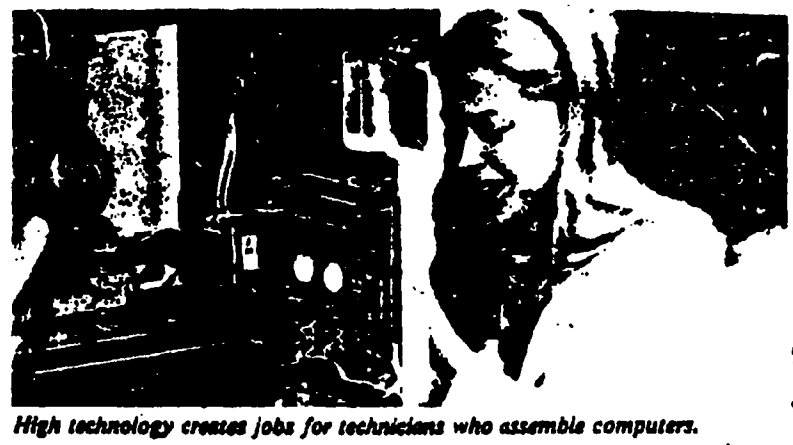
A Guide To Understanding Today's Job Market

This newspaper is for everyone who is interested in examining a variety of career options. It provides the facts about more than 100 occupations, ranging from highly technical to entry-level. It investigates emerging specialties, such as genetic engineering or biomedical instrumentation, and the more traditional occupations, such as electrician, nursing or sales jobs.

Job Market is full of facts about trends, including the fields where there will be the most opportunities, the areas of the country where job hunting is best and the number of positions likely to be available in the occupations cited. Many occupations included here were selected because they are growing faster than the average. Others are featured because they have continued over time to be stable sources of jobs.

Articles deal with broad occupational areas, with detailed descriptions of specific jobs within the category provided at the end of each article. These descriptions include information about the kind of skills you will need to succeed and the kind of education required for the position.

Job Market also includes tips on selecting a career. The focus of this paper is on jobs requiring vocational education. Preparation for most of the positions cited here is available in your community through public and private vocational educational programs. Information about programs in your area is provided below. You may want to investigate what options these programs can offer.



Control Data

High technology creates jobs for technicians who assemble computers.

The media tell us that robots and computers are taking over more and more jobs and that anyone who doesn't land a "high-tech" position will be standing in the unemployment line. Hearing such stories, young people still in school may think a good job will be beyond reach by the time they complete their educations. Those already working have an even worse fear—that the jobs they currently hold will disappear.

Knowledge is the best cure for such fears. It is true that technology is changing the workplace and worker requirements. According to the Bureau of Labor Statistics, the average worker will switch occupations seven times, and some of these changes will not be voluntary. But to the person willing to give careful thought to picking a career and obtaining the best training, new and challenging job opportunities will be available.

What does *high technology* mean, anyway? A frequently used synonym is "the electronics revolution," which dates back 23 years to the invention of a silicon chip about the size of a fingernail. This chip, or crystal, in the form of a microprocessor, made possible a computer that fits into a pocket rather than filling a room. The result was a vastly increased potential to process, store and communicate information at a moderate

High Technology Jobs (continued on page 3)

The office of today differs greatly from that of fifty years ago, and the main reason is the growth of computer technology. In 1970, there were 100,000 computer systems in use. Today there are 600,000. In keeping with that figure, the number of people employed in computer-related occupations is expanding at a phenomenal rate, and is expected to almost double by the year 1990.

Clerical occupations remain the single largest occupational group in the United States, comprising 18.9 million workers. The occupation is expected to grow by at least 19 percent within the decade. Rather than displacing these workers, the new technology has increased the need for them. Many business organizations use clerical workers to organize and retrieve the vast amount of information needed to conduct business. Newer office occupations are directly related to the computer. By 1985, the U.S. Department of Defense estimates that 80,000 computer positions will be needed. This figure does not include replacements or vacancies.

Because office jobs constantly change, perhaps the most important attitude the office worker of today can have is the willingness to learn new skills. Workers willing to make the effort to learn to use new equipment, such as word processors, are likely to find themselves promoted to more challenging positions with better pay.

Some of the new or high-demand careers in the business field include:

Accountant: Determines by examining financial records whether a business is operating profitably. Jobs: 900,000 (1980). Employment prospects good as managers increasingly use accounting information to make business decisions. Training: two-year program at community college or business school. Typical starting salary: $15,000/yr. Requires aptitude in math, as must analyze financial data using calculators and computers. Contact: National Association of Accountants, 919 Third Ave., New York, N.Y. 10022.

Computer Programmer: Writes instructions (programs) in computer language, draws diagram (flowchart) of instructions given to computer, checks program for errors (debugs) by running sample data through on computer, rewrites program if necessary. Works with either business staff or scientists to determine what problems computer must solve. Employed by data processing service organizations, manufacturing firms, schools, government agencies. Jobs: 230,000 (1980). Employment prospects excellent, with 9,700 new openings expected every year through 1985. Training: Data processing programs oriented toward business in two-year colleges and technical schools or computer science programs oriented toward science and engineering in four-year colleges. Certification by Institute for Certification of Computer Professionals not required, but indicates competence. Starting salaries: $16,000-$20,000/yr. Can advance to systems analyst with college degree plus experience. Contact: American

Business and Office Occupations (continued on page 3)

Economic and technological change do not threaten the jobs of mechanics and repairers to the same degree as other manual workers. Whether old or new, machines always need preventive maintenance and occasional repairs.

Mechanics and repairers work on industrial machines that create products, motor vehicles used to transport goods and people, telephones and other communications equipment, appliances, office machinery and computers. Their employers are mostly manufacturing firms, the retail stores that sell the products to be serviced, and independent repair shops. In addition, some work for government agencies or for transportation, construction and public utility companies.

In the future, mechanics and repairers will be in particular demand for the care of appliances, automobiles, computers and complex industrial machines. Those who are knowledgeable about electronics should do especially well. In fact, computer service technicians are the most sought after of workers in the computer-related occupations, and their high wages reflect this situation.

To gain knowledge of machine operations and practice in repair work, mechanics and repairers often begin by attending secondary or postsecondary courses in shop math, blueprint reading, drafting, woodworking, metal working and electronics. Then they enter specialized programs such as those in television and radio or appliance repair.

Some of the new or high-demand occupations for mechanics or repair personnel include:

Automobile Mechanic: Diagnoses mechanical or electrical problems in automobiles; repairs by making adjustments or replacing parts. Potential for specialization (e.g., in automatic transmission mechanics, which requires sophisticated knowledge of hydraulics). Automobile dealers and repair shops employ most mechanics. Some work for government, auto manufacturers, taxicab and auto leasing companies. Jobs: 845,000 (1980). Most learn on the job from experienced mechanics. Apprenticeship program and vocational program in auto repair coupled with work experience are other possibilities. Average wage: $9.78/hr. (1980—journey mechanic); $7.16/hr. (skilled service mechanic). Can advance to shop supervisor, service manager or automotive repair service estimator. Contact: Automotive Services Industry Association, 444 N. Michigan Ave., Chicago, Ill. 60611.

Computer and Business Equipment Manufacturers Association

Technicians need up-to-date training to repair computer systems.

Computer Service Technician: Installs, maintains and repairs computers. Makes routine adjustments, orders needed parts, keeps records of service. Employed by computer manufacturers, maintenance companies, government agencies. Jobs: 83,000 (1980). Fastest growing of computer occupations, with 5,400 jobs per year expected through 1980s. Employment will increase 93 percent by 1990. Training: One to two-year program in basic electronics or electrical engineering at technical institute or junior college. Also on-the-job training given by employers. Typical salary: $12,000/yr. (starting); $17,000-$23,000/yr. (experienced). Can advance to "troubleshooter" who helps technicians diagnose problems; supervision, equipment sales and programming are other possibilities. Because equipment varies radically, may be difficult to switch from one manufacturer to another. Contact: Computer and Business Equipment Manufacturers Association, 1828 L St., N.W., Washington, D.C. 20036.

Electronics Technician (Television and Radio Service Technician): Using test equipment, diagnoses malfunctions in televisions, radios, stereos, tape recorders, video games and disk players, home security systems, closed-circuit TVs, electronic organs. Adjusts or replaces defective parts. Jobs: 83,000 (1980). Employment projected to rise faster than average. Training: Vocational preparation in electronics or (occasionally) apprenticeship program. Earnings: $230-$400/wk., depending on experience. Licensing required in some states. Contact: National Association of Television and Electronic Servicers of America, 5930 S. Pulaski St., Chicago, Ill. 60629.

Health paraprofessionals are in demand more today than ever before. By 1987 the country will need 54,750 new technicians, a figure that does not include replacements required for workers who will leave the field. Already medical laboratory technicians, radiographic technicians and respiratory therapist are in very short supply and, according to one estimate, by 1990, 1.3 million paramedics will be needed. The annual salary of experienced workers will reach $29,000.

What lies behind the increasing need for health care workers? It's a combination of factors: people today are more aware of the importance of preventive health care, the general population is growing, the proportion of elderly people is increasing and more of them are having surgery, and the widespread availability of medical insurance has made costs more affordable.

Not only is the need for paraprofessionals increasing, but often they are allowed to assume a larger role in health care. For example, many states now have laws that enable paramedics to give medical treatment formerly provided only by doctors.

In addition, new health care occupations are developing as a result of changing technology. For example, nuclear medicine technicians use radioactive material to help radiologists diagnose and treat disease. Health physics technicians measure the amount of radiation present in nuclear power plants to determine whether workers can safely work there.

Students wishing to enter a health profession should try an introductory health course at a high school or vocational institution. Biology, chemistry, psychology and business (for record keeping) courses are also useful. Two-year colleges or technical institutes usually offer programs that combine classroom training with experience in a hospital or laboratory. New or high-demand careers in the health field include:

Biomedical Instrumentation Technician: Builds, tests, maintains and repairs electronic equipment used to diagnose or treat illness (e.g., dialysis equipment for kidney disorders). Employed by hospitals or industry. Occupation growing rapidly with good employment prospects. Training: One to three year program offered by community colleges. Certification by Association for the Advancement of Medical Instrumentation. With further education, can become biomedical engineer who designs equipment. Contact: Instrument Society of America, 67 Alexander Drive, P.O. Box 12277, Research Triangle Park, N.C. 27709.

Emergency Medical Technician: Drives ambulance to answer emergency medical calls, stays in contact with hospital by radio, gives emergency medical care (restores breathing, treats shock, stops bleeding, applies splints to fractures), keeps ambulance in working order. Employed by hospitals, independent ambulance services, fire and police departments. Jobs: 12,000 (1980). Employment opportunities increasing as fewer volunteers used but much job competition at police and fire departments. Training: 100-hour course designed by U.S. Department of Transportation at hospitals, police and fire departments, medical schools and colleges. Typical salary range: $8,000-$13,000/yr. May be assigned to work evenings, weekends, holidays. With several months' additional training, can become paramedic. Contact: National Association of Emergency Medical Technicians, P.O. Box 334, Newton Highlands, Mass. 02161.

Licensed Practical Nurse: Takes blood pressure, pulse and temperature; feeds and bathes patient; assists doctor with examination. Employed by hospitals, nursing homes, doctor's offices. Jobs: 550,000 (1980). Demand currently exceeds supply, with best opportunities in large cities and rural communities. Training: Nine to twelve-month, state-accredited program offered by hospitals, area vocational-technical schools and community colleges. Typical salary: $12,500/yr. Contact: National League for Nursing, Career Information Services, 10 Columbus Circle, New York, N.Y. 10009.

Medical Laboratory Technician: Sterilizes equipment, prepares slides, conducts laboratory tests (such as blood tests), analyzes results. Works for medical technologists at hospitals, industrial laboratories and public health agencies. Good employment prospects as doctors depend increasingly on lab tests for diagnosis. Demand currently exceeds supply. Training: Two-year program accredited by American Medical Association at junior and community colleges and hospitals. Average salary: $12,200 yr. (starting); $16,000/yr. (experienced). With bachelor's degree, can become medical technologist.

Radiologic Technician: Takes and develops X-rays, positions patient, cares for equipment. Specialties: Radiation therapy technician treats cancer patients with radiation-producing machinery; nuclear medicine technician treats with radioactive materials. Jobs: 106,000 (1980). Employed by hospitals, clinics, dental offices. Training: 24 to 30-month program accredited by American Medical Association at community colleges and hospitals. Most technicians registered with American Registry of Radiologic Technicians. Average salary: $13,600/yr. (starting); $17,400/yr. (experienced). Contact: American Society of Radiologic Technologists, 55 E. Jackson Blvd., Chicago, Ill. 60604.

Respiratory Therapist: Helps patients breathe by giving oxygen, using respirators and humidifiers, teaching exercises that aid breathing. Treats patients who suffer from asthma or heart trouble, need emergency treatment (drug poisoning or drowning victims), or have just had surgery. Jobs: 50,000 (1980). Excellent outlook for employment, with 5,000 jobs expected every year through this decade. Training: Two-year program at community colleges and specialized schools or equivalent hospital program. Program must be approved by American Registry of Inhalation Therapists. Salaries range from $13,600-$22,000 yr. Contact: American Association for Respiratory Therapy, 1720 Regal Row, Suite 112, Dallas, Tex. 75235.

Here are a few tips on finding the kind and quality of training you need:

1. Talk first with a school counselor, state employment office worker, older friend or family member. What kind of training do you need for the occupation you want to enter? Where is the best place to get it?

2. Interview employers in the field to find out what kind of training they require for a potential employee. Is a combination of classroom instruction and lab work adequate, or will on-the-job training be necessary as well? What about the length of training and the specific curriculum? Would they consider hiring you as a trainee without previous preparation or as a part-time employee while attending school? This is also the time to ask about the job prospects in your chosen career.

3. Consider the various kinds of institutions offering vocational programs. These include the military services, community colleges, skills centers, vocational-technical institutes, comprehensive high schools and private vocational schools (apprenticeship programs may be another option in some occupations). Find out which institutions in your locality offer an appropriate program. Then study their catalogs to find out more. You may be able to eliminate several on the basis of cost, duration or nature of the program. Make sure each institution or program is accredited.

4. Once you have narrowed the choices, watch the programs in action. A day or two as a visitor will be illuminating, even if a program is in the school you are already attending. Are the teachers well prepared? What is the class size—do the students receive individual attention? Inspect the equipment. Is it adequate? Are there enough supplies and equipment for all the students?

5. Study the curriculum carefully. Which skills are taught? Are they too general to be readily transferable to the application in a variety of work settings? How much time is allowed for the mastery of each particular set of skills?

6. Ask the guidance counselors, teachers and administrators in the institution you are considering what they can do to help you find a job once the training is complete. What is the program's track record in placing students in cooperative education part-time and permanent jobs? Talk also to several program graduates. Were their expectations for the program fulfilled?

7. Compare costs, adding in not only tuition, but costs of books, lab fees and supplies. A public school or community college may be free or offer low tuition. On the other hand, a private school may be worth the extra cost if its faculty and equipment are superior to others. Decide how to finance the training—scholarship, loans, part-time work.

8. Look carefully at the enrollment agreement before you sign. What are the provisions for refunds if you drop out at the beginning or part way through the program? (Private schools are legally required to give a full refund if you cancel the contract up to 14 days after signing.)

Laser electro-optic technicians must safely handle hazardous equipment.

Albuquerque Technical Vocational Institute

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cost. Since then, new products have flooded the market: pocket calculators, talking toys, programmable washing machines, home computers, videodisk equipment and a host of other intriguing items.

But microprocessors have also led to "jobless growth," with robots taking over more industry jobs and computers taking over more office jobs. Already employment patterns have changed in enterprises as diverse as banks, the auto industry and printing plants. Robots started out doing the most routine, dirty, dangerous work (such as welding auto parts), so they displaced only workers with low-level skills. But now, with the development of high-tech robots, even highly trained people could be phased out.

Before you begin to worry about losing your job to a "steelcollar worker," however, let's consider some of the jobs being *created* through the electronics revolution.

One new occupation is that of robot technician, the person trained to program, maintain and repair industrial robots. Other workers will become holographic specialists, servicing optical computers that compare data received from the factory floor to three-dimensional data stored in other computers. Fiber optics workers know how to test and produce fine strands of glass, used for everything from telecommunications to examining patients internally without surgery.

Someone must make the robots and computers, of course, and that task falls to bionic-electronic technicians. Other manufacturing plants, staffed by electronics workers, turn out silicon crystals, semiconductors, software, printout machines and computerized energy management systems to control heat and light in buildings. The telecommunications business will boom, with a great demand for the manufacture of Earth stations to pick up TV programs, electronic mail and other communications conveyed by satellite.

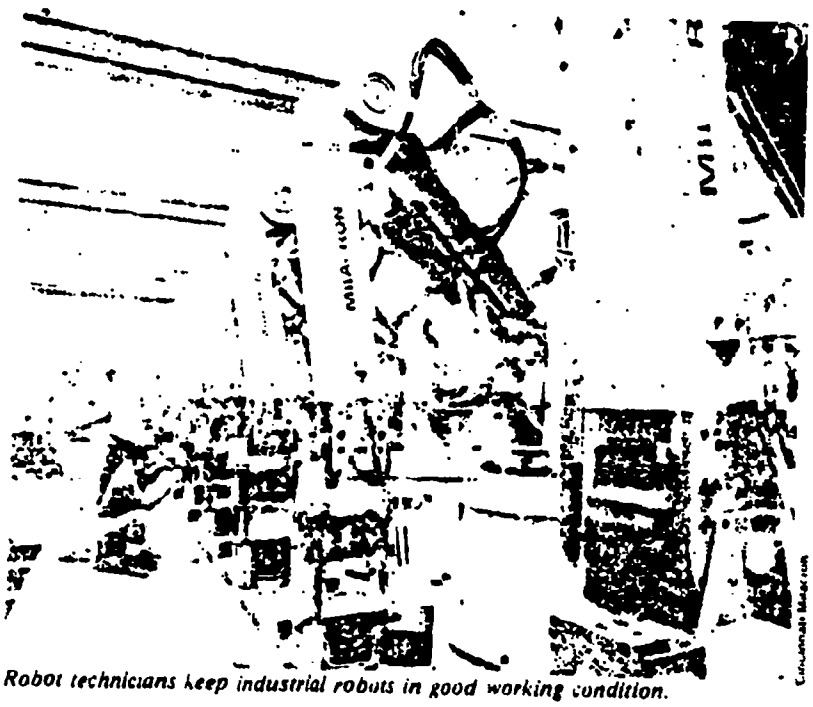
Still in its infancy, biotechnology may affect our world as much as the changes in electronics technology. Genetic engineering seems almost like magic, for it can convert waste to fuels, sugar to plastics and cheese to sweeteners. Scientists are working on the laboratory synthesis of new antibiotics that fight diseases without dangerous side effects, anticoagulants, insulin and other pharmaceuticals. In agriculture, genetically altered grains could absorb nitrogen directly from the air, eliminating the need for fertilizers.

Genetic engineering technicians, a new occupational category, will test and produce these substances, often under conditions more similar to a laboratory than to a factory. Other opportunities will exist for sales representatives to market the new products.

The new hi-tech jobs usually require special training, but in many cases people may be able to obtain "add-on" training to supplement the knowledge they already have. The reason is that many of the jobs are actually subspecialties of established occupations. For example, a laser/electro-optics technician is simply an electronics technician who specializes in a particular kind of equipment.

Hi-tech careers are not for everyone. Most of the jobs will continue to be concentrated in Boston, Columbia (South Carolina), California's Silicon Valley and a few other sites. And it is important to look carefully at long-term employment prospects, for the glamorous career of today could become a dead end several years down the line.

But for those who want to be on the cutting edge of business or industry, one of these hi-tech jobs may be just the kind of stimulating career they are seeking. More detailed information on many specific hi-tech jobs appears throughout this newspaper.



Robot technicians keep industrial robots in good working condition.

Cincinnati Milacron

continued from page 1.

Federation of Information Processing Societies, 1815 N. Lynn St., Arlington, Va. 22209

Computer Console Operator: Following programmer's instructions, loads computer with cards, magnetic tapes or disks, watches console for error lights, solves problem if computer stops, retrieves results of program. Employed mostly by manufacturers and data processing service firms. Jobs: 558,000 -1980—figure includes keypunch operators). Employment prospects excellent, with 8,500 new openings annually through 1985. Will increase 67 percent by 1990. Training: One to two-year program at community college, technical institute or business school. Usually trained on job as well. Some courses available at vocational high schools. Typical salaries range from $12,000 to $16,000/yr. Works at one machine for long hours and work can be monotonous. Contact: American Federation of Information Processing Societies, 1815 N. Lynn St., Arlington, Va. 22209

Secretary: Types, takes shorthand, files, greets visitors, writes letters, screens mail, schedules appointments, arranges business trips for boss. Jobs: 2.5 million (1980). Field growing faster than average, with skilled secretaries in great demand. Good opportunity for temporary and part-time work. Training: One- or two-year program in business school or community college. Adult education courses at night common. Average salary: $12,947/yr. (1981). Highest salaries in northern and western urban areas. Excellent opportunity for advancement to administrative assistant or executive secretary. With further education, can specialize as legal secretary or medical secretary. Age not barrier to entering field, so good opportunity for women reentering workforce after raising children. Good grammar and spelling essential. Need courteous personality. Contact: Professional Secretaries International, 2440 Pershing Rd., Suite G10, Kansas City, Mo. 64108.

Word Processor Operator: Keyboards (types) information while watching copy emerge on screen (video display terminal). Determines format, updates stored material, proofreads, types corrections or changes, operates printer. Employed by publishing companies, newspapers, airlines, banks, public utilities, government agencies. One of fastest growing computer-related fields. By 1985, estimated need for 2.5 million operators. Good opportunities for temporary work. Training: Most trained on the job. Two-year programs at community colleges and business schools. Some courses at high schools, but may [illegible] Contact: International Information/Word Processing Association, 1015 North York Rd., Willow Grove, Pa. 19090.

A career in construction not only gives the satisfaction of building something, but of being part of the largest group of skilled workers in the country. Workers in the construction trades build, repair and modernize buildings of all kinds. After bricklayers, carpenters and cement masons erect the framework of a building, floor covering installers, paperhangers, glaziers and others do the finish work. Another group of specialists that includes electricians and pipefitters installs the plumbing and electricity.

Most construction workers are employed by small contractors, but a few do maintenance and repair work for mining and manufacturing companies. Others maintain highways, buildings and sanitary systems for the government.

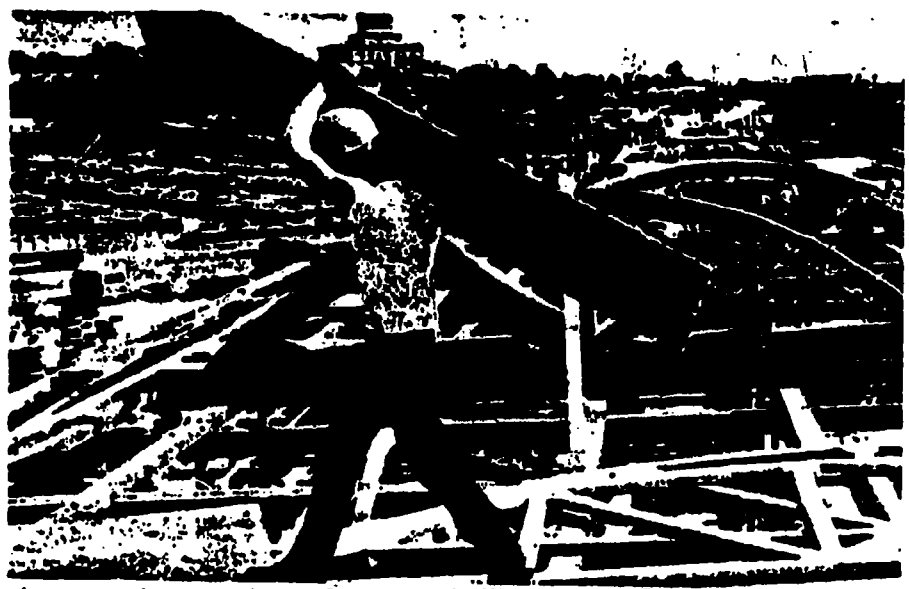
A person who likes to work outside, has good manual dexterity and possesses the ability to solve mechanical and structural problems should give strong consideration to a construction career. Precision and skill in working from a blueprint are also important.

In the future, more construction workers will be building and renovating mass transit systems and power plants and working on new construction projects in the Sunbelt. If the high cost of housing continues to encourage renovation of existing housing, many workers may become "housing rehabilitation technicians," a new job category.

The long-term prospects for employment in construction are not promising, however. Jobs are not expected to increase substantially and could even decline. The growing use of prefabricated units such as walls and partitions is contributing to slackened demand for highly skilled workers.

Apprenticeship training is the traditional route to mastery of construction skills, though many workers learn informally by starting out as helpers. In many communities, competition for existing apprenticeship slots is fierce, and those who have completed preapprenticeship courses in a vocational school or technical institute may have an edge over other applicants.

An electrician wires a security panel, a task requiring much manual dexterity.



A mass transit construction worker extends the Washington, D.C. subway line to the suburbs.

Bricklayer: Build walls, fireplaces and other structures with brick or other masonry materials. Jobs: 163,000 (1980—figure includes stonemasons). Employment expected to grow faster than average as result of greater use of brick for decorative work and load-bearing walls. Training: Informal on-the-job training is norm; some complete apprenticeships. Average union wage: $12.64/hr. Related occupations with comparable employment prospects are cement

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People who work in social service occupations have one thing in common—they like to help other people. Some social service workers have a bachelor's or even a master's degree. But it's no longer necessary to attend college for four years to work in this field. Many community and junior colleges now offer two-year programs to train students for such occupations as teacher aide, social work technician, psychiatric technician, library technician and urban planning assistant. By offering assistance, these technicians enable professionals to concentrate more fully on their work.

The best opportunities are in those jobs that match the changing needs of today's population. For example, because people are living longer, geriatric social workers and their assistants will be in increasing demand. Many work in nursing homes, helping elderly people adjust to spending the rest of their lives in an institution. One recent forecast predicted a need for one million geriatric social technicians by the year 1990, with a starting salary of $16,000.

Another occupation with a current need for workers is that of teacher aide for special populations, such as the physically or mentally handicapped.

Opportunities for recreation workers will become more plentiful. People today have more leisure time than their parents or grandparents had. In the future, the average working day may be shortened, creating even more leisure time.

Some of the new or high-demand occupations in the social services field include:

Library Technician: Works for librarians at public libraries, school libraries or special libraries of business, government or research organizations. Catalogs books and orders new ones, helps users with microfilm or microfiche readers, helps users find books or reference materials, obtains information from computer data base. May also check books in and out and shelve material. Jobs: 154,000 (1980). Good employment prospects in special libraries, owing to lack of funds. Training: Two-year program at community colleges and area vocational-technical schools. Average salary: $8,951-$9,766 (1981). Advances by getting professional degree in library science (cannot use credits gained in two-year program). Contact: American Library Association, Office for Library Personnel Resources, 50 East Huron St., Chicago, Ill. 60611.

Psychiatric Technician: Works with mentally ill or retarded, alcoholics, drug abusers and senior citizens. Interviews, counsels, administers psychological tests, may give nursing care. Works under psychiatrist, social worker or registered nurse at mental health hospitals or clinics, drug and alcohol clinics, schools for the mentally retarded, nursing homes and halfway houses. Good opportunities in increasing number of community health programs. Training: Two-year program in mental health technology at community or junior college. Contact: National Association of Human Services Technologies, 1127 11th St., Suite 321, Sacramento, Calif. 95814.

Recreation Specialist: Leads group activities, usually at more than one recreation center; conducts classes in skills such as swimming, tennis, choral singing, baseball. Employed by city and county recreation agencies and parks, colleges, schools, apartment complexes, hotels and camps, voluntary agencies such as YMCA, correctional institutions, hospitals and the Armed Forces. Irregular work schedule common. Jobs: 135,000 (1980). Intense competition for jobs in public agencies, but field will grow as fast as average as leisure time increases. Training: Two-year program with field experience at area vocational-technical school or community college. Can specialize in therapeutic recreation, community youth services, outdoor recreation. Wide range of salaries: $7,000-$30,000/yr. Contact: National Recreation and Park Association, Div. of Professional Services, 3101 Park Center Dr., Alexandria, Va. 22302.

Social Workers Technician: Conducts interviews with clients, counsels clients, updates records. Helps clients obtain housing, food stamps, unemployment benefits; also informs clients about various public agencies. Works under professional social workers at mental health centers, public welfare departments, family service agencies, nursing homes, hospitals and correctional institutions. Need greatest in Sunbelt and rural areas. Employment opportunities expanding in programs for the aging. Training: Two-year program at junior and community colleges, with second year spent in field work. Knowledge of sociology and psychology useful. Some states require licensing. Entry-level position of social worker aide requires only familiarity with local community. Contact: National Association of Social Workers, 1425 H St., N. W., Suite 600, Southern Building, Washington, D.C. 20005.

Teacher Aide: Works for elementary teachers at public or private schools. Takes attendance records, checks homework, operates audiovisual equipment, cares for children during lunch or recess, orders supplies. In some school districts, helps with actual teaching of children. Jobs: 415,000 (1980). Demand greatest in south and west. Opportunities increasing in work with deaf, blind, handicapped or mentally disturbed children. Must be patient and responsible. Training: Two-year program in vocational-technical school or community college. Some states require certification. Helpful: high school courses and English, science, psychology. Average pay: $4.50/hr. Contact: American Federation of Teachers, 11 DuPont Circle, Washington, D.C. 20036.

Urban Planning Technician: Works for urban planners to determine problems and future needs of cities. Interviews citizens, administers questionnaires, draws maps and charts, researches government records for data about land use, zoning, population size and local economy. Employed by city, county, state and federal government agencies, private consulting firms. Training: Two-year program in urban planning technology at community or junior college (includes field work). Must be creative, with mechanical drawing and typing ability, and work well as member of a team. Specialties include research assistant, zoning technician, housing inspector.

masonry and terrazzo work. One in four bricklayers self employed.

Carpenter: Constructs framework of building; erects walls and roof; installs doors, windows, flooring, cabinets, wood panelling, molding, ceiling tiles, etc. Jobs: 970,000 (1980). Employment will remain about level. Better opportunities for those with all-round skills than for those who can do only routine carpentry. Training: Informal on-the-job training as carpenter's helper, or apprenticeship program. Average union wage: $12.42/hr. Can advance to supervisor or start own business (one in three self employed).

Electrician (Construction): Assembles, installs and wires electrical systems in homes and offices. Jobs: 290,000 (1980). Most work for contractors in industrial and urban areas. Employment should increase at average rate, though economy may cause temporary dips. More opportunities in south and west. Training: Four-year apprenticeship best way to learn trade. Preapprenticeship training in electricity and shop skills desirable. Average union wage $13.46/hr. Need physical strength, agility and manual dexterity, good color vision. Licensing required in some localities. Related jobs for maintenance electricians require similar skills. Can advance to supervisor, contract estimator or start own business.

Sheet-Metal Worker: Fabricates duct work, counter tops and other sheet metal apparatus in shop. Assembles and installs products at construction site. Employed mainly by roofing, sheet metal, and air conditioning and heating contractors. Jobs: 108,000 (1980). Average increase in number of jobs as need for installation of air conditioning and heating duct work in new and existing buildings continues. May be new jobs to retrofit buildings with solar [illegible]. Training: Most learn through apprenticeship program. Average union wage $13.07/hr. Can advance to supervisory job, go into contracting business or become solar technician. Contact: AFL-CIO, Building and Construction Trades Dept., 815 16th St., N.W., Washington, D.C. 20006, or Associated General Contractors of America, Inc., 1957 E St., N.W., Washington, D.C. 20006.

The field of agriculture encompasses many occupations, of which production agriculture, or farming, is only the most obvious. In 1980, there were 1,447,000 farmers, according to the U.S. Bureau of Labor Statistics. But the number of farmers will actually decline in the future. The type of farm where owners and their families do most of the physical labor themselves will be rare, replaced by large commercial enterprises. Profitably owning and operating a farm today requires not only making a tremendous financial investment (with no guarantee of profit), but also keeping up with new advances in technology. Automated equipment, such as milking parlors or harvesting machines, can do work in half the time people can, and computers can help farmers with record keeping. In general, farmers need a good grasp of sciences such as biology, conservation techniques, and business skills such as accounting.

Farmers must depend upon other people for supplies and services—for every farmer, several people work in related businesses. Agribusiness includes occupations as varied as processing and marketing farm products; writing for agricultural magazines; granting loans to farmers; selling equipment, seeds or fertilizers; operating a plant nursery; spraying pesticides onto fields from airplanes; preserving forests—the list goes on and on. Certain occupations require a state license, such as nursery dealer, manufacturer of fertilizer or livestock feed, and inspector of dairy products, fruit, vegetables and poultry. Research-related occupations, such as agricultural engineering, are growing rapidly. Average pay in agribusiness is comparable to that of similar jobs in non-agricultural businesses, falling within a range of $10,000 to $18,000.

Students interested in agricultural careers can find programs at area vocational-technical schools, community colleges, state agricultural colleges and universities. Generally, they are expected to either have some farm background or to get experience by working summers or part time. Adults wishing to upgrade their skills can attend the day or evening classes often provided by government extension workers, who are familiar with the latest research developments.

Agricultural Salesperson: Sells products such as fertilizer, machinery, seeds, chemical pesticides, cattle feed; also schedules deliveries, keeps records, explains to customers how to use products. Works for sales department of food, fertilizer, machinery and equipment stores or manufacturers. Training: Two-year agribusiness program at community college or technical institute. Some on-the-job training after being hired. Can advance to sales manager or start own business.

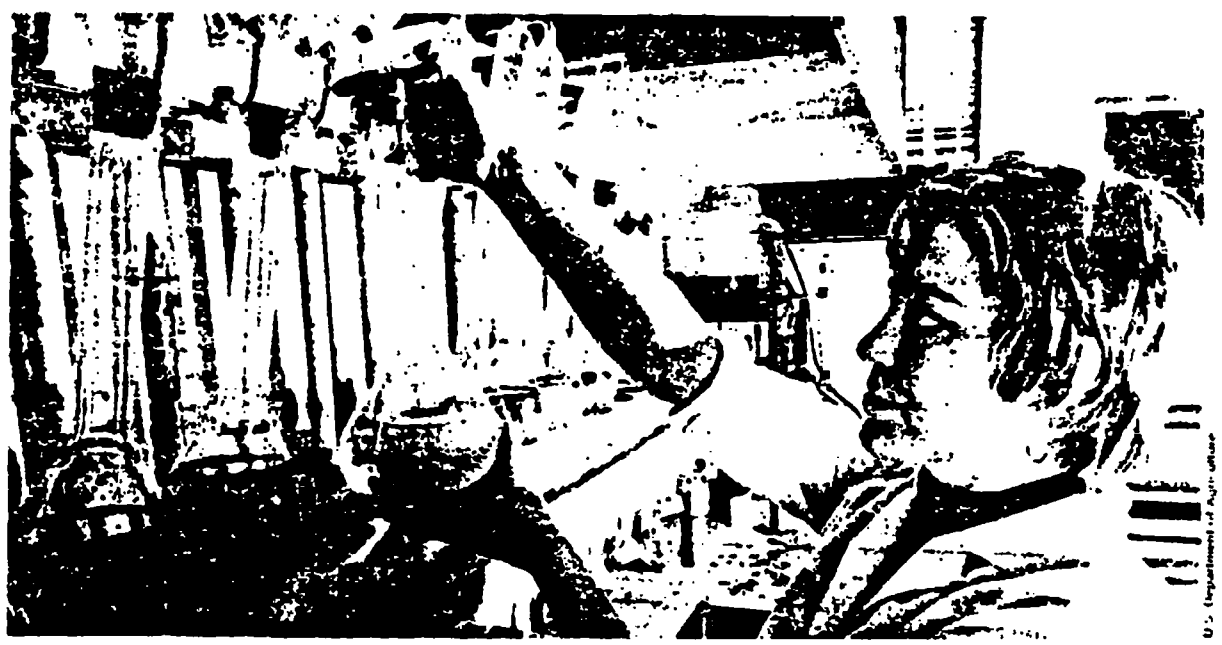
Animal-Health Technician: Works for veterinarians at hospitals and clinics (e.g., prepares injections, sterilizes equipment). Also works as research assistant at public or private agencies that seek to improve livestock health; for example, conducts experiments to find cures for diseases. Also works as meat inspector at government agencies. Demand for veterinarian's assistant currently greater than supply, owing to popularity of pets. Training: Two-year program at community or junior college. Programs offer field experience at animal clinics and must be accredited by American Veterinary Medical Association. Some states require certification. Can advance by supervising others or, with further education, become veterinarian. Contact: American Veterinary Medical Association, 930 N. Meacham Rd., Schaumburg, Ill. 60196.

Farm Mechanic: Maintains and repairs equipment used to plant, harvest or process crops. Works for commercial farms, farm power companies, machinery companies, farm management agencies, or has own business. Training: One or two-year program at community college or technical institute. Technical training in electronics important. Some farm equipment manufacturers offer on-the-job training. Can specialize in rural electrification, wiring and lighting of farm buildings. Occupation growing at average rate to keep pace with increased complexity of equipment needing repair work. Needs mechanical aptitude plus farm experience. Typical wages: $3.00-$6.00/hr. With further education, can become agricultural engineer.

Farm Operator: Owns farm or works as manager for cooperative. Hires and supervises workers, purchases equipment, keeps financial records, decides which crops to plant and when, which animals to raise and what to feed them, when to fertilize and harvest, which pesticides to use. Occupation growing more slowly than average as costs go up. Training: Two-year program at community college, four-year program at agricultural college, agricultural courses at vocational high school. Business skills essential. Should like being own boss, living in rural environment. Average earnings: $19,000/yr. Contact: American Farm Bureau Federation, 225 Touhy Ave., Park Ride, Ill. 60068 or Future Farmers of America, P.O. Box 15610, Alexandria, Va. 22309.

Horticulture Technician: Works for private and public research organizations to develop higher quality fruits, vegetables, fertilizers and pesticides; for fruit growers as orchard manager; and for agricultural government agencies to inspect fruit and vegetables before shipping to customers. Some specialize in ornamental horticulture, work as florist, landscaper, greenhouse manager. Training: Two-year program with lab and fieldwork at community or junior college. Knowledge of botany and chemistry important.

Research Technician: Assists agricultural scientists in experiments taking place under actual growing conditions (such as fields or greenhouses) or in laboratories. Prepares samples for tests, sets up equipment, records data. Works for government agricultural agencies, agricultural supply companies, experimental farms. Training: Two-year program at junior or community college. Typical salary: $12,000/yr. Soil Conservation Service, U.S. Department of Agriculture, employs students during summers as technician trainees. Contact: Information Office, U.S. Dept. of Agriculture, Washington, D.C. 20250.



Modern agriculture benefits from laboratory research work done by technicians.

Advanced technology has made a significant impact in production industries. Numerically-controlled machines, which use computers to control machine operations, have made it possible to produce more faster. These machines eliminate some tedious work, but they also take jobs away from tool-and-die makers, welders, machine tool operators and machinists. Robotics has found practical application in industries such as the auto industry, which uses automated equipment to construct, weld and paint cars. In addition, the current economic slump has made the number of jobs available from year to year uncertain. Yet there are still many good opportunities.

Highly skilled workers are usually not affected as much by automation. For example, there is a shortage of tool-and-die workers at present. Although robot welding will eventually replace many welding machine operators, skilled welders will continue to be needed. In addition, employers are usually reluctant to lay off highly skilled workers, fearing they might not be available again once the economy improves.

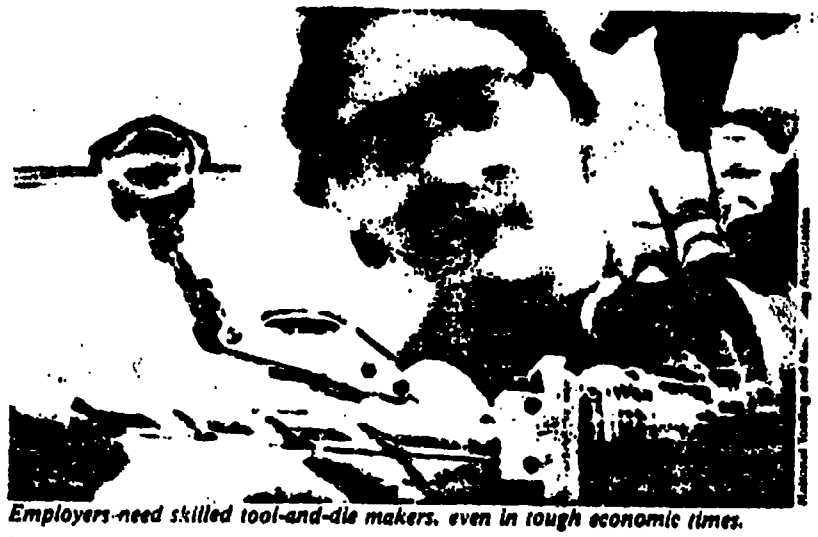
The best job opportunities of the future may lie in new and emerging industries. Welders could work for nuclear power plants, the aerospace industry or producers of synthetic fuel. Because these fields require a high degree of reliability in welding, workers entering them may need to get some additional training. Production workers with an electronic background could build hardware or components or parts for video games. The laser may eventually replace machine tools, creating tool-and-die workers. With additional training, to become laser electro-optics technicians.

Many production jobs do not require a high school diploma, although employers prefer it. One route to employment is a two- to four-year formal apprenticeship that combines classroom instruction with on-the-job training. Technical institutes and community colleges offer useful courses in blueprint reading, math and electronics. Mechanical aptitude, manual dexterity and the ability to concentrate are essential to success in production work.

Some of the new or high-demand careers in production industries include:

Lithographer: Four kinds: Camera operator makes negatives of material to be printed. Lithographic artist uses chemicals and dye to make image on negatives clearer. Assembler attaches negatives to layout sheets. Platemaker makes a printing plate from the film and operates machine that processes plates. Jobs: 40,000 (1980). Two-year program in printing technology at technical institutes and community colleges, plus apprenticeship training. Typical wage: $12/hr. Some overtime work may be necessary to meet publication deadlines. Contact: Printing Industries of America, Inc., 1730 N. Lynn St., Arlington, Va. 22201.

Machine Tool Operator: Uses machine tools (lathes, grinding machines, drill presses) to shape metal products. Includes skilled operator (plans work from blueprints, adjusts speed on machines) and semi-skilled operator (carries out routine operations). Employed by factories that produce fabricated metal products. Jobs: 1,020,000 (1980). Occupation growing as fast as average for all occupations. Most jobs in Great Lakes states, Los Angeles and Philadelphia. Training: On the job. Average wage: $10.20/hr. Advance to machinist or machine programmer. Related occupation is machine tool set-up worker (adjusts machines so will operate efficiently). Jobs: 93,000 (1980). Average wage: $9.78/hr. Contact: National Machine Tool Builders Association, 7901 Westpark Drive, McLean, Va. 22102.

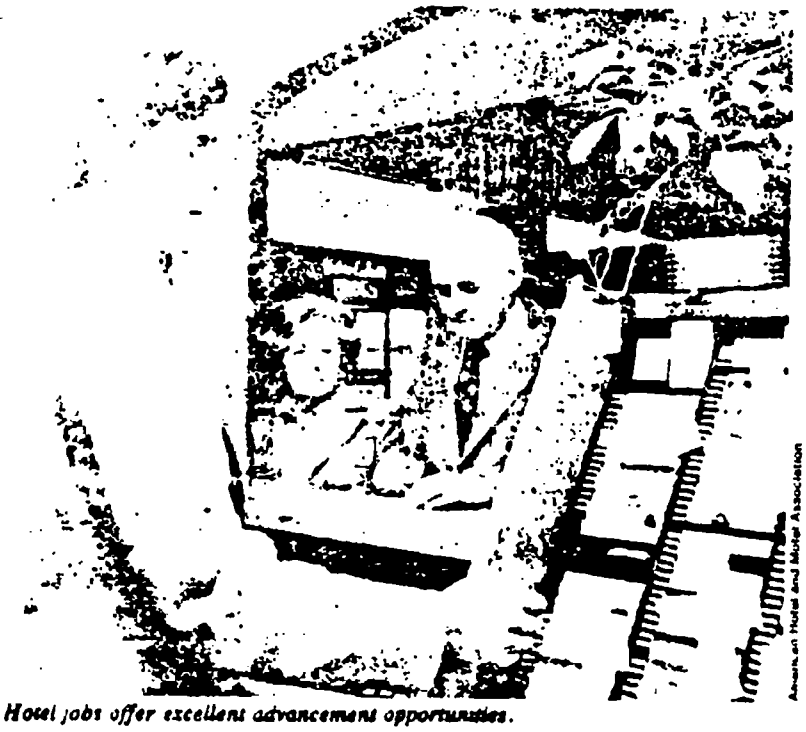


Employers need skilled tool-and-die makers, even in tough economic times.

Tool-and-Die Maker: Produces tools and dies used by other workers to make metal parts. Employed by manufacturing and construction companies; tool-and-die shops; automobile, aircraft and electrical machinery industries. Jobs: 166,000 (1980). One fifth work in Detroit, Flint, Chicago, Los Angeles. One of slower growing occupations but current shortage of workers. Training: four-year apprenticeship training. Average salary $10.34/hr. Advance to supervisor or tool designer or own shop. Contact: National Tool, Die and Precision Machining Association, 9200 Livingston Rd., Washington, D.C. 20022.

Machinist: Uses machine tools to make metal parts for aircraft, cars or machines; plans from blueprints or written specifications; checks work with precision instruments; repairs parts. Employed by factories that produce machinery, transportation equipment and fabricated metal products. Jobs: 303,000 (1980). Occupation growing as fast as average for all occupations, with best opportunities in maintenance shops that repair complex equipment. Training: Four-year apprenticeship program. Courses in machine shop training at vocational high schools. Average wage: $9.63/hr. Contact: National Machine Tool Builders Association, 7901 Westpark Dr., McLean, Va. 22102.

Welder: Uses gas and electric arc welding equipment to permanently attach metal parts through heat. Welds parts of ships, cars, buildings and bridges. Skilled welders operate equipment manually; welding machine operators load machines that automatically weld parts. Jobs: 573,000 (1980). Most jobs in Sunbelt and western states. Field growing faster than average, with best opportunities for skilled welders. Training: On the job. Welding courses offered at vocational-technical institutes and community colleges. May be required to pass test by employer or government agency to become certified. Average wage: $9.00-$13.00/hr. Advance to welding inspector or supervisor. Contact: American Welding Society, 2501 N.W. 7th St., Miami, Fla. 33125.



Hotel jobs offer excellent advancement opportunities.

The range of occupational choices within the marketing and distribution field, which employs about one-third of the workforce, is extensive. Depending on your particular skills and talents, you could arrange a window display, manage a floristry shop, work in a financial services office, or sell farm and garden supplies.

As leisure time increases and businesses broaden their operations nationally and internationally, travel and tourism careers will prosper. Positions will be plentiful in the front office, housekeeping, food and beverage, and sales and promotion departments of the hotel/motel industry. Careers in restaurants and travel agencies are also good choices.

Food sales and distribution is another promising field. In a supermarket, one could begin as a general grocery clerk, move on to a mid-level position as produce department manager or assistant head cashier, advance to a third-level job as assistant grocery manager or head cashier and move on to become a supermarket manager or to work in a central office of a supermarket chain. In the distribution end of the business, sales representatives are in demand by manufacturers, wholesalers and brokers.

Marketing and distribution include such diverse areas as accounting and advertising, but the field is identified most strongly with sales of a vast array of products: automotive supplies, commodities, insurance, furniture, clothing, food, property and so on. People who choose this kind of work must enjoy contact with customers and the challenge of selling.

Computers are coming into greater use for market research, stock control, and analysis and forecasting of sales and distribution. Though marketing and distribution jobs are generally on the rise, the increased automation made possible by computers may eliminate jobs and, in some cases, whole occupations. Employment for retail sales clerks and bank tellers will remain stable in the short run because of growing sales volume, but in the long run automation will force down the number of jobs in these two occupations. Similarly, steady growth in insurance sales has opened many employment opportunities, but as time goes on, it is likely that more and more policies will be sold to groups and by mail. Consequently, the need for insurance agents will decline.

People considering marketing and

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distribution careers, then, should research them very carefully, taking into account factors that may affect the number of future jobs.

Earnings in the marketing and distribution field vary immensely. Some sales employees work for a straight salary, while others earn a salary plus commission or work on commission only.

Some of the new or high-demand careers in the marketing and distribution field include:

Hotel Manager or Assistant: Directs or helps direct housekeeping, accounting, registration, maintenance and food service departments of hotel or motel. Night and weekend work common. Jobs: 84,000 (1980). Employment expected to grow rapidly. Training: Completion of two-year or four-year program in hotel, restaurant and institutional management at community college, vocational institution or university. Salary: $13,500 for management trainee, ranges up to $80,000 for general manager of large hotel. Advancement potential excellent, especially in large hotels and hotel or motel chains. Contact: American Hotel and Motel Association, 888 7th Ave., New York, N.Y. 10019.

Insurance Agent or Broker: Sells life, health and property policies that protect buyers against financial loss. [illegible] employed by one company; bro[illegible] is [illegible]dependent who sells for several companies. Jobs: 3[illegible],000 (1980). Employment expected to rise in short run, could fall in long run. Training: High school diploma with proven sales experience or, increasingly, college background. Courses in finance, accounting, economics, business law, government useful; offered by community colleges and professional associations. Starting salary: $1200/mon (1982)—works on commission after 6 mon. State licensing necessary. Can advance to sales manager or start own firm. Contact: American Council of Life Insurance, 1850 K St., N.W., Washington, D.C. 20006, Insurance Information Institute, 110 William St., N.Y., N.Y. 10038

Real Estate Agent or Broker: Assists clients in buying or selling homes or other property. Broker also qualified to rent and manage property, make appraisals, develop new building projects. Agent is independent sales worker who contracts services with licensed broker. Jobs: 580,000 (1980). Employment projected to rise faster than average despite current slump in housing market. Excellent opportunities for part-time work. Training: Courses offered by firms, junior colleges, local real estate boards. Median salary: $14,700 for agent (1980), $29,000 for broker (1980). State license required. Agent can advance to sales or general manager, obtain broker license and open own office, or become real estate appraiser. Contact: National Association of Realtors, 430 N. Michigan Ave., Chicago, Ill. 60611

Travel Agent: Advises clients on business and pleasure travel, makes arrangements for them. Jobs: [illegible] (1980). Employment expected to [illegible] faster than average. Most jobs in [illegible] firms located in cities and [illegible]. Training: Travel courses in vocational schools, [illegible] colleges, on-the-job training. Salary: $9,[illegible]-$[illegible] (1980). Primary opportunity for advancement through starting own firm. Contact: American Society of Travel Agents, 4400 MacArthur Blvd., Washington, D.C. 2000[illegible]

Patience and a helping attitude are qualities a child care assistant must have.

Homemaking skills are no longer only of use in one's own home. Today, people are being paid to do a multitude of jobs that require these skills. Many women who have been "just housewives" for years are finding they can use many of the abilities acquired in this role in good, fulfilling jobs in the workplace.

One of the newest jobs available is that of homemaker-home health aide. These aides visit people in their homes and offer homemaking services, health care and sympathy. They help their clients adjust to illness, a new disability, or simply growing old. People who need long-term care on less than a 24-hour basis, and who lack friends or relatives able to provide this care, can now live at home instead of at a hospital or nursing home. Most aides work with the elderly; others help out ill mothers who need temporary care for their small children. Advantages of this occupation include a flexible schedule, the availability of part-time work, and the satisfaction of being responsible for caring for someone. According to the National Council for Homemaker-Home Health Aide Services, there are currently more than 70,000 aides, many of them middle-aged women.

Homemaker-home health aides must be compassionate and patient. So must child care assistants. By watching over children at nursery schools, these workers enable teachers to concentrate on teaching. Since many women today work and need someone to care for their children during the day, many child care aides find jobs working in day-care centers.

A problem with homemaking careers is that they typically do not pay well. One of the better paying, rapidly growing occupations is that of dietetic technician. This is a fairly new field that came into being as a result of the current interest in nutrition's role in maintaining health. These technicians assist registered dieticians in operating a food service, whether at a hospital, school or nursing home. In 1980, there were 44,000 dieticians and dietetic technicians, according to the U.S. Bureau of Labor Statistics.

For those with creative talent, a possible career is that of interior designer. Interior designers do much of their work at customers' homes and offices, helping them to arrange the rooms' furnishings in a pleasing fashion. Good ways to enter the field are as an apprentice in an interior design studio or as a salesperson in a furniture store.

Students interested in entering any of these careers can begin by taking a home economics course, offered by almost all high schools. Some occupations require further, postsecondary training.

Some of the new or high-demand careers in the home economics field include:

Homemaker-Home Health Aide: Cares for people in their own homes, cooks meals, washes clothes, makes beds, helps patient with bathing and exercises, offers companionship, checks pulse and respiration rates, changes surgical dressings. Writes daily reports for supervisor (registered nurse or social worker). Employed by public health and welfare departments, private health care agencies, community social service organizations, hospitals. Excellent employment outlook through the 1980s. Training: One-or two-week training program provided by employers. No formal educational background necessary, though high-school home economics courses helpful. Typical pay: $4.15/hr. Advance by supervising other aides. Contact: National Council for Homemaker-Home Health Aide Services, Inc., 67 Irving Pl., 6th Fl., New York, N.Y. 10003.

Interior Designer: Helps customer decorate and furnish home or office. Most employed by design firms or consultants. If employed by department store, helps customers pick out furniture and carpeting. Field highly competitive, but some growth anticipated. Training: Two-year program at community colleges and technical schools or three-year program at schools of interior design. Belonging to Society of Interior Design or Institute of Business Designers indicates competence; both require two years' experience and passing exam. Salary: $8,000-$14,000/yr. (starting); up to $25,000/yr. (experienced). Contact: American Society of Interior Design, 730 Fifth Ave., New York, N.Y. 10019.

Child Care Assistant: Cares for children in private or public day-care centers and nursery schools, children's camps and hospitals. Supervises children on playground or field trips, helps children with music and art activities, reads to children. Some workers care for handicapped, delinquent, runaway or orphaned children at institutions. Number of jobs expected to grow to 66 percent within decade. Training: Two-year program offering experience in child-care centers at junior and community colleges. Some states require licensing or certification. Helpful high school courses are literature, social studies, home economics, science. Little opportunity for advancement without bachelor's degree.

Customer Credit Counselor: Gives advice to help customers manage money efficiently, determines whether customers likely to pay back loan. Works for consumer credit and counseling agencies, loan agencies and banks. May use computers to handle information. Good employment opportunities, as more people use credit for purchasing. Training: Business program at vocational high school or two-year community college. If work for counseling agency, social work experience helpful. Average salary: $12,5[illegible] [illegible]

Food Service Manager: Buys food and supplies, determines menus, supervises cooks and waiters who cook for large numbers, enforces sanitation and safety practices. Employed by schools and colleges, restaurants, cafeterias, hospitals. Training: Programs at area vocational-technical schools and two-year community colleges. Bookkeeping and accounting skills useful

Though jobs in energy industries account for only about two percent of all employment in the country, the growth potential is enormous—particularly in emerging fields such as solar energy and conservation.

During the past decade, the momentum to use energy more efficiently has led to the creation of new occupations such as energy auditor, solar technician and energy manager. This trend towards conservation has also benefited established industries such as those that install and maintain heating and cooling systems. Employment in the oil and gas, coal, nuclear and utility industries is expected to remain steady or to grow slightly during the 1980s.

Only a handful of solar jobs exist now, but the fledgling industry may generate three to four million jobs by the end of the century. The workers could train in one of the new two-year energy technology programs that have sprung up in many postsecondary institutions. Alternatively, they may learn a traditional construction trade and only then acquire additional knowledge about energy technology. With some extra preparation, the following workers could enter the solar energy field: carpenters, cement masons, electricians, plumbers, sheet metal workers, glaziers, crane operators, and heating and air conditioning technicians.

The weatherization of buildings to conserve energy is another relatively new occupational field. The skills required to install insulation, weatherstripping and storm windows can be learned in a vocational or on-the-job training program. Such jobs exist throughout the country, but are more concentrated in urban areas.

Electric utilities are the largest employer among the energy industries, with about 600,000 people on the payroll. Of these, 53 percent are skilled craft workers, operators and laborers. In greatest demand are electric power line installers and repairers, construction workers, machine operators, mechanics, cable splicers and meter readers.

Oil and gas production companies employ nearly 200,000 people. About half are skilled craft workers, heavy equipment mechanics, truck drivers, welders and laborers. After a five-year period of rapid growth, employment leveled off in 1981 and, unless interest rates go down and world oil prices go up, the slump could continue indefinitely. Many oil and gas industry jobs are in remote areas in Alaska, Louisiana, Oklahoma, Texas and Wyoming. The new federal leasing program may lead to more off-shore field jobs in states bordering the Gulf of Mexico.

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Because about one-third of the nation's coal reserves remain untapped, the government predicted only two years ago that coal mining would be the biggest source of energy-related jobs during the 1980s. But declining use of this fuel, partly for environmental, health and safety reasons, has clouded its future. A breakthrough in the technology of making synthetic fuels from coal could create more jobs, however.

Nuclear power plants currently have about a 15 percent vacancy rate, which is expected to increase. Salaries are high, but health risks have discouraged many potential workers from entering the field.

Some of the new or high-demand careers in the energy field include:

Air Conditioning and Heating Technician: Designs, manufactures, installs, sells or services heating and air conditioning systems. Jobs: 179,000 (1980). Employment prospects good through 1980s as result of trend to design, install and maintain energy efficient equipment. Most jobs with independent contractors. Requires problem solving ability; aptitude in mechanics, electricity, math and science; and ability to work with minimum supervision. Training: apprenticeship program or postsecondary program in technical institute or community college. Average union wage $12-$15/hr. Contact: Air Conditioning Contractors of America, 1228 17th St., N. W., Washington, D.C. 20036.

Energy Auditor: Assesses energy efficiency of homes and businesses, recommends ways to conserve energy. Employed by utilities and private industry (mechanical contractors, engineering or insulation companies). Future prospects depend on world energy prices and degree to which federal government enforces legislation requiring utility companies to offer free or low-cost audits to consumers. Training: Varies widely. Auditors who do routine residential audits. Auditors for large commercial facilities perform more sophisticated functions (e.g., determining flow rates); they often have engineering backgrounds.

Energy Manager: Plans and implements strategies to save energy in plant operation; may include maintaining energy consumption records, analyzing capital investment strategies for conservation, scheduling and overseeing preventive maintenance, supervising operation of computerized energy management control system. Occupation too new for reliable employment forecast or salary data, but appears to be growing. Training varies: Engineering or two-year engineering technology degree preferred.

A driller operates a console on an off-shore oil platform.

An energy auditor conducts a routine residential audit.

Health Physics Technician: Assists health physicist in running programs to protect people who work with radioactive materials in nuclear power plants, hospitals, universities, industry, research labs. Reads electronic devices to determine if employees have exceeded allowed radiation dosage. Keeps records, may schedule repairs for misfunctioning equipment. Good employment outlook, as nuclear industry seeks applicants for vacant jobs. Training: One to two years postsecondary education, preferably in nuclear technology. Employers often train on the job. Needs good background in math, physics, chemistry. Average salary: $18,000. To advance, obtain B. A. to qualify as health physicist.

Instrumentation and Process-Control Technician: Monitors instruments that supervise work of machines in power plants, refineries, oil and gas wells, pipelines, other energy-related facilities; makes corrections if automatic controls not handling situation; may repair defective instruments in field or shop. Also works for highly automated, non-energy industries such as chemical, pharmaceutical, packaging plants. Training: Two-year technical program, with emphasis on electronics, physics, chemistry, drafting, math. Needs on the-job training to master instruments in particular industry. Can advance to instrument design, more complex technical work, sales or management.

Solar Technician: Manufactures, installs and maintains solar units. May design routine systems for homes or small-scale commercial operations. About 600 companies, many small, employ 20,000 people currently. Growth prospects depend on national policy and energy demand, but potential great (only one percent of houses are currently solar equipped). Most available positions in California and other southwestern states, but could become more evenly distributed throughout country. Training: Conventional preparation in construction trades and/or completion of energy technology program. Typical salary estimated at $10/hr. Contact: Conservation and Renewable Energy Inquiry and Referral Service, P.O. Box 1607, Rockville, Md. 20850.

Materials: Calendar for the year 2000 (page 43), pencils, paper, research facilities with back issues of newspapers or magazines.

Procedure: The teacher distributes calendars for the year 2000 to each student and asks the class to reflect on the following questions: On what day does your birthday fall in the year 2000? How old will you be on this day? Choose a holiday that you enjoy celebrating such as Christmas, Thanksgiving, or the Fourth of July. Locate this on your calendar and then reflect on how you might be spending this holiday. Identify some dates for your summer vacation. What do you expect to do during your summer vacation in the year 2000?

Research Projects: Subtract the present year from the year 2000, and then subtract that answer from the present year. This answer is the year that is as far in the past as the year 2000 is in the future. Use magazines and newspapers to research lifestyles and living conditions in that year to see what sorts of changes have occurred in that period of time. Then make projections for the year 2000 based upon a similar rate of change. (To be more specific, students can pick categories such as transportation, food, clothing, etc.)

Source: Unknown

CALENDAR FOR THE YEAR 2000

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MATH

Grades: 7-10
Grouping: Individual or 3-5

GOING TO THE WORKFORCE

In this activity students will learn the minimum amount of math courses required to enter various occupations.

SKILLS: Ordering, Estimating, Working cooperatively, Decision making

TIME: 20 - 30 minutes

MATERIALS: Ranking sheets

DIRECTIONS: Hand out the ranking sheets listing the eleven occupations. Briefly discuss the type of work done in each of these fields. What is the minimum amount of high school and undergraduate college math a student must take to enter one of these careers? The answers will be scored against information given by the University of California at Berkeley, Foothill College and the Occupational Outlook Handbook. Statistics and computer science courses have been counted as mathematics.

Working alone: The student's task is to rank the 11 jobs listed according to how much math a student is required to take in college and high school, starting with first year algebra. Place number 1 by the job title which requires the most math, number 2 by the one which requires the next most math, and so on through number 11, which requires the least math.

Working in Small Groups: After students have completed the task, have them form groups of 3 - 5. Give each group a new ranking sheet. They now have a second opportunity to rank the amount of math required for these occupations. This time they will be working with a small group of people, and the group will be asked to reach a consensus on each item. A decision process is most productive if it can make use of the resources of the group and resolve conflicts in a creative manner.

When the groups are finished, have one member of each group score the group ranking. Individuals can score their own sheets for comparison with the group.

To score: Take the absolute value of the difference between the correct ranking and the one the group has given, that is, subtract and drop any negative signs.

	group	correct	difference
Example:			
Electrical Engineer	4	1	3

Add all the differences for a total score.

GOING TO THE WORKFORCE

Career	Years of Math Required In: H.S.	College	Reference	Rank
electrical engineer	3*	4	U.C. Berkeley General Catalog 1979-80	1
astronomer	3	3	U.C. Berkeley General Catalog 1979-80	2
geologist	3	2-2/3	U.C. Berkeley General Catalog 1979-80	3
biophysicist	3	2	U.C. Berkeley General Catalog 1979-80	4
business admin.	3	1-2/3	U.C. Berkeley General Catalog 1979-80	5
chemist	3	1-1/3	U.C. Berkeley General Catalog 1979-80	6
architect	3	2/3	U.C. Berkeley General Catalog 1979-80	7
field biologist	3	1/3	U.C. Berkeley General Catalog 1979-80	8
draftsperson	2	1/2	Foothill College Catalog 1979-80	9
electrician	1	0	Occupational Outlook Handbook 1978-79	10
auto mechanic	0	0	Occupational Outlook Handbook 1978-79	11

*Three years of high school math implies that trigonometry is taught during the same year as second year algebra.

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electrical engineer	3*	4	U.C. Berkeley General Catalog 1979-80	1
astronomer	3	3	U.C. Berkeley General Catalog 1979-80	2
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biophysicist	3	2	U.C. Berkeley General Catalog 1979-80	4
business admin.	3	1-2/3	U.C. Berkeley General Catalog 1979-80	5
chemist	3	1-1/3	U.C. Berkeley General Catalog 1979-80	6
architect	3	2/3	U.C. Berkeley General Catalog 1979-80	7
field biologist	3	1/3	U.C. Berkeley General Catalog 1979-80	8
draftsperson	2	1/2	Foothill College Catalog 1979-80	9
electrician	1	0	Occupational Outlook Handbook 1978-79	10
auto mechanic	0	0	Occupational Outlook Handbook 1978-79	11

*three years of high school math implies that trigonometry is taught during the same year as second year algebra.

GOING TO THE WORKFORCE

Rank the 11 occupations according to how many math courses a student must take in order to enter that field. Place number 1 by the job title which requires the most math courses, number 2 by the one requiring the next most math and so on through number 11, which requires the least amount of math.

	Your Answer	Catalog Answer	Absolute Difference
auto mechanic	____	____	____
biophysicist	____	____	____
business administration	____	____	____
field biologist	____	____	____
electrician	____	____	____
draftsperson	____	____	____
electrical engineer	____	____	____
geologist	____	____	____
astronomer	____	____	____
architect	____	____	____
chemist	____	____	____

GOING TO THE WORKFORCE

Rank the 11 occupations according to how many math courses a student must take in order to enter that field. Place number 1 by the job title which requires the most math courses, number 2 by the one requiring the next most math and so on through number 11, which requires the least amount of math.

	Your Answer	Catalog Answer	Absolute Difference
auto mechanic	____	____	____
biophysicist	____	____	____
business administration	____	____	____
field biologist	____	____	____
electrician	____	____	____
draftsperson	____	____	____
electrical engineer	____	____	____
geologist	____	____	____
astronomer	____	____	____
architect	____	____	____
chemist	____	____	____

ODDS ON YOU*

Introduction

Our lives are filled with decisions. Some seem very important at the time but have little lasting effect. Others do not seem important at all and yet may have a major impact on our lives. *Odds on You* highlights some important decisions or turning points in your career development. The activity is not intended to predict your future life, but by starting with your academic goals and experiences, you might get an idea of what some possibilities are for your near future.

Odds on You uses a mathematical model. Mathematical models are common in fields such as business, economics, urban planning, science, and medicine. With the growing use of computers, mathematical models are becoming more common in other fields as well.

An example of a mathematical model:

Suppose you work as a buyer for a shoe store. It is time to order the spring shoe selection. Several styles are available in sizes 4 to 10. Should you buy 100 pairs of each size? Why or why not? If you wear a common or average size, think back to how hard it is to find sale items that fit you.

It is anticipated that some will answer that 100 pairs of each size is a good order. Others will, correctly, argue that the number of people wearing each size is not the same, and that relatively large quantities of middle sizes (6,7,8) and very few of the other sizes (4,5,9,10) should be purchased. A good model will predict the number of shoes of each size the buyer needs to purchase.

To give a realistic view of what can happen to you and other students after high school, all decisions in *Odds on You* (those *you* make in real life) are left to chance (rolling of dice). The outcomes of these chance decisions are, however, based on statistics about young people. If you are female, there is one chance in ten that you will become pregnant during the ages 12 to 18. The outcomes in the "Cast Your Fate to the Wind" section reflect this statistic. If you are male, there is over a 90% chance that you will be fully employed during most of your life. If you are female and over 16 years of age, there is a 50% chance that you will be working at any given time. A woman can expect to work an average of 22.9 years. These are the types of data from which the *Odds on You* model was developed.

*Developed by Alice Kaseberg

Special Notes to Teachers or Workshop Leaders

Thousands of statistics are available on what happens to young people as they pass through high school, in post-high school opportunities, and eventually, to the job market. Many of these statistics are surprising, even shocking. Endless lists of numbers turn many young people off. This activity places students in a position of experiencing the statistics. They may drop out of school, get pregnant, and experience failure in getting a job, or they may take substantial math, get professional training, and become a highly paid specialist. The possibility of these outcomes occurring is based on the statistics describing what young people actually do with their lives.

The introduction will give you additional background about the *Odds on You* activity. Some of the background should be shared with your students or participants before you begin the activity. Of particular importance are three items:

1. The activity reflects the decisions made by young people during the ages of 14-24.
2. The activity is a mathematical model of a real situation.
3. Participating in the activity as a member of the opposite sex is intended to give young people a better idea of the choices and outcomes available to their brothers and sisters or their girl or boy friends. *Encourage* students to look upon this aspect as a very important part of the activity.

Students should be allowed to work through the activity in small groups of three or four students. They should be encouraged to help each other and to discuss their results as they go along. Each student will need one pair of dice, a copy of the *Odds on You* pages, and a record sheet.

The activity ends with a salary determination. This should not be a young person's ultimate goal but, with the realities of inflation and the necessity for people to work today, a young person might as well work in a job that gives both satisfaction and a reasonable income.

Source: Kaseberg, Alice EQUALS, Lawrence Hall of Science, University of California, Berkeley, 1980.

ODDS ON YOU: COULD THIS BE YOUR LIFE?

Use this page to record your results.

TALLY EXPERIENCE POINTS HERE
from Sections 3, 4, 7, 9, 11

1. Sex: Male _____ Female _____

2. Parents' income:
   Employed mother _____
   Employed father _____
   Total _____

3. Your income during high school: Do you work? _____ Annual Income _____

4. Your high school education:
   A. Graduate _____
   B. Math category _____
   C. More math? _____
   D. Electives
      (1) _____
      (2) _____

5. Cast your fate to the wind: Married? _____ Pregnant? _____

6. Post high school: Ci[illegible]your next step.
   Armed forces | Vocational school | Out of labor force
   Community college | Job market, Type _____ | College

7. Community college training _____

8. College:
   A. Major: requires calculus requires no calculus
   B. Graduate? _____
   C.D., Out of labor force _____ Armed forces _____ Job market, Type _____
   Further degree? _____

9. Armed forces _____

10. Out-of-labor-force status _____

11. Vocational training _____

12. Job Market: Type I Type II Type III
    A. Delay in finding work _____ B. Kind of job _____
    C. Salary _____

Are you satisfied with how chance decided your fate? _____

What decisions made with the dice in this game can you make for yourself?

_____

_____

_____

You have probably already made several decisions about your life. If you hav time, go back through the activity and make your own decisions without the dice. Use the dice for deci[illegible]ons from Section o to the end. Do you now come out with a more satisfactory job and salary?

ODDS ON YOU

Go through each section in order unless directed to skip. Keep track of your results on the "Could this be your life?" sheet.

1. Sex: Roll 1 die. Even number you are female, odd number a male.

2. Parents' income:

Mother:	Roll 1 die.	Father:	Roll 1 die.
1-2	she is not employed.	1	he is not employed.
3	roll again.	2	he is not in the family unit.
4-6	she is employed.	3-6	he is employed.

If either or both parents are employed, roll two dice and sum. Use this scale to determine the annual income for each employed parent. Use the same roll for both incomes.

Father: $2,000 x sum of dice.
Mother: $1,000 x sum of dice.

3. Your employment during high school:

Female:	Roll 1 die.	Male:	Roll 1 die.
1-2	employed	1-3	employed
3-6	not employed	4-6	not employed

If you are employed, roll two dice and sum. Then calculate the annual income.

Employed female: $300 x sum of dice = annual income.
Employed male: $480 x sum of dice = annual income.

Bonus: if sum of dice was over 8, collect experience points: 100 if female, 200 if male.

4. Education in high school. Do sections A, B, C, and D unless directed elsewhere.

4A. High school: Roll two dice and sum.

2-3	Graduate, top 8% of class (50 experience points)
4-8, 10-12	Graduate
9	Drop out of high school. Go directly to Section 5.

4B. High school math: Roll two dice and sum to determine your math experience.

Female:		Male:	
11	No math	12	No math
6, 10	General Math	7	General math
8, 9	Algebra I	5, 9	Algebra I
2, 7, 12	Geometry	3, 6	Geometry
4, 5	Algebra II	8, 10, 11	Algebra II
3	Calculus or 4th year math (100 experience points)	2, 4	Calculus or 4th year math (100 experience points)

4C. High school math: Your determination to continue in math depends on many factors. See if you have any special reason to take more mathematics. Roll two dice and sum.

Female:

2	A teacher encourages you in junior or senior high.	→ Repeat Section 4B and take the higher math of your two tries. Then go on to Section 4D.
3	You took Algebra in the eighth grade.	
4	You enjoy math.	
5	You have a clear career goal.	
6-12	No reason to take more math.	Go on to Section 4D.

Male:

2, 3	Your parents encourage you.	→ Repeat Section 4B and take the higher math of your two tries. Then go on to Section 4D.
4	You have a career goal.	
5	You are good at math.	
6	Your parents expect you to take math	
7-12	No reason to take more math.	Go on to Section 4D.

4D. High school electives: Roll two dice and sum. Select first elective based on this roll.

Female:

2	Computer Programming (200 experience points)
3,5,9,11	Typing, Bookkeeping, Accounting (50 experience points)
4, 10	Art, Journalism, Music (25 experience points)
6-8	Home Economics (25 experience points)
12	Automotive, Drafting, Welding, Woodshop (150 experience points)

Male:

2-4	Typing, Bookkeeping, Accounting (100 experience points)
5, 10	Computer Programming (150 experience points)
6-8	Automotive, Drafting, Welding, Woodshop (100 experience points)
9	Art, Journalism, Music (25 experience points)
11, 12	Home Economics (25 experience points)

Roll again and select a second elective. Record your experience points.

5. Cast your fate to the wind: Roll two dice and sum.

Female:

2-4	Get married (Go directly to Section 10).
5	Get pregnant (Go directly to Section 10).
6-12	Go on to Section 6.

Male:

2-3	Get married (Go directly to Job Market, Section 12 as Type I).
4-12	Go on to Section 6.

6. Post high school. Roll two dice and sum. Find out what you do after high school based on the appropriate math category determined in Section 4B.

If your parents and your together earn over $28,000 per year, take an extra roll and choose the result you prefer within your math category.

A. High School Dropout

2-3	Get G.E.D. (Go to Section 6C)
4	You are out of the labor force. (Go to Section 10)
5-9	Go to the job market, Type I. (Go to Section 12)
10-12	Go to armed forces. (Go to Section 9)

B. No math

2-3	Go to armed forces. (→9)
4	You are out of the labor force. (→10)
5	Go to vocational school. (→11)
6-10	Go to job market, Type I. (→12)
11-12	Go to community college. (→7)

C. General Math or Algebra I

2-5	Go to community college. (→7)
6-7	Go to job market, Type I. (→12)
8	Go to armed forces. (→9)
9-10	Go to vocational school.(→11)
11	You are out of the labor force. (→10)
12	Go to college. (→8)

D. Geometry or Algebra II

2-5	Go to college. (→8)
6-8	Go to community college. (→7)
9-10	Go to job market, Type I. (→12)
11	Go to vocational school. (→11)
12	Go to armed forces. (→9)

E. Calculus or 4th Year Math

2	Go to job market, Type I. (→12)
3-9	Go to college. (→ 8)
10-12	Go to community college. (→7)

7. Community college: Roll two dice and sum.

Female	Male	
2-5	2-5	Take college credit courses, transfer to college in two years. Go on to Section 8.
6-8	7	Take vocational training courses, no additional math. Go to job market, Type I. (200 experience points) (→12)
9	6	Take math missed in high school and continue in college credit courses. Go on to Section 8.
10	8-10	Take math and vocational training courses. Go to job market, Type II. (300 experience points) (→12)
11-12	11-12	Go to job market, Type I. (numerous reasons) (→12)

8. College

8A. College major: Roll two dice and sum. Use your high school math category. Note: In many universities, up to 75% of all possible majors require calculus, including science, economics, business, engineering, and pre-medicine. Traditionally non-calculus majors (librarianship, music, elementary education, literature, and history) are being strongly influenced by computers and, hence, mathematics.

	Female	Male	
General Math	2-11	2-11	Major requires no calculus.
or Algebra I	12	12	Major requires calculus.
Geometry or	2-10	2-9	Major requires no calculus.
Algebra II	11-12	10-12	Major requires calculus.
Calculus or	2-9	2-8	Major requires no calculus.
4th year math	10-12	9-12	Major requires calculus.

Bonus: If you took high school Algebra II or beyond, take another roll of the dice and see if you can get into a calculus major.

8B. College graduation: Roll two dice and sum.

Female	Male	
4-7	2,4-7	Did not graduate. (→8C below)
2,3,8-12	3,8-12	Graduate. (→8D below)

8C. Did not graduate: Roll two dice and sum.

Female	Male	
2-4,7-12	2-8,10-11	Go to job market, Type I. (→12)
5-6	12	Out of labor force. (→10)
----	9	Go to armed forces. (→9)

8D. You graduate! In Section 8A, you determined whether your major needed calculus. Use the major now to find out what you do after college.

Major required calculus:

Female	Male	
2-7,10	2-7	No further degree. Go to job market, Type III. (→12)
8,12	8-10	M.A., Ph.D., or professional degree. Go to job market, Type III. (→12)
9	11	No further degree. Out of labor force. (→10)
11	12	M.A., Ph.D. Out of labor force. (→10)

Major required no calculus:

Female	Male	
2-4,7	2,3,8,9	No further degree. Go to job market, Type II. (→12)
5-6	10	No further degree. Out of the labor force. (→10)
8,9	4-7	M.A., Ph.D., or professional degree. Go to job market, Type II. (→12)
10-12	11-12	M.A., Ph.D. Out of labor force. (→10)

9. Armed forces: Roll two dice and sum.

Female	Male	
2-7	2-6	Stay initial enlistment period (3-4 years). (200 experience points) Go to job market, Type I. (→12)
8-10	7-9	Re-enlist, 3-4 years. (250 experience points) Go to job market, Type II. (→12)
11-12	10-12	Stay 20 years and retire with a pension of $14,832/yearly. Go to questions at end of record sheet.

10. Out of labor force: Roll two dice and sum.

Female	Male	
6-8	4-8	Go to job market, Type I, at least 25 years of your life. (Type II if you have calculus). (→12)
4-5	3,9	Unemployed, not eligible for compensation. This is your life, well past the age of 24. What are your options now? Go to questions at end of record sheet.
2,3,9-12	2,10-12	Other unpaid positions. What might these be? What are your options now?

11. Vocational school or apprenticeship training: Roll two dice and sum.

Female	Male	
4-5	2	Service training (200 experience points)
6-8	3	Clerical training (200 experience points)
3	10-12	Fire or police protection (300 experience points)
2	4,6	Mechanic or repair (300 experience points)
9-10	9	Health occupations (300 experience points)
11	8	Machining, printing, industrial (300 experience points)
12	5,7	Electrical, carpentry, plumbing (300 experience points)

Now, go to job market, Type I. (→12)

12. Job market: First, you need to find out how long it takes you to get a job (12A). Then you will use your Type I, Type II, or Type III in the job category section (12B).

12A. Delay in finding a job: Roll two dice and sum.

School Drop-Out

Female	Male	Delay
2-7	2-6	1 to 4 weeks
8-9	7-8	5 to 14 weeks
10	9,11	15 to 26 weeks
11-12	10,12	more than 27 weeks

High school graduate

Female	Male	Delay
2-6	2-6	1 to 4 weeks
7-8	7-8	5 to 14 weeks
9-10	9-10	15 to 26 weeks
11-12	11-12	more than 27 weeks

Education beyond high school

Female	Male	Delay
2-6,9	2-6,10	1 to 4 weeks
7,8,10	7-9	5 to 14 weeks
11-12	11-12	15 to 26 weeks

For every 300 experience points, cut 4 weeks off delay time in finding a job.

12B. Jobs: If you are Type I and have 400 experience points, go on to Type II.

Type I: Roll two dice and sum.	Female	Male
Clerical (secretary, clerk)	4-6	4
Service Work	10-12	10
Professional, Technical	8	6
Operative (machine op., drivers)	9	7
Sales	7	3
Managers, Administrators	2	8
Laborers	--	11
Craft Workers	--	5,9
Other	3	2,12

Type II: Roll two dice and sum. (Includes educators)	Female	Male
Clerical	8-9	---
Service	2-4	3
Professional, Technical	6-7	6-7
Operatives	11	4-5
Managers, Administrators	5	8-9
Sales	10,12	2
Craft Workers	---	10-12

Type III: Roll two dice and sum. Professionals (Excludes educators)	Female	Male
Engineers	12	9-12
Physicians	2,3	8
Other (Lawyer, veterinarian, C.P.A., M.B.A.)	4-11	2-7

12C. Salary

Salary is determined by your training, your experience, and your education. These salaries represent national average *starting* salaries. (1977)

	Type I		Type II	
	Female	Male	Female	Male
Clerical	$7,400	$11,900	$8,300	$13,100
Service	5,600	10,000	6,000	10,500
Professional, Technical	9,300	13,400	10,900	16,800
Operative	6,500	11,500	6,500	11,500
Sales	5,300	12,700	7,000	16,500
Managerial, Administrative	8,700	14,400	13,100	20,600
Laborer	---	9,700	---	---
Craft Worker	---	13,100	--	14,800
Other	7,150	12,300	---	---

	Type III	
	Female	Male
Engineer	$16,000	$19,900
Physician	19,000	25,000
Other	12,000	16,800

SUMMARY ACTIVITIES

Recording Information

As students finish *Odds On You*, they should record the indicated information on charts (shown below) placed on an overhead or a blackboard. This provides a quick visual comparison of results.

	Female	
High School Math	Experience Points	Salary

	Male	
High School Math	Experience Points	Salary

It is possible to change the outcomes in real life. Women do not have to settle for smaller salaries. Critical areas that can help include:

1. Mathematics taken in high school — Taking more math expands job options.
2. Elective choices in high school or post-high school education — Taking computer education or skill building courses expands job options (see which courses give experience points in Section 4D).
3. Recreational activities — Many activities provide opportunities for learning skills and developing the ability to work with people. These help in getting a job.
4. Type of training or college major selected — Some very popular college majors provide little employment opportunity. Some types of vocational training offer excellent job opportunities.
5. Working in part-time jobs during the educational years — Part-time jobs should require considerable learning or on-the-job training for skills usable in future jobs.
6. Taking a nontraditional job — The larger salaries are in fields not ordinarily entered by women.

Discussing Probability

To better understand the exact probabilities of the outcomes, students should work through the What Are The Odds page. Then, the dice outcomes in the *Odds On You* activity can be converted into probabilities. This will give students a better idea about the relative likelihood of their taking certain math courses, going to college, etc. This is best accomplished in small groups where interaction about the probabilities can arise naturally. It is *not* recommended that students be assigned to convert the dice outcomes to probabilities as an individual task.

Students should review how their individual outcomes compare with the overall range of outcomes on any given roll of the dice. Was their outcome typical of other students?

To explore theoretical versus experimental probabilities, a total class summary of results can be compared with the given probabilities for a selection of the sections.

For example, suppose sixty students participate in *Odds On You*. Approximately, thirty students would work through the model as females. In section 4B the actual results for these thirty females might differ considerably from the theoretical results (see chart). This provides a link between the *Odds On You* and important concepts in probability for the high school and postsecondary students.

Dice sum	Math Taken	Percent Probability	Results for a class of 30 females
11	No math	5%	0/30 0%
6,10	General Math	22%	5/30 17%
8,9	Algebra I	25%	7/30 23%
2,7,12	Geometry	23%	9/30 30%
4,5	Algebra II	19%	8/30 26%
3	Calculus or 4th year math	5%	1/30 3%
		(Theoretical)	(Experimental)

WHAT ARE THE ODDS?

When you roll one die, how many different ways can the die come up? _____

This means that the chance of getting one particular number is _____

What percent is this? _____

When you roll two dice and add them, what are the possible sums? _____

Are the sums equally likely? (Is an 11 as common as a 6?) _____

Use the next two activities to find or check your answer.

List all the 36 possible outcomes for two dice here:

1,1	1,2	1,3	—	—	—
2,1	2,2	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—

Use your list above to find out how many ways each sum comes up.

Sum	Number of Ways	Percent*
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Are the sums equally likely?

*Percent is the number of ways for each sum divided by the total possible ways (outcomes), 36.

Solutions to What Are The Odds?

When one die is rolled, each face is equally likely. There is one chance in six of a particular face turning up (16.7% each face).

For two dice, the sums are not equally likely, as the following table indicates.

Sum	Frequency of Occurrence	Percent
2	1	3%
3	2	5%
4	3	8%
5	4	11%
6	5	14%
7	6	17%
8	5	14%
9	4	11%
10	3	8%
11	2	5%
12	1	3%

Notes and questions for discussion by section:

Section 1: Sex

Encourage students to accept the possibility of working through the activity as a member or the opposite sex. It is important that they understand others' options in life as well as their own.

Section 2: Parents' income

Why might it be reasonable that the same roll of dice determines the income for both parents? (Employment and income trends show that husband's and wife's incomes tend to be on similar levels within their sex-income range.)

Section 3: Your income during high school

What jobs provide skills or training for the future? What are the differences in learning opportunities between working in a restaurant or a movie theater, and working in a service station or on a road survey team?

Section 4: Your high school education*

A. Many students do not finish high school. Consider, for example, the data for persons not enrolled in school and not high school graduates as a percent of population for ages 14-24:

Black male	18.1%
Black female	18.9%
White male	9.9%
White female	11.0%

B. What is the likelihood of male and female students in your school system completing a fourth year of high school math?

C. Males and females have different reasons for continuing in math. Parental and peer expectations may play a large role in student decisions. Why are your students in mathematics?

D. What types of skills are learned in elective courses? Why would some electives be given high experience points while others few or none? Why might there be differences between males and females in number of experience points awarded for the same elective?

*Source: National Center for Education Statistics. *The Condition of Education*, Washington, D.C., Vol. 3, Part I, Table. 4.12, 1977.

Section 5: Cast your fate to the wind

A large number of students marry after high school. Ten percent of females ages 12 to 18 become pregnant. What happens after "they lived happily ever after?"

Be sure students record their job type (Type I, II, or III) when they go to the job market.

Section 6: Post high school

What is a G.E.D.? How do you get one?

What training is offered at a vocational school? Are there other ways to acquire this training without going to school?

Why might students with high family incomes have more choice (a second roll of dice) in what they do after high school?

Be sure students use the appropriate math category. If they are sent to the job market, they must record Type I, II, or III.

Section 7: Community College

Most universities and colleges require students to take several basic courses during their first two years. Many of these courses are also offered in community colleges. What are the relative costs of the two ways to take courses? How easy is it to transfer to a university after two years?

How do vocational training courses at a community college differ from vocational schools? What are the advantages or disadvantages of the community college versus the vocational school?

Be sure to record Type I, II, or III if sent to the job market.

Section 8: College

A. Many college students are reluctant to take calculus, but without calculus, they limit the choices they have for college majors. Non-calculus students often end up in overcrowded fields and have difficulty finding jobs.

B, C, D. Be sure to record Type I, II, or III if sent to the job market.

Section 9: Armed forces

A comprehensive set of tests that include Algebra and Geometry questions is given to new recruits in the armed forces to determine training programs. What effect would this training have on employment opportunities when one returns to civilian life?

Section 10: Out of the labor force

Many students will finish the activity at this section. Encourage them to reflect on their life situation at this point. They may be married, have a child, be on welfare, or be on unemployment. Do they want to enter the labor force? If so, what educational handicaps do they have? What opportunities are there to earn and learn a skill at the same time? What kinds of jobs are there for people with no skills at all?

Section 11: Vocational or apprenticeship training

Federal guidelines now require that an increasing percentage of women and minorities be hired on federally funded construction projects. For example, women must have a 6.9% participation rate by March 31, 1981 on construction sites where federal monies are involved. Thus, opportunities in the trades are improving. The features of mobility, earning while learning, variety of work environments, and good pay are appealing to a growing number of young women.

Section 12: Job Market

Even with an advanced degree, many people experience difficulty in finding employment. Job opportunities vary widely with geographic location and local economic conditions. Consider the following projections for elementary and secondary teachers, traditionally female, non-calculus professions.

Supply and Demand Projections 1980-85

School Year Ending	Supply of Beginning Teachers	Demand for Additional Teachers
1980	222,000	117,000
1981	218,000	129,000
1982	214,000	135,000
1983	208,000	145,000
1984	203,000	167,000
1985	196,000	181,000

Source: Frankel, Martin M. (ed.), *Projections of Education Statistics to 1986-87*, Washington, D.C.: National Center for Education Statistics, Table 21, p. 64, 1978

Members of the Community

Careers

CAREER AWARENESS: AUTOMOBILE INDUSTRY

RO2370 J (C) 11 Min. *(AIMS)*

Explores the world's largest industry, its vital role in the economy and the need for design, production, sales, and service personnel. Career Awareness Series. Teacher's Guide — 30 Student Workbooks.

CAREER AWARENESS: CONSTRUCTION INDUSTRY

RO2369 J (C) 11 Min. *(AIMS)*

Raising the Roof — a clever film documenting construction of a house with emphasis on the numerous craftsmen required. Career Awareness Series. Teacher's Guide — 30 Student Workbooks.

CAREER AWARENESS: HOSPITALITY INDUSTRY

RO2371 J (C) 11 Min. *(AIMS)*

We Aim To Please is a quick paced film showing hospitality services vital to business travel and personnel. Career Awareness Series. Teacher Guide — 30 Student Workbooks.

CAREER AWARENESS: PERSONAL SERVICES INDUSTRY

RO2372 J (C) 11 Min. *(AIMS)*

At Your Service portrays job opportunities for skilled persons who provide a wide variety of services including hairstyling and pet grooming. Career Awareness Series. Teacher's Guide — 30 Student Workbooks.

CAREER AWARENESS: WHY WORK?

RO2373 J (C) 11 Min. *(AIMS)*

Work: A Four Letter Word? is a perceptive film showing interdependency of home and business. Contrasts different reasons for working. Career Awareness Series. Teacher's Guide — 30 Student Workbooks.

CAREER DECISION MAKING

RO3193 S-C-A (C) 27 Min.

Jeff, a high school student forced to change schools because of a change in his father's job, learns from his counselor that adapting to change is a skill that he must learn. In the role of the counselor, Dr. John D. Krumboltz of Stanford University helps Jeff join a group of high school students who have agreed to work together to learn career decision making skills.

CAREER IN EDUCATION

RO2487 J-S (C) 18 Min. *(EP)*

The introduction by Sidney P. Marland emphasizes the place of home, school and work to the student's life. Also demonstrates that education is the preparation for work and work is preparation for life. Education is made realistic to the World of Work.

CAREER OPPORTUNITIES IN RETAILING

RO2534 J-S-A (C) 18 Min. *(AIMS)*

Designed to stimulate thinking about the many and varied careers available in retailing.

CAREERS & ATTITUDES

RO28 I-J (C) 15 Min. *(PARA)*

Are rewards for honest work worth the inescapable frustrations? This question and others are explored by Harry, a telephone repairman, as he spends a day introducing his little brother Greg to the real world of work. Greg discovers being responsible is always easy, but is ultimately worth the effort.

CAREERS IN THE BUILDING TRADES (BASIC SKILLS)

RO7456 J-S (B/W) 11 Min. *(CORF)*

At a summer job on a construction site, Bob observes the carpenter, plumber, bricklayer, electrician, painter, plasterer and glazier at work. He discovers that his interests and aptitudes fit him for a vocation in the building trades. When he returns to school he finds that each of his subjects will contribute to his future work.

CAREERS WITH A FUTURE: ELECTRICIAN

RO2275 J-S (C) 12 Min. *(OTH)*

Describes the training needed to become skilled as an electrician, the basic tools and equipment used, opportunities for further training and advancement, and examples of types of jobs encountered. It demonstrates the practical advantages of becoming skilled in this area.

CAREERS WITH A FUTURE: INSTRUMENTATION

RO2276 J-S (C) 16 Min. *(OTH)*

Describes the training needed to become skilled in instrumentation, the basic tools and equipment used, opportunities for further training and advancement, and examples of types of jobs encountered. It demonstrates the practical advantages of becoming skilled in this area.

CAREERS WITH A FUTURE: MILWRIGHTING

RO2274 J-S (C) 15 Min. *(OTH)*

Describes the training needed to become skilled in Milwrighting, the basic tools and equipment used, opportunities for further training and advancement, and examples of types of jobs encountered. It demonstrates the practical advantages of becoming skilled in this area.

CAREERS WITH A FUTURE: PIPEFITTING

RO2278 J-S (C) 18 Min. *(OTH)*

Describes the training needed to become skilled in pipefitting, the basic tools and equipment used, opportunities for further training and advancement, and examples of types of jobs encountered. It demonstrates the practical advantages of becoming skilled in this area.

CAREERS WITH A FUTURE: SECRETARIAL

RO2277 J-S (C) 15 Min. *(OTH)*

Describes the training needed to become skilled in secretarial work, the basic tools and equipment used, opportunities for further training and advancement, and examples of types of jobs encountered. It demonstrates the practical advantages of becoming skilled in this area.

CAREERS WITH A FUTURE: WELDING

RO2279 J-S (C) 20 Min. *(OTH)*

Describes the training needed to become skilled in welding, the basic tools and equipment used, opportunities for further training and advancement, and examples of types of jobs encountered. It demonstrates the practical advantages of becoming skilled in this area.

CHOOSING CHANGES

RO2251 I-J (C) 15 Min. *(NIT)*

Theme: Freedom to Make, to Choose, and to Change. The story about a girl's freedom to choose and to change in order to achieve her goal of becoming a chemical engineer. The program is intended to encourage students to believe in their own abilities, as well as to test and through experience modify, their own views of their own capabilities.

LOSERS WEEPERS

RO2179 J-S (C) 28 Min. *(BYS)*

The discovery of the importance of graduating was demonstrated to Tony as he experienced the loss of friends, opportunity for advancement and general disillusionment with a world he was unprepared to meet.

Additional Suggestions for Futures Week

This activity is effectively held the week prior to preregistration to help students think carefully about their future courses and how those courses will lead to a fulfilling life and career. A Futures Week may involve teachers, students, counselors and others in the school and need not rely on outside visitors, such as a Career Seminar.

A Futures Week may include any combination of the following activities:

First Day: School band plays a "futuristic" song for students exiting the bus. A song such as the "Theme from Star Wars" or "Theme from 2001" would be effective.

In their English class students are asked to read a short story about two high school students who have decided to pursue a nontraditional career. The young man in the story has decided to be a nurse and the young woman, a business manager.

Second Day: Student officers perform a short audio dramatization over the intercom. As part of the morning announcements all students are asked to vote on their favorite cartoon posted in the hallway. These posters or cartoons could be ones the students themselves have produced on nontraditional careers, or posters and cartoons found in the Project VOTE materials.

Third Day: When students come to class on the third day, they are surprised to find the shorthand teacher in their metal shop class and the accounting teacher in their parenting class (see Idea #15).

Fourth Day: In English, Psychology and Sociology courses, students discuss the booklet, Looking Out For Life, and view the filmstrip that accompanies the booklet. They also experience "The Game of Life" (see Idea #25).

Fifth Day: In the auditorium all students are shown the filmstrip, Looking Out For Life. They are then asked to fill out a sample registration form, and then return to class. Upon returning to class the students are asked to discuss Futures Week and its impact on their choice of courses for the coming year.

Source: Project VOTE, Vocational Opportunity Through Equity, "Careers Unlimited," Utah State Office of Education, Division of Vocational Education, Salt Lake City, Utah, 1982.

Bibliography

Bhaerman, Robert D., Career Education: The Collaboration With The Private Sector, Ohio State University, The National Center for Research in Vocational Education, 1982.

Cornish, Edward, Careers Tomorrow The Outlook for Work In a Changing World, Bethesda, Maryland, World Future Society, 1983.

Eggers, John R., Will You Help Me Create the Future Today Terry? Buffalo, NY, D.O.K. Publishers, Inc., 1981.

Feingold, S. Norman and Miller, Norma Reno, Emerging Careers: New Occupations for the Year 2000 and Beyond, Garrett Park, Maryland, Garett Park Press, 1983.

Fitch, Robert M. and Svengalis, Cordell M., Futures Unlimited: Teaching About Worlds to Come, Washington, D. C., National Council For the Social Studies, 1979.

Kaurman, Draper L Jr., Teaching the Future, Palm Springs, CA, ETC Publications, 1976.

July 9, 1984
10153 Suez Ave.
El Paso, Tx. 79925

Dear Miss Allen,

I would like to let you know how I feel about The Summer School Pilot Program. It will help me in high school. To keep my studies up and just make school intresting. It will make me aware of the right way to apply for a job interview so I can make my impression outstanding.

Thank you,
Quinn Sanford

BEST COPY AVAILABLE

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[illegible]