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ABSTRACT

Published as a guide to educational television viewing for the gifted, the stated objective is to extend the learning environment, validate and individualize learning, provide resources, and use a nonverbal approach. For each area discussed the text provides information on the target audience, the need and purpose, methods of achieving the purpose, individualized viewing and learning, related activities, and additional resources for the student. Areas described are research, medicine, theater, communications, music and art, buried history, architecture, industry, urban problems, world involvement, agriculture, mathematics, and business. (JM)

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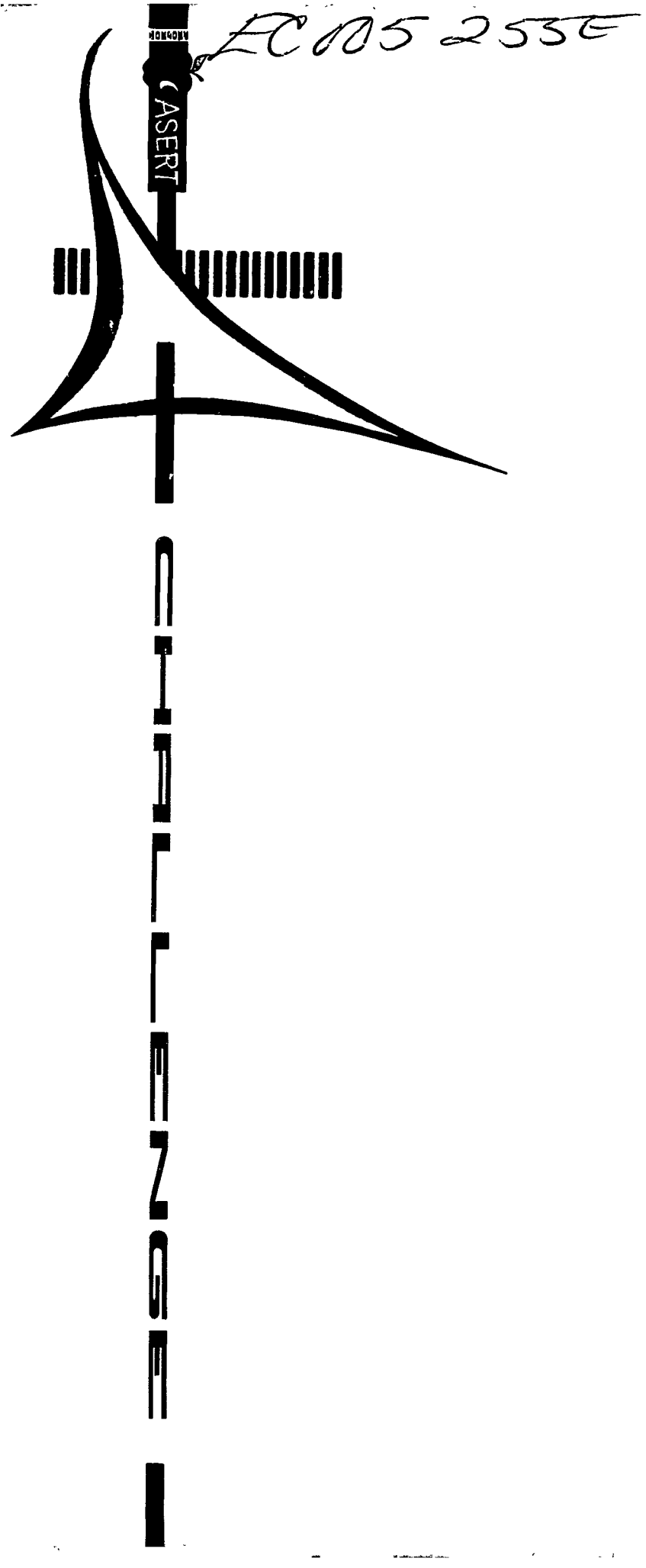

LLENGE I

Teacher's Utilization Manual

CHALLENGE

is produced for

Project ASERT

by

The Nebraska Council for Educational Television, Inc.

Through the facilities of
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KUON-TV

and by

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

State of Nebraska
Department of Education

~~FLOYD A. MILLER~~
COMMISSIONER OF EDUCATION
STATE CAPITOL LINCOLN 68509

June 20, 1969

Dr. C. Edward Cavert
Project Director
Project ASERT
Lincoln Public Schools
720 South 22nd Street
Lincoln, Nebraska 68510

Dear Dr. Cavert:

Gifted children shall be identified as those who excel markedly in the ability to think, reason, judge, invent, or create and who need special facilities and/or educational services in order to assist them to achieve more nearly their potential for themselves, and for the increased contribution they may make to community, state, and nation.

CHALLENGE is offered as one of the special educational services that can be used to promote the achievement of that increased contribution.

Sincerely,

John Dudley

John Dudley, Consultant
Programs for Gifted

JD:nl

CHALLENGE....

Is an opportunity for your gifted students to GROW!

IF you have students in your classroom who do superior work and who are always finished with their assigned tasks well ahead of everyone else . . . .

IF you have students who need intellectual stimulation beyond that permitted by time and resources in a regular school program . . . .

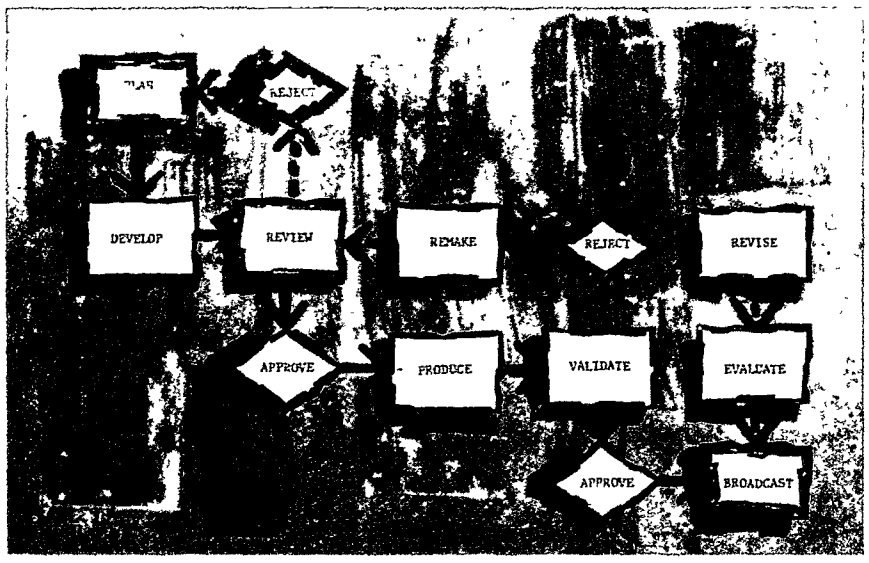
IF you have students who give only average performance in spite of high potential . . . .

CHALLENGE them!

While the idea of making Available Supplemental Educational Resources by Television provided the acronym for Project ASERT, our obligation to extend learning experiences to all Nebraska schools has provided a new approach to instructional television design and development.

- **Through a systems approach to its design procedures**
  - **Project ASERT extends the learning environment for the student**
    - **to effect validated learning through ITV experiences**
      - **which bring the resources of the state to his classroom**
    - **to individualize learning for gifted students**
      - **through a non-verbal treatment of the material.**

WHAT DOES ALL THIS MEAN TO CHALLENGE?



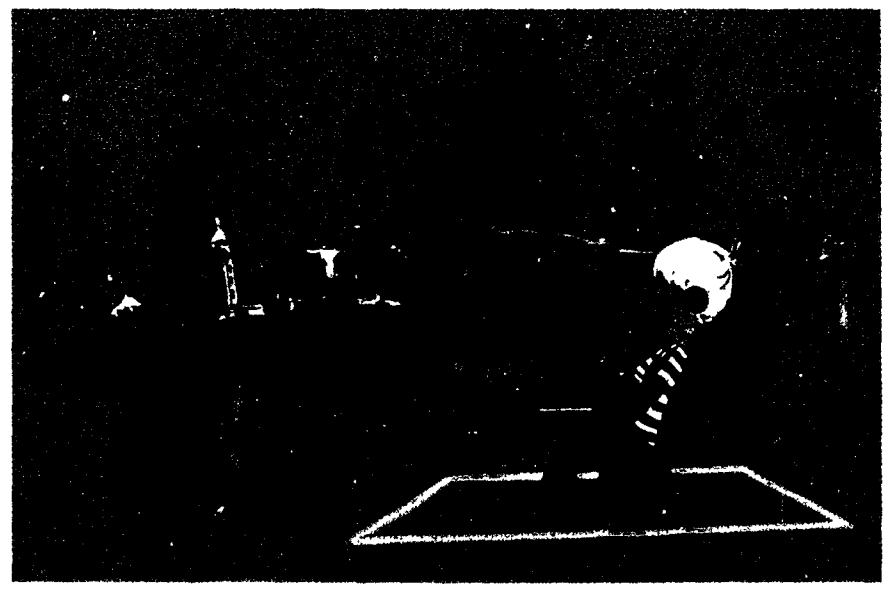
Simply this:

DESIGN PROCEDURE:

In planning the learning experiences for CHALLENGE, a Systems Approach has been designed to be used for the development of each instructional increment to produce television which can be more easily integrated into the educational process to which the individual is exposed. This approach can save *you* time for it places maximum responsibility on the student, minimum responsibility on you.

EXTEND THE LEARNING ENVIRONMENT

The learning environment for the gifted child is often limited because of the lack of resources available to him in his school. Through CHALLENGE, we have selected resources to extend this environment to fields of interest outside the more traditional academic areas.

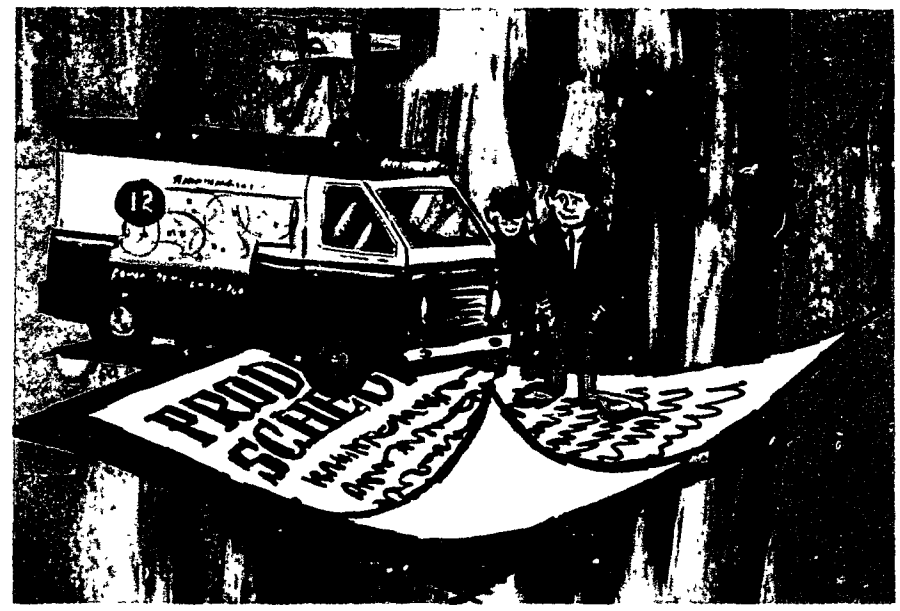


VALIDATED LEARNING:

We identify a specific behavioral response to evidence to us the desired learning has taken place. In that way, television experiences in CHALLENGE could be tested on a sample audience and revised until the responses we sought to achieve were evidenced. Then, the television experience you will have available to students in your class was approved for broadcast.

PROVIDE RESOURCES

Two-by-four television (limited to the two sides of a script and the four walls of a studio) was not adequate to provide the gifted student with resources available to him in no other way. Extensive -- if not exclusive -- use has been made of the remote-location production facilities of the Nebraska Educational Television Network in CHALLENGE to use resources wherever they were found.



INDIVIDUALIZE LEARNING

CHALLENGE is *not* a series of instructional television programs. It consists rather of 13 short units of television experiences in various interest areas designed to meet the specialized interests of specific individuals. Student handbooks have been prepared for each unit for individual use by the student viewing that unit. Not all students should view all units in CHALLENGE.

NON–VERBAL APPROACH

Verbal stimuli are not unique in the gifted individual's educational environment. What is often lacking is the abundance of visual stimuli to which he is exposed the other 18 hours a day. In CHALLENGE, we have sought to use only the minimum amount of narrative necessary to communicate what the visual elements cannot.

IS IT GOING TO WORK?

We can only assess if our approach to instructional television taken in the production of CHALLENGE is successful if it is used as an integral part of the educational process.

We invite you, as his classroom teacher, to join in partnership with us to extend the learning experiences for our target audience . . .

The Individual Gifted Child

IF YOU'RE WITH US . . . .

What does all this mean to the student?

Simply this:

CHALLENGE IS DESIGNED FOR THE INDIVIDUAL STUDENT

-- A Wide Range of Units Has Been Selected for Presentation --
(Maybe only one *of these units will appeal to a student)*

challenge: RESEARCH

challenge: MEDICINE

challenge: THEATRE

challenge: COMMUNICATIONS

challenge: MUSIC AND ART

challenge: BURIED HISTORY

challenge: ARCHITECTURE

challenge: INDUSTRY

challenge: URBAN PROBLEMS

challenge: YOU AND YOUR WORLD

challenge: AGRICULTURE

challenge: MATH

challenge: BUSINESS

What is your role, as a classroom teacher in this partnership?

Simply this:

PROVIDE FOR SELECTIVE VIEWING

From what you know about the unit from this guide, select for viewing only those students you feel this unit is designed to reach.

Not all gifted students in your class will view all units, which means – of course – some provisions must be made to allow a small group to view while their classmates are engaged in other activities.

If you've got the room, put the TV set in a corner someplace and let those students selected view, using a "listening station" with headsets. (Any TV set can be rigged up to do this.)

If you're going to allow the whole class to view, assess the results on only those students you can identify as our target audience.

DISTRIBUTE THE STUDENT'S UNIT GUIDE

The CHALLENGE guide for the students is published in 13 volumes – one for each unit treated on television. Be sure each student you have identified for viewing has his own unit guide.

These unit guides are designed for the student's *use*.Don't discourage the student from "personalizing" his guide with his notes or written responses.

The individual is going to be given enough information in this guide to prepare himself to view meaningfully – and even assess his own learning progress through responses made to each television experience.

While we don't have an unlimited supply of these unit guides, something will be worked out to be sure each student who needs one has one. We simply ask that you be selective in their distribution. If a student is not going to view or follow through with the unit on Architecture, for instance, he really doesn't need the Architecture Unit Guide.

PREPARE THE STUDENT TO VIEW

Provide whatever learning activities you can to prepare the student to get the most from the learning experience.

When we designed the television experience, we assumed that the individual was at a specific level of learning, prerequisite to the level at which we have set our goal.

But it isn't that easy, is it? No two students on the same grade level are going to be on the same level of learning in any given subject area.

All we ask is that you work with each student to see if he is prepared to view. We've given some suggestions in this guide to not only help you know where the student should be, but to suggest ways to get him to that level.

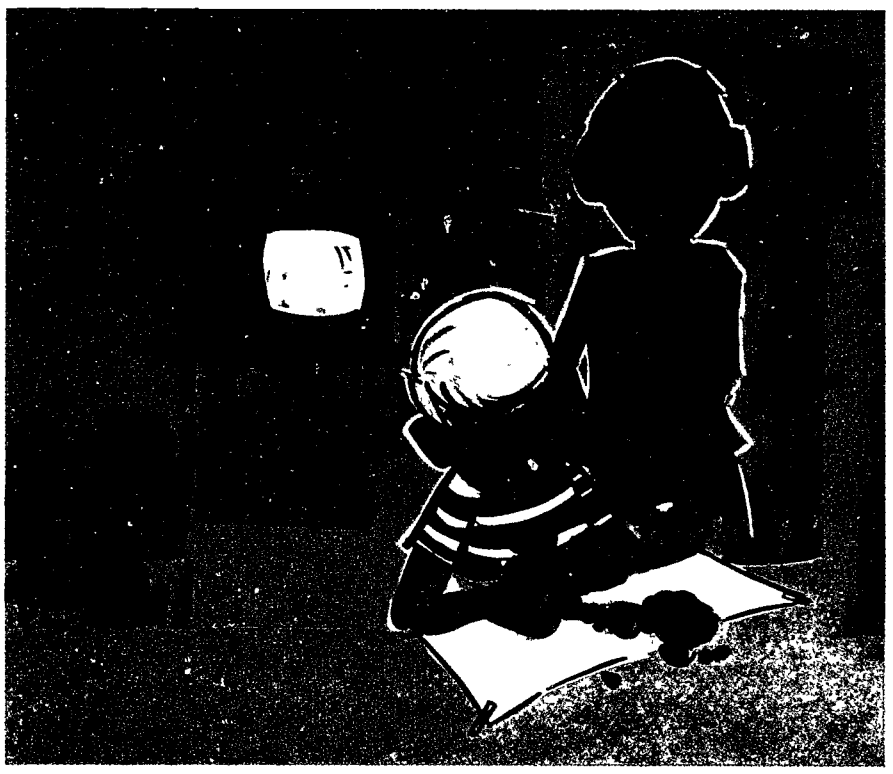
CREATE A GOOD VIEWING SITUATION

Allow the environment in which the student will view television to be as helpful to learning as possible.

We have designed these television experiences to interact with the gifted student as an individual – on a one-to-one basis. Therefore, his exposure to the TV set should be a natural, and normal part of his school day, just as though you had someone come in to visit him, personally.

Try to avoid all distracting elements around and behind the television set. Be sure it is properly tuned and adjusted. Keep the set down to eye level, much the way they're used to watching TV at home. Try not to herd all the students into a lunchroom or auditorium for viewing. This limits the individualization of his interaction with the telecast.

Your positive attitude toward the television broadcast will not only affect the learner's receptivity toward it, but it will also affect the attitude toward our viewer by the other students in the class who may be doing something else.



EXTEND THE LEARNING EXPERIENCE

Individualize your instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.

We have given to you, in this guide, extended activities or objectives to meet after the student has viewed the telecast. For each unit, suggested group or individual activities related to that general content area are also given.

The television experiences presented in CHALLENGE are not designed to be the complete learning experiences for the individual. He should be stimulated – both by television and by you – to follow-up this area of interest and to explore the area in greater depth with greater meaning.

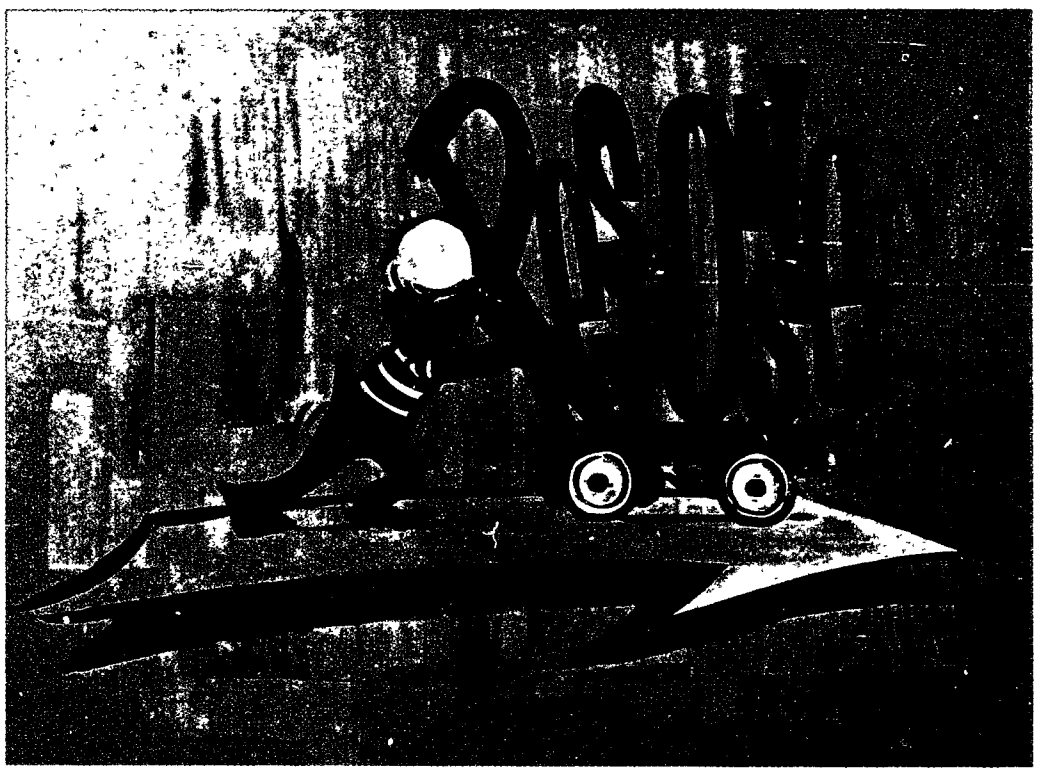
And, that's about all there is to it . . . . .

. . . . . except,

A Word About Our Behavioral Objectives

A behavioral response may not be necessary for learning to occur.

However, we believe that a behavioral response *is* necessary if we want to measure if learning has occurred.



So . . . .

For each television experience, specific responses are indicated which will evidence to you if the desired learning has occurred.

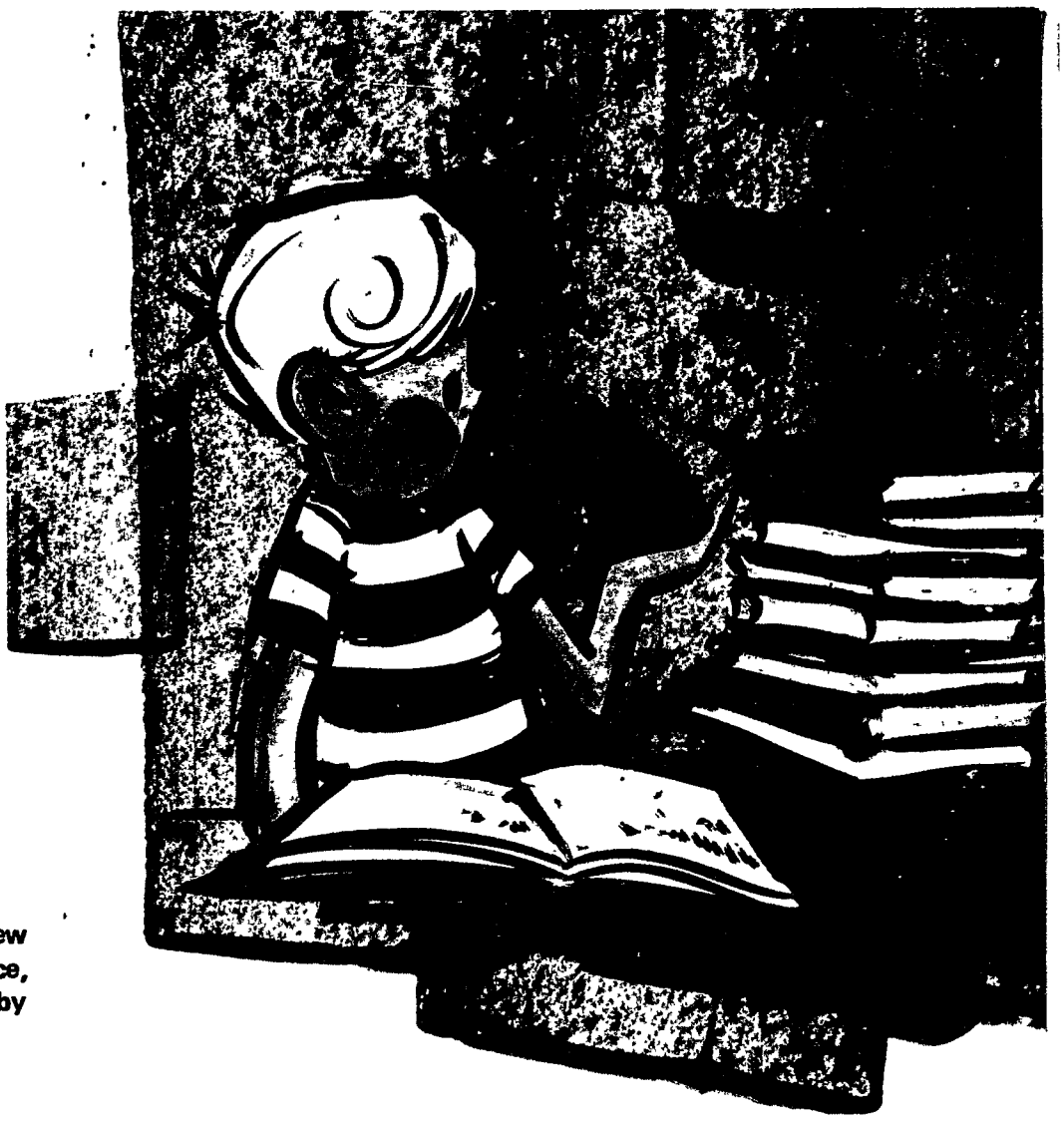
By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences *by you* in order to achieve our stated objectives.

IF THE INDIVIDUAL ALREADY IS ABLE TO ACHIEVE OUR STATED OBJECTIVES BEFORE HE IS EXPOSED TO THE TELEVISION EXPERIENCE, YOU WILL HAVE TO DECIDE IF HE REALLY NEEDS TO VIEW, OR IF HIS TIME WOULD BE BETTER SPENT EXPLORING SOME OTHER AREA IN MORE DEPTH!

Where to Find . . .

RESEARCH

Students should not limit their knowledge to the "2 by 4 learning experiences." They should not be limited by the two covers of a book and the four walls of a classroom. While CHALLENGE will provide a window to the world in this learning environment, first-hand experiences with people and places are essential to meaningful learning.



not by books alone

TARGET AUDIENCE:

This unit is recommended for viewing by all students who will view any of the CHALLENGE units this year. It is, in essence, prerequisite to stimulate extension of the television experiences by the students themselves.

NEED:

We have assumed the learner has lacked situations which have required him to know how to discipline and organize his learning experiences outside the classroom, and has been acquainted basically with print-oriented research.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE, therefore, to increase the learner's knowledge to enable him to recall procedures employed in different aspects of research.

TO ACHIEVE THIS PURPOSE, we have set as the goal for the learner his application of the skills necessary to conduct interviews and field trips in actual situations.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

When viewing dramatized interviews and field trips, the learner can cite these features that violate the basic rules of each activity.

BEFORE VIEWING . . .

Establish with the student that field trips and interviews are a legitimate form of research.

He should also be familiar with more basic forms of research available to him, and should have a functional knowledge of the use of the library.

TO EXTEND THIS LEARNING EXPERIENCE, you might want to ask the student to interview other students, and through group interaction, let other students critique these interviews according to the criteria provided.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

In an interview and field trip situation provided in the telecast, these violations of the basic rules of each activity are included:

ERRORS IN THE INTERVIEW

1. **Late arrival**
2. **Interrupting**
3. **Recording inaccurate information**

ERRORS IN THE FIELD TRIP

1. **Forgetting equipment**
2. **Late arrival**
3. **Lack of pre-planning**

Detecting two out of three in each example may be considered acceptable.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

1. Atlases and gazetteers, e.g.
   a. *National Geographic Atlas of the World*
      National Geographic Society, Washington, D.C., 1963
   b. *Rand McNally New Cosmopolitan World Atlas*
      Rand McNally & Company, Chicago, 1962

2. Biographies, e.g.
   a. *Who's Who in America*
      A. N. Marquis Co., Chicago, revised biennially
   b. *Twentieth Century Authors*
      The H. W. Wilson Company, N. Y., 1955

3. Encyclopedias, e.g.
   a. *The World Book Encyclopedia*
      Field Enterprises Educational Corporation, Chicago
   b. *Compton's Pictured Encyclopedia*
      F. E. Compton Co., Chicago

4. Facts and Statistics, e.g.
   a. *World Almanac and Book of Facts*
      New York World Telegram Corp., N. Y., published annually
   b. Golenpaul, Dan (ed.)
      Information Please Almanac
      Simon and Schuster, Inc., New York

5. Government Agencies, e.g.
   a. *Nebraska Blue Book*
      Nebraska Legislative Council, Lincoln, Nebraska, publ. biennially
   b. *Congressional Directory*
      U. S. Government Printing Office, Washington, D. C.

6. Libraries, e.g.
   a. Your school or public libraries
   b. Nebraska Library Commission
      State Capitol, Lincoln, Nebraska
      Ask your librarian or teacher to request materials you need. If there are no public library facilities, you may write directly to the Library Commission.

7. Magazines - See Listing in
   Reader's Guide to Periodical Literature
   The H. W. Wilson Company, N. Y.

8. Newspapers, e.g.
   a. *New York Times*
   b. *Christian Science Monitor*
   c. Your local paper

9. Poetry and short stories, e.g.
   a. *Granger's Index to Poetry and Recitations*
      A. C. McClurg & Co., Chicago
   b. Cook, Dorothy E. and Monro, Isabel S. (ed.)
      Short Story Index
      H. W. Wilson Company, N. Y.

10. Public Records, e.g.
    a. City Hall
    b. County Court House
    c. Records of local business firms

11. Quotations, e.g.
    a. Bartlett, John
       Familiar Quotations
       Little, Brown and Company, Boston, 1937
    b. Stevenson, Burton (ed.)
       The Home Book of Quotations
       Dodd, Mead & Company, New York 1964

12. Research Collection, e.g.
    a. University of Nebraska State Museum, Lincoln, Nebraska 68508
    b. State Historical Society, 1500 R Street, Lincoln, Nebraska 68508
    c. Your local museum

13. Books, e.g.
    a. Boyd Jessie
       Libraries and You, 3rd Edition
       Charles Scribner's Sons, New York 1965

MEDICINE

While affairs of the heart may not have as yet gained much romantic significance to our audience, they have gained a great deal of medical significance. Human hearts are being exchanged like baseball cards while the unassuming little radioisotope is leap-frogging medical research years beyond where it might have been.

TARGET AUDIENCE:

This unit is designed for the individual who possesses a basic curiosity and awe of medical science and who has an intense interest in the efforts of the medical profession to preserve life.

Experiences in this unit are not designed to create an interest in the medical profession for the individual, but to build on an interest already present.

NEED:

However strong his interest, the individual usually has lacked the opportunity to be exposed to actual situations in which the heart, its problems and its care, are dealt with.

Then too, because the radiation research areas of most hospitals do not allow visitors, this individual also lacks the experience of seeing the actual use of the radioisotope in medical research.

PURPOSE:

Therefore, it is our purpose in this unit to increase the knowledge of the individual by providing experiences in medical research to which he would not otherwise be exposed.

TO ACHIEVE THIS PURPOSE . . .

We will expand the environment of the individual through five television experiences that will deal with:

1. **A visit with Dr. Norman Edwards at Creighton University Medical School in Omaha, Nebraska. He explains and describes the functions and importance of the heart.**
2. **Explanations of problems related to the heart and ways to prevent heart diseases.**
3. **A visit to a Coronary Care Unit in Bryan Memorial Hospital, Lincoln, Nebraska, to show the duties of the nurses and doctors in this unique hospital environment.**
4. **A visit to St. Joseph Hospital in Omaha where Dr. Robert Heaney describes the use of radioactive isotopes in his research on bone diseases.**
5. **An explanation by Dr. D. Dowell of the diagnostic procedures used in the study of a patient with a lymphoma of the Hodgkins Type at St. Joseph Hospital in Omaha.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has taken place. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning, or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Demonstrations in your classroom are possible which would show how long the pace-maker action of the heart continues to keep an isolated heart beating in a test tube.

Visitors are not allowed in the radiation research areas of hospitals. So that rules out any field trips. You, no doubt, would not be too welcome with 45 sixth-graders in a Coronary Care Unit either. However, to build on the experiences we have provided by television, the U. S. Atomic Energy Commission has free booklets including one entitled, "Radioisotopes in Medicine."

Homemade stethoscopes are fun for the students to experiment with. With proper motivation by you, they can even provide the student with a learning experience.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Dodge, Bertha. ***Hands That Help.*** **Boston: Little-Brown and Company, 1967**
Dukert, Joseph. ***Atom Power.*** **New York: Coward-McCann, 1962**
Dunlap, Henry and Tuch, Hans N., ***Atoms At Your Service.*** **New York: Harper and Brothers, 1957**
Glemser, B. ***All About Biology.*** **New York: Random House, 1964**
Haber, Heinz. ***Our Friend, the Atom.*** **New York: Simon and Schuster, 1956**
Hyde, Margaret. ***Atoms Today and Tomorrow.*** **McGraw-Hill Book Company, 1966 (Revised Edition)**
Jaworski, Irene , and Alexander, Joseph, Atomic Energy. New York: Harcourt, Brace and World, Inc.
McKown, Robin. ***The Fabulous Isotopes.*** **New York: Holiday House 1962**
Nebraska Heart Association, ***Heart Information Kit*** **(free) 430 South 40 Street, Omaha, Nebraska 68131**
Sacks, Jacob. ***The Atom at Work.*** **New York: Ronald Press Company, 1956**
Schnieder, Leo. ***Lifeline: The Story of Your Circulatory System.*** **New York: Harcourt, Brace and World, Inc., 1958**
U. S. Atomic Energy Commission, "Careers in Atomic Energy" Booklet, Technical Information, Oak Ridge, Tennessee 37830
U. S. Atomic Energy Commission "Radioisotopes in Medicine" booklet, Technical Information, Oak Ridge, Tennessee 37830
Woodbury, David O. ***Atoms for Peace.*** **New York: Dodd-Mead and Co., 1965**
Woodbury, David O. ***New World of the Atom.*** **New York: Dodd-Mead & Co., 1965**
Woodburn, John H. ***Radioisotopes.*** **Philadelphia: Lippincott and Co., 1962**
Zim, Herbert. ***Your Heart and How It Works.*** **Wm. Morrow and Company, 1959**

that remarkable pump

Although physicians have studied the heart and its process for well over 2,000 years, much remains a mystery about it. One thing is certain. The heart has developed to perform its pumping action amazingly well -- far better than any mechanical pump yet devised by man!

Through a visualized presentation, which includes sound effects and narrated illustrations, Dr. Norman Edwards explains the functions and the importance of the heart to two sixth-graders who have come to visit him.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop the individual's ability to identify the component parts of the heart and to describe their functions.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

The student will be able to draw a simple diagram of the human heart labeling each of the four chambers, the valves, and indicating the direction of blood flow in each chamber.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The student will be able to demonstrate how the rate of a heart beat can be determined.

The student will be able to list the conditions by which the rate of a heart beat could be changed.

Given a list of rates of heart beat of different size animals, the student will be able to match the rate of the heart beat with its owner.

BEFORE VIEWING . . .

We have assumed the individual can, before he views the telecast, be able to state the importance of the heart as a pump.

The doctor, in this television visit, will use several technical words which may or may not be in the working vocabulary of the student. Watch for them, and your student's reaction to them, during the broadcast.

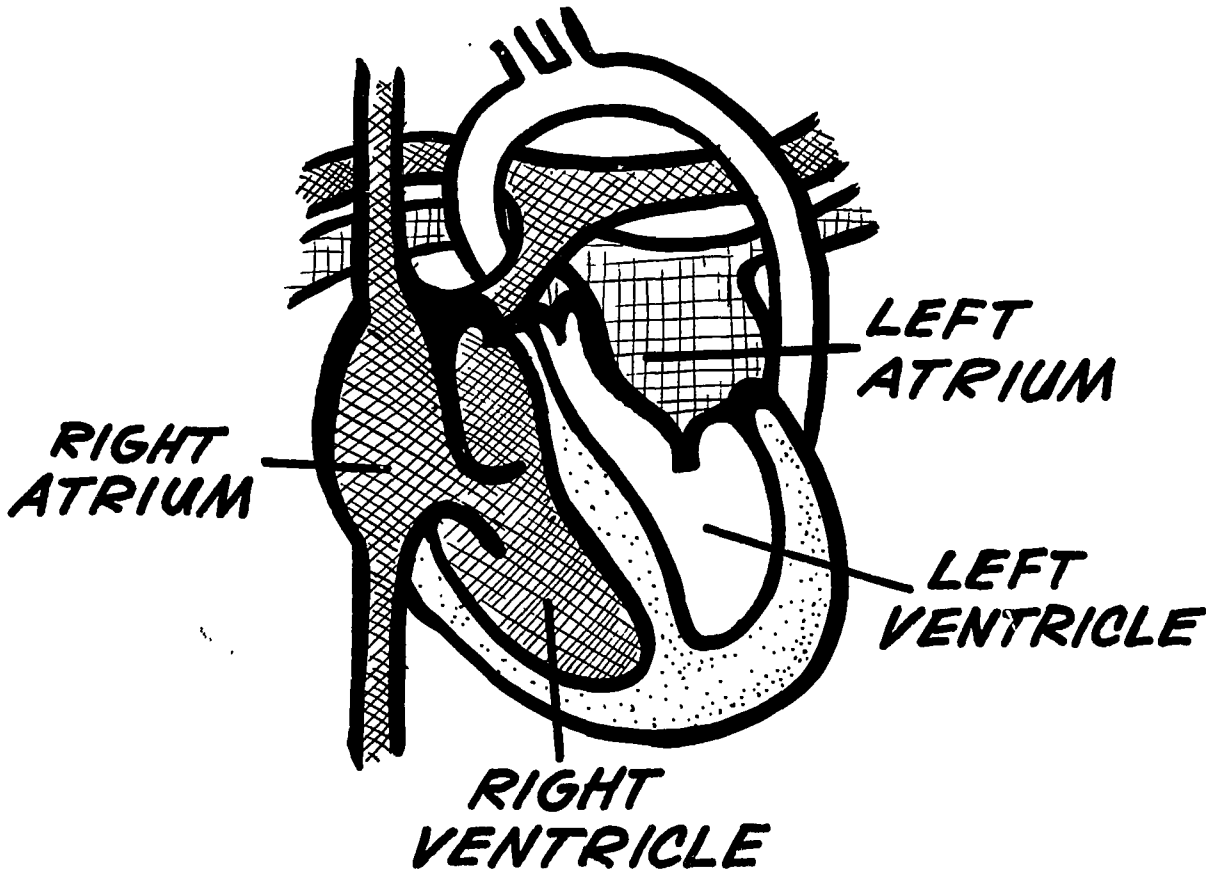
TO EXTEND THIS LEARNING EXPERIENCE you might consider providing material to enable the individual to achieve these additional objectives:

When presented with a model of the human heart, the student can physically trace the flow of blood from the point it enters to the point it leaves the heart.

Given this same model, the student will be able to show where and how the heartbeat is controlled.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The student's diagram should have this general appearance, but assess the achievement on the accuracy of labeling, not on the quality of the art work:**



2. **The rate of a heart beat can be determined by taking one's pulse for a minute, or for 15 seconds and multiplying by 4. Pressure points where the pulse may be taken are the wrist, the temple, the ankle, the back of the knee.**

3. **Some of the factors which affect the rate of a heart beat are:**
   1. **Stimulant drugs**
   2. **Health**
   3. **Exercise**
   4. **Temperature**
   5. **Emotions**
   6. **Diet**

4.

ANIMAL	RATE OF HEART BEAT*
Cow	68
Elephant	44
Rabbit	104

***While these heart beat rates may not be accurate, the principle we are trying to have the student learn is: the larger the animal, the slower the heart beat rate.**

the heart: problems and prevention

With the discoveries of William Harvey in the first half of the seventeenth century, true heart research began. Yet today, in spite of increased knowledge, fine equipment, and miraculous drugs, research still seeks the answers to a vast number of heart and circulatory diseases.

Continuing our television conversation with Dr. Edwards, the two students talk about and see some of the heart disorders . . . and ways are suggested to prevent them.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop in the learner his ability to recall specific facts about basic heart disorders as presented in the television visit.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

The student will be able to list three different kinds of problems related to the heart.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

Given the situation where a heart is not functioning properly, the student will be able to list three methods used to determine the condition of the heart.

The student will be able to list William Harvey's major contributions to our knowledge of the heart.

BEFORE VIEWING . . .

Not much for you to do before the student views this one except be sure he has watched the previous telecast on the heart.

TO EXTEND THIS LEARNING EXPERIENCE, you might seek more information about the Nebraska Heart Association and stimulate peer-group interaction about the ways the Association has evolved a program of research, education and community services for heart patients.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The student should be able to list any three of the following kinds of problems related to the heart after viewing this telecast:**

    1. **Collapse of artery**
    2. **Closing of a valve**
    3. **Plague - thickening of artery's wall**
    4. **Hardening of the artery**
    5. **High blood pressure**
    6. **Stroke**
    7. **Heart attack – plague in coronary artery**

2. **Some of the methods used to determine the condition of the heart are:**

    1. **Taking blood pressure**
    2. **Using a stethoscope**
    3. **Taking an electrocardiograph**

If the student can list any two of these, he's doing all right.

3. **Some of William Harvey's major contributions to our knowledge of the heart are:**

    1. **The heart is a pump**
    2. **Blood passes continually through the heart**
    3. **Blood moves in a circular motion through the body**

Any two of the above answers should be considered acceptable.

computers, courage and care

There exists an area of care for cardiac patients that is little publicized. This is the Coronary Care Unit. The student should know just how doctors and nurses assigned to a Coronary Care Unit perform their functions and what these functions are.

In a television trip to the Coronary Care Unit at Bryan Memorial Hospital in Lincoln, Nebraska, we follow a nurse working with the highly specialized equipment the Unit contains.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to provide the learner with the information necessary to enable him to recall the techniques and related procedures used in the Coronary Care Unit.

We also hope to increase the learner's sensitivity to the human dedication displayed by the personnel in a Coronary Care Unit.

To Measure His Cognitive Learning,
WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

> **The learner should be able to describe the general procedure of admitting a patient to the coronary care unit and responding to him when he experiences a cardiac arrest.**

BEFORE VIEWING . . .

Again, it would be helpful to achieve the objective of this lesson to have the individual view the two previous telecasts on the heart.

A list of vocabulary words has been given to the student in his guide. He should be alerted to the fact that these terms will be used on the program and should also know you will define any that are not understood after viewing.

TO EXTEND THIS LEARNING EXPERIENCE, you might consider providing additional information which would enable the student to achieve this objective:

> **The student should be able to identify those duties now performed by the Coronary Care Unit nurse which were previously restricted to duties of a doctor.**

If you've a group of students who have been exposed first-hand to hospital situations, you might stimulate some discussion about the differences between the normal hospital room and those shown in the Coronary Care Unit.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

In describing the procedures mentioned in the objective, the learner does not need to specifically identify the name of every device used. General references to the function of the device will be sufficient.

ADMISSION:

1. **If conscious, the patient is asked to describe his condition.**
2. **Nurses take his blood pressure, pulse, and respiration.**
3. **Nurse sets up for intravenous injection.**
4. **The patient's heart beat is registered on the monitor.**

REACTION TO CARDIAC ARREST

1. **Nurse thumps the patient on the chest and begins the chest massage.**
2. **Other personnel reacting to the alert bring in the Cardiac Crash Cart.**

invisible detectives

As full of scientific wonder as the satellite that sends signals from outer space is the medical world's silent, invisible probe -- the radioisotope. You cannot see, hear, taste, feel or smell this particle of radioactive material, yet its use in medical research may prolong someone's life -- perhaps yours!

In a visit to St. Joseph Hospital in Omaha, Dr. Heaney describes the use of radioactive isotopes in his research on bone disease.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's knowledge to enable him to recall specific facts about radioisotope research as presented in the television experience.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

Given the elements of a research project related to bone disease, the student will be able to list the reasons why a radioactive tracer is useful in this research.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The student will be able to explain why doctors are interested in obtaining research information about bone diseases.

BEFORE VIEWING . . .

You may want to warn the student that several technical terms will be used by Dr. Heaney on the telecast. You may even have to admit you don't know the definition of some of these terms any more than we do.

For your student interested in electronics, and with a lot of prerequisite learning in electron theory, a definition of an isotope may be sought. While it is going to be explained on the program, it's pretty deep stuff.

TO EXTEND THIS LEARNING EXPERIENCE you might follow through on this definition of the isotope for some students.

Perhaps the student can suggest to you other ways that radiation has been used in medical research.

IT YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The elements of a research project related to bone disease are:**
   - **a. Injection of radioactive calcium or phosphorus**
   - **b. Control and measure of diet**
   - **c. Calculation of calcium or phosphorus eliminated from the body.**

   And some of the reasons why a radioactive tracer is useful in this research may include:
   1. **The "invisible detective" can be calculated both in the amount that the body retains and the amount it eliminates.**
   2. **The tracer causes no harm to the patient.**
   3. **The tracer remains detectable even when involved in complex body functions.**

2. **Doctors are interested in obtaining research information about bone diseases because this disease afflicts such a great number of women over 55 years old.**

to find and to cure

Nuclear scientists and engineers have designed complicated equipment for the use of radiation in medicine. Some of these devices provide a "look" inside the body to see what is wrong; others beam potent sources of radiation to diseased areas.

In this television visit to St. Joseph Hospital in Omaha, the student is given an explanation of the diagnostic procedures used in the study of a patient with a lymphoma of the Hodgkins type.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to provide information to give the learner the ability to recall the steps in the process of examining a patient by means of radioactive tracers and a scanning device.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

The student will be able to list the diagnostic procedures and instruments used in studying a patient with a lymphoma of the Hodgkins type.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The student will be able to explain how a radioactive substance can be used as a tracer in the diagnosis of a problem. He will be able to describe the scanning process used with the tracer.

The safety measures used in cobalt treatment can be described by the student.

BEFORE VIEWING . . .

Determine if students who have had chest x-rays can identify the precautions taken by the x-ray technician during the procedure.

TO EXTEND THIS LEARNING EXPERIENCE you might provide additional information to enable the student to explain that, when radiation is used for treatment, the radiation energy is used to destroy or suppress some functions of the body.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The diagnostic procedures and instruments used in studying the patient in the telecast were:**
   1. **Barium scan**
   2. **X-ray photograph of chest**
   3. **Thyroid scan**
   4. **Comparison of scan results with results of scans of normal organs**

2. **A radioactive substance can be used as a tracer in the diagnosis of a problem by depositing itself in the organ to be studied and emitting rays from that organ whether it is located in a normal or abnormal position.**

3. **The safety measures used in cobalt treatment are:**
   1. **Safety lock that shuts off the treatment when the door is opened.**
   2. **Timer regulation on treatment.**
   3. **Voice communication between technician and patient.**
   4. **Positioning of technician outside treatment room to avoid over-exposure.**
   5. **Measurement of distance between patient and cobalt.**

If the student correctly lists three of the five, we can accept that as satisfactory evidence that the objective has been achieved.

THEATRE

If "All the world's a stage, and all the men and women merely players," is the theatre an institution reflecting our cultural patterns, or is it an art form reflecting man's expression of inner feelings?

TARGET AUDIENCE:

We have assumed that the target audience for whom this unit is designed is an individual who has been exposed to various forms of the theatre as a spectator rather than a frequent participant. This individual, however, possesses a great deal of curiosity about what goes on "behind the scenes," and will in most likelihood be the one who will strive for a major role in your annual school play.

NEED:

However, we also assume this individual has not had the opportunity to see how a play is translated from the printed words in a play book to the finished production he has seen.

PURPOSE:

Therefore, it is our purpose in this unit to increase the knowledge of the learner about the elements which go into the presentation of drama by expanding his environment to include the "backstage world."

TO ACHIEVE THIS PURPOSE:

To do this, we will expand the individual's experiences through television by:

1. **A visit backstage to the University of Nebraska Theatre to see a play in various stages of production.**
2. **Working with an actor in the process he goes through to create a character on the stage.**
3. **A presentation of segments of an opera in various stages of production.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences by you in order to achieve the stated objective.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Involve the student in the production of a one-act play or even a short dramatic segment. Assign and rotate roles so the experiences of working with each element of a production are spread around.

If possible, visit a rehearsal of a play at your local community theatre -- or university theatre. Even the most temperamental director and actor will be flattered to answer questions – it brings out the "ham" in them to be recognized as something special.

Encourage local theatre-going. Even bad drama and shoddy production can be a learning experience.

behind the scenes

The "magic" of the theatre fascinates almost everyone. At some time in his life each person has either "put on" a play or wanted to be in one. To produce a play, one must have a corps of interested persons who are willing to work together under the leadership of a director. Being the most encompassing of all the arts, the theatre affords room for a vast variety of talents.

Through television, we visit backstage of the University of Nebraska Theatre to see a play in various stages of production and to talk to the director, Mr. Don Sobolik, and other cast and crew members.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the learner's knowledge so he can recall the procedures used in the production of a play.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

After viewing, the student will be able to name the organization of elements backstage to the production.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The student will be able to describe the role of the director in attempting to enhance the play through costumes and settings.

BEFORE VIEWING . . .

The students should be familiar with drama, preferably having seen a play produced . . . but at least having read a drama.

TO EXTEND THIS LEARNING EXPERIENCE, your students should be able to assign their colleagues various backstage roles according to the talents they see in each.

HOWEVER . . . Through this television visit to the backstage work in a play production, the learner will not be fully prepared to function as a skilled and competent member of a production team. To develop this will involve active direction and guidance and a lot of actual experience.

IF YOU'D LIKE TO SEE IF YOUR STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **In naming the organization of elements backstage to the production, he should include any five of the following items:**
   1. **Cast readings to assign parts**
   2. **Production meetings**
   3. **Building of props**
   4. **Designing and fitting of costumes**
   5. **Rehearsing actions and lines**
   6. **Arranging for publicity and tickets**
   7. **Arranging lighting**

2. **In describing the role of the director, the student should name his decision-making role in any five of the backstage elements listed above.**

say it with music

Many fascinating stories are presented in operatic form. The singing in opera is a display of talent. The emotion conveyed through the music can enhance the dramatic impact of the story. All of the elements of opera that are not included in regular drama are for the purpose of enhancing the story. Once your students understand this, drama in opera form can become very alive.

Through a television visit to the Theatre Department at the University of Nebraska, we present segments of an opera in various stages of rehearsal and performance.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to provide the learner with the knowledge which is necessary for him to recall the patterns of similarity and differences between opera and drama.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

When told to imagine that he is responsible for staging an opera, the student will correctly list those people needed, in addition to those needed in producing a drama.

THE LEARNER SHOULD ALSO ACHIEVE THIS OBJECTIVE FROM THE TELEVISION EXPERIENCE:

After viewing the telecast, the student will display an increased interest in opera by his willingness to receive or at least tolerate opera as an art form.

BEFORE VIEWING . . .

The learner should know there are different kinds of singing dialogue in an opera: a recitative, aria and an ensemble. These three types will be presented to him, but he should be ready for them before he sees them on television.

We are assuming, of course, that before he is ready to compare opera to drama he has knowledge enough about the elements of dramatic production presented to him previously to form a fairly reliable base upon which he can make these comparisons and identify differences.

TO EXTEND THIS LEARNING EXPERIENCE, the student, if he has responded correctly to our stated objective, should be ready to compare and contrast not only the elements of opera and drama production but also the way in which the story treatment is similar to and different in the two forms of presentation.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE IS THE RESPONSE YOU SHOULD EXPECT:

When told to imagine that he is responsible for staging an opera, the student will correctly list these people as those needed . . . in addition to the director and stage crews of regular drama

- **a. Voice coach**
- **b. Choreographer**
- **c. Musical conductor**

one person becomes another

Acting is taking flat printed words from a page and changing them into something exciting and alive -- a character that walks and talks in a way the actor creates. To do this takes a lot of work and much thought -- for acting is more than just learning lines and saying them so they can be heard in the back row.

In this television experience, we are going to be working with an actor as he goes through the process of the creation of a character he will portray on the stage.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the learner's knowledge of acting so that he will be able to recall the procedures which are used in creating a character for a stage play.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

When asked to be an actor portraying a specific role, the student will be able to describe the process to follow in creating a character.

BEFORE VIEWING . . .

The learner should be familiar with the specialized definitions for: *character; characterization; mental concept; creative process.*

TO EXTEND THIS LEARNING EXPERIENCE, let the students act! Begin by playing charades, limiting the gaming at first to portraying people . . . and later to objects. Simple plays are available almost every place. Your school library probably has a shelf full of them gathering dust right now.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE IS THE RESPONSE YOU SHOULD EXPECT:

The student should name the following process as a means to developing a characterization:

1. **Form a mental concept of a character by reading the script.**
2. **Imagine the character inhabiting the real world, associating with people.**
3. **Imagine the inner nature of the character.**
4. **Try to express understanding of the inner nature in correct outward activity.**
5. **Take a mental and physical break from the problems of expressing the character.**
6. **Work with the director in refining the interpretation.**

Naming any four of the six would indicate that the learner is ready to be a person who becomes another.

COMMUNICATIONS

"Electronic technology is reshaping and restructuring patterns of social interdependence and every aspect of personal life. It is impossible to understand social and cultural changes without a knowledge of the workings of media."

-- Marshall McLuhan

TARGET AUDIENCE:

The target audience for whom this unit is designed exists not as an individual clearly identified by specific environmental or personal characteristics, but as a member of the "turned-on" generation existing in McLuhan's "global community." He has displayed an interest in the nature of the Media which is the Message.

NEED:

Although exposed to electronic communications, the individual has lacked the knowledge of what must occur to achieve the product he hears from the transistorized appendage to his right ear or the two-dimensional monochromatic window to the world that hypnotically holds him through dinner.

PURPOSE:

Therefore, it is our purpose in this unit to increase the individual's knowledge of those places and devices which make up a small part of his electronic environment.

TO ACHIEVE THIS PURPOSE . . .

To do this, we will extend the learning experiences of the individual through television by:

1. **A visit to a newspaper and television newsroom to see how news is reported.**
2. **An investigation of the technical aspects of television.**
3. **An exposure to the different types of electronic communications that exist now in his world.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities *you* can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the child will watch television to be as helpful to learning as possible . . . with minimum distractions.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each television experience, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Field trips to a newspaper plant or the news department of a television station will apply specific learning to your own community.

Closed circuit television equipment and video tape recorders in the schools will enable students to create and produce their own news broadcasts. Turning the individual loose with just a television camera and no microphone to tell a story will stimulate creativeness and reveal many insights into the character of the individual. Simple 8mm film cameras have also been used for this purpose.

Arrange for a demonstration (through a commercial firm or your Educational Service Unit) of computer assisted instruction.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Kerman, Stephen D. *Color Television and How It Works.* **New York: Sterling Publishing Co. 1962**
Meyer, Jerome S. *Picture Book of Radio and Television and How They Work.* **New York: Lothrop, Lee, and Shepard Co. 1951**
New York Times: **Office of Educational Activities, New York: 10036 (ask for materials on how news is gathered)**
Omaha World Herald, Omaha, Nebraska 68101
(ask for "Your Newspaper" series. Provides information on the newspaper industry)

get that story

What is the news today? This is the universal question of human curiosity. The manner in which we get our news is primarily by newspaper, radio and television. It is our responsibility as citizens in a free society to become well-informed about news events. We can and should make use of many sources of news before drawing meaningful conclusions of our own.

Through visits to a newspaper and television newsroom, we see how an event is covered and reported by each media.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's knowledge of the functions of news media, to recall the procedures that are taken to report an event as a news item.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given a local news event, the student will be able to list and explain the steps involved in preparing a news story for presentation by television.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

Given an event, the student will be able to list or tell in his own words the steps which must be gone through to report the event as a news item for the local newspaper.

BEFORE VIEWING . . .

The individual must be able to define what is meant by *news* before he views this television experience.

A discussion on the rights and responsibilities of any news gathering agency in America, as related to freedom of the press, would be desirable but is not essential to the learning experience planned.

TO EXTEND THIS LEARNING EXPERIENCE, you might provide the individual with material to meet this objective:

When given a photograph of an event, the individual will identify those elements essential to report for a news story by television or by newspaper.

You might ask the student how the same story depicted on the telecast would have been reported on radio.

You might also want to prepare the individual for the actual writing of news by an explanation of the 5 Ws and the "inverted pyramid" style of writing necessary for a news item.

HOWEVER . . . as a result of this television experience, we do *not* feel the child will be ready to write and compose his own news item without additional learning experiences which you can provide to him.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The student will list the following steps that are followed in preparing the story for reporting on television:**
   - a. **Assignment is received from editor with directions concerning number of feet of film to be shot.**
   - b. **Reporter shoots film and takes notes at the scene.**
   - c. **Reporter returns to studio.**
     1. **Film is sent to be developed**
     2. **Notes are given to editor and assembled**
     3. **Film is edited and matched with written story**
   - d. **Newscaster, director and projectionist work together to get that story.**

If student names five of the seven items mentioned, he knows how to get that story.

2. **The student will list the following process that would result in a story being prepared for reporting in a newspaper.**
   - a. **Reporter receives assignment from editor.**
   - b. **Reporter goes to the scene, takes notes.**
   - c. **Back in the office, notes are assembled in a reporting style known as "inverted pyramid."**
   - d. **Copy editor writes the headline and makes any corrections in the story.**
   - e. **Copy is sent to the composing room to be put into print.**

If the student names four of the five steps, he has reached the objective.

electrons at your service

The age of electronics brought about a practical type of television for everyone. Electrons flow through the camera, transmitter and receiver at phenomenal speed. Television technology is a field where precision is required in the transmission of light and sound waves from the studio to the receiver in the classroom or the home.

Through animation and simple demonstrations, the path of a television image from the object to the receiver screen is traced and explained.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's knowledge about the technical aspects of the television process, so he can recall the steps through which the television picture is picked up, transmitted and received.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

The individual will be able to illustrate by a diagram all of the steps through which the television picture travels from the object through the television camera to the receiver screen.

BEFORE VIEWING . . .

Since most prerequisite material will be presented on the television broadcast itself, the only assumption we have made about the individual's prior learning was the fairly safe assumption that he has been (or will be) exposed to a television image on a receiver.

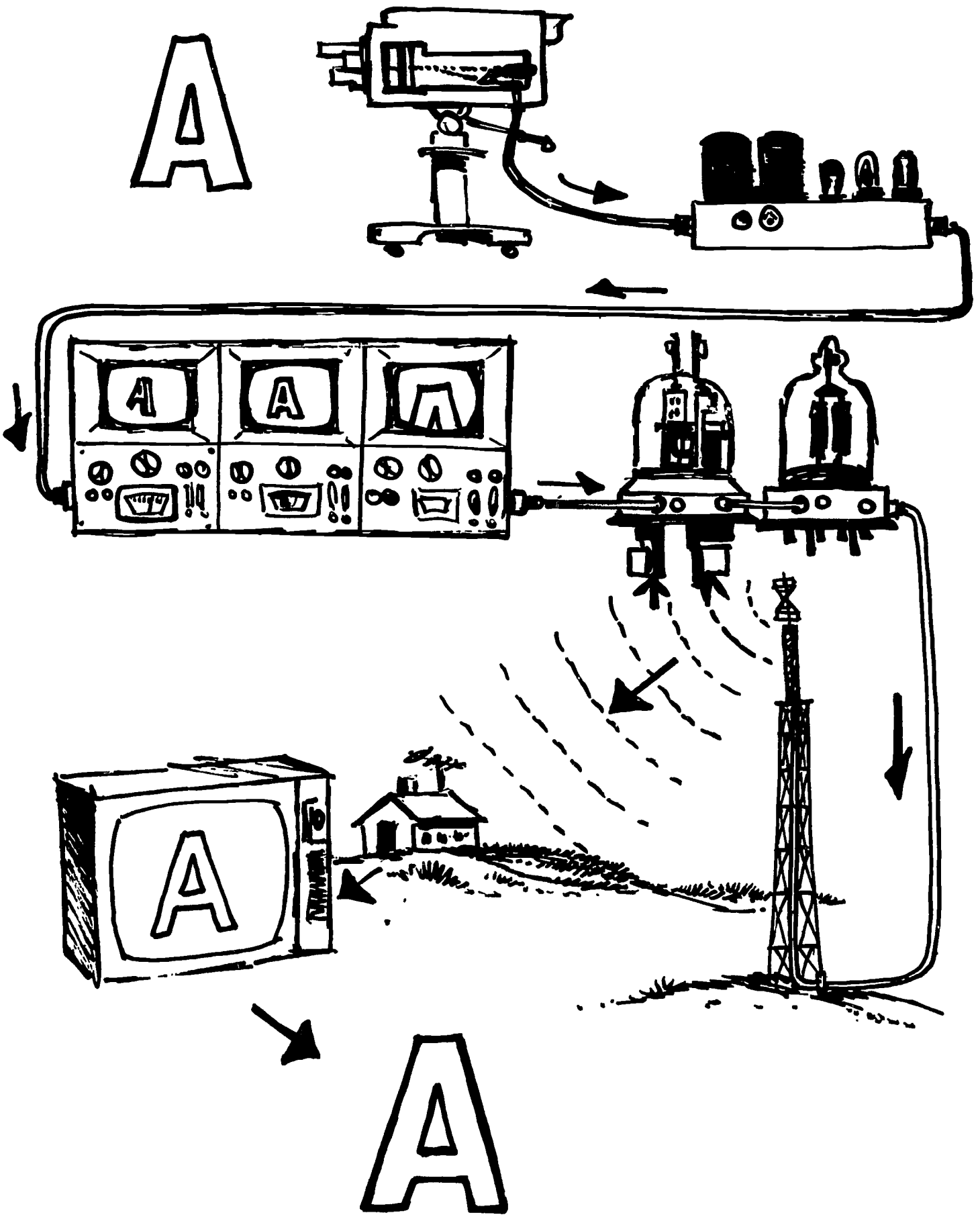
However, you might want to acquaint your students with such terminology as a camera *lens*, a television *transmitter*, an *electron*, and *control room*.

TO EXTEND THIS LEARNING EXPERIENCE you might consider providing material to enable the individual to visit a television studio to see first-hand how things work. Some will be interested in finding out what kind of training and education is necessary for technical television work.

You might want to ask some of your students to take apart the classroom television receiver to examine its components more closely.
HOWEVER . . . Nothing in this telecast has prepared them in any way to put it back together again.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE IS THE RESPONSE YOU SHOULD EXPECT:

His diagram should be similar to this one. Verify his learning by checking the sequencing, not his artistic ability.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the communications explosion

When people say the world is shrinking, it's usually after they have been involved as a sender or receiver in a space-spanning communication. Electronic technology is constantly compressing time and space. Some of the devices of electronic technology seem like gadgets out of science fiction, but they are as real as the telephone. The future is sure to hold even more fascinating means of transmitting sound, print and pictures.

In this television experience, the individual will be exposed to the following more common devices of electronic technology:

Teletypewriter Exchange Service (TWX)
Telecopiers
Computer Assisted Instruction (CAI)
Dial Access Information Retrieval (DAIR)
Communications Satellites
Communications Satellite Systems

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the learner's knowledge about electronic devices that speed communication in business, education and world affairs.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given the names of six types of electronic communication shown on the telecast, the learner can describe the input and output phases of each.

BEFORE VIEWING . . .

The individual should know that speed and range of communications are dictated by the physical properties of the device, and that these elements will vary depending on the device used to communicate.

TO EXTEND THIS LEARNING EXPERIENCE, you might want to stimulate peer-group interaction to identify uses of the devices shown, other than those which were dealt with on the telecast.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE IS THE RESPONSE YOU SHOULD EXPECT:

The six communication devices and their forms of input-output, or summons response are:

DEVICE		INPUT	OUTPUT
1.	Teletypewriter Exchange Service	Typed Message	Automatically typed message in both words and punch code
2.	Telecopiers	Graph or drawing	Same graph or drawing
3.	Computers for instruction	Typed answer or response	Typed response by computer
4.	Dial access information retrieval	Selection of topic indicated by pressed selector	Audio or video play of information
5.	Communication satellite	Audio or video fed into camera and relayed to satellite	Same audio or video received over great distance
6.	Communication satellite systems	Same as No. 5	Same as No. 5

Eight correct responses out of the twelve sections would be considered acceptable.

MUSIC AND ART

What is art? Is what appears to be a disorganized garage sale pasted on a canvas or the noises emanating from a computer and tape recorder simply weird (as they appear to us) or are they a legitimate expression of the new generation?

TARGET AUDIENCE:

The target audience for this unit is not limited to the gifted student who displays some artistic flair. The individual we are trying to reach is the person who is exposed to new forms of art and understands them about as much as we do.

NEED:

This individual has lacked the opportunity to have these new forms of expression in art and music explained to him.

PURPOSE:

Therefore, it is our purpose in this unit to expose the individual to some of the people who express themselves through this art form, and to describe some of the new media they use.

TO ACHIEVE THIS PURPOSE . . .

We will expand the experiences of the individual through television by:

1. **A conversation with Nebraska artist, Father Lubbers.**
2. **A visit to an art shop where examples of these new forms of art can be seen and compared.**
3. **Seeing some of the things that create the new sound in music.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the child will watch television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For two of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Look and listen.

While field trips to the major galleries in Lincoln and Omaha are evident, new forms of art can be found almost everywhere -- even if it's just within the covers of *Time* or on your local "new sound" radio station.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Cheney, Sheldon. *The Story of Modern Art.* **New York: Viking Press, 1950**
Lake, Carlton and Maillard, Robert. *A Dictionary of Modern Painting.* **New York: Tuclor Publishing Company, 1956**
Sedgwick, John P. Jr. *Discovering Modern Art.* **New York: Random House, 1966**

art in the unexpected

Father Lubbers, head of Creighton University's Fine Arts Department, displays some of his creations that he refers to as "people, wheels, and wiggly things." It is art in the unexpected medium of farm tools, fan belts, x-rays, and space men moved through the air by cranes. What is the future of such art? "None!" says Father Lubbers. "It's just fun!"

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to simply expose the individual to an artist and to share with him his thoughts and schemes in expressing himself in the form of art he has chosen.

BEFORE VIEWING . . .

For this conversation with Father Lubbers, you'll probably want to spend more time getting yourself ready than the students. We have indicated no specific behavioral objective for this one. We are sure, however, that the students will react to what Father Lubbers has done and said. How are you going to direct these reactions into meaningful responses?

new ways in art

Art is no longer just having a brush, some paint, canvas and a subject. The list of materials and ideas which make up modern art is limitless. It is an exciting type of art, full of imagination in the use of color, texture and objects. The finished product is open to many interpretations. Modern art is the conversation piece in the whole field of art.

Through television we join a young lady as she visits with Nebraska artist, Peter Hill, in an Omaha gallery and sees displayed forms of op art, pop art, abstract art and junk art.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the knowledge of the individual of the various schools in the new forms of art . . . so he will be able to explain the difference between various samples.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given examples of op art and abstract art, the student will be able to distinguish between them and list their major distinguishing characteristics.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

Given an example of pop art, the student will be able to identify it as such and list its characteristics.

Given an example of junk art, the student will be able to identify it and list its characteristics.

BEFORE VIEWING . . .

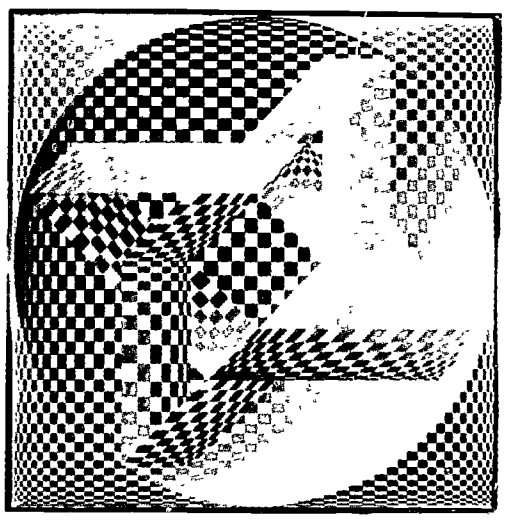
We have assumed that the new forms of art are "different" from the art forms with which we are more comfortable. However, it may be that the student has not been exposed to a lot of traditional art. It might be a good idea to look at a few of the "old masters" before viewing.

TO EXTEND THIS LEARNING EXPERIENCE, you might have some of your students try their hand at some of the new forms of art. After all, haven't we all said "I can build something like that in my basement!" Let's see how successful we are in expressing ourselves in some new forms of art. Maybe *you* would want to give it a try too!

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE IS THE RESPONSE YOU SHOULD EXPECT:

The following examples can be used for checking all three objectives given:

EXAMPLE A – OP ART



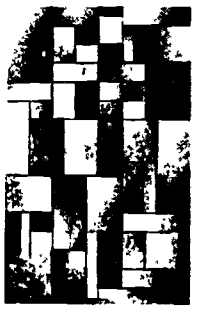
A style of art which sets forth optical effects as its subject matter. These effects can be created by the use of geometric shapes or by the use of colors in relation to each other.

EXAMPLE B – POP ART

A realistic form of art which takes as its subject matter familiar, ordinary objects of modern life not usually found in serious art. There is a tendency toward large size.

EXAMPLE C – JUNK ART

A form of sculpture which, like pop art, uses ordinary objects and materials in its construction.



EXAMPLE D – ABSTRACT ART

A painting or sculpture that does not deal with objects. Emphasis is on the use of color and composition.

switched-on music

The "switched on" generation tunes in to the times with music . . . music that some adults find just too way-out to understand. But, do the students really understand just what produces some of the weird sounds they've heard? Real electronic music makes some amplifier music sound like lullabies. The weird sounds are produced by some "instruments" you've never seen in an orchestra.

In this television experience, we're going to let the student see and listen to some of the devices and processes of producing electronic music.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to introduce the learner to the creation of electronic music . . . to enable him to recall the development of engineering techniques and electronic production and transmission of sounds that have technicized music.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

The student will be able to recall from the television presentation some of the processes by which electronic music is produced.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The student will be able to list three electronic musical instruments being used today.

The student will be able to name some of the items used in electronic engineering techniques that are now as familiar in the world of music as the amplifier is to rock and roll.

BEFORE VIEWING . . .

The learner should be able to distinguish between electronic music, and music amplified electronically before he views this telecast.

TO EXTEND THIS LEARNING EXPERIENCE, you might consider creating the conditions which would enable the learner to figure out some of the unique ways in which the sound phenomenon created by electronic devices may be integrated into different types of music creations.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **If your student can describe any two of the following processes, he's doing all right:**
   a. **Most electronic music comes from a tape studio. Composition derives essentially from tape doctoring. Either live sounds or electronic noises are recorded on tape that can be manipulated in various ways. Tapes can be run through electronic filters that remove certain sounds. One sound can be recorded on top of another. Once the final version is produced, composer can play tape alone or accompanied with a live performer.**

   b. **A synthesizing machine represents more advanced electronic development because, unlike a tape recorder, it produces its own sounds. Most practical and most used is Moog Synthesizer or Buchla Box which is a studio the size of a suitcase. Most complicated of the synthesizers is Mark III RCA which is 20 feet across, 7 feet high, 3 feet deep and contains enough noise generators to produce ANY known sound.**

   c. **Current big kick (step) in electronic music is computer music. A composer will program his signals which a machine will translate into a tape that contains electronic impulses. A tape recorder can produce these impulses into specified musical sounds. With this technique no sounds are produced during the composition. Only in performance can sound be heard. So the tape becomes the "score" of the piece. The playback machine (hooked up with amplification) becomes the performing instrument.**

2. **Any two of the following "instruments" will be considered correct:**
   Moog synthesizer
   Tape recorder
   Allen series of keyboard instruments

3. **Any three of the following items may be considered as correct engineering devices:**
   Tape recorder
   Oscillator
   Filter
   Control mike
   Computer

BURIED HISTORY

Because of the rich deposits of buried evidence of the past in Nebraska, the individual is exposed frequently to reports of new "finds" and could quite easily himself be exposed first-hand to fossil deposits or remains of a past culture or civilization.

TARGET AUDIENCE:

This unit is designed for the gifted child who wants to know not only *what* we know about the past, but also *how* we know it.

NEED:

Seldom will this individual have an opportunity to observe and study the work of an archaeologist or paleontologist actually working in the field . . . uncovering the artifacts the student sees displayed in Nebraska museums.

PURPOSE:

Therefore, it is our purpose in this unit to increase this individual's knowledge of the work done by paleontologists and archaeologists.

TO ACHIEVE THIS PURPOSE . . .

We will expand the individual's environment through television by:

1. **An explanation of Nebraska's prehistoric past through a visit to the University of Nebraska State Museum at Morrill Hall in Lincoln.**
2. **Sharing the experiences of a paleontologist as he discovers fossils and prepares them for study and display.**
3. **Seeing how an archaeologist can reconstruct the way other cultures and civilizations lived from evidence found buried in Nebraska.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities *you* can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the child will watch television to be as helpful to learning as possible with minimum distractions.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each television experience, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

A visit to the University of Nebraska State Museum, Morrill Hall, will reveal fossil finds and rock samples found in Nebraska. A careful study of the exhibits will enable your students to determine how scientists were able to date the finds and establish a pattern of geography and life for a certain area.

Field trips to sites such as Weeping Water Valley in Cass County, and Queen Hill Quarry, south of Omaha, or to Toad Stool Park, will give the students an idea of the areas in which scientists have explored to find evidence that has produced the theory that Nebraska was once an inland sea.

Your students will also be looking for books on Geology, Paleontology and archaeology for sources of information on how scientists have developed the story of the earth and of life on the earth.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Carrington, Richard. *Mermaids and Mastadons.* **New York: Rinehart and Co., Inc. 1957**
Ransom, Jay E. *Fossils in America.* **New York: Harper and Row, Publishers, Inc. 1964**
Simak, Clifford. *Trilobite, Dinosaur, and Man.* **New York: St. Martin's Press, Inc. 1966.**

history reveals itself
(Archaeology)

When a detective solves a case, he presents not only his own conclusion but also his evidence. His method of detecting and analyzing clues is often the most interesting aspect of the entire case. The same holds true for the archaeologist. He's a detective whose findings your students have studied for years in history textbooks. What detective methods does the archaeologist use to reach his conclusions?

Through television, the individual will see how an archaeologist proceeds to excavate and study artifacts at Nehawka, Nebraska, as evidence of past human life in the state.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's knowledge of the procedures used by an archaeologist to prepare the individual to conduct investigations of his own into the past.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

Given the assignment of digging for artifacts, the learner can describe the procedures and precautions used in uncovering and removing artifacts.

BEFORE VIEWING . . .

The individual should be able to distinguish a paleontologist **from a** geologist, **and an** archaeologist.

The individual should be able to define *artifact* **and** *digging.*

TO EXTEND THIS LEARNING EXPERIENCE you might consider allowing the individual to search for and recover artifacts from his own environment which might indicate evidence of a "past culture" which may have existed a generation ago.

What would a student in the year 2000 know about our culture if they were to find your classroom . . . intact but buried?

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. After surveying a site for digging, the archaeologist lays out a grid system. Digging is done carefully and methodically, first with larger tools, such as a shovel, and then with more refined dirt-removing instruments, such as a trowel and picks. The artifact is isolated and extracted from the soil. All dirt is screened to make sure no fragments are thrown away. Soil color changes are noted. Pictures are taken of the artifact at the site of excavation. Notes are made of the exact location where the item was found. A map is made of the digging, square by square, so all findings can be related.

2. The procedure in the laboratory involves removing the artifact from the soil in which it is encased, washing it, cataloging it and then -- from analysis and dating -- deriving conclusions about the culture in which the artifact was used.

   If the student can name any three steps from the field and any three from the lab, he has grasped the procedure.

messages from the past (Paleontology)

Many individuals reach the point where they are not only asking what was found to evidence prehistoric life but how this evidence was found and how the men in the museums reached the conclusion about environment in prehistoric times.

Through television, the individual will share the experiences of the paleontologist from the site where the fossil is found to the study and analysis of the specimen in the museum.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's knowledge of the methods of inquiry, techniques and procedures used by paleontologists.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

When given a set of pictures depicting the steps of removing a fossil from the digging and the removal of the matrix from the museum, the individual will indicate a correct chronological order.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The individual will name environment and anatomy traits as two kinds of information supplied by the paleontologist after a fossil is examined.

BEFORE VIEWING . . .

The individual should know the definition for the term *digging* as used as a noun by the paleontologist.

The individual should be able to distinguish a paleontologist from a geologist, and an archaeologist.

TO EXTEND THIS LEARNING EXPERIENCE you might consider providing material to enable the individual to locate, remove, classify, study and display " fossils" that have been buried by other members of the class.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The correct order for the pictures reproduced in the student's guide is:**

   a. 3
   b. 1
   c. 4
   d. 2
   e. 5

Three correct answers out of the five would be considered acceptable performance.

2. **When asked what kind of information is obtained from the study of fossils, the student will answer:**

   1. **Knowledge about environment.**
   2. **Knowledge about anatomy of the fossilized animal, even if only a few body parts have been discovered.**

oceans do leave clues

The movement of the earth's crust over eons of time caused a shift in land and water areas. Geologists and paleontologists can piece together the picture of the region as it was long ago by rock formations and fossils found today. There is evidence that Nebraska's story may include a period of being covered entirely by water.

Through a trip to the University of Nebraska State Museum, the individual will see the fossilized evidence that existed during the time Nebraska may have been under water. This evidence will be described and explained by Mr. Allan Griesemer, Curator of Educational Services for the museum.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop an ability to relate evidence in fossils from Nebraska's past to the conditions which existed at the time the specimen was alive.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

Given the statement that the land area now known as Nebraska was once on the bottom of an inland sea, the student will be able to list three items as evidence to substantiate this statement.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The individual will be able to name four or five examples of life now present in the oceans which were also present in the area of Nebraska when it was under water.

BEFORE VIEWING . . .

The individual should be familiar with some of the major geological eras such as *Paleozoic, Mesozoic* and *Cenozoic.*

The individual should also have the opportunity to have examined fossilized remains first-hand.

TO EXTEND THIS LEARNING EXPERIENCE you might consider providing material to enable the individual to meet these objectives:

Given the characteristics of one specimen of marine life, such as that described on television, the student will be able to draw a representation of this specimen.

Given a specimen similar to that described on television, but different from it, the student will be able to state the characteristics which it would have if it lived in the Paleozoic era in Nebraska.

The student will be able to draw or describe the continental United States as it might have looked in the Paleozoic era.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The learner should list any three of the following as evidence that Nebraska was once the bottom of an inland sea:**

   a. **Land formation**
   b. **Plesiosaur remains found in Cass County**
   c. **Crinoids found in rocks**
   d. **Fossils of brachiopods and coral**

2. **The learner should list any three of the following as examples of marine life that once lived in Nebraska and are still present in oceans today.**

   a. **Sharks**
   b. **Sun Ray fish**
   c. **Sea Horse**
   d. **Sea Turtles**
   e. **Coral Reef**
   f. **Eels**

ARCHITECTURE

Why is it that within your city there are different kinds of buildings? Why is it that throughout the entire world in the span of history have there been different kinds of buildings? Architecture is an expression of man's reaction to, and influence of, his environment. It is more than preparing a set of specifications for the buyer and builder to follow.

TARGET AUDIENCE:

The target audience for this unit is the gifted individual who lives in an urban area where there is available to him many building styles. We have assumed that he is aware there are differences in buildings but it has never occurred to him what could have motivated the differences other than the fact that some things are new and some are old. We will attempt to create in this individual an interest in architecture.

NEED:

We are assuming, therefore, that this individual lacks the knowledge of the major factors of environment that influence architectural styling and the subsequent implementation of this art in construction.

PURPOSE:

So, it is our purpose in this unit to increase the learner's knowledge of architectural design and construction by providing him with these experiences.

TO ACHIEVE THIS PURPOSE:

We will seak to extend the environment of the individual through television by:

1. **A television tour of many communities to show and relate architectural styles to specific environmental influences.**
2. **Showing the processes involved in adapting an architectural design to the actual process of house construction.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if your student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

If possible, get an architect and a building contractor to visit with your class.

If a new building is under construction in your community, get out and watch what's going on. Someone on the project someplace should have a set of blueprints they may be willing to show to your students.

If old buildings are being torn down, their architectural design and construction can also be seen.

If you're brave enough to do this, ask your students what kind of home they would design for you, reflecting both your personality (as they see it) and the community environment.

the mirror of architecture

Architecture does have something very close to each of us. We must live and work in the buildings that architects design. They are a very important part of our life. Therefore, anyone interested in his surroundings and how they developed should know what influences the development of architecture.

Through television, we take a tour of many communities to show different architectural styles. We attempt to identify the environmental conditions that influenced these styles.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop the learner's intellectual ability to describe the environmental influences in architectural forms.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

When given a series of five pictures which depict examples of the various architectural styles, the student will be able to match, from a given list, the dominant environmental influence on each style.

BEFORE THE VIEWING . . .

The learner should be able to define *architecture* as anything man builds and define an *architect* as the designer who is an interpreter of society.

The morning they are scheduled to view, ask the children to look closely at the buildings they see on the way to school. We think this will prepare them to notice things in their own environment that often go unnoticed.

TO EXTEND THIS LEARNING EXPERIENCE, have the children speculate on what the environment would be like in the year 2000 and then interact on how architectural style might look to reflect and interpret this environment.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE IS THE RESPONSE YOU SHOULD EXPECT:

The correct answers for matching pictures to influences in the student's guide are:

1. **B**
2. **A**
3. **D**
4. **C**
5. **E**

Three correct answers will be considered acceptable.

from the inside out

From the earliest years, children get themselves involved in building houses, usually from blocks, stones or sand. The attraction of building a house is one that can be expanded when the person realizes all the intricacies of science and the judgments that are made about the price of materials and the process used in building a real house. Anyone who will one day be a consumer of the contracting business should have an awareness of what is used in building a house, and should also develop an appreciation for the advancements that make houses comfortable, convenient and safe.

In this television experience, we compress time to show the process involved in adapting an architectural design to the actual construction of a house.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to provide the learner with knowledge so that he will be able to recall the methods shown of using prescribed materials, according to a predetermined plan, in building a house.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given, in sequence, the steps in the construction of a house, the student will be able to name for each step at least two of the subsidiary steps and the materials used within that step.

BEFORE VIEWING . . .

We think it is highly desirable that the first telecast in this unit be seen by the students viewing this one.

The students will be asked to be able to define certain construction terms such as framing, sheathing, millwork, etc.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

Under each step in the construction process there are listed subsidiary steps and the materials used. Any two details from each step will be acceptable.

A. LAYING THE FOUNDATION

1. **After a survey of the land is made, the excavation for the basement is made.**
2. **Concrete footings with steel rod reinforcements are placed around the perimeter of the excavation.**
3. **Concrete block foundation walls are laid by a mason, anchor bolts are installed. The walls are waterproofed with cement, plaster and asphalt.**
4. **Steel columns and girders are added to support the upper structure. Water and sewer pipes are located before the basement floor of concrete is poured.**

B. BUILDING AND ENCLOSING STRUCTURAL FRAMEWORK

1. **A flat piece of wood is anchored to the foundation, and studs of fir 2 x 4's or 2 x 6's are placed 16 inches apart exactly upright all around the house, doubled at doors and windows, tripled at corners. Diagonal braces support the studs. Posts or bearing walls support long beams (girders) which in turn support shorter beams (joists or rafters). Joists are 12" to 16" apart and doubled around a stairwell. A wood subflooring, usually of plywood, is laid on the joists. The roof is framed with rafters. Long nails and small pieces of wood called bridgings add strength.**

2. **A sheathing may consist of plywood sheathing for bracing, building paper and finished siding for weather-proofing. Composite materials which serve as finished exterior and sheathing might also be used. Outside layers include cedar clapboards, shingles, asbestos, aluminum, brick veneer and stucco.**

3. The roof is also sheathed with plywood, covered with building paper and roofing. Metal flashing is put around chimneys and vents on the roof. Asphalt and pitch treated felt -- in individual shingles or strip shingles -- is used. Galvanized gutters and downspouts are added.

4. Millwork (doors, windows) are installed after the building has been sheathed. The doors fit into a steel framework. Windows may be double-hung, casement or picture windows.

C. INSTALLING MECHANICAL AND ELECTRICAL EQUIPMENT

1. Subcontractors put in the heating, plumbing and electrical apparatus. This work must be coordinated with the work of a carpenter, mason and roofer. Work begins as soon as the foundation and subflooring is completed.

2. Copper or brass pipes are connected with the water main and lead into the basement. A valve controls water flow. Water passes through long copper tubes to outlets. A hot water heater is installed. Waste water is taken through heavy cast-iron pipes to sewer main or septic tank. The tub is installed with the "rough" plumbing.

3. The heating plant may be a hot water or steam type furnace or a warm air furnace. Oil, gas or electricity may be used as fuel. Heat is controlled by a thermostat. An air conditioner can use the same equipment as the warm air furnace.

4. Electrical wires may come from the street through wires or underground to a master switch in the basement. A circuit breaker regulates the flow of electricity. Insulated wires carry electricity to rooms.

5. The carpenter cuts holes and openings for pipes, ducts and registers during the construction of the shell. The mason must patch masonry for water and sewage pipes, and the roofer must flash around vent pipes for plumbing. Completion of rough heating, plumbing and electrical work coincides with completion of framing, sheathing, roofing and installation of millwork.

D. COMPLETING THE INTERIOR STRUCTURE

1. Insulating batts or blankets (of aluminum, rock wool, wood fiber or fiberglass) are placed between the studs and rafters of the outside walls and ceilings. Insulation reduces the rate of heat loss through the walls.

2. Inside walls are usually made of dry wall which is made of gypsum board and which must be taped and spackled before being painted or papered. The drywall covers the insulation, studding, and exterior skin. All plumbing, heating and electrical lines are established so that the dry wall can allow for necessary openings.

3. Interior doors are installed and the trim (moldings for windows) added. Caulking compound is used to waterproof joints around frames.

E. FINISHING BOTH INTERIOR AND EXTERIOR PORTIONS

1. The hardwood (oak and fir are the most common woods used) floors are laid. The floors are sanded, filled, shellacked and varnished.

2. Ceramic and plastic tile may be used for bathroom and kitchen walls. Asphalt tiling, linoleum, rubber tile, cork tile, vinyl tile may be used for kitchen, bathroom, basement floors.

3. Fixtures (electrical, plumbing) are installed. Electrical connections are made.

4. Kitchen cabinets are hung or built in by the carpenter.

5. The walls are painted or papered. An enamel paint includes a prime coat and two rubber-based coats. Some rooms may use a flat paint. Ceilings are painted with flat paint or textured.

6. Woodwork trim and cabinets, doors and windows are stained, varnished or painted.

7. Outside finishing includes painting (prime coat and three other coats). Weatherstripping is put around doors. Aluminum storm windows are installed (combination screen and window).

8. Concrete work outside is poured -- driveway, patio, etc.

9. Grounds are landscaped.

INDUSTRY

Although we live in an agricultural region, we may often not know the intricacies of processing some of the raw products of Nebraska into marketable consumer goods.

TARGET AUDIENCE:

Our target audience for this unit is an individual who lives in an agricultural region. He is curious to know what happens to the farm products after they are sold by the farmer. This interest is assumed to be present whether our target audience is from urban or from rural Nebraska.

NEED:

However, the learner lacks the knowledge of how the state's agricultural economy is linked to the industries which process the raw product.

PURPOSE:

Therefore, it is our purpose in this unit to increase the learner's knowledge of the processing of raw resources of Nebraska into commercially marketable products.

TO ACHIEVE THIS PURPOSE:

We will extend the environment of the individual through television by:

1. **A visit to an oil refinery where the process of refining and the search for better results with blended gasolines is shown.**

2. **A visit to a sugar beet processing plant in Scottsbluff, Nebraska, where beet sugar is processed into the final product.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will avidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning, or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Both the petroleum and food processing industries have ample free material available for school use.

Grain and beef processing plants are scattered all over Nebraska, and one is most likely within field trip distance for at least some of your students.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

American Oil Company. 910 South Michigan Avenue, Chicago, Illinois 60680
American Petroleum Institute. 1271 Avenue of the Americas, New York 10020

the story of gasoline

Petroleum is one of man's most valuable natural resources. Through chemistry, he has developed methods of refining crude oil which make full use of the raw material. Besides liquid fuels for land and air vehicles, such products as heating oils, paints, greases, asphalt, plastics and soaps are realized from the various phases of refining. Chemists are continually seeking new products from oil in the new field of petrochemistry.

Through film animation, we first take a look at just what crude oil is. Then, through a visit to an oil refinery we present the search for better performing gasoline.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE that the learner will be able to recall the process of processing crude oil to produce marketable products.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

The student will be able to describe the process of fractional distillation for gasoline.

THE LEARNER SHOULD ALSO ACHIEVE THIS OBJECTIVE FROM THE TELEVISION EXPERIENCE:

The student will be able to recall and state that "no knock" gasoline is an example of further processing of the fractions to produce a marketable product.

BEFORE VIEWING . . .

The student should be familiar with the chemical make-up of petroleum and the reason for refining oil.

TO EXTEND THIS LEARNING EXPERIENCE, you might see what products -- other than those mentioned on television -- the student is able to identify as a by-product of crude oil refining.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

The student's description of the fractional distillation of gasoline should include the following points:

Crude oil is put in a bubble tower where heat separates the chemical elements into these fractions:

1. **asphalt**
2. **lubricating oil**
3. **fuel oil**
4. **kerosene**
5. **gasoline**

Catalytic cracking of the gasoline increases the yield of marketable fuel.

changing for the better

Anyone living in an agricultural state knows that, as a person who eats three meals a day, he helps insure the farmer's financial success. Few foods, however, are edible immediately after harvest. The essential middle-man is the food processor. Without him, the farmer wouldn't sell his product and the consumer couldn't eat his supper. Nebraska is a thriving agricultural state because of the interdependence between producer and processor.

In a visit to a sugar beet processing plant in Scottsbluff, Nebraska, we see the process involved in making sugar for our table from the sugar beet grown and sold by the farmer.

IT IS THE GOAL OF THIS TELEVISION EXPERIENCE to enable the learner to recall the interdependence between farmer and food processor.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given a series of true and false statements, the learner will mark those that indicate knowledge of the following facts:

1. **Farming and food processing are mutually dependent**
2. **An example of this interdependence in Nebraska is the raising and processing of sugar beets.**
3. **Refining sugar from beets is a complex process that requires technical skill and accuracy.**

BEFORE VIEWING . . .

We must assume that the learner realizes that many raw farm products must be processed before they are fit for consumer consumption.

TO EXTEND THIS LEARNING EXPERIENCE, follow through with information on how other raw farm products are processed for consumer consumption.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

If the student can label at least six of these statements correctly as true or false, he has achieved the objective.

F 1. **The farmer's job is more important than that of the food processor.**

T 2. **Refining sugar from beets is a complex process that requires technical skill and accuracy.**

T 3. **The food consumer depends upon both the farmer and the processor.**

F 4. **The Caribbean Islands supply all of the world's sugar.**

F 5. **Sugar beets are about the size of radishes.**

T 6. **Nebraska is a sugar producing state.**

F 7. **Refining sugar from beets requires three steps — cutting, smashing and drying.**

F 8. **Because the refining process is very simple, no research is necessary in processing sugar beets.**

F 9. **The food processor's job is more important than that of the farmer.**

URBAN PROBLEMS

The megopolis is no longer a phenomenon. It is a way of life. While on the east coast there is a single community of humanity and concrete from Boston to Philadelphia, this condition is rapidly spreading westward, as surely as did the pioneers. We can no longer stop, form a circle with our covered wagons, and reflect *if* it should happen. It *is* happening, and at jet-age speed.

TARGET AUDIENCE:

The audience for whom this unit is designed exists as the gifted individual in urban Nebraska who has begun to feel the symptoms of the rapid growth of cities. As a secondary audience, we feel that the individual in rural Nebraska should be aware of some of the conditions which seem far removed from the vast open spaces which *now* make up the elements of his environment.

NEED:

Problems which all students read about every day in the newspapers are difficult to understand without an exposure to the problems of the inner cities. However, what the individual in our target audience has lacked specifically is a knowledge of what these urban problems he reads about mean to him in his environment.

PURPOSE:

Therefore, it is our purpose in this unit to increase the individual's knowledge of some limited facets of urban problems to which he will soon be exposed in Nebraska.

TO ACHIEVE THIS PURPOSE:

To do this, we will seek to augment the learning experiences of the individual through television to:

1. **Show the causes and effects of air pollution.**
2. **Travel with a family as they leave a small country town to begin life in a city.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has taken place. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning, or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Visit a small town that is on the decline. Talk to the postal clerk, the druggist, the law enforcement officer. Discuss reasons for the town's decline. Discuss how the community has changed during its history.

Find out what measures your city or town is taking to control industrial smoke and waste materials. Talk to a factory owner and ask him how he tries to keep the wastes of his firm from harming the community.

Visit the sanitation department of your city. Find out about the treatment of sewage and the disposal of trash.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Channing, L. Bete Company, Inc. ***Needed: Clean Air.*** **Massachusetts: Greenfield 1967 (Copies 25 cents each)**
Department of Urban Affairs, Washington, D. C. 20410 (Ask for facts and figures on pollution and its control nationally.)
Henningson, Durham and Richardson. ***City of Omaha Nebraska: Missouri River Sewage Treatment Plant.*** **Omaha**

to clear the air

The American way of life with its high standard of living has been brought about through modern technology. However, man and his marvelous technical machines have also given birth to danger. The smoke of industry, the exhausts of automobiles plus the wastes of people everywhere are making air and water harmful. Pollution has become a major problem in our country.

Through television, the major causes and the disasterous effects of air pollution, as identified by scientists, are shown.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to enable the learner to identify the causes and effects of air pollution in his own community.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given the assignment to find several ways to decrease air pollution, the learner will list at least three ideas introduced in the television experience.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

The student will be able to define air pollution and in his own words will be able to describe air pollution.

The student will be able to list the reasons why the air is polluted.

The student will be able to list the sources of air pollution and briefly describe the contribution of each to the problem.

BEFORE VIEWING . . .

Find out how much prior knowledge the student has about air and water pollution by determining the extent of his exposure to other sources of information about the topics . . . and the extent to which this information has been retained in his functional knowledge.

TO EXTEND THIS LEARNING EXPERIENCE, relate the stated objectives for air pollution to water pollution by providing material about water pollution similar to that presented in the television experience.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **If the learner names any three of these means to reduce air pollution, he's on the right track:**
   a. **Devices in cars to control gases from tailpipes**
   b. **Research by industry to prevent and minimize pollution**
   c. **Electrostatic precipitators**
   d. **Enforcement of laws to control waste disposal**

2. **A definition is acceptable if it describes pollution as the presence in the air of foreign particles, dust or gas.**

3. ***Why* the air is polluted is not the same as the source of pollution. The reasons *why* are weather and terrain that lock in the sources.**

4. **Expect the student to list at least four of these sources of air pollution:**
   a. **Automobile exhaust**
   b. **Industrial fumes**
   c. **Residential fumes**
   d. **Burning trash**
   e. **Dust**

too big or too small

Population movement from rural areas to urban centers creates problems in both places. The physical structure of small towns and cities is affected when people decide to move. The signs of desertion on one hand become signs of overcrowding on the other. The basic needs of people go on, however. Communities, both large and small, must face the problem of how to fill these needs whether the problem is too many people or too few.

In this television experience, we travel with a family as they leave a small country town to begin life in a city. The problems found by this shift -- for both the small town and in the city -- are explored.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop the learner's intellectual abilities and skills to be able to identify and describe the problems of population shifts in his own community.

WE HAVE SOUGHT THESE SPECIFIC RESPONSES TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

The student will be able to list the problems in rural areas caused by the decline in population due to migration to urban areas. The student will be able to list the problems of urban areas caused by the increase in population due to migration from rural areas.

BEFORE VIEWING . . .

Discuss whether your town or community is gaining population or is on the decline as a result of the population shift.

TO EXTEND THIS LEARNING EXPERIENCE, the student should be able to relate how population shifts will effect their community.

It would also be helpful to learning if the effects on the families, as well as the communities, would be discussed by the student.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

If your student can list five problems for each area, he senses the problem:

Rural problems

1. **Increased taxes**
2. **Decreasing industry**
3. **Shortage of resident physicians**
4. **Lack of extended resources in schools**
5. **Distance from recreation and entertainment**
6. **Separation from school friends**

Urban Problems

1. **Crowded housing**
2. **Air pollution**
3. **Traffic jams**
4. **Noise**
5. **High crime rate**
6. **Crowded recreation areas**
7. **No feeling of community**

YOU AND YOUR WORLD

While it may not be readily apparent or accepted, our "new generation" must function within the context of an established social environment. Although it has been said that we are no longer living in *our* world, but *theirs,* certain aspects of society will remain constant and continue even though they do represent institutions of "the establishment."

TARGET AUDIENCE:

As with Unit 1, we feel that all students for whom CHALLENGE is designed should be exposed to these television experiences. While the concentration of one may appeal more to one student than another, the spread of social comment has been made general enough to accommodate all specialized interests.

NEED:

The individual quite often lacks exposure to many aspects of our society needed for him to fully understand the scope of his environment.

PURPOSE:

Therefore, it is our purpose in this unit to increase the individual's knowledge and to prepare him for a greater understanding of various elements in his environment and in the environment to which we assume he will contribute as a leader.

TO ACHIEVE THIS PURPOSE:

To do this, we will seek to expand the experiences of the individual through television:

1. **By a visit to the Juvenile Court in Lincoln, Nebraska.**
2. **To expose the individual, through television, to young mentally retarded children engaged in meaningful activities.**
3. **To identify the various ethnic groups which are found in Nebraska communities.**
4. **To present the values of Indian tribal life in contrast with white urban culture.**
5. **To explore a young person's search for identity.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For four of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has taken place. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning, or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Because of the wide range of subject matter dealt with in this broad unit, specific activities will be listed, where applicable, after each of the individual television experiences.

to help—not to punish

A simulated hearing in juvenile court presents judge, defendant, parents and social workers in a situation that requires decision making on the part of the viewer. After the presentation of charges, the viewers are asked to decide the defendant's sentence. The telecast then resumes to present the actual decision given by the judge.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to expose the learner to the workings of the juvenile court and to stimulate an active interaction with the televised event.

BEFORE VIEWING . . .

We have indicated no specific behavioral objective for this television experience. However, the individual must be prepared to interact with the television broadcast -- he should know that he is going to be asked to form a conclusion while he views. Be aware that this active response is going to be coming and prepare yourself, as well as the students, for the discussion that should occur.

hope for the handicapped

Retarded children bring out different reactions in people. These reactions range from pity to mockery, but what is most needed is sympathetic understanding. Many people regard retarded behavior as a constant display of failure. What they do not understand is that even minor responses are great accomplishments.

Through television we will expose the individual to young mentally retarded children engaged in meaningful activities.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE that the learner will be conscious of some activities used to strengthen both the physical and mental skills of retarded children.

IT IS ALSO OUR GOAL that the learner will have an increased sensitivity to the needs and difficulties of retarded children.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

Given a description of activities conducted for mentally retarded children, as shown in the television experience, the learner can name the purpose for which each is designed.

BEFORE VIEWING . . .

We have assumed, in the production of this television experience, that the learner has a working knowledge of what a mentally handicapped child is, and in general what characteristics he may display.

TO EXTEND THIS LEARNING EXPERIENCE, provide a situation in which students can interact with each other in assessing their community's attitude and reactions toward mentally handicapped children.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE IS THE RESPONSE YOU SHOULD EXPECT:

Look for these answers to the question, "Why do mentally handicapped children engage in such activities?"

1. **To coordinate and develop muscles**
2. **To improve self-concept**
3. **To improve speech**
4. **To identify roles and functions of others, especially community helpers**

many are their gifts

Nebraska communities were founded through the efforts of groups of people from various ethnic backgrounds who had strong common bonds, goals, desires, hopes for the future. These groups had differences -- customs, traditions, observances. Common bonds developed the communities of our state. Difference brought and continued to bring new dimensions of growth and enrichment.

We have structured this telecast to create a general impression of accomplishment among the various ethnic groups presented. It doesn't matter if the students remember particular names, occupations, customs or businesses. Discussion after viewing should be centered around the closing remarks of the telecast, "When emigrating to a new country, people do not give up their cultural heritage; they GIVE their heritage to their new home."

the forgotten people

The "way it is" is a common phrase and being able to see the way things are is not too difficult -- if one tries. Discovering why *things are is usually more difficult, but knowing* why *is essential if the* way *things are is to be changed. The Indian living in an urban culture has many problems that prevent him from benefiting from his status as a full citizen. These problems will be solved only when their causes are analyzed and understood.*

In this television experience we will compare Indian tribal life on the reservation with Indian family life in crowded urban conditions.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to have the learner increase his sensitivity to human need and a pressing social problem.

Although measuring affective learning is difficult, in this television experience we will accept as evidence the desired learning has occurred if the learner can display an awareness of the situation. Therefore . . .

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

Given a list of traits and values of Indian tribal life, the learner can name the difficulty or conflict these traits will cause if the Indian attempts to move into a white urban civilization.

THE LEARNER SHOULD ALSO ACHIEVE THIS OBJECTIVE FROM THE TELEVISION EXPERIENCE:

The learner should be able to list at least two reasons why urban Indians remain "invisible."

BEFORE VIEWING . . .

The individual, before he shares in this television experience, must first have a general knowledge of Indian reservations.

Knowledge of the heritage of the Nebraska Indian would be quite helpful in achieving the goal.

TO EXTEND THIS LEARNING EXPERIENCE for those students who have achieved the level of learning indicated in the goal, suggestions might be sought on: *what* changes should be made *where* to allow the Indian to be integrated more effectively into the white urban community.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

Given a list of traits and values of Indian tribal life, the learner can name the conflict these traits will cause if the Indian attempts to move into a white urban civilization:

TRIBAL VALUE	CORRESPONDING CONFLICT
Overwhelming sense of community	non-competitive spirit
Strong sense of sharing	non-concern with private saving
Seldom have word for "time"	non-concern with speed and promptness

When asked to name at least two reasons why Indians usually remain "invisible" in a white man's culture, the student's answer will be included in the following list:

1. **Often there are no urban Indian centers**
2. **There are few welfare agencies set up specifically to aid the incoming Indian**
3. **There are no distinctly Indian churches**
4. **There are no methods directly set up for keeping track of Indians**

meet yourself

Breathes there a 5th or 6th grade teacher who hasn't, at least once in her career, wondered: "What makes these kids tick?" The difficulty of understanding pre-adolescents is increased by the fact that pre-adolescents don't understand themselves. Self-understanding is difficult for all ages, especially when the self is considered as a dynamic force, constantly seeking its own identity. No doubt you'll agree that increased self-understanding on the part of the student could make life a bit easier for both the student and his teacher.

Dramatizations and explanatory comments will present some of the common forms of identity-seeking practiced by pre-adolescents.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's awareness of identity-seeking as the motivation for many of his actions.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THE GOAL HAS BEEN REACHED:

When asked to name three factors that influence or reflect his self-identity, the individual will name and describe examples of peer group uniformity, adult group tension, and expected reaction to the image others have of him.

BEFORE VIEWING . . .

We have assumed that the title of the telecast and the printed introduction in the student handbook will be explanation enough for the viewers. Let's hope we've based our assumption on a correct understanding of the pre-adolescent.

AGRICULTURE

As residents of an agricultural area, we may assume that all aspects of agribusiness research are common knowledge. However, we often are too close to the land to realize the full scope of the true science of agriculture.

TARGET AUDIENCE:

The target audience for this unit is the individual who, as a resident of an agricultural area, is familiar with many aspects of agriculture, but who wants to know more about what is being done by scientists to help improve the end product for the consumer.

NEED:

As a possible producer and probable consumer of foodstuffs, the learner lacks the knowledge of how the characteristics of these foodstuffs are improved by the deliberate application of research by the agricultural scientist.

PURPOSE:

Therefore, it is our purpose in this unit to increase the learner's knowledge about what scientists do to improve foodstuffs and what the resultant food characteristics are.

TO ACHIEVE THIS PURPOSE:

We will augment the learning environment of the individual through television by:

1. **A visit to the beef breeding station in North Platte and an examination of the tomato experiments at the University of Nebraska Agriculture Center in North Platte.**

2. **A visit to an agricultural research laboratory at the University of Nebraska where we will also see, in cartoon form, the history of agriculture.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if your student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning, or if he needs to be provided additional experiences by you in order to achieve the stated objective.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Atomic Energy Commission. "Atoms in Agriculture" (limit 2 copies), Tennessee: Oak Ridge 37830
DeVries, L. *Book of the Atom.* **New York: Macmillan Company 1960**
Dunlap, Henry and Tuch, Hans N. *Atoms at Your Service.* **New York: Harper and Brothers 1957**
Hyde, Margaret. *Atoms Today and Tomorrow.* **McGraw-Hill Book Co., Revised edition 1966**
Jaworski, Irene and Alexander, Joseph. *Atomic Energy.* **New York: Harcourt-Brace and World 1961**
Leeds, Roslyn. *Introducing the Atom.* **New York: Harper and Row 1967**
McKown, Robin. *The Fabulous Isotopes.* **New York: Holiday House 1962**
Woodburn, John H. *Radioisotopes.* **Philadelphia: Lippincott and Company 1962**
Woodbury, David O. *Atoms for Peace.* **New York: Dodd-Mead and Company 1965**

thread of life

Science is constantly searching for ways to improve food production and the scientists control over food output is steadily increasing. Man may someday be able to eliminate all chance in hybridization and directly control the characteristics of all plants and animals.

Through a television visit to the beef breeding station in North Platte and an examination of the tomato experiments at the University of Nebraska Experimental Station, also in North Platte, we will see what is being done with beef cattle and tomatoes and what the results of these experiments are.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the learner's knowledge so that he will be able to recall how the procedures of genetic breeding influence the characteristics of foodstuffs.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

The learner will be able to recall and describe at least three characteristics of both the beef cattle and tomato plants seen on television that were the results of experiments.

BEFORE VIEWING . . .

Before viewing, the learner should know that genetics is the science of inheritance and is the scientific basis for animal and plant breeding.

TO EXTEND THIS LEARNING EXPERIENCE, you might provide additional learning situations which would enable the students to identify characteristics (other than those shown on television) of other plants and animals that were the result of similar experiments.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE IS THE RESPONSE YOU SHOULD EXPECT:

When asked to recall characteristics for which the experiments were striving, the learner will name any three traits from each category:

BEEF CATTLE
1. **Fertility**
2. **Mothering longevity**
3. **Growth rate**
4. **Feed efficiency**
5. **Carcass value**

TOMATO PLANTS
1. **A shape that could stand abuse**
2. **A height adaptable to machinery**
3. **Fruit that would ripen simultaneously**
4. **Fruit that would break smoothly from the stem**
5. **Fruit that retained nutritious value**

tracing for progress

Agricultural scientists are sending radioactive tracers on seemingly impossible missions. They are being sent underground for fertilizer knowledge. They are dispatched to the innermost parts of plant and animal life to report chemical changes. They are used to do battle to enemies of plants and animals. Radiation may some day provide foods which will remain fresh for indefinite periods of time. It is difficult to predict how much radiation will help in the task of feeding the world.

After a short animated presentation on the history of agriculture, we take the student on a television visit to the agricultural research laboratory at Lincoln, Nebraska, to see how radiation is now being used in agricultural research.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the learner's knowledge of agriculture research to enable him to recall what agricultural scientists wish to accomplish by using radioactive tracers in research.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given the situation where a radioactive tracer is injected into a plant, the student will be able to explain what happens to the tracer over a period of time.

THE LEARNER SHOULD ALSO ACHIEVE THIS OBJECTIVE FROM THE TELEVISION EXPERIENCE:

The student will be able to describe at least one example of current agricultural research which uses radioactive tracers.

BEFORE VIEWING . . .

It would be helpful if the student had some prior knowledge of the use of radiation in other fields -- such as medical research.

Before viewing, we feel he should also know why agricultural scientists are interested in improving the methods of food production.

TO EXTEND THIS LEARNING EXPERIENCE, the student might be asked to relate this type of research to other fields such as medicine and metallurgy, etc.

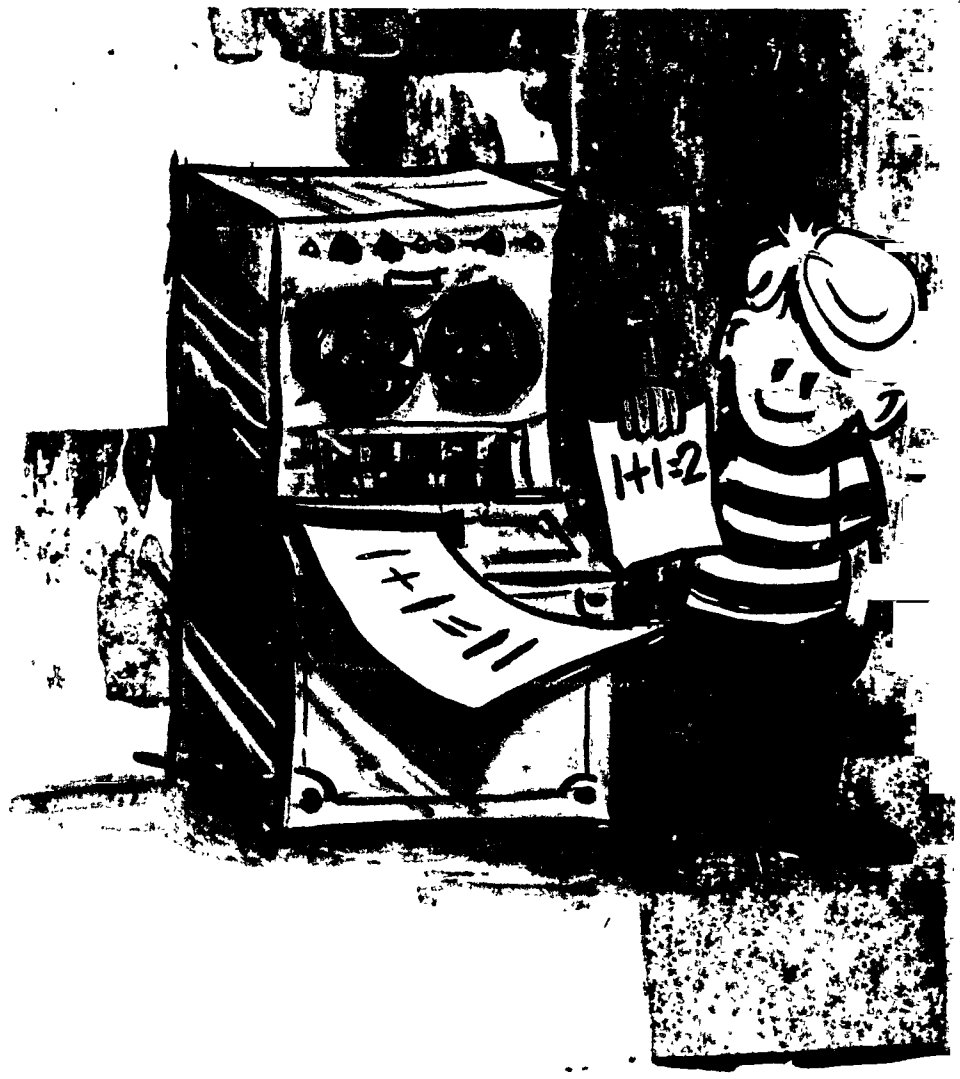
IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

When asked to explain what happens to a tracer after it is injected into a plant, the learner should simply answer that the tracer travels to the roots and/or leaves and remains there for the life of the radioactive element used as a tracer.

A basic description of one research project would include the following steps:

1. **Soil around a plant is injected with fertilizer that has isotopes in it.**
2. **After a period of plant growth, a leaf is pressed between photographic film plates. The leaf will leave traces from the radioactive fertilizer.**
3. **A Geiger counter could be used to register the distribution of fertilizer throughout the plant.**

MATH



The importance of the field of mathematics to our culture and way of life has been often underestimated -- except when it comes time to balance the check book. Never before has the practical application of computations, geometry and the rest of math had so much daily attention and concern.

TARGET AUDIENCE:

The target audience for whom this unit is designed is the individual who has displayed a mastery of more traditional forms of mathematics and who seeks to discover new fields in which his knowledge can be put to practical use.

NEED:

This individual has lacked the opportunity to be exposed to the world in which the practical application of mathematics is of daily concern.

PURPOSE:

Therefore, it is our purpose in this unit to increase the knowledge of this individual by providing him with the situations in which an advanced knowledge of mathematics is vital.

TO ACHIEVE THIS PURPOSE . . .

To do this, we will augment the learning situation of the individual by:

1. **A description and explanation of the operations of a computer.**
2. **An experience where the practical application of geometric learning is applied to missiles.**
3. **A look at the seemingly improbable world of probability.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning, or if he needs to be provided additional experiences by you in order to achieve the stated objectives.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Try to arrange a visit to a firm which uses electronic computers. Have the students not only try to identify the parts of the computer but to determine the ways in which the unit serves the firm. Do this before the visit.

HOWEVER . . . a warning to teachers: don't be fooled into believing the dice game conducted in the custodian's closet during recess is an extended activity to the telecast on probability. The odds are against it.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Bergaust, Erick. *Rockets of the Armed Forces.* **New York: G. P. Putnam's Sons 1966**
Boldt, A. B. *We Built Our Own Computers.* **London: Cambridge at the University Press 1966**
Colby, C. B. *Countdown, The Story of Our Missile Bases.* **New York: Coward-McCann, Inc. 1960**
Coombs, Charles. *Rockets, Missiles and Moons.* **New York: William Morrow and Company 1957**
Jonas, Arthur. *New Ways in Math.* **Englewood Cliffs: Prentice-Hall 1962**
Kenyon, Raymond G. *I Can Learn About Calculators and Computers.* **New York: Harper and Row 1961**
Lohber, Rolf and Lotz, Theo. *Electronic Brains.* **New York: Sterling Publishing Company 1965**

faster than thought

The minute electron applied to calculators has produced a machine that can process data and solve problems within seconds. From space control panels to business offices, from weather forecasting to election predictions, the electronic computer does man's work speedily and as accurately as man can program it.

In this television experience, a description and explanation of the functions of a computer are given on a visit to several computers located in the Omaha–Lincoln area.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to enable the learner to recall from the telecast the basic functions of the five units of a digital computer.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

The student will be able to list, in sequential order (and give a brief explanation), the steps by which data is processed by a computer.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

When given a decimal number such as 128, the student will be able to recall how to convert it to the binary system.

Given the assignment to name sources which use the computer, the student will be able to list the weather bureau and the schools.

BEFORE VIEWING . . .

We do assume in this television experience that the student knows that numbers can be expressed in other than base ten systems. It might be a good idea to briefly review the binary system.

TO EXTEND THIS LEARNING EXPERIENCE, you might expand on the difference between analogue and digital computers we touched on in the telecast and provide conditions which will enable the student to achieve this objective:

The student can list at least three examples of problems that can be solved by the digital computer and three that can be solved by the analogue computer.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The student should name the following steps as the computer process:**

    1. **Input - data recorded on punched cards, magnetized tape, etc.**
    2. **Control - directions from the flow-chart fed into the computer**
    3. **Storage - previous information stored on drums, discs or magnetized tape**
    4. **Processing - the computer in action using binary system**
    5. **Output - requested information on punched cards, typed sheets, etc.**

2. **128 converted to the binary system would be:**

128	64	32	16	8	4	2
1	0	0	0	0	0	0

a chancy business

The observation of random events usually appeals to the gambler in all of us. This visit with two Canadian mathematicians is designed to visualize both the experiments and the recording of results with random events.

No specific behavioral response is sought for this telecast. The conclusion reached in the lesson is that reading conclusions in random events is always a chancy business. One may observe, record and then predict . . . but there is always the possibility -- if not probability -- of a deviation in events.

math and missiles

Basic rules of mathematics that explain the laws of gravitation are applied every time a rocket is fired. The speed and direction of the earth's rotation exerts a force that must be calculated if the rocket is to land on target.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to increase the individual's knowledge of the practical application of mathematics to missiles and rockets . . . to enable the learner to recall how mathematics is used to calculate a missile's trajectory path.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given the assignment to draw the shapes of paths launched air vehicles follow, the student would be able to show the circle, hyperbole, parabola and ellipse.

THE LEARNER SHOULD ALSO ACHIEVE THESE OBJECTIVES FROM THE TELEVISION EXPERIENCE:

Given an example of a missile which missed its target when fired north or south, the student would be able to identify the principles of Coriolis Force as the cause of this error.

Given the problem of firing a missile east or west, the student will be able to identify the conditions of rotation and curvature which must be considered in plotting the shape of the missile path to the target.

BEFORE THE PROGRAM:

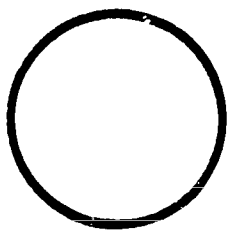
Define and give a brief explanation of Coriolis Force, trajectory, velocity, latitude and gravitational pull.

TO EXTEND THIS LEARNING EXPERIENCE, you might see if your student is ready to respond to this objective:

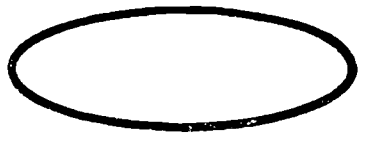
> **Given the problem of a missile to be fired east or west, the student will be able to associate the problem as similar to that of a golfer who will shoot a ball to the east or west.**

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

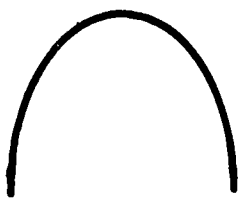
1. The student's drawings of the paths of launched air vehicles would look like:



CIRCLE



ELLIPSE



PARABOLA

HYPERBOLE

2. Coriolis Force causes missiles to drift to the right when going north and to the left when going south.

3. The earth's curvature and rotation will cause the missile to have a greater range when fired toward the east and a lesser range when fired toward the west.

BUSINESS

Capitalism is running rampant in our American society. Even though many "little people" have a piece of the action of "big business," the workings of this whole system of investments and the market remain somewhat of a mystery to most of us.

TARGET AUDIENCE:

The specific audience for whom we have designed this unit is the gifted individual who has already displayed an interest in marketing and who will most likely be the one who will be successful in "playing the market."

NEED:

While much is said about the markets, we are assuming our target audience has not had the opportunity to see or understand the inner workings of the various markets and exchanges.

PURPOSE:

Therefore, it is our purpose in this unit to include the seldom-seen activities in the markets and exchanges in order to increase his understanding of how they operate.

TO ACHIEVE THIS PURPOSE:

We will extend the learning environment of the individual to include:

1. **An introduction to the stock market through a visit to an investment company.**
2. **A visit to a grain exchange.**
3. **A television trip to the futures pit at the Chicago Board of Trade.**

INDIVIDUALIZE VIEWING:

- **Select for viewing only those students you feel this unit is designed to reach.**
- **Make sure each student viewing has his own student's guide for this unit.**
- **Provide whatever learning activities you can to prepare the student to get the most from the television experience.**
- **Allow the environment in which the student will view television to be as helpful to learning as possible.**
- **Individualize instruction after viewing by building on the learning the student has achieved in his interaction with the television experience.**

INDIVIDUALIZE LEARNING:

For each of the television experiences in this unit, specific responses are indicated which will evidence to you if the desired learning has occurred. By measuring or observing if the student is able to respond in the way indicated, you will know if he is ready to move on to a higher, more complex level of learning or if he needs to be provided additional experiences by you in order to achieve the stated objective.

EXTENDED ACTIVITIES RELATED TO THIS UNIT:

Visit a stock investment firm during market hours and view the "Big Board" of stock quotations.

Encourage your students to read the financial page of a newspaper and discover how what is happening in the world affects the stock market.

If you're near Omaha, visit the Omaha Grain Exchange where you will be able to see actual trading going on.

If you can't get to Omaha, talk to a farmer about how he decides when to sell his grain and how he moves it to market.

We doubt seriously if a field trip to the Chicago Board of Trade would be approved by your superintendent, but if it is, write to us for a list of good restaurants to go to while you're in the Windy City.

ADDITIONAL RESOURCES YOU CAN SUGGEST THE STUDENT EXPLORE ON HIS OWN:

Chicago Board of Trade. 141 West Jackson, Chicago, Illinois 60604 *Marketing Grain Through a Grain Exchange*

Merrill, Lynch, Pierce, Fenner and Smith, Inc. *What Everybody Ought to Know About This Stock and Bond Business.* **New York: P. O. Box 333, Wall Street Station 10005**

O'Keefe, James. *Bulls, Bears, Pigs and Victims: A Survival Manual for Investors.* **Massachusetts: Great Barrington, Investors Information Service 1965**

Omaha Grain Exchange. 725 Grain Exchange Building, Omaha, Nebraska 68102 *A Visit To The Omaha Grain Exchange*

Dean Witter and Company. *Does It Make Sense for Me To Buy Stocks?* **New York: New York Stock Exchange 1967**

Wood, James Playsted. *What's the Market? The Story of Stock Exchanges.* **New York: Duell, Sloan and Pearce 1966**

bears, bulls and other money

The buying and selling of stocks and bonds is an important aspect of our free enterprise system. Individuals may become shareholders in a corporation as an investment procedure. The stock exchange is a busy place as stocks and bonds are bought and sold daily. The nation's pulse is felt here as the rise and fall of the market reflects current events.

In this television experience, an investor visits an investment company to buy securities. Here he is introduced to several facets of the stock market.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop an intellectual ability to predict stock market trends from the course of current events.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given a series of stock market prices of a particular company which fluctuate over a period of time, the student will be able to list factors which may have had an effect on these prices.

THE LEARNER SHOULD ALSO ACHIEVE THIS OBJECTIVE FROM THE TELEVISION EXPERIENCE:

Given the terms bull market and bear market, the student will be able to tell what these words mean to a stock broker and when they are used.

BEFORE VIEWING . . .

Your students should look at stock quotations in the newspaper. They should also know about stock averages and where they might find these daily averages reported.

TO EXTEND THIS LEARNING EXPERIENCE, you might provide some additional material to allow the learner to achieve this objective:

> **When given the choice to purchase either a bond or a stock, the student can explain what the difference between these purchases would mean to him as an investor.**

If you want to take the time to follow through on a long-range class project, have your students "buy" stocks listed in the paper on the basis of their analysis of the market trends for a company of their choice. After a semester or so, compare the prices and see who made the most money on their "investment."

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The student may list any three of the following factors that could influence stock prices:**
   1. **Corporation success or failure**
   2. **War**
   3. **Government decisions**
   4. **World trade**
   5. **Success or failure of scientific experiments that are of national interest.**

2. **Descriptive definitions of bear and bull markets are:**
   Bull Market - Market prices up . . . optimistic outlook

   Bear Market - Market prices down . . . pessimistic outlook

cash on the line

Fields of grain and towering grain elevators are familiar sights on the plains. The marketing of a farm commodity is as exciting as the exchange of securities on the stock exchange. The grain exchange is the marketplace for the buying and selling of the raw materials of many of our basic foods.

We have provided a television visit to the Omaha Grain Exchange from the laboratory section where the grain is tested and graded to the "Big Board" where the cash values of grains are posted.

IT IS THE GOAL IN THIS TELEVISION EXPERIENCE to develop the learner's ability to apply knowledge of the operation of the Grain Exchange to a simulated experience in the classroom.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

> **Given the example of one grain, the student will be able to list the steps involved in placing the grain on the exchange.**

BEFORE VIEWING . . .

If the students have not seen the previous telecast on the stock market, it would be helpful if you could offer a brief explanation of a bull market and a bear market.

TO EXTEND THIS LEARNING ACTIVITY, set up your own grain exchange where students are imaginary owners of different commodities and tell them to exchange their grain for other grains or items without the use of money.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVE, HERE IS THE RESPONSE YOU SHOULD EXPECT:

If the learner can name any four of the following steps in placing grain on the exchange, we feel he has achieved our objective:

1. **Harvesting of grain**
2. **Transporting grain to elevator**
3. **Sample taken for testing**
4. **Sample tested and evaluated in the laboratory**
5. **Sample taken to trading floor where prices are listed on the big board**
6. **Grain is bid on in relation to its quality and to the national prices reported on the board.**

fair exchange for the future

Would you believe that the sandwich you ate in so relaxed a manner during lunchroom duty this noon was a part of another tense, dramatic, lightning-like activity? Every day the economy of America is balanced by the shrewd bargaining of businessmen involved in the Futures Market. You and your students profit from this by stabilized prices on grain products.

In this television visit to the futures pit at the Chicago Board of Trade, we see how the hedgers, speculators, scalpers and spreaders operate.

WE HAVE SOUGHT THIS SPECIFIC RESPONSE TO EVIDENCE THAT THE GOAL HAS BEEN REACHED:

Given first person descriptions of the various roles of participants in the Futures Market, the learner can identify the person as a speculator, scalper or spreader.

THE LEARNER SHOULD ALSO ACHIEVE THIS OBJECTIVE FROM THE TELEVISION EXPERIENCE:

The learner can give a descriptive definition of hedging and give at least two reasons why a grain operator may use hedging.

BEFORE VIEWING . . .

While it is not essential to this learning, it would be helpful if the students viewing this television visit to the Chicago Board of Trade had also viewed the two previous visits to the Stock Market and the Grain Exchange.

TO EXTEND THIS LEARNING EXPERIENCE, you might provide additional learning experiences necessary to enable the learner to achieve this objective:

Given an example of futures trading, the learner can compute profit or loss.

IF YOU'D LIKE TO SEE IF THE STUDENT HAS ACHIEVED OUR STATED OBJECTIVES, HERE ARE THE RESPONSES YOU SHOULD EXPECT:

1. **The descriptions and correct answers for the types of traders are:**

_a_ scalper _b_ speculator _c_ spreader

b I am willing to assume necessary risks in the hope of profit. I attempt to anticipate price changes and through market activities add to my profits.

a I'm a speculator who operates on the trading floor of the Chicago Grain Exchange. I buy and sell rapidly with small profits or losses and I hold my position for a short time.

c I'm a highly professional trader who purchases one future against the sale of another future of the same commodity or a different commodity in the same or different markets.

2. **An acceptable descriptive definition of hedging would be similar to the following:**

Hedging is the sale of futures against the physical commodity or its equivalent as protection against a price decline . . . or the purchase of futures against forward sales or anticipated requirements of the physical commodity as protection against a price advance.

The reasons for using hedging are included in the statement of definition.

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