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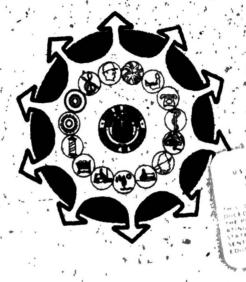
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ABSTRACT

This booklet along with six others comprises a curriculum quide developed for adult education supervisors and teachers of undereducated workers or job seekers whose inability to develop the skills and obtain the knowledge necessary to meet the requirements of the working world are primarily due to a lack of competence in reading and math skills. This first booklet is a summary of the reading and math skills and an explanation of the development of diagnostic and instructional instruments utilized in each of the instructional packets. (Booklets 4-7 are the instructional packets developed in each of the following areas: Manufacturing, municipal government, health services, and construction.) Section 1 of the booklet contains a list of reading skills: discusses the development of diagnostic instruments for assessing reading level, including testing instructions and the test; and explains the development of instructional instruments, including a summary of the following method for preparing career-related materials: Collect print from career sites, analyze the print for suitability in content and vocabulary, locate a sample skills lesson, substitute career-oriented vocabulary and content in the sample exercises, and follow-up with practice. Section 2 contains a list of basic mathematical skills and adult performance level objectives; and, like the section on reading, explains the development of the diagnostic and instřuctional instruments utilized in each of the instructional packets. (EM)

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# AN ADULT PRESCRIPTIVE PROGRAM FOR LEVELS OF EMPLOYMENT— CAREER ORIENTED EDUCATION (APPLE CORE)



An Adult Education Curriculum Guide
based on
Instructional Materials Related to the
Occupational Needs of Employees
(Developed and Prepared by Project Apple Core Staff)

Bulletin #1258

BOOKLET 1
Reading And Mathematics Summary

Funded under the Adult Education Act of 1966, as amended, through the Division of Adult Education, United Stotes Office of Education Department of Health, Education, and Welfare

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## ADULT EDUCATION SPECIAL PROJECT 1974-75

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Robert M. Arceneaux Project Director

#### INTRODUCTION

The ability to use skills and obtain knowledge necessary to meet the requirements of today's working world are probably the most important determiners of economic success among adults. Many attempts have been made to pinpoint the indicators of this functional competence and many terms such as "functional illiteracy," "coping skills," and "job survival skills" have been used in association with the activities designed to help workers or job seekers attain or improve certain competencies in relation to these tasks.

The intent of Project Apple Core was to obtain information from employers in the Lafayette, Louisiana area concerning academic, occupational and inter-personal competencies needed in particular jobs, and to design an academic curriculum to meet the needs of undereducated workers. The information in the guide can be helpful for adult education supervisors who are interested in this type of program in their area. For the adult education teacher, the information contained herein can be used in the instruction of adults who may be employed in the areas of manufacturing, municipal government, health services, and construction. It may also be used as a guide in designing curricula for occupations which exist in their particular locale.

The complete guide has been sub-divided into seven booklets for easier use and reference by instructional personnel. The first section, which is included in the booklet, contains a summary of the reading and math skills and an explanation of the development of

diagnostic and instructional instruments utilized in each of the instructional packets. Booklet two is a detailed report of the employers' survey and booklet three is an annotated bibliography developed for teacher reference. Booklets four through seven are instructional packets developed in each of the following areas: manufacturing employees, construction employees, health services employees, and municipal government employees.

#### INTRODUCTION AND RATIONALE

Ί.

The area of reading was of primary concern in Project
"Apple Core." Lack of competence in reading is one of the main characteristics of undereducated adults, and often this deficit can be cited as the major factor in the lack of job mobility or advancement among working adults with limited education.

With this concern in mind, the project sought ways to increase the reading ability of functionally illiterate adults while at the same time increasing their opportunities for job mobility and advancement. This dual goal necessitated a reading program which was prescriptive and personalized, not only in the area of reading skills, but also in the area of career or job placement.

#### II. TESTING

In order to initiate a program in reading which would be appropriate for low-level adults, a standardized group test was considered inappropriate. A battery of informal tests which were to be individually administered were collected, some of the sub-tests being available commercially, and others having to be constructed when adult-oriented material was available.

The informal assessment attempted to evaluate only the basic reading skills, readiness through grade 4, as this was to be the major educational thrust of the project. Continuous informal

evaluation was to be considered an essential part of the instructional phase of the program, so the initial testing procedure was viewed as non-conclusive as well as subject to constant revision and expansion when necessary.

#### III. PROGRAM OF INSTRUCTION

The instructional phase of the reading program was planned around the initial evaluation of reading competence and the adult's job environment. Printed material was collected which represented the adult's career placement, and this material was made available to the instructors in the project.

Through in-service as well as aid from university consultants, the instructors were shown various ways to implement an instructional program in reading through career oriented materials. The reading activities subsequently prepared meet the criteria of the reading level and skill needs of the adult as well as utilizing printed media with which the adult might come in contact during the performance of duties related to his job.

#### IV. DEVELOPING INSTRUCTIONAL PACKETS

In preparing instructional packets in reading for the adults participating in Project Apple Core, two objectives were kept in mind:

 to make the instructional units specific enough in skill areas to be useful in a prescription program.

- to make the packets personalized in content and vocabulary which would give them a unique advantage over commercially available adult reading material. In order to personalize the vocabulary and content of the instructional materials, the project staff collected printed media from each job site of the participating adults. Included among the print collected were labels and charts, application and leave request forms and blueprints.
- The next step necessitated by the nature of the instructional goals, was to analyze the collection of material for its potential value as a source of print for a specific skills lesson. For example, if an adult employed by the Department of Public Works had a disgnosed deficit in the area of word recognition which involved structural analysis, a "Driver's Check List" from his job site might reveal the following vocabulary items:
  - mileage b. knocks c. lifter
    overheating mirrors noisy
    foreman keys looseness
    windshield leaks wiper

a.

The staff instructor would next locate a typical skills exercise in the area of word structure in any available reading skills material, such as the following: <a href="Practice in Reading">Practice in Reading</a> from Steck-Vaughn. "Make one word out of two of these words time, thing, some, every, etc." or "Add one of these endings to each word below - ing, s, er, ed: young, call, sincere, etc."

These exercises are intended to give practice to the adult student who is deficient in his ability to decode words through structural clues. The vocabulary, however, which is used as the vehicle for practice, has little meaning or relevance to the

adult's current or immediate reading needs.

Using the above exercises as a model or "sample," the Apple Core instructor was ready to substitute the job related vocabulary which would give practice in the needed skill while also providing high utility words with direct relationship to the adult's career area. Such an exercise might read as follows:

"Make one word out of two of these words - over, age, heating, mile, man, fore, etc."

or

"Add one of these endings to each word below - s, er, ness, ed:

wipe, leak, mirror, knock, etc."

An alternate and perhaps more desirable manner of accomplishing the same skills and job objectives was to have the adult actually work with the piece of print, such as "Circle all of the s, er, ness, and ed endings you can find on the "Driver's Check List Form." This would facilitate carry over of skills work to print which was functional for the adult, as well as serving as a highly motivating and satisfying work experience. Directions and answers for the exercise could be taped ahead of time by the instructor which would individualize the activity without necessitating one-to-one instruction.

There are many other variations possible when preparing career-related instructional activities, but the simplest method which was employed by Apple Core staff can be summarized as follows:

collect print from job or career sites.

- analyze the print for suitability in content and vocabuTary for specific skills objectives.
- locate a model or sample skills lesson to follow in constructing the career-related practice exercise.
- 4) substitute career-oriented vocabulary and content for the print used in the sample exercise.
- 5) follow-up with practice using the actual forms, charts, or other prints that relates to the adult's job related functions.

The instructional packets are not meant to serve as models of "excellent" or "authoritative" skills work, but merely attempts by adult educators to incorporate a prescriptive skills program into a meaningful vehicle for learning. The exercises can be improved upon by individuals with expertise in reading, but hopefully they can serve as samples of possible jobarelated reading instruction which will bring the world of print closer to the grasp of adult illiterates in America.

#### WORK ATTACK SKILLS

Auditory discrimination (initial consonants, rhyming words)

Visual discrimination (letter forms)

Associating grapheme with phoneme for most consonants (initial and final positions)

Using some initial and final consonants to help in identifying

In rectional forms (such as s, ed)

Beginning consonant digraphs and blends (such as ch, sh, th, pl, st, tr)

Simple compound words

Long and short vowels

Associating final consonant digraphs and blends

Silent consonants (such as kn. wr)

Inflectional changes (such as y to ied, ed, 's), some suffixes, contractions

Consonant substitution to identify new words .

Alphabetical order

Double consonants

Hard and soft sounds of c and g

Vowel digraphs and dipthongs (such as ai, oa, ea, ow, oi, oy)

Separating compound words into known words

Additional silent consonants, prefixes (un, re), suffixes (such as est, ful, ness)

Noting phonic aids as clues to identifying unknown words

Noting vowel "sounds as a clue to syllabication

Learning to use a glossary or simple dictionary

Learning to use diacritical markings and pronunciation spellings

Hearing and marking syllable divisions

Additional prefixes and suffixes

Üsing phonic generalizations and rules

Additional inflectional changes (such as y to i with est, d to t)

Association of r-controlled vowels, schwa ...
Using sentence context to determine meaning of unknown words

#### COMPREHENSION AND STUDY SKILLS

Ability to read for details

Ability to remember sequential order

Ability to find the main idea

Ability to choose appropriate titles or categories

Ability to use table of contents, indexes, and glossaries

Ability to locate specific information

Ability to follow directions

Ability to read simple maps

Ability to draw conclusions and make predictions

Ability to interpret and make inferences

Ability to interpret, graphs, and schedules

Ability to adjust reading rate to purpose

Ability to summarize information

Ability to make an outline

Ability to use an encyclopedia and other reference sources

Ability to organize and report information

Ability to evaluate and read critically

#### TESTING INSTRUCTIONS

Use judment - stop at any time on a test section if student appears frustrated . . . . . .

#### SIGHT WORD TEST

#### A. Basic Sight Words

- 1. Print each word on a separate card.
- Mark each word missed on the sight word test check sheet.
- 3. Go through the entire word list.

#### B. Functional Sight Words

- 1. Print each word in all caps on a separate card.
- Mark each word missed on the sight word test check sheet.
- g3. Write in any word substitution on check sheet.
  - . Go through the entire word list.

#### C. Career Oriented Vocabulary

- 1. Print each word on a separate card.
- 2. Mark each word missed on the sight word test check
- Write in any word substitution on check sheet.
- 4. Go through the entire word list.

#### CONTEXT CLUE TEST

#### A. Primary Level (pronunciation)

- 1. Print each word on a separate card.
- 2. Print sentence using sight word on the reverse side of card.
- Test all words as sight words determine if student can recognize words.
- 4. Place cards in two stacks known and unknown.
- If student does not recognize sight word have him read the sentence.
- Supply words he does not recognize immediately except the context word.

#### B. Intermediate Level (meaning)

- I. Print each word on a separate card.
- 2. Print sentence using sight word on the reverse side of card.
- Test all words as sight words.

- 4. Place cards in known and unknown stacks.
- If student does not recognize sight word have him read the sentence.
- Supply each word missed except context word.
- Ask the student to guess the meaning of the context word form clues in the sentence, even if he is unable to pronounce the word.
- 8. You may wish to check the meaning in a dictionary with student.

#### STRUCTURAL ANALYSIS TEST

#### A. Root words.

- 1. Print all the words on a sheet of paper.
- Have student circle the root or base word in group I. (6 examples)
- Have student draw a line between the two words in group II.
   (4 examples)

#### EVALUATION OF TESTS

Record student test results for

- Instructional level
  - a. Harris Word List.
  - b. <u>Read</u> informal inventory.c. <u>California Achievement Test.</u>
    - (1) Language
    - (2) Mathematics
    - (3) Reading
- 2. Knowledge of letters and letter sound representation.
  - a. Letters identified.
  - b. Test letters unable to write.
  - Beginning consonant sounds he cannot hear.
  - d. Beginning consonants he cannot relate to a sound.
  - e. Ending sounds he cannot hear.
  - f. Short middle vowels he cannot hear.
  - g. Short middle vowels he cannot read.
  - h. Long middle vowels he cannot hear.
  - i. Long middle vowels he cannot read.
  - j. "r" related and other sounds he does not know.
  - k. Consonant blends he cannot hear.
  - 1: Consonant blends he cannot read.
  - m. Can he generalize patterned words?
  - n. Word reversals.

- 3. Knowledge of Sight Words
  - Basic sight words

primary level functional career oriented

- 4. Knowledge of context clues
  - a. Primary level
  - Intermediate level
- 5. Knowledge of structural analysis '
- 6. Ability to fill out Job Application Form
  - a. Handwriting
  - b. Spelling
    - c. Comprehension of terminology

Graded Word List compiled from: LaPray and Ross, Harris, and Botel.

			,		
<b>PP</b>	Р			-	2-
good '	work		road .		town
to .	, you		today	1	send
me	help		friend		sound
house	now		tell		straight
want'	Mr.		thought		broke
go *	know		well		above *
ride	<ul> <li>wanted</li> </ul>		never	*	burn
said '	how		night i	-	myself '
the	was	4 43	live		wide /
here	from.		old		carefully
3	4		. 5	, ,	
city /	security		population		
president	· telegram		accomp. Pish		,

discussed introduce acquainted permanent several addition refuse drew width North . preparation speaker accept block. certainly costly ticket wire compound promotion distance served suggestion

#### INFORMAL DIAGNOSTIC READING TEST FOR ADULTS

#### Areas tested:

- 1. instructional reading level
- 2. knowledge of letter names & letter-sound relationship
- knowledge of sight words: basic, functional, and career-oriented
- 4. knowledge of contextual clues to meaning
- 5. knowledge of structural elements of words
- 6. ability to fill out forms

#### Materials needed:

Read and informal teacher-constructed tests (Sight Words: Context Clues: Structural Analysis)

Job application form

#### Instructions:

Administer the Reading Inventory from Read to obtain the student's approximate instructional reading level.

- 1. If the student is unable to score level B (1.5) on the Reading Inventory, administer only the following test items:
  - a. Read la. -2b.
  - b. Basic Sight Words a. and b.
  - c. Job Application Form.
- If the student scores between level B (1.5) and level E (3.0) administer the following:
  - a. Read la. -9
  - b. Basic Sight Word Test Functional Sight Word Test
  - c. Primary level Context Clue Test
    - d. | Structural Analysis Test
  - e. Job Application Form
- 3. If the student scores above level E (3.0) administer the following:
  - a. Read 4a. -9
  - b. Functional Sight Word Test Career Oriented Vocabulary Test
  - c. Intermediate Context Clue Test
  - d. Structural Analysis Test
  - e. Job Application Form

Name
Instructional level: Harris word list
Read Informal Inventory
Knowledge of letters and letter sound representation:
la - Letters he cannot identify. lb - Test letters he cannot write. 2a - Beginning consonant sounds he cannot hear. 2b - Beginning consonants he cammot relate to a sound. 3 - Ending sounds he cannot hear. 4a - Short middle vowels he cannot hear. 4b - Short middle vowels he cannot read. 5a - Long middle vowels he cannot read. 5b - Long middle vowels he cannot read. 6 - "r" related and other sounds he does not know. 7a - Consonant blends he cannot hear. 7b - Consonant blends he cannot read. 8 - Can he generalize patterned words? 9 - Word reversals.
Knowledge of Sight Words:
Basic Sight Words - primary level: % correct functional: % correct career oriented: % correct
Knowledge of context clues: Primary level:correct out.of
Intermediate level:correct out of%
Knowledge of structural analysis:
correct%
Ability to fill out Job Application Form:
Handwriting (printed, cursive)
Spelling
Comprehension of terminology
Competer

#### SIGHT WORD TEST

#### BASIC SIGHT WORDS

- a. and, can, paid, the, in
- b, could, where, they, were, which

#### FUNCTIONAL SIGHT WORDS

stop, slow, exit, danger, private, poison, caution, emergency, detour, employees only

#### CAREER ORIENTED VOCABULARY

supervisor, interview, policy, procedure, directions, routine, capacity, promoted, equivalent, residential

#### CONTEXT CLUE TEST (Primary Level)

allowance, restaurant, neighbor, destroy, astronaut, windshield, umpire, pajamas, selfish, cooperate

. 1.	I give my little boy a dime every week for helping	aro	und the	
	house. Someday I will give him a bigger			
2.	I like to go out to eat in a	on :	Sunday.	
₩3.	Mr. Jones lives one house away from me. He helped	me	fix my	
	car. He is a good		-	
4.	Some people fix things, but other people	_	th	em.
5.	My wife and I saw thego up to	the	moon o	n TV.
6.	When I stopped to get gas, the man washed the $\_$		,	
	of the car.			. /
7.	The said to the player, "You	are	out."	14
8.	I am ready to go to bed. I will wear my new green		·	
9.	Let me ride to work with you. Don't be so			<u>_</u> .
10.	You have to on the jo	b b	y worki	ng
	and helping each other			₿.

STU	IDENT'S NAME
	CONTEXT CLUE TEST (Intermediate Level)
	lauded, perforated, lenient, dilemma, amulets, scribbled, examination, patient, elevated, flammable
1.	The men were for saving the drowning
	boy.
2.	Sheets can be torn from the tablet along thelines.
3.	Some rules at work seem too strict, but others are too
4.	
•	It was a real for me.
5.	Mr. Jones carried a rabbit's foot and otherthat
•	he thought were lucky.
6.	Writing quickly, I a note and left it for my boss
7.	The written is to be taken after the oral
•	test.
8.	Some people are willing to wait in line for their paycheck, but
	others are not so
9.	The worker's platform was a few feet
	above the ground.
10.	liquids, such as gasoline and kerosene
	should be handled with care

#### STRUCTURAL ANALYSIS TEST

#### Root Words

I. Circle the root or base word in the following words:

repay
widowed
employer
payable
disability
unemployment

II. Draw a line between the two words in each of the following:

lineman

showcase

tailgate

blueprint

Optional - You may ask the student to mark the number of syllables in each of the above words.

#### INTRODUCTION AND RATIONALE

In mathematics the primary objective of Apple Core was to have its participants function at a "literate level" academically. This was to be accomplished by teaching in the media of career-oriented materials and in a career-oriented environment on an individualized basis those mathematical concepts and skills that are generally agreed upon by mathematics curriculum specialists to belong to grade levels K through 6.

A survey was made of current materials, including texts authored by reputable mathematics educators, standardized diagnostic and achievement tests, and adult related program (APL for example). This survey resulted in:

- (1) A check list of basic mathematical skills.
- (2) A collection of mathematically related behavior objectives, particuarly in the occupational and consumer economic areas, and
- (3) An agreeable classification of levels as follows:
  - L 1: K through grade 2
  - L 2: Grades 3 and 4
  - L 3: Grades 5 and 6
  - L 4: Grades 7 through mathematics required for GED

#### II. SURVEY AND DIAGNOSTIC TEST

A survey for supervisors of prospective participants in Apple

Core was developed. Part of this survey was concerned with the supervisor's opinion of what mathematical skills and mathematically job related proficiencies are expected of the participants under his charge.

One of the initial problems was to determine in an efficient and effective manner whether or not a person was functioning below Level 4 in mathematics. To solve this problem, a diagnostic test was developed. This test was administered orally (since the testee may be illiterate) on an individual five minutes.

Upon acceptance into Apple Core, participants who were able to read were administered the California Achievement Test (CAT). In general, in the mathematics area, results of the California Achievement Tests concurred with results of the diagnostic test in the areas of weaknesses and strengths. Each participants's weaknessess was recorded on his (her) Individual Record Card (yellow) and were used to prescribe an individualized career-oriented program of study.

#### III. PROGRAM OF INSTRUCTION

To assist in the development of a program of instruction for each participant, Prescriptive Index Cards (PIC) were developed. PIC is an index of all available adult oriented materials in mathematics (see bibliography). PIC indicates levels and sequences in each mathematical skill and sources of materials related to each skill. Also, it indicates sources of materials on mathematics in the occupational and consumer economics areas.

The format used on development of individualized packets of

instruction includes a prescriptive section in which tasks, materials, and activities can be assigned to develop proficiencies on needed mathmatical skills.

#### MATHEMATICS SKILLS

#### WHOLE NUMBERS

Reading and writing

Sequence and order

Rounding

Addition

Subtraction

Multiplication

Division

Roman numerals

#### **FRACTIONS**

Understanding

Writing in lower terms

Writing in higher terms

**Equivalent fractions** 

Addition

Subtraction
Multiplication

Division

#### DECIMALS

Understanding

Reading and writing

Writing fructions as decimals

Writing decimals as fractions

Comparing decimals

Addition

Subtraction

Multiplication

Division

#### PERCENT

Understanding

Writing percents as fractions

Writing percents as decimals

Writing fractions as percents

Writing decimals as percents

Percent of a number

Other percent problems

#### GEOMETRY

Drawing and recognition of shapes

Perimeter and circumference

Graphs

#### ALGEBRA

Ratio and proportion

Powers and roots

Formulas and equations

Polynomials

#### ADULT PERFORMANCE LEVEL OBJECTIVES

#### Consumer Economics

Money problems

Weights and liquid measure.

Linear measure

Area

Volume and capacity

Sales tax and property tax

Income tax

Record keeping

Checking

Telling time

Discount and net price

Profit and loss

Commission

Unit price and total cost ~

Net amount

Budgeting

Credit

Loans and savings

**Insurances** 

Postal services and rates

Metric system

Estimating

Graph reading

Finding averages

25

#### Occupational Knowledge

Payroll earning statement
Wages including overtime
Tax deductions including rates
Social Security deducations including rates
Insurance deductions
Net and gross income

W-4 Form

Union dues including rates
Filling out invoices

Community Resources

Map reading

Filling out forms for services such as Medicare

Recreational costs computations

Budgeting time

Reading phone book and other numerical indices

Telling time

Calculating travel costs

Computing distances between locations

Estimating time of travel

. Time equivalence tables

Filling out application for driver's license

Cost of auto ownership

Calendar reading

Health

Read and comprehend medicine dosage

Cost of habits (smoking, etc.)

Thermometer reading

Hospitalization policies costs and benefits

Medical treatment costs including doctor's fees

and hospital rates

Adjust recipes proportionately

Government and Law

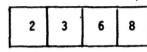
Rates of local and state sales tax

#### TESTING INSTRUCTIONS

Use judgment - stop at any time on a test section if student appears frustrated . . . . . .

- 1. How many stars do you see?
  - \*\*\*\*\*
- 2. Can you read this number? 13
- 3. You are driving your car and look down at the speedometer. How fast are you going?
- 4. Suppose I have \$34 and you have \$42. Which of us has more money?
- 5. Suppose you bought a bag of sugar for \$2 and a roast for \$5.—How much would these items cost together?
- 6. Can you work this problem. 7 + 5 =
- 7. Suppose you had \$9 and spent \$3. How much money would you have left?
- 8. Can you work this problem? 8 2 =
- 9. Suppose you work for 5 hours for \$3 an hour, how much money would you make?
- 10. Can you work this problem? 3 x 4 =
- 11. How much is this amount of money? \$438.00

- 12. Mary drove her car 20 miles yesterday and 25 miles today.
  How many miles did she drive altogether?
- 13. Can you work this problem? 39 + 5
- 14. If a 25 foot two-by-four is to be cut to a length of 12 feet, how much should be cut off?
- 15. Can you work this problem? 27 18 =
- 16. Suppose you bought an item at the grocery store that cost 74¢ and you gave the clerk a dollar, how much change would you get back?
- 17. Suppose you had to change the oil in 16 trucks and each truck takes 4 quarts of oil how many quarts of oil would you need altogether?
- 18. A 15 foot length of cloth is cut into 5 equal pieces, how long is each piece?
- 19. Can you work this problem? 4 20
- 20. How many inches are in one foot?
- 21. Can you work this problem? 9 108
- 22. How many kilowatts do you read from this meter?



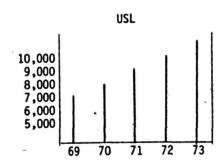
23. What part of this pie is cut out?

24. Can you read this? 2/3

25. Suppose you had \$30 and spent two-thirds of it, how much money would you have spent?

- 26. Can you work this problem? 1/2 of 16 =
- 27. Suppose a shirt cost \$10 today and it would go on sale tomorrow at 50% off. How much would you have to pay for this shirt tomorrow?
- 28. Suppose you were paid \$4 an hour for a regular and time-and-a-half for overtime. How much money would you get for one overtime hour?
- 29. What is the name of this figure?

30. Read this chart and say what the enrollment was at USL in 1970.



#### RECRUITING SURVEY

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#### PROJECT APPLE CORE INDIVIDUAL RECORD

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#### PRESCRIPTIVE PROGRAM OUTLIN

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#### PRESCRIPTION SHEET

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