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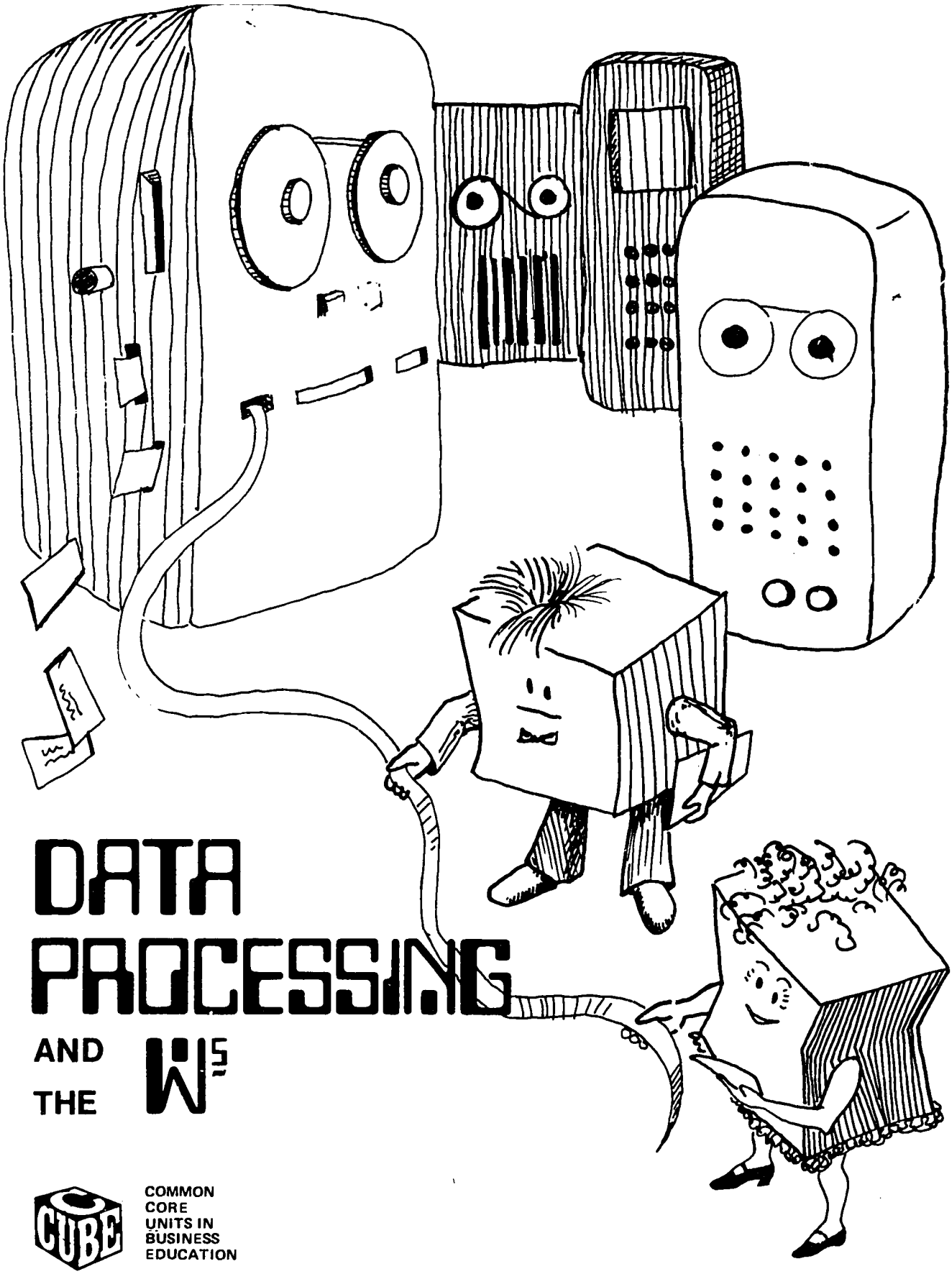
ABSTRACT

This secondary unit of instruction on data processing is one of sixteen Common Core Units in Business Education (CCUBE). The units were designed for implementing the sixteen common core competencies identified in the California Business Education Program Guide for Office and Distributive Education. Each competency-based unit is designed to facilitate personalized instruction and may include five types of materials: (1) a teacher's guide, which provides specific strategies for the units as well as suggestions for the use of the materials; (2) a student manual, which directs the student through the unit's activities and jobs and brings the student to the competency level for the unit; (3) working papers, which are consumable materials used in completing the job and activities described in the student manual; (4) pre/post tests and quizzes; and (5) suggested electronic media. A strategies manual and the California Business Education Program Guide and supplements are also available--see note. (LRA)



DATA PROCESSING AND THE Ws

COMMON CORE UNITS IN BUSINESS EDUCATION

DATA PROCESSING

Written by

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EDP Resource Center
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This document was prepared by the Office of the Contra Costa County Superintendent of Schools in cooperation with the California State Department of Education in a project funded under the Vocational Education Act, Public Law 90-576. The content does not necessarily reflect the position or policy of the U. S. Office of Education, Department of Health, Education, and Welfare, and no official endorsement of that office should be inferred.

DATA PROCESSING

Teacher Guide

Any business student, regardless of their career objective, will face an increasing use of automated equipment. This unit is designed to provide a student with an overview of the vocabulary and equipment common to modern business data processing.

Student experiences will include:

- A pre-test to determine student needs.
- A slide tape presentation to provide a clear understanding of the nine data processing operations.
- Five student note sheets to reinforce the visual presentation.
- A field study exercise $(W)^5$ to demonstrate student awareness of common data processing practices.
- An audio tape to assist students in preparing their $(W)^5$ report.
- A post-test review to assess student progress.

The following hints are provided only as a guide for teacher preparation.

PRE-TEST

Prior to administering the pre-test express the attitude that most students know a good deal more about data processing than they think. This should insure that students will approach the topic with a realistic (non technical) attitude. Use the left answer column for the pre-test, score and store the results for the post-test review.

SLIDE TAPE

Students may wish to view the slide tape in teams. Advise them to consider it a "field trip" experience that should be viewed carefully. The major concepts are clearly portrayed in each business setting. They should be prepared for a variety of sights and sounds related to business data processing.

NOTE SHEETS

Each student should be provided with the appropriat[illegible]s prior to viewing the slide tape. If two or more students view the film together one mig[illegible] as the recorder. The note sheets are for the student's use and need not be collected nor grad[illegible]

(W)5 BUSINESS STUDY

It is critical to competency development that each student submit a business study report. Students may wish to expand the one page format to a more thorough review of a local business operation. Two copies of the report are provided to allow for a [illegible]t draft. The audio tape will give students detailed help but the following hints should be stressed.

(W)5 BUSINESS STUDY HINTS

Remember, YOU are the systems analyst. You must:

- CHOOSE a business
- VISIT and observe
- ASK questions
- RECORD your findings

W1. . . . . .Look for specific manual, mechanical punch-card or electronic activities.
W2. . . . . .When are the information deadlines?
W3. . . . . .Is data sent somewhere?
W4. . . . . .Collect job titles and descriptions.
W5. . . . . .What changes would the workers like made?

Remember, there is no one "right" answer. The assignment simply allows a student to demonstrate their understanding of key concepts. Each business is different. Encourage students to share their experiences with their classmates. Review the nine operations reported by each student to detect a lack of understanding.

Remind students that this preliminary report would be turned over to a systems analyst for implementation (if a change was indicated). Students should be given AT LEAST one week to complete their business study.

POST-TEST

A retest should confirm student progress. The key concepts presented in each question are related to the slide tape presentation. The other activities are supportive but not directly related to the test questions.

Data Processing and the $(W)^5$

DIRECTIONS: The questions below will help you to learn more about data processing. Place your answers on the left the first time (pretest score). Place your answers on the right the second time (posttest score). The slide tape presentation is designed to help you improve your score. If a statement is TRUE, put a circle around the T. If it is FALSE, put a circle around the F. If you do not know if it is TRUE or FALSE, put a circle around the D.

T F D	1.	A systems analyst designs and builds computers.	T F D
T F D	2.	There are five operations common to most D.P. systems.	T F D
T F D	3.	Most businesses use more than one data processing method.	T F D
T F D	4.	Data processing can be accomplished without machines.	T F D
T F D	5.	Handwriting can be an input and an output method.	T F D
T F D	6.	Computing is part of most mechanical data processing systems.	T F D
T F D	7.	A system is a set of procedures that change business information.	T F D
T F D	8.	Carbon paper is often used as a data processing tool.	T F D
T F D	9.	Continuous form paper is only used in electronic data processing.	T F D
T F D	10.	Computing can be performed on many mechanical devices.	T F D
T F D	11.	The recording operation in punch-card systems is much faster than most mechanical methods.	T F D
T F D	12.	There are 88 columns on a standard data processing card.	T F D
T F D	13.	Data processing cards are divided into groups of columns called sectors.	T F D
T F D	14.	Computers automatically correct all recording errors.	T F D
T F D	15.	GIGO is one of the computer languages used in business.	T F D
T F D	16.	The main element of an electronic data processing system is the C.P.U.	T F D
T F D	17.	Magnetic tape is an off-line storage medium.	T F D
T F D	18.	E.D.P. always involves the use of punched cards.	T F D
T F D	19.	A computer disk is generally considered an input device.	T F D
T F D	20.	All computers can perform many tasks at the same time.	T F D

PRETEST

Student Name

6

__/__/ Date __/__/

Pretest Posttest

POSTTEST

WORKSHEET
DATA PROCESSING AND THE $(W)^5$ – PART ONE

Section 1

INTRODUCTION . . .

There are _____ methods of data processing.

Data processing is taking _____ and _____ them in various ways to make them more _____.

There are _____ basic operations that can be found in any office.

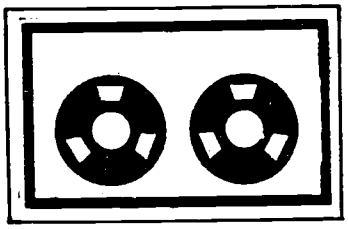
The basic operations include:

RECORDING
_____
SORTING
COMPUTING
STORING
_____
REPORTING
REPRODUCING
_____

A _____ is a set of procedures or small tasks that change (improve) business information.

Business systems are classified by the processing method:

1. _____
2. _____
3. _____
4. _____



Part One, Section 1, continued . . .

AND, AT ARGONAUT REAL ESTATE . . .

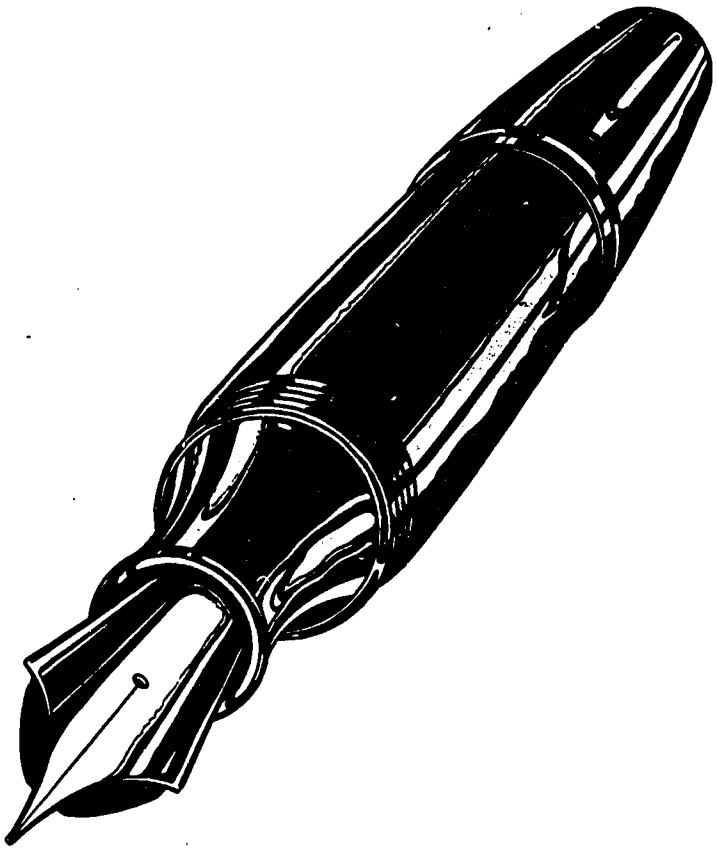
A phone request provided _____ to the manual data processing system.

Sorting put the requests in _____ order by the name of the customer.

NCR (no carbon required) paper was used to make _____ automatically.

File cabinets were used for information _____.

After you have answered the questions in Section 1, be sure to review the questions in *Section 2* before you return to PART ONE of the filmstrip.



WORKSHEET

DATA PROCESSING AND THE $(W)^5$ – PART ONE

Section 2

AT DOCTORS CLINIC, INC. . . . .

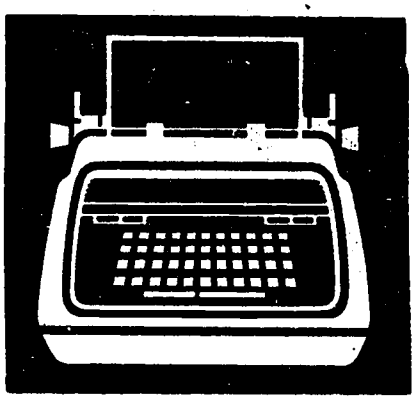
The typewriter was a _____ recording device.

Computing was done using a _____ or accounting machine.

Patient reports were _____ by using special forms and a copy machine.

Machines were used for jobs that were _____ and _____.

After you have answered the questions in Section 2, return PART ONE of the filmstrip and get PART TWO of the filmstrip. Be sure to review the questions in *Section 1* of *PART TWO* of this Worksheet before you begin PART TWO of the filmstrip.



WORKSHEET

DATA PROCESSING AND THE $(W)^5$ – PART TWO

Section 1

AT PUBLISHER'S AID . . .

Input data was punched into data processing _____ .

Machine readable input was used repeatedly with less chance of _____ .

You can record _____ items (letters or numbers) on data processing cards.

Data processing cards were divided into groups of columns called _____ .

Alphabetic characters had _____hole(s) in each column of a punched card. One in the _____ and one in the _____ area.

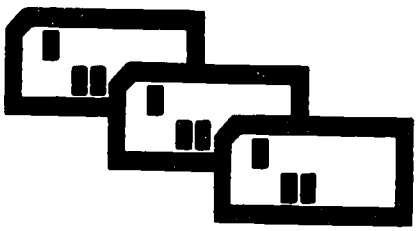
They used a punched-card _____ machine to print the mailing labels.

GIGO means _____

_____

Output was produced at over _____ lines per minute.

After you have answered the questions in Section 1, be sure to review the questions in *Section 2* before you return to PART TWO of the filmstrip.



WORKSHEET
DATA PROCESSING AND THE (W)^5 – PART TWO

Section 2

AT ON -LINE TICKET . . .

Each ticket location had its own _____ linked to the central _____ _____ .

Information was communicated (transmitted) over _____ lines.

Their _____ _____ computer system could handle multiple jobs at the same time.

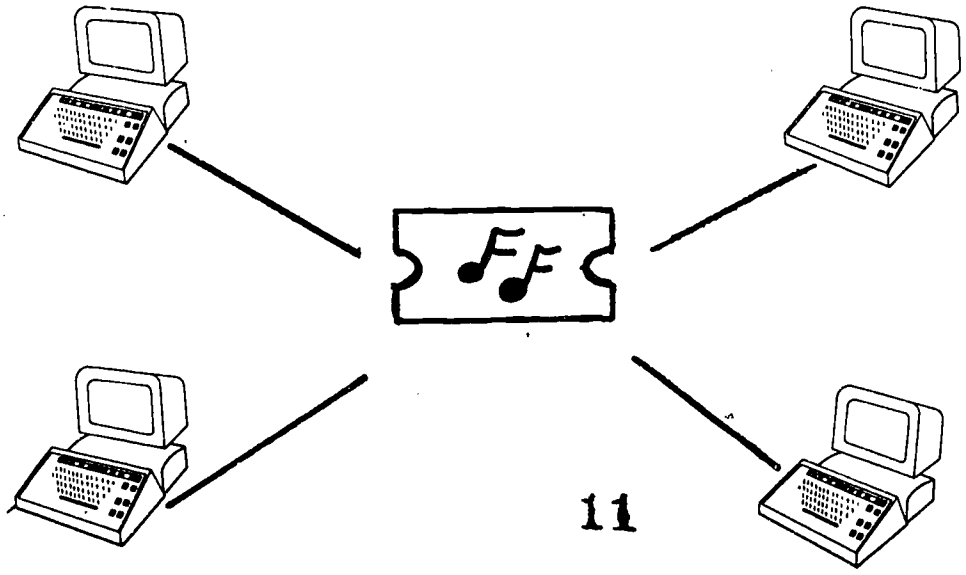
On-line _____ was found on disk packs rotating on disk drives.

Magnetic tape (off-line) storage was primarily used for _____ and _____ operations.

Punched-card payroll cards were _____ processed once a week, then paychecks were printed on a _____ .

_____ were hired to prepare instructions for each computer task.

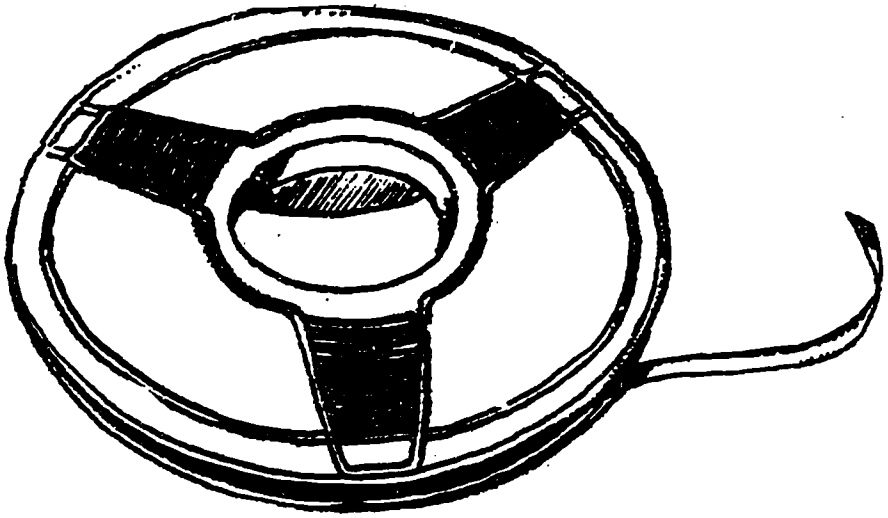
After you have answered the questions in Section 2, return PART TWO of the filmstrip and give all four parts of this Worksheet to your teacher.



W5 REPORT

PREPARED FOR

(Business Name)



PREPARED BY

(Student Analyst)

DATE

DATA PROCESSING Report

1. WHAT method of processing is this business currently using for:

   (Describe briefly.)

   A. Recording _____
   B. Classifying _____
   C. Storing _____
   D. Computing _____
   E. Sorting _____
   F. Retrieving _____
   G. Reporting _____
   H. Reproducing _____
   I. Communication _____

2. WHEN do they require output data?

   Continuously ____ Weekly ____ Yearly ____
   Daily ____ Monthly ____ Other _____

3. WHERE is the data needed?

   Locally ____ Remotely ____ Other _____

4. WHO will process the data?

   (List the job titles.) _____
   _____
   HOW MANY _____
   EMPLOYEES? _____
   (Total)

5. WHY is a change needed?

   A. Is the information flow:

      Slow ____ Inaccurate ____
      Sporadic ____ Other _____

   B. The current state of data processing is primarily:

      Manual ____ Mechanical ____ Punch-Card ____ EDP ____

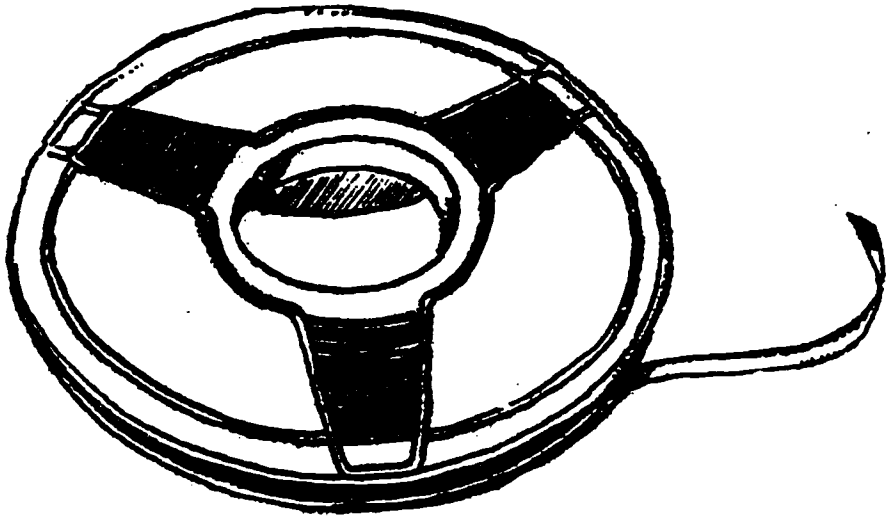
   C. Is a change indicated?

      Yes ____ No ____
      Why? _____
      _____
      _____

W5 REPORT

PREPARED FOR

(Business Name)



PREPARED BY

(Student Analyst)

DATE

DATA PROCESSING Report

1. WHAT method of processing is this business currently using for:

   (Describe briefly.)

   A. Recording _____
   B. Classifying _____
   C. Storing _____
   D. Computing _____
   E. Sorting _____
   F. Retrieving _____
   G. Reporting _____
   H. Reproducing _____
   I. Communication _____

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   Continuously ____ Weekly ____ Yearly ____
   Daily ____ Monthly ____ Other _____

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   Locally ____ Remotely ____ Other _____

4. WHO will process the data?

   (List the job titles.) _____
   _____
   HOW MANY _____
   EMPLOYEES? _____
   (Total)

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   B. The current state of data processing is primarily:

      Manual ____ Mechanical ____ Punch-Card ____ EDP ____

   C. Is a change indicated?

      Yes ____ No ____
      Why? _____
      _____
      _____

Data Processing and the W(5)

KEY

DIRECTIONS: The questions below will help you to learn more about data processing. Place your answers on the left the first time (pre-test score). Place your answers on the right the second time (post-test score). The slide tape presentation is designed to help you improve your score. If a statement is TRUE, put a circle around the T. If it is FALSE, put a circle around the F. If you do not know if it is TRUE or FALSE, put a circle around the D.

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T (F) D	2.	There are five operations common to most D.P. systems.	T (F) D
(T) F D	3.	Most businesses use more than one data processing method.	(T) F D
T F (D)	~~4.~~	Data processing can be accomplished without machines.	(T) F D
(T) F D	5.	Handwriting can be an input and an output method.	(T) F D
T (F) D	~~6.~~	Computing is part of most mechanical data processing systems.	(T) F D
(T) F D	7.	A system is a set of procedures that change business information.	(T) F D
(T) F D	8.	Carbon paper is often used as a data processing tool.	(T) F D
T (F) D	9.	Continuous form paper is only used in electronic data processing.	T (F) D
(T) F D	10.	Computing can be performed on many mechanical devices.	(T) F D
T F (D)	~~11.~~	The recording operation in punch-card systems is much faster than most mechanical methods.	T (F) D
T (F) D	12.	There are 88 columns on a standard data processing card.	T (F) D
(T) F D	~~13.~~	Data processing cards are divided into groups of columns called sectors.	T (F) D
T (F) D	14.	Computers automatically correct all recording errors.	T (F) D
T (F) D	15.	GIGO is one of the computer languages used in business.	T (F) D
(T) F D	16.	The main element of an electronic data processing system is the C.P.U.	(T) F D
(T) F D	17.	Magnetic tape is an off-line storage medium.	(T) F D
T (F) D	18.	E.D.P. always involves the use of punched cards.	T (F) D
T F (D)	~~19.~~	A computer disk is generally considered an input device.	T (F) D
(T) F D	~~20.~~	All computers can perform many tasks at the same time.	T (F) D

14/20
PRETEST

Tom Low
Student Name

20/20
POSTTEST

10/15/77 Date 10/30/77
Pretest Posttest

WORKSHEET
DATA PROCESSING AND THE (W)5 – PART ONE

Section 1

INTRODUCTION . . .

There are 4 methods of data processing.

Data processing is taking facts and changing them in various ways to make them more useful .

There are 9 basic operations that can be found in any office.

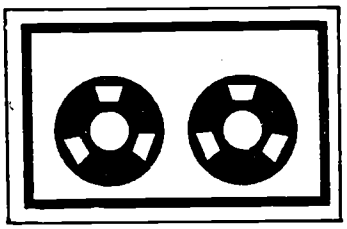
The basic operations include:

RECORDING
classifying
SORTING
COMPUTING
STORING
retrieving
REPORTING
REPRODUCING
communicating

A system is a set of procedures or small tasks that change (improve) business information.

Business systems are classified by the processing method:

1. manual
2. mechanical
3. punched-card
4. electronic



Part One, Section 1, continued . . .

AND, AT ARGONAUT REAL ESTATE . . .

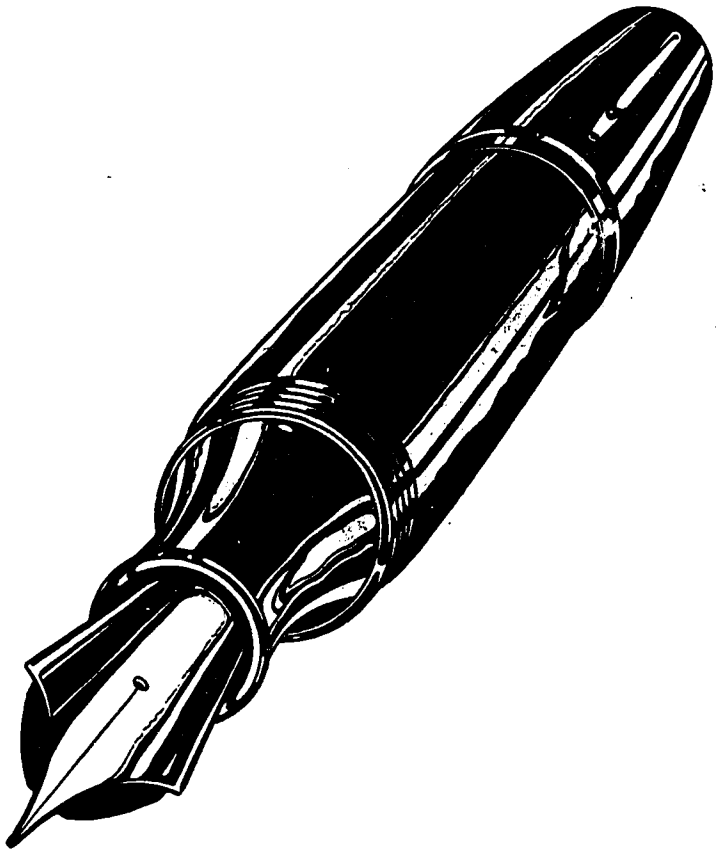
A phone request provided ___input___ to the manual data processing system.

Sorting put the requests in ___alphabetical___ order by the name of the customer.

NCR (no carbon required) paper was used to make ___copies___ automatically.

File cabinets were used for information ___storage___ .

After you have answered the questions in Section 1, be sure to review the questions in *Section 2* before you return to PART ONE of the filmstrip.



WORKSHEET
DATA PROCESSING AND THE (W)5 – PART ONE

Section 2

AT DOCTORS CLINIC, INC. . . .

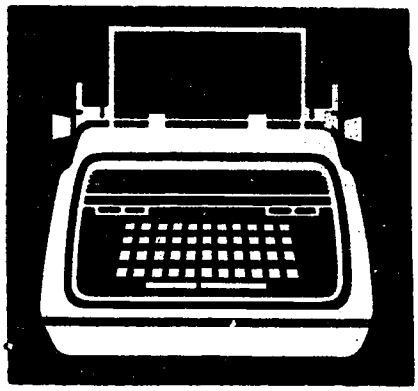
The typewriter was a mechanical recording device.

Computing was done using a posting or accounting machine.

Patient reports were reproduced by using special forms and a copy machine.

Machines were used for jobs that were large and repetitive.

After you have answered the questions in Section 2, return PART ONE of the filmstrip and get PART TWO of the filmstrip. Be sure to review the questions in *Section 1* of *PART TWO* of this Worksheet before you begin PART TWO of the filmstrip.



WORKSHEET
DATA PROCESSING AND THE (W)5 – PART TWO

Section 1

AT PUBLISHER'S AID . . .

Input data was punched into data processing ___cards___ .

Machine readable input was used repeatedly with less chance of ___error___ .

You can record ___80___ items (letters or numbers) on data processing cards.

Data processing cards were divided into groups of columns called ___fields___ .

Alphabetic characters had ___2___ hole(s) in each column of a punched card. One in the ___digit___ and one in the ___zone___ area.

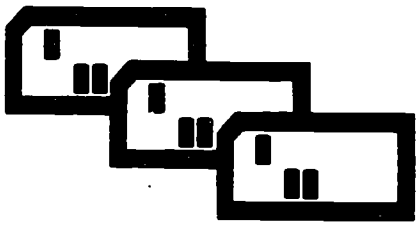
They used a punched-card ___accounting___ machine to print the mailing labels.

GIGO means ___garbage in___

___garbage out___

Output was produced at over ___100___ lines per minute.

After you have answered the questions in Section 1, be sure to review the questions in *Section 2* before you return to PART TWO of the filmstrip.



WORKSHEET
DATA PROCESSING AND THE (W)5 – PART TWO

Section 2

AT ON-LINE TICKET . . .

Each ticket location had its own terminal linked to the central processing unit.

Information was communicated (transmitted) over telephone lines.

Their time shared computer system could handle multiple jobs at the same time.

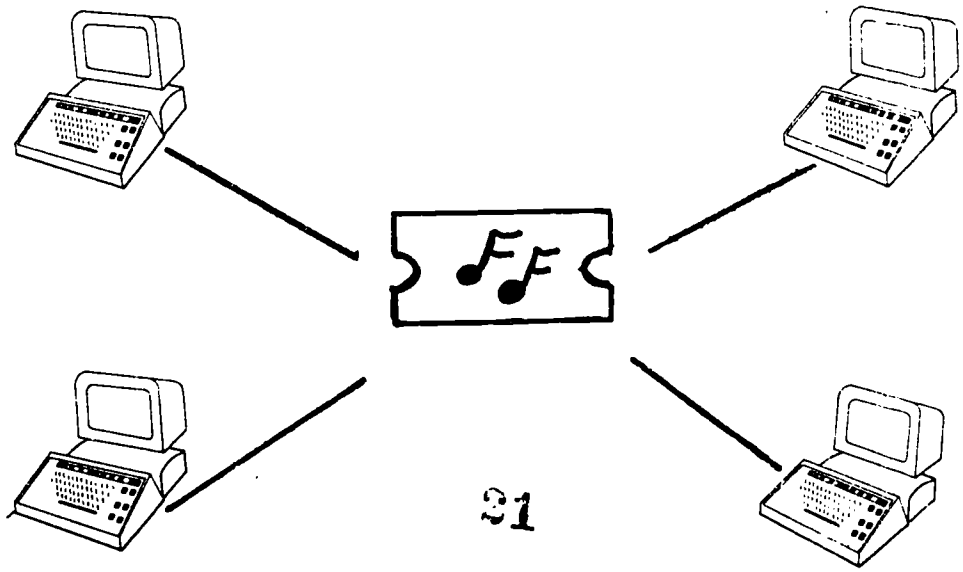
On-line storage was found on disk packs rotating on disk drives.

Magnetic tape (off-line) storage was primarily used for input and output operations.

Punched-card payroll cards were batch processed once a week, then paychecks were printed on a line printer.

Programmers were hired to prepare instructions for each computer task.

After you have answered the questions in Section 2, return PART TWO of the filmstrip and give all four parts of this Worksheet to your teacher.

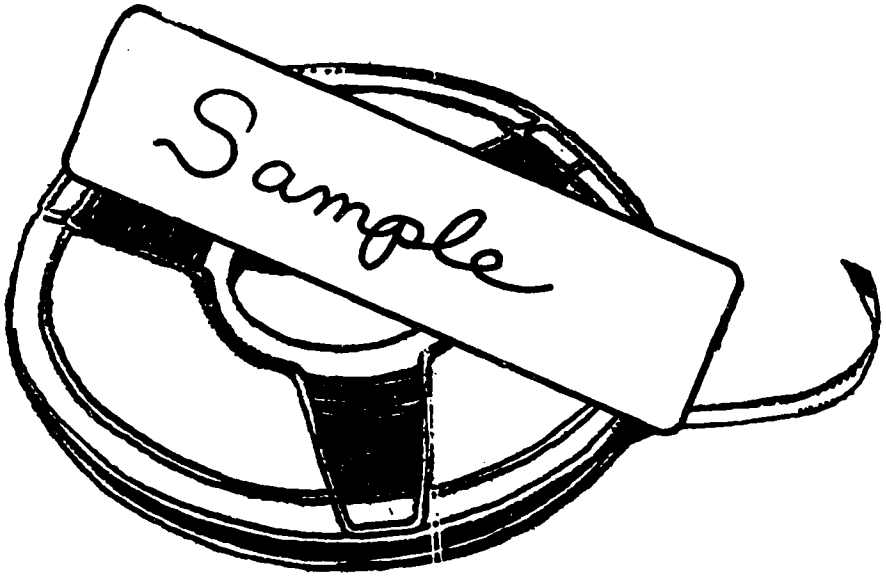


W5 REPORT

ABC Real Estate Company

PREPARED FOR

(Business Name)



Allen K. Orler

PREPARED BY

(Student Analyst)

June 23, 1976

DATE

DATA PROCESSING

Sample KEY

1. WHAT method of processing is this business currently using for:

   (Describe briefly.)

   A. Recording ___handwritten entries some typing (manual)___
   B. Classifying ___color code forms for homes, apts., stores (manual)___
   C. Storing ___file folders and cabinets (manual)___
   D. Computing ___printing calculator (mechanical)___
   E. Sorting ___hand assorting (manual)___
   F. Retrieving ___hand searches (manual)___
   G. Reporting ___typewritten (mechanical)___
   H. Reproducing ___carbon paper and a copy machine (mechanical)___
   I. Communication ___U.S. Mail and telephone (manual)___

2. WHEN do they require output data?

   Continuously ____ Weekly ____ Yearly XX
   Daily ____ Monthly XX Other ____

3. WHERE is the data needed?

   Locally XX Remotely ____ Other ___Real Estate Association___

4. WHO will process the data?

   (List the job titles.) ___Office Manager___
   ___Payroll Clerk___
   ____

   HOW MANY EMPLOYEES? 7 (Total)

5. WHY is a change needed?

   A. Is the information flow:

      Slow XX Inaccurate ____
      Sporadic ____ Other ___Sales trends not measured.___

   B. The current state of data processing is primarily:

      Manual XX Mechanical ____ Punch-Card ____ EDP ____

   C. Is a change indicated? 23

      Yes XX No ____

      Why? ___More mechanical aids are needed. Suggestions include: an automatic typewriter (communicating); a calculator with memory (calculating) and a banking service computerized payroll.___