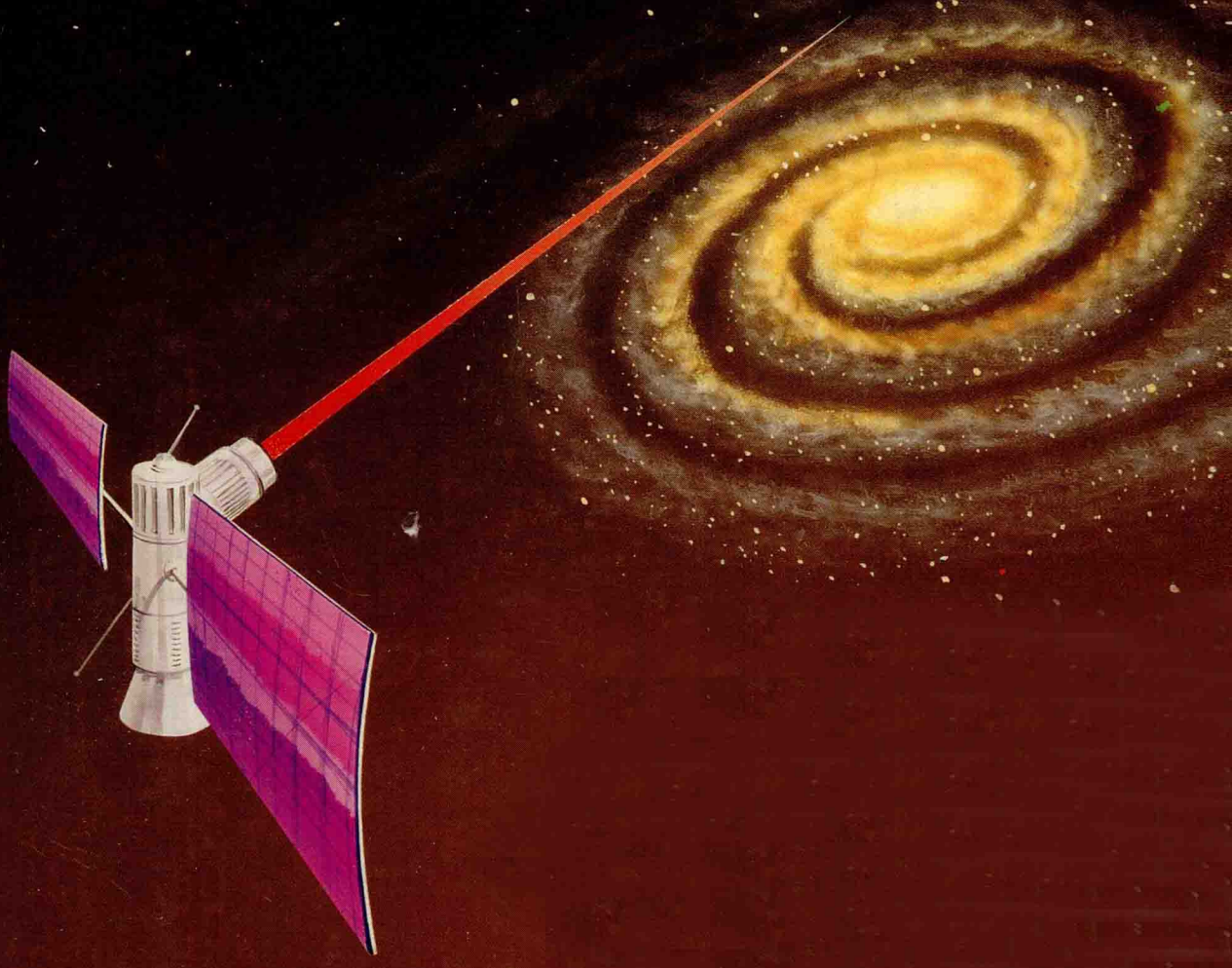
Teacher's Annotated Edition

technology

today and tomorrow



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TECHNOLOGY TODAY AND TOMORROW

TEACHER'S ANNOTATED EDITION

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TEACHER'S MANUAL

OVERVIEW

Technology Today and Tomorrow consists of a four-component program for teaching and learning. It includes:

- **Student Text**—a textbook for learning about technology in today's world.
- **Teacher's Annotated Edition**—consists of the Student Text with teaching suggestions included on the text pages, plus a bound-in Teacher's Manual.
- **Teacher's Resource Guide**—contains teaching suggestions, visual teaching aids, lesson plans, and other helpful information.
- **Activity Workbook**—provides a wide selection of activities designed to attract students' interest and reinforce learning.

Each of the components listed above is described in detail on the following pages. Familiarization with each of the components will enable you to teach the course in a fashion that will enable you to realize its full value for your students.

THE STUDENT TEXT

The *Technology Today and Tomorrow* student text is the principal learning tool in the program. It is an information resource that will aid learning and hold students' interest. Combining solid data, strong visuals, and special features, the student text is the core unit in the learning program.

Sections

The *Technology Today and Tomorrow* text is divided into four sections. Each of the sections deals with a major concept in technology.

Section I: Communication. Focuses on the communication system, telecommunications, graphic communication, and communication networks. Includes related activities.

Section II: Manufacturing. Examines product development, production planning, production, marketing, and computer-integrated manufacturing. Includes related activities.

Section III: Transportation. Highlights the types and modes of transportation, intermodal transportation, transportation systems, power and transportation, and transportation in the future. Includes related activities.

Section IV: Construction. Discusses the various phases of the construction process: planning, management, building, and post-construction phase. Discusses possible future developments in construction. Includes related activities.

The text also contains a blended activity section that provides hands-on activities that will enhance students' retention of information by providing practical applications.

The glossary defines key terms in technology.

Chapters

Technology Today and Tomorrow has twenty-four chapters. Each chapter presents the topic information in a logical, easily understood manner. The chapters have the following parts:

- **Overview.** Entitled *Looking Ahead,* the chapter overview presents a concise statement of the principal themes dis-

cussed in the chapter. It enables the student to focus on the central points of information. It also includes the main learning goals for each chapter. These clearly written objectives open the chapter. They present the themes of the chapter in broad outline. They designate the skills and abilities that can be developed by the student through careful study of the chapter.

- **Text.** Each chapter begins with a short overview that brings the important themes into focus. The chapter text itself is carefully organized, the information being clearly presented. The distinctive heads and subheads indicate the major divisions of information in the text. The vocabulary of technology is defined on first use. New terms are set in boldface and explained. They are identified again in the list of new terms at the end of the chapter. In these lists, the terms are arranged alphabetically. The terms are included also in the glossary.
- **Review.** Each chapter concludes with a review. This consists of a brief chapter summary entitled *Looking Back*, a list of new vocabulary terms, and study questions. These questions are designed to reinforce learning by concentrating students' attention on the recall of important information. The questions are arranged in the order in which the information is presented in the chapter.

Special Highlights

- **Four-Color Illustrations.** The many full-color photographs will attract students' interest, motivating them to learn about the new technologies explored in the text. The photographs and drawings provide a strong visual reinforcement for the themes and concepts discussed.
- **Human Interest Stories.** Each chapter includes brief vignettes. These illustrate, through personal experiences, the impact and importance of the new technologies. Through their human interest approach and distinct focus, they expand the information presented in the text proper.
- **Photo Essay.** The text opens with a four-color photo essay, *"Time and Technology,"* which is designed to interest and motivate the student. Picturing the many uses of the new technologies, this ambitious photo essay establishes the tone for the book and graphically involves the reader in the subject.
- **Correlations.** Certain major themes in the text are related to math, science, language arts, and social studies. These correlations are designed to suggest to the student the ways in which certain information in a technology course can be related to other disciplines. Each of these correlations is thoughtfully written to prompt a high degree of interest from the reader.
- **Activities.** Each of the technology sections is supplemented by an activity section, which consists of "hands-on" learning experiences. Each of these activities was selected to enhance the information presented in the text. The activities are designed to be attractive to students at varying skill levels. The activities, by requiring the practical solution of technical problems, encourage the development of problem-solving skills. A section on blended technology allows students to develop skills drawing on the application of several different technologies.
- **Glossary.** The glossary presents a complete alphabetized inventory of the important terms in the text. Each of the terms is defined. This glossary includes definitions of the terms in the terms list at the end of each chapter.
- **Index.** An accurate and comprehensive index is a valuable tool, offering the

reader immediate access to a text's information. In a technical book, the index is invaluable. Comprehensive, and carefully constructed, the index is a guide to the main themes and topics of the text.

- **Objectives.** The main learning goals for each chapter are designated by clearly written objectives, which open the chapter. These objectives present the themes of the chapter in broad outline. They designate the skills and abilities that can be developed from the careful study of the chapter.

THE TEACHER'S ANNOTATED EDITION

Technology Today and Tomorrow is also published in a Teacher's Annotated Edition. This is the book you are now reading. The Teacher's Annotated Edition differs from the student text in the following two ways:

1. The textbook pages include teaching suggestions in the bottom page margins. These annotations are keyed by number to passages in the text.
2. A comprehensive teacher's manual is bound in with the annotated text pages. This teacher's manual is printed on off-white paper.

The Annotations

In the Teacher's Annotated Edition, the teaching suggestions (annotations) are printed in the bottom margins of the text page, making them immediately accessible. These annotations take various forms, offering discussion questions, additional information, and activity suggestions. This variety allows you the opportunity to select those teaching suggestions that best suit the needs of your class. Each annotation is keyed by number to a specific text passage on the page.

THE TEACHER'S MANUAL

The bound-in Teacher's Manual section of the Teacher's Annotated Edition makes class planning and teaching information immediately available. For each chapter of the textbook, the Teacher's Manual includes:

- **Main Goal.** A brief statement of the principal instructional goal of the chapter.
- **Lesson Focus.** A set of student-oriented goals that the student should be able to achieve.
- **Instruction.** A restatement of key vocabulary terms used in the chapter.
- **Modeling/Guidance Practice.** Suggested teaching strategies designed to complement and enhance the instructional unit.
- **Independent Practice.** Suggestions for student review of important information.
- **Reteaching/Extension.** Reference to suggested supplementary material in the Activity Workbook.
- **Evaluation.** Answers to the study questions at the end of each of the chapters.
- **Transfer of Knowledge.** References to related activities in the Activity Workbook.
- **Homework Assignment.** References to activities in the Activity Workbook.

For each of the text sections dealing with technology, three course outlines are offered. These present possible schedules for course programs of six, nine, and eighteen weeks.

THE TEACHER'S RESOURCE GUIDE

The separate Teacher's Resource Guide provides a valuable supplement to the teacher. It includes the following resources:

- **The Philosophy of Technology.** A brief statement of the principles of the new technologies, with an analysis of their impact on technological education.
- **Teaching Suggestions.** Suggested teaching strategies designed to add interest and improve student retention of information.
- **Lesson Plans.** Integrated schedules of instructional themes and strategies, outlining—for each chapter—lesson focus, instructions, modeling/guidance practice, and evaluation.
- **Section Test.** Carefully selected questions that check student's retention of key themes in the section.
- **Question Answers.** Answers to questions in the section test and Activity Workbook.
- **Visual Teaching Aids.** An inventory of selected blackline masters that may be used to supplement the instructional program.

THE ACTIVITY WORKBOOK

The Activity Workbook includes tests and activities designed to enhance students' retention of information. Specifically, it includes:

- **Review Questions.** True-false, multiple-choice, matching, and essay-type questions are included for each chapter of the textbook.
- **Activities.** Drawing on various levels of skill development, selected activities have been included for each section of the textbook.

COURSE CONTENT OUTLINES

COMMUNICATION TECHNOLOGY

The six-week, nine-week, and eighteen-week course outlines that follow do not vary greatly in scope. However, the time frame recommendations have been adjusted to fit the appropriate schedule. It is not necessarily the *content* that should vary in a communication course or unit. Regardless of the length of a course or unit in communication technology, the basic concepts should be taught. It is the implementation strategies that you use (*i.e.*, activities and teaching methods) that will change. Naturally, the depth at which the content will be covered will vary considerably according to the time frame.

When communication technology is taught for a brief period, most laboratory emphasis should be placed on synthesis activities (communication networks). These provide opportunities to introduce and experience a variety of communication techniques, rather than specific processes.

Communication Technology
Six-Week Course Outline

Week 1. (Days 1, 2, and 3) Assign Chapter 1 ("What Communication Is All About"). Define communication technology. Discuss why we communicate (to inform, educate, persuade, entertain, and control). Discuss resources in communication (tools and machines, materials, and people). Discuss the Information Age and the impact of communication technology. (Days 4 and 5) Assign Chapter 2 ("The Communication System"). Discuss the communication models (input, output, and impact). Discuss the communication process (microelectronics and microchip). Discuss computers and their uses in communication to send data, voice transmissions, and images.

Week 2. Assign Chapter 3 ("Telecommunication"). Define telecommunication and discuss the development of telecommunication (telegraph, telephone, radio, and television). Discuss transmission systems (cable, coaxial, microwave, optical fibers, and satellite). Discuss methods of channeling messages and the social and environmental impacts of telecommunication.

Weeks 3 and 4. Assign Chapter 4 ("Graphic Communication"). Define graphic communication. Discuss the principles of visual design (balance, proportion, contrast, harmony, unity). Discuss the various stages in the design process. Discuss the various types of print communication (relief, porous, planographic, intaglio, and electrostatic). Discuss photography, drafting and design, and the future of graphic communication.

Weeks 5 and 6. Assign Chapter 5 ("Communication Networks"). Discuss the role of the computer. Provide examples of communication networks. Discuss artificial intelligence.

Communication Technology
Nine-Week Course Outline

Week 1. Assign Chapter 1 ("What Communication Is All About"). Define communication technology. Discuss why we communicate (to inform, educate, persuade, entertain, and control). Discuss resources in communication (tools and machines, materials, and people). Discuss the Information Age and the impact of communication technology.

Week 2. Assign Chapter 2 ("The Communication System"). Discuss the communication models (input, output, and impact). Discuss the communication process (microelectronics and microchip). Discuss computers and their uses in communication to send data, voice tranmissions, and images.

Weeks 3 and 4. Assign Chapter 3 ("Telecommunication"). Define telecommunication and discuss the development of telecommunication (telegraph, telephone, radio, and television). Discuss transmission systems (cable, coaxial, microwave, optical fibers, and satellite). Discuss methods of channeling messages and the social and environmental impact of telecommunication.

Weeks 5, 6, and 7. Assign Chapter 4 ("Graphic Communication"). Discuss the principles of visual design (balance, proportion, contrast, harmony, unity). Discuss the various stages in the design process. Discuss the various types of print communication (relief, porous, planographic, intaglio, and electrostatic). Discuss photography, drafting and design, and the future of graphic communication.

Weeks 8 and 9. Assign Chapter 5 ("Communication Networks"). Discuss the role of the computer. Provide examples of communication networks. Discuss artificial intelligence.

Communication Technology
Eighteen-Week Course Outline

Weeks 1 and 2. Assign Chapter 1 ("What Communication Is All About"). Define communication technology. Discuss why we communicate (to inform, educate, persuade, entertain, and control). Discuss resources in communication (tools and machines, materials, and people). Discuss the Information Age and the impact of communication technology.

Weeks 3, 4, and 5. Assign Chapter 2 ("The Communication System"). Discuss the communication models (input, output, and impact). Discuss the communication process (microelectronics and microchip). Discuss computers and their uses in communication to send data, voice transmissions, and images.

Weeks 6, 7, 8, and 9. Assign Chapter 3 ("Telecommunication"). Define telecommunication and discuss the development of telecommunication (telegraph, telephone, radio, and television). Discuss transmission systems (cable, coaxial, microwave, optical fibers, and satellite). Discuss methods of

channeling messages and the social and environmental impact of telecommunication.

Weeks 10, 11, 12, 13, 14, and 15. Assign Chapter 4 ("Graphic Communication"). Define graphic communication. Discuss the principles of visual design (balance, proportion, contrast, harmony, unity). Discuss the various stages in the design process. Discuss the various types of print communication (relief, porous, planographic, intaglio, and electrostatic). Discuss photography, drafting and design, and the future of graphic communication.

Weeks 16, 17, and 18. Assign Chapter 5 ("Communication Networks"). Discuss the role of the computer. Provide examples of communication networks. Discuss artificial intelligence.

MANUFACTURING TECHNOLOGY

The six-week, nine-week, and eighteen-week course outlines that follow vary in the type and number of activities presented. The activity recommendations have been based on the length of the course program. The depth of content coverage will vary according to the time frame. Regardless, the basic concepts of manufacturing technology should be taught.

Manufacturing Technology
Six-Week Course Outline

Week 1. Assign Chapter 6 ("What Manufacturing Is All About"). Assign Activity 11 ("Improving Product Design").

Weeks 2, 3, and 4. Assign Chapter 7 ("Product Development"), Chapter 8 ("Production Planning"), and Chapter 9 ("Production"). Assign Activity 12 ("Manufacturing a Product in Your Lab").

Week 5. Assign Chapter 10 ("Marketing"). Assign Activity 2 ("Logo Design and Production").

Week 6. Assign Chapter 11 ("Computer Integrated Manufacturing").

Manufacturing Technology
Nine-Week Course Outline

Week 1. Assign Chapter 6 ("What Manufacturing Is All About").

Week 2. Assign Chapter 7 ("Product Development"). Assign Activity 9 ("Material Testing"), Activity 10 ("Selecting and Buying Standard Stock"), and Activity 11 ("Improving Product Design").

Weeks 3 and 4. Assign Chapter 8 ("Production Planning"). Assign Activity 12 ("Manufacturing a Product in Your Lab").

Weeks 5 and 6. Assign Chapter 9 ("Production"). Assign students to continue with their work in Activity 12.

Weeks 7, 8, and 9. Assign Chapter 10 ("Marketing"). Assign Activity 2 ("Logo Design and Production").

Manufacturing Technology
Eighteen-Week Course Outline

Weeks 1 and 2. Assign Chapter 6 ("What Manufacturing Is All About"). Assign Chapter 7 ("Product Development"). Assign Activity 8 ("Product Development"), Activity 9 ("Material Testing"), Activity 10 ("Selecting and Buying Standard Stock"), and Activity 11 ("Improving Product Design").

Weeks 3 and 4. Assign Chapter 8 ("Production Planning"). Assign Activ-

ity 12 ("Manufacturing a Product in Your Lab").

Weeks 5 and 6. Assign Chapter 9 ("Production"). Ask students to continue their work on Activity 12.

Weeks 7 and 8. Assign Chapter 10 ("Marketing"). Assign Activity 2 ("Logo Design and Production") and Activity 5 ("Video Production of a Commercial").

Weeks 9 and 10. Review Chapter 7. Assign Blended Technology 2 ("Production Line Project").

Weeks 11 and 12. Review Chapter 8. Continue work on Blended Technology 2.

Weeks 13, 14, and 15. Review Chapter 9. Continue work on Blended Technology 2.

Weeks 16, 17, and 18. Review Chapters 10 and 11. Continue work on Blended Technology 2.

TRANSPORTATION TECHNOLOGY

The six-week, nine-week, and eighteen-week course outlines that follow vary in the type and number of activities presented. The activity recommendations have been based on the length of the course program. The depth of content coverage will vary according to the time frame. Regardless, the basic concepts of transportation technology should be taught.

Transportation Technology
Six-Week Course Outline

In the six-week course outline, one textbook chapter is covered each week. Instruction is reinforced through at least one classroom demonstration, of the teacher's choosing, each week. Each student's progress should be evaluated through a weekly test.

Week 1. Assign Chapter 12 ("What Transportation Is All About").

Week 2. Assign Chapter 13 ("Types and Modes of Transportation").

Week 3. Assign Chapter 14 ("Intermodal Transportation").

Week 4. Assign Chapter 15 ("The Transportation System").

Week 5. Assign Chapter 16 ("Power in Transportation").

Week 6. Assign Chapter 17 ("Trends in Transportation Technology").

Transportation Technology
Nine-Week Course Outline

Week 1. Assign Chapter 12 ("What Transportation Is All About").

Weeks 2 and 3. Assign Chapter 13 ("Types and Modes of Transportation").

Week 4. Assign Chapter 14 ("Intermodal Transportation").

Week 5. Assign Chapter 15 ("The Transportation System").

Weeks 6, 7, and 8. Assign Chapter 16 ("Power in Transportation").

Week 9. Assign Chapter 17 ("Trends in Transportation Technology").

Transportation Technology
Eighteen-Week Course Outline

Week 1. Assign Chapter 12 ("What Transportation Is All About").

Weeks 2, 3, and 4. Assign Chapter 13 ("Types and Modes of Transportation"). Invite a guest lecturer to talk about his or her job in transportation. Conduct a field trip to a transportation facility.

Week 5. Assign Chapter 14 ("Intermodal Transportation").

Week 6. Assign Chapter 15 ("The Transportation System").

Weeks 7 through 14. Assign Chapter 16 ("Power in Transportation"). De-

velop a laboratory experience with small gas engines.

Weeks 15 through 18. Assign Chapter 17 ("Trends in Transportation Technology"). Develop a group project exploring future trends in technology.

CONSTRUCTION TECHNOLOGY

The six-week, nine-week, and eighteen-week course outlines that follow vary in the type and number of activities presented. The activity recommendations have been based on the length of the course program. The depth of content coverage will vary according to the time frame. Regardless, the basic concepts of construction technology should be taught.

Construction Technology Course Outline
Six-Week Course Outline

Week 1. Assign Chapter 18 ("What Construction Is All About").

Week 2. Assign Chapter 19 ("Planning Construction"). Assign Activity 17 ("Designing, Building, and Testing a Model Bridge").

Week 3. Assign Chapter 20 ("Managing Construction"). Continue work on Activity 17.

Week 4. Assign Chapter 21 ("Constructing Homes and Other Buildings"). Assign Activity 19 ("Steel Framework Superstructures and Curtain Walls").

Week 5. Assign Chapter 22 ("Other Construction Projects"). Continue work on Activity 19.

Week 6. Assign Chapter 23 ("Our Constructed World") and Chapter 24 ("Trends in Construction Technology"). Continue work on Activity 19.

Construction Technology
Nine-Week Course Outline

Week 1. Assign Chapter 18 ("What Construction Is All About").

Week 2. Assign Chapter 19 ("Planning Construction"). Assign Activity 17 ("Designing, Building, and Testing a Model Bridge").

Week 3. Assign Chapter 20 ("Managing Construction"). Continue work on Activity 17.

Week 4. Assign Chapter 21 ("Constructing Homes and Other Buildings"). Assign Activity 18 ("Load-Bearing Exterior Wall Construction").

Week 5. Assign Chapter 22 ("Other Construction Projects"). Assign Activity 19 ("Steel Framework Superstructures and Curtain Walls").

Weeks 6 and 7. Assign Chapter 23 ("Our Constructed World"). Continue work on Activity 19.

Weeks 8 and 9. Assign Chapter 24 ("Trends in Construction Technology").

Construction Technology
Eighteen-Week Course Outline

Week 1. Assign Chapter 18 ("What Construction Is All About").

Week 2. Assign Chapter 19 ("Planning Construction"). Assign Activity 17 ("Designing, Building, and Testing a Model Bridge").

Weeks 3 and 4. Assign Chapter 20 ("Managing Construction"). Continue work on Activity 17.

Weeks 5 and 6. Assign Chapter 21 ("Constructing Homes and Other Buildings"). Assign Activity 18 ("Load-Bearing Exterior Wall Construction").

Weeks 7 and 8. Assign Chapter 22 ("Other Construction Projects"). Assign

Activity 19 ("Steel Framework Superstructures and Curtain Walls").

Weeks 9 and 10. Assign Chapter 23 ("Our Constructed World"). Continue work on Activity 19.

Weeks 11 and 12. Assign Chapter 24 ("Trends in Construction Technology"). Assign Activity 20 ("Building Model Space Structures").

Week 13. Review Chapter 19 and assign Blended Technology 1 ("Transmission Tower Project").

Weeks 14 and 15. Review Chapter 20 and continue work on Blended Technology 1.

Weeks 16, 17, and 18. Review Chapters 21, 22, 23, and 24. Continue work on Blended Technology 1.

CHAPTER LESSON PLANS

Chapter 1
WHAT COMMUNICATION IS ALL ABOUT

MAIN GOAL

The main goal of this chapter is to provide students with a general introduction to communication technology and the role it plays in their lives.

LESSON FOCUS

As a result of studying this chapter, the students will be able to:

1. State examples of how communication technology impacts their daily lives.
2. Identify purposes for communication and provide examples of communications media that serve each function.
3. Verbalize a definition of communication technology.
4. Compare and contrast the communications media of the past with present applications and future responsibilities.
5. List examples of resources used in communications systems including tools, equipment, and materials.
6. Demonstrate an awareness of various career opportunities that directly or indirectly relate to the communications field.
7. Describe, analyze, and evaluate the implications of the Information Age.

INSTRUCTION

Review the following key vocabulary terms with the students.

communication
communication technology
computers
fiber optics
information
Information Age
microchip
technology

MODELING/GUIDANCE PRACTICE

Since the focus of this chapter is primarily one of introduction and motivation, it is suggested that the teacher provide students with a multitude of short learning experiences. These will help them become aware of the Information Age and their dependence on communication technology.

This can be arranged by making learning experiences simple, but important, activities. These might be developed more fully in future chapters. (Experiments or kit projects are possibilities.) In-

clude a variety of teaching strategies (guest speaker, demonstration, lecture, discussion, or project). The activity range could cover past communication systems as well as future communication networks.

1. Locate movies that address the communications revolution or specific innovations (lasers, satellites, or computers). Try Modern Talking Picture Service and major corporations like AT&T for film sources.
2. Since communication topics are so timely, current information is important. Use major city telephone directories (from library) to locate addresses of innovative communication companies (such as Sony, IBM, Sanyo, and Panasonic). Assign one student to each company. Have the student write a letter requesting information about their latest products or historical developments.
3. Consider inviting guest speakers from local businesses into the classroom. People from the cable company, telephone company, or computer store might be good resource persons.
4. Schedule a field trip to a corporation that uses information technology systems, like facsimile and electronic mail.
5. Develop a classroom update center that requires students to continually bring in newspaper or magazine articles that apply to communications.
6. Due to the broad nature of this subject, it can provide many opportunities for students to explore career fields. Suggest that they look at help wanted ads and cut out those ads that relate to communications. Discuss the skills and training needed for the positions.

INDEPENDENT PRACTICE

Ask the students to review the text chapter to check themselves on their grasp of the information in the chapter. Then assign the chapter review test in the *Activity Workbook.* Check their answers against the answers in the *Teacher's Resource Guide.*

RETEACHING/EXTENSION

Refer to the material relating to this chapter in the *Activity Workbook.*

EVALUATION

Test students' mastery of information by assigning the study questions at the end of the chapter in the text. Check students' answers against the answers given below.

After students have studied all of the chapters in the section, administer the section test in the *Teacher's Resource Guide.* Check their answers against the answers given in the Guide.

Answers to Study Questions

1. Talking, writing, reading books, using signs, watching TV, listening to radio, reading newspaper, making motions with hands and face, playing video games, looking at pictures/photos on the wall.
2. Inform, educate, persuade, entertain, and control.
3. Inform educate, persuade and entertain. Different shows and commercials have different purposes.
4. The telegraph has been replaced with telephones and the Pony Express has been replaced with a postal service.
5. The microchip.

6. Televisions, radios, computers, telephones, satellites.

TRANSFER OF KNOWLEDGE

As a test of the student's grasp of the practical aspects of the information presented, assign one or more of the activities in the *Activity Workbook*.

HOMEWORK ASSIGNMENT

As a homework assignment, assign one of the activities in the *Activity Workbook*. Because the activities presented are varied, be sure to select one that the student will be able to complete at home.

Chapter 2
THE COMMUNICATION SYSTEM

MAIN GOAL

The main goal of this chapter is to orient the student toward those factors that are greatly impacting the communication system today, namely microelectronics and its applications in computer technology.

LESSON FOCUS

As a result of studying this chapter, students will be able to:

1. Evaluate the communication system and the components upon which it depends.
2. Identify and describe examples of inputs, processes, outputs, and impacts of the communication system.
3. Compare and contrast the evolution of communication systems.
4. List advantages of microelectronics and its impact on communication technology.
5. Demonstrate an understanding of the importance of computer technology in the communication system.
6. Explain how a computer works.
7. Describe present-day systems being used to transmit pictures, images, data, and sounds by computer.
8. Analyze the importance of accurate, efficient communications in the Information Age.

INSTRUCTION

Review the following key vocabulary terms with the students.

bar codes
binary digital code
bit
byte
circuit
communication channels
data
data bank
facsimile system
impacts
inputs
integrated circuit
microelectronics
outputs
processes
speech synthesizer chips
system

MODELING/GUIDANCE PRACTICE

Students should be provided with a variety of experiences that will introduce them to some of the basic concepts in electronics. This chapter could be supplemented with small electricity experiments that might introduce electronic terms. Emphasis should also be placed on using the computer. This can be done through the use of software programs and/or introductory programming activities. Many programs are available that are communication related. These include programs that introduce terminology and concepts in electricity and electronics.

1. Correlate this unit with other coursework that might benefit from the use of computer programs like math and science.
2. Use micro trainers to teach the basic concept behind the computer language of *off* and *on*.
3. Introduce some computer programming skills. Give students problems that can be solved with a computer program. Have them experiment with their solutions.
4. Take the mystery out of computers and other electronic devices by examining the inside components. (At-