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ABSTRACT

This study guide is designed to aid individuals preparing to take the Georgia Teacher Certification Test (TCT) in industrial arts. The test covers seven subareas: (1) drafting; (2) electrical energy; (3) graphics; (4) metal fabrication; (5) power and power machines; (6) woodworking; and (7) general building construction and manufacturing. The guide contains a listing of content objectives for each subarea with specific readings from current publications. (JD)

STUDY GUIDE FOR TCT IN INDUSTRIAL ARTS

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National Evaluation Systems, Inc., has prepared for distribution by the Georgia Department of Education the set of content objectives found in this Study Guide. These objectives have been verified as important content requirements for initial certification. Not all of the listed objectives have had test items written for them. The selected objectives have not been identified. All objectives which appear here are certification requirements and a sampling of them will be tested.

When the project to develop the Georgia Teacher Certification Tests (TCT) was begun in November 1976, an Ad Hoc Committee composed of Georgia educators was appointed to work with NES on each TCT. The function of these Ad Hoc Committees was to review all NES-generated materials with a goal of making the materials more reflective of Georgia education needs. The first step in the test development process was that of content domain specification. Educators identified all content knowledge that an applicant would need to know to function effectively in a Georgia school. This content was further defined into content objectives, which were sent to currently practicing Georgia educators for verification. These educators provided actual ratings of the "job-relatedness" of the content objectives. At that point, it was possible to identify, from the original domain specification, the extent of essentiality of specific content skills for successful performance on the job. Test items were written for the most essential objectives which spanned the content of the field.

The purpose of providing objectives is to explicitly define the content required of an applicant for certification in this field. Further, the statement of these objectives should assist in preparing for the criterion-reference content knowledge test. We encourage applicants to study these materials, which will enhance their understanding of the content field and alleviate any unnecessary concerns about the nature of the Georgia Teacher Certification Tests.

Along with these materials go hopes for a rewarding career in education.

If you have questions or desire further information, contact:

Performance-Based Certification
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Georgia Department of Education

Charles McDaniel, State Superintendent of Schools

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STUDY GUIDE FOR TCT IN INDUSTRIAL ARTS EDUCATION

Georgia Teacher Certification Testing Program

Field 09: Industrial Arts

INTRODUCTION

This study guide was designed specially for persons preparing to take the Georgia Teacher Certification Test (TCT) in Industrial Arts Education. The Industrial Arts Education Test was developed by the National Evaluation System, Inc., and educators in the state of Georgia. The test covers seven subareas: Drafting, Electrical, Graphics, Metal Fabrication, Power and Power Machines, Woodworking, and General.

This Study Guide has been organized by these subareas and follows the sequential order found within the published content objectives of the TCT in Industrial Arts Education. This Study Guide contains a listing of content objectives for each subarea with specific readings from current publications. In some cases, several objectives have been referenced to the same reading because those readings cover several topics. The references used are not a complete listing. The testee can option to add and/or delete references in preparation for the Teacher Certification Test.

In addition to the content objectives and readings that will follow, you should be aware that:

1. The TCT items are multiple choice with four possible answers.
2. There are no penalties for guessing when unsure of an answer.
3. While examinees are given 3-1/2 hours of actual test time, they

may request up to an additional hour if needed.

4. In order to pass the TCT one does not have to pass each subarea. Your total score is determined by the number of correct answers.

Examinees wanting specific help with test-taking skills should ask for assistance from their college/university counseling center and/or refer to one or more of the references listed below:

Flippo, R. F., Testwiseness. Rehoboth, MA: Twin Oaks Publishing, 1983.

Millman, J., & Pauk, W. How to take tests. New York: McGraw Hill, 1969.

Pauk, W., How to study in college (2nd Ed.) Boston: Houghton Mifflin, 1974.

Preston, R. C., & Botel, M. How to study. Chicago: SRA, 1974.

Raygor, A. L., & Wark, D. M. Systems for study. New York: McGraw Hill, 1970.

Georgia Teacher Certification Testing Program
Field 09: Industrial Arts Objectives and Suggested References

I. DRAFTING

Identify reasons why drawings are the universal language of industry.

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 12.

Identify the different drafting tools by sight and description.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, pp. 8, 138.

Identify examples of various types of drawings (oblique, isometric, orthographic, auxiliary, etc.)

Engineering Graphics, Giesecke, et. al., 2nd Edition, MacMillan Publishing Co., New York, 1975.
- Oblique - pp. 533-534
- Isometric - p. 500
- Orthographic - pp. 11, 498
- Auxiliary - pp. 229, 233
- Perspective - pp. 9, 498, 543

Mechanical Drawing, French, et. al., 9th Edition, McGraw Hill, New York, 1980.
- Oblique - pp. 257-260
- Isometric - pp. 246-256
- Orthographic - pp. 19, 21, 95, 96
- Auxiliary - pp. 145-157
- Perspective - pp. 260-268

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, pp. 92, 191, 226, and 254.

Name the alphabet of lines.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, p. 116

Identify: parallel, perpendicular, rectangle, pentagon, octagon, and hexagon.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, pp. 150, 185

Understand the relationship of top, front, and side views.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, p. 185.

Identify examples of various types of sectional views (full, half, removed, revolved).

Engineering Graphics, Giesecke, et. al., 3rd Edition, MacMillan Publishing Co., New York, 1982.
- Full - p. 203
- Half - p. 210
- Removed - p. 212
- Revolved - p. 211
- Offset - p. 214
- Conventions - p. 215

Mechanical Drawing, French, et. al., 9th Edition, McGraw Hill, New York, 1980.
- Full - p. 187
- Half - p. 188
- Removed - p. 192-193
- Revolved - pp. 192, 195-197
- Offset - pp. 187-188
- Conventions - pp. 184-197

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 254.

Identify the purposes of an auxiliary view.

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 191

Identify dimensioning symbols and conventions.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, p. 109

Describe the basic procedures for drawing orthographic and pictorial drawings.

Engineering Graphics, Giesecke, et. al., 3rd Edition, MacMillan

Publishing Co., New York, 1982.
Orthographic - pp. 11, 498
Pictorial - pp. 9, 497, 498, 529, 543

Mechanical Drawing, French, et. al., 9th Edition, McGraw Hill, New York, 1980.
Orthographic - pp. 19, 21, 95-96
Pictorial - pp. 10, 19, 29, 93, 227, 246-260

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, pp. 185, 230.

Understand tolerance and allowance on working drawings.

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 164.

Identify principles of intersections and development.

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 338.

Identify types of working drawings (detail, sub-assembly, assembly, etc).

Engineering Graphics, Giesecke, et. al., 3rd Edition, MacMillan Publishing Co., New York, 1982.
Detail - pp. 270-407
Sub-Assembly - p. 422
Installation - p. 422
Working - pp. 271, 391

Mechanical Drawing, French, et. al., 9th Edition, McGraw Hill, New York, 1980.
Detail - pp. 228-230, 234
Sub-Assembly pp. 230-233
Combination - p. 230
Working - pp. 114, 227-233

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 283.

Identify the shop processes noted on drawings.

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 283.

Identify common processes of reproducing drawings.

Engineering Graphics, Giesecke, et. al., 3rd Edition, MacMillan Publishing Co., New York, 1982.
Reproductions - pp. 487-495

Mechanical Drawing, French, et. al., 9th Edition, McGraw Hill, New York, 1980.
Aperture Card - p. 294
Blueprint - p. 291
Diazo - pp. 291-292
Electrostatic - pp. 292-293
Microfilm - p. 294
Photographic - p. 294
Thermographic - pp. 293-294

Drafting, Technology and Practice, Spence, William P., Bennett Publishing Co., Peoria, Illinois, 1980, p. 746.

Identify material symbols on drawings (wood, steel, concrete, etc.)

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, p. 323

Understand the process of designing products.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, pp. 87, 312.

Identify thread and fastener terminology and forms.

The World of Drafting, Ross, Stan, McKnight Publishing Company, Bloomington, Illinois, 1977, pp 317-322.

Identify framing components in wood construction (studs, rafters, plates, sills, headers, stops, joists, etc).

Architecture-Design-Engineering-Drawing, Spence, William P., 3rd Edition, McKnight Publishing Co., Bloomington, Illinois, 1979.
Frame Construction - pp. 169-176

Architecture, Residential Drawing and Design, Kicklighter, Clois, E., The Goodheart Willcox Co. Inc., 1981, pp. 193, 209.

Distinguish among the roles of engineer, architect, and draftsman.

Drafting, Technology and Practice, Spence, William P., Bennett

Publishing Co., Peoria, Illinois, 1980, p. 22.

II. ELECTRICAL

Demonstrate an understanding of the principles of magnetism and the applications of these principles to useful devices.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., 1982, pp. 24-32.

Identify the types of magnets

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 5.

Explain the operation of step-up and/or step-down transformers.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 166-167

Understand the terminology and characteristics of static and current electricity.

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 35

Differentiate between potential and kinetic energy.

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, BLoomington, Illinois, 1970, p. 19.

Identify ways of producing both AC and DC electric current.

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 35.

Understand the ways in which water and steam are used to produce electricity.

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald,

McKnight and McKnight, Bloomington, Illinois, 1970, pp. 13, 168.

Understand how electricity is transmitted and distributed.

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970, p. 146.

Identify the social effects of electrical and electronic technological developments.

Energy and Transportation: Industry and Careers, Geil, John J., Johnson, Stephen B., Prentice-Hall, Inc., New Jersey, 1976, p. 56.

Identify basic electrical safety rules.

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 121.

Identify various electrical measuring meters and the procedures for their safe use.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 107-124

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 127.

Understand the design of simple circuits using protective devices such as switches, outlets, sockets, etc.

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 61.

Identify and explain the operation of circuit protective devices (e.g., fuse, circuit breaker, fusestat, ground fault interruption).

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 93.

Identify safety precautions for electrical devices used in the home.

Energy and Transportation: Power, Geil, John J., Prentice-Hall,

Inc., New Jersey, 1976, p. 112.

Identify the purposes and contents of the National Electrical Code and what is covered by the code.

Electrical Wiring, Colvin, Thomas, American Association for Vocational Instructional Materials, Athens, Georgia, 1981, pp. 7-8.

Identify the meaning of the UL label on an electrical device.

Electrical Wiring, Colvin, Thomas, American Association for Vocational Instructional Materials, Athens, Georgia, 1981, p. 7.

Understand the operation of protective devices used on motors.

Understand words and/or terms used in the electrical and electronics industry.

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, pp. 176-187.

Identify the characteristics of the following circuits: parallel, series, open, closed, short.

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York, 1975, p. 61

Basic Electronics, Grob, Bernard, McGraw Hill, New York, New York, 1977, p. 54-113.

Identify the basic physical effect that can be achieved through the application of electricity (heat, light, motion, chemical reaction).

Energy and Transportation: Power, Geil, John, Prentice-Hall, Inc., New Jersey, 1976, pp. 102-108.

Contrast various kinds of conductors in terms of material, size, capacity, and types of insulation.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 35-50

Introduction to Electricity, Schick, Kurt, McGraw Hill, New York,

1975, pp. 55-60.

Read a schematic containing electrical and electronic symbols.

Electricity for Technicians, Marcus, Abraham, Prentice-Hall, Englewood Cliffs, New Jersey, 1982, pp. 473-475.

Understanding Electricity and Electronics, Schmitt, Marshall and Buban, Peter, 4th Edition, McGraw Hill, New York, 1982, pp. 12-21.

Identify various electronic components from descriptions of their functions.

Electricity for Technicians, Marcus, Abraham, Prentice-Hall, Englewood Cliffs, New Jersey, 1982, pp. 473-475.

Identify the value of resistors by interpreting their color code.

Basic Electronics, Grob, Bernard, McGraw Hill, New York, New York, 1977, pp. 230-322.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 52-60

Identify the major characteristics and significant points of an AC sine wave (RMS, peak amplitude, maximum, minimum, frequency).

Basic Electronics, Grob, Bernard, McGraw Hill, New York, New York, 1977, pp. 314-322.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 144-152

Identify the differences in AM and FM waves.

Understanding Electricity and Electronics, Schmitt, Marshall and Buban, Peter, 4th Edition, McGraw Hill, New York, 1982, p. 370.

Understand FCC regulations governing transmission.

Understanding Electricity and Electronics, Schmitt, Marshall and Buban, Peter, 4th Edition, McGraw Hill, New York, 1982, pp. 370-371.

Analyze the effects of the development of solid state devices on the history of communications.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 244-260

Analyze how the development of solid state devices has affected the electronics industries, especially those used for switching, power control, computers, and communications.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 244-260

Identify the types of wire communication systems.

Understanding Electricity and Electronics, Schmitt, Marshall and Buban, Peter, 4th Edition, McGraw Hill, New York, 1982, pp. 221-228.

Understand the operation of the telephone receiver.

Understanding Electricity and Electronics, Schmitt, Marshall and Buban, Peter, 4th Edition, McGraw Hill, New York, 1982, pp. 347-348.

Identify the types, charactersitics, and functions of electrical motors.

Electricity for Technicians, Marcus, Abraham, Prentice-Hall, Englewood Cliffs, New Jersey, 1982, pp. 420-464.

Identify some of the ways that photo control devices and circuits are used in industry.

Basic Electronics, Grob, Bernard, McGraw Hill, New York, New York, 1977, pp. 33, 615.

Electronics in Action, Delpit, George H., Johnson, Stephen B., Charles A. Bennett, Co., Peoria, Illinois, 1975, pp. 27, 202-209.

List occupations in the electricity and electronics industries.

Electricity and Basic Electronics, Matt, Stephen R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1982, pp. 282-287.

Industry and Careers, Geil, John and Johnson, Stephen B., Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1976, pp. 49-110.

Solve problems based on Ohm's Law, Watt's Law, Joule's Law, and Kirchhoff's Law.

Basic Electronics, Grob, Bernard, McGraw Hill, New York, New York, 1977, p. 8.

Electricity for Technicians, Marcus, Abraham, Prentice-Hall, Englewood Cliffs, New Jersey, 1982, p. 62.

Identify the various ways in which electrical connections are made in electronics (e.g., solder-flux, splices, solderless connectors, lugs, post, clips, etc.).

House Wiring, Mix, Floyd, M., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1973, pp. 72-74.

Identify the various tools of the electric and electronics industries.

House Wiring, Mix, Floyd, M., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1973, pp. 39-46.

III. GRAPHICS

Indicate an understanding of the nomenclature of the common tools used in relief, offset, and screen printing.

Comprehensive Graphic Arts, Dennis, Ervin A., Howard W. Sams and Co. Inc., Indianapolis, Indiana, 1974.
Offset Printing - pp. 281-308.
Screen Printing - pp. 347-380.

Graphic Arts, Kagy, Frederick, Goodheart-Willcox Co. Inc., South Holland, Illinois, 1978.
Relief Printing - p. 9.
Screen Pringing - p. 10.

Graphic Arts Fundamentals, Walker, John R., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1980.

Relief Printing - pp. 43-86.
Screen Printing - pp. 165-184.

Graphic Communications, Brockuizen, Richard, McKnight Publishing Co., Bloomington, Illinois, 1979.
Relief Printing - pp. 153-180.
Offset Printing - pp. 229-274.
Screen Printing - p. 184.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 185-219.

Photo-Offset Lithography, Hird, Kenneth, Bennett Publishing Co., Peoria, Illinois, 1981.
Offset Printing - pp. 8-24.

Compare lithographic, relief, and screen printing in terms of the processes used and final products.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 13-27, 185-219.

Describe the processes used in carving and printing from a linoleum block.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 190-192.

Understand the uses of screen systems of printing (e.g., for athletic shirts, signs, posters, etc.).

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 255-263.

Describe the grades and kinds of paper used in industry (writing paper, packaging paper, and newsprint).

Comprehensive Graphic Arts, Dennis, Ervin A., Howard W. Sams and Co. Inc., Indianapolis, Indiana, 1974.
Paper - pp. 484-489.

Graphic Arts, Kagy, Frederick, Goodheart-Willcox Co. Inc., South Holland, Illinois, 1978.
Paper - pp. 100-103.

Graphic Arts Fundamentals, Walker, John R., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1980.
Paper - pp. 277-278.

Graphic Reproduction, Spence, William P. Bennett Publishing Co., Peoria, Illinois, 1980.
Paper - pp. 100-103.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 279-288.

Identify the processes involved in paper manufacturing.

Comprehensive Graphic Arts, Dennis, Ervin A., Howard W. Sams and Co., Inc., Indianapolis, Indiana, 1974.
Paper manufacturing - pp. 476-483.

Graphic Arts Fundamentals, Walker, John R., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1980.
Paper Manufacturing - pp. 269-283.

Graphic Communications, Brockuizen, Richard, McKnight Publishing Co., Bloomington, Illinois, 1979.
Paper Manufacturing - pp. 146-151.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 10-11, 279-288.

Identify various techniques for binding printed materials (books, pamphlets, periodicals, spirals, pads, etc.).

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 294-315.

Identify employment opportunities in the printing industry, including with the Government Printing Office.

Comprehensive Graphic Arts, Dennis, Ervin A., Howard W. Sams and Co. Inc., Indianapolis, Indiana, 1974.
Careers - pp. 519-527.

Graphic Arts Fundamentals, Walker, John R., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1980.
Careers - pp. 21-27.

Graphic Communications, Brockuizen, Richard, McKnight Publishing Co., Bloomington, Illinois, 1979. pp. 315-323.

Graphic Reproduction, Spence, William P. Bennett Publishing Co., Peoria, Illinois, 1980.
Careers - pp. 30-38.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 316-323.

Compare the characteristics and qualities of print and non-print communications media.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 80-117.

Identify applications of photographic principles within the graphic arts industries.

Introduction to Graphic Arts, Swerdlow, American Technical Society, Chicago, Illinois, 1979. pp. 156-183.

Understand the nomenclature and uses of basic darkroom equipment.

Comprehensive Graphic Arts, Dennis, Ervin A., Howard W. Sams and Co. Inc., Indianapolis, Indiana, 1974.
Darkroom Equipment - pp. 152-158.

Focus on Photography, Jones, Ronald E., McGraw Hill, New York, New York, 1981.
Entire book.

Photo Darkroom Guide, Hertzberg, Robert E., American Photographic Book Publishing Co., Inc., Garden City, New York, 1967.
Darkroom Equipment - pp. 24-32, 55-64.

Photo-Offset Lithography, Prust, Z.A., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1977.
Darkroom Equipment - pp. 68-71.

Practical Photography, McCoy, McKnight Publishing Co., Bloomington, Illinois, 1972. pp. 102-181.

Identify some occupational opportunities associated with photography.

Graphic Communications, Brockuizen, Richard, McKnight Publishing Co., Bloomington, Illinois, 1979. pp. 365-373.

Practical Photography, McCoy, McKnight Publishing Co., Bloomington, Illinois, 1972. pp. 266-276.

Distinguish among the following images: positive, negative, reverse, screened, continuous tone and line.

Graphic Arts, Kagy, Frederick, Goodheart-Willcox Co. Inc., South Holland, Illinois, 1978.
Positive - pp. 63-77.

Continuous Tone - pp. 42-47.
Line - pp. 57-59.

Graphic Arts Fundamentals, Walker, John R., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1980.
Images - pp. 90-149.

Graphic Communications, Brockuizen, Richard, McKnight Publishing Co., Bloomington, Illinois, 1979.
Image Generation - pp. 55-133, 182-218, 275.

Understand the chemistry of film processing and platemaking.

No references given.

Identify various occupations and their prerequisites in the graphic arts industries.

Comprehensive Graphic Arts, Dennis, Ervin A., Howard W. Sams and Co. Inc., Indianapolis, Indiana, 1974.
Careers - pp. 519-527.

Graphic Arts Fundamentals, Walker, John R., The Goodheart-Willcox Co. Inc., South Holland, Illinois, 1980.
Careers - pp. 21-27.

Graphic Reproduction, Spence, William P. Bennett Publishing Co., Peoria, Illinois, 1980.
Careers - pp. 30-38.

Analyze various economic aspects of the graphic arts industries.

No references given.

Understand the copyright laws.

No references given.

IV. METAL FABRICATION

Identify basic metalworking tools and their uses.

Technical Metals, Johnson, Harold V., Bennett Publishing Company, Peoria, Illinois, 1981, p. 67.

Read micrometer and vernier scales.

Machine Tool Metalworking, Feirer and Tatro, McGraw Hill, New York, New York, 1973, pp. 102-113.

Technology of Machine Tools, Krar, Oswald, McGraw Hill, New York, New York, 1977, p.8.

Identify the various sheetmetal and wire gauge sizes and their relationship to stock sizes.

Technical Metals, Johnson, Harold V., Bennett Publishing Company, Peoria, Illinois, 1981. pp. 171,448.

Identify the various types of metalworking files and the uses of each.

Technology of Machine Tools, Krar, Oswald, McGraw Hill, New York, New York, 1977, pp. 70-88.

Identify the major uses of aluminum and the primary steps in its production.

Metal Technology, Miller and Morrisey, H. W. Sams Publishing Co., Indianapolis, Indiana, 1975, pp. 8, 11, 199,203.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Uses of Aluminum - pp. 49-50, 57
Aluminum Production - pp. 46-49

Identify the basic raw materials and processes used in the production of iron and steel.

Metal Technology, Miller and Morrisey, H. W. Sams Publishing Co., Indianapolis, Indiana, 1975, pp. 2, 8.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Materials and Processes - pp. 29-46

Identify several metalworking safety precautions.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Personal Safety - pp. 23-28

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 3-1.

Identify the names and uses of various sheetmetal tools and machines.

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 19-1.

Identify the basic sheetmetal seams and joints and their applications.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Sheetmetal seams and Joints - pp. 228-257

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 19-17.

Differentiate between bolts and screws in terms of heads, threads, and uses.

Engineering Graphics, Giesecke, et. al., 2nd Edition, MacMillan Publishing Co., New York, 1975.
Bolts and Screws - pp. 372-384
Thread Forms - pp. 355-372

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Bolts and Screws - pp. 176-179
Thread Forms - pp. 144-145

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981. Sec. 18-1.

Describe the use of tap and die sets in the production of various thread forms.

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 11-1.

Compare hard soldering and brazing in terms of the different materials, temperatures, and procedures used for each.

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 29-1.

Identify the basic welding processes (gas, MIG-TIG, arc, resistance) and their characteristics.

Engineering Graphics, Giesecke, et. al., 3rd Edition, MacMillan Publishing Co., New York, 1982.
Welding - p. 288

Mechanical Drawing, French, et. al., 9th Edition, McGraw Hill, New York, 1980.
Gas - p. 323
MIG-TIG - p. 324
Arc - pp. 323-324
Resistance - pp. 324, 328, 329

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Gas - pp. 199-205
MIG-TIG - pp. 215-216
Arc - pp. 197-213
Resistance - pp. 214-215

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 30-1.

Identify important safety measures in welding, brazing, and soldering.

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981.
Welding - Sec. 30-16
Brazing - Sec. 29
Soldering - Sec. 29.

Distinguish among the various types of heat treating and their products.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Annealing - p. 318
Hardening - pp. 316-317
Tempering - pp. 316-318
Normalizing - p. 319

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 31-1.

Identify safety precautions for foundry, heat treating, and forging.

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 3-1.

Identify foundry tools and the processes of sand casting.

Metal Technology, Miller and Morrisey, H. W. Sams Publishing Co., Indianapolis, Indiana, 1975, Unit 11.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Tools - pp. 272-275
Processes - pp. 266-272

Modern Metalworking, Walker, John R., The Goodheart-Willcox Co., Inc., South Holland, Illinois, 1981, Sec. 21-1.

Describe hot and cold forging, and the physical property change resulting from each.

Metal Technology, Miller and Morrisey, H. W. Sams Publishing Co., Indianapolis, Indiana, 1975, Unit 11.

Identify the basic operations performed in milling, turning, drilling, shaping, grinding, or sawing metals.

Machine Tool Metalworking, Feirer and Tatro, McGraw Hill, New York, New York, 1973, pp. 275, 149, 119, 244, 320, 68, 43.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Milling - pp. 453-490
Turning - pp. 413-449
Drilling - pp. 386-402
Shaping - pp. 491-496
Grinding - pp. 497-514
Sawing - pp. 373-385

Identify safety precautions for using a metal lathe, shaper, mill, drill press, grinder, or metal spinning lathe.

Machine Tool Practices, Kibbe, Neely, Meyer, White, Wiley Publishing Co., New York, New York, 1982, pp. 399, 591, 59, 678, 344, 396.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Lathe Safety - pp. 417, 424, 442
Shaper Safety - pp. 490-495
Mill Safety - pp. 459, 460, 479
Drill Press Safety - pp. 395, 399, 401, 410
Grinder Safety - pp. 340, 342, 343, 506, 508
Spinning Lathe Safety - pp. 253-255
Saw Safety - pp. 378-379

Understand the systems by which drills are sized (letter, decimal, number, fraction, metric).

Machine Tool Practices, Kibbe, Neely, Meyer, White, Wiley Publishing Co., New York, New York, 1982, p. 352.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Drill Sizes - pp. 391-394

Engineering Graphics, Giesecke, et. al., 2nd Edition, MacMillan Publishing Co., New York, 1975.
Drill Sizes - p. 332

Identify the processes and industrial applications of metal spinning.

Technical Metals, Johnson, Harold V., Bennett Publishing Company, Peoria, Illinois, 1981. p. 132

Describe various methods of finishing metals to provide a protective and attractive appearance.

Metal Technology, Miller and Morrisey, H. W. Sams Publishing Co., Indianapolis, Indiana, 1975, p. 160.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Finishing - pp. 346-359

Identify various steps in the manufacture and assembly of a mass-produced product.

Manufacturing: A Basic Text for Industrial Arts, Fales, et. al., 1st Edition, McKnight Publishing Co., BLoomington, Illinois, 1980, pp. 14-26.

Identify occupations in the metalworking industry (professional, technical, skilled, unskilled, sales).

Technical Metals, Johnson, Harold V., Bennett Publishing Compnay, Peoria, Illinois, 1981, p. 14.

Metalwork-Technology and Practice, Repp, Victor, et. al., McKnight Publishing Co., Bloomington, Illinois, 1982.
Occupations - pp. 2-16

Analyze the relationship between the development of metal technology and civilization.

Technology, DeVore, Paul W., Davis Publications, Worcester, Massachusetts, 1980, pp. 4-7, 127-134.

V. POWER AND POWER MACHINES

Identify the principle land, sea, and air transportation industries.

Exploring Power Technology: Basic Fundamentals, Walker. J., Goodheart-Willcox Company, Inc., South Holland, Illinois, 1976, pp. 7-14

Industry and Careers: Energy and Transportation, Geil, John J. and Stephen Johnson, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, pp. 1-14, 84-100

Power: Mechanics of Energy Control, Bohn, Ralph C. and Angus J. MacDonald, McKnight and McKnight, Bloomington, Illinois, pp. 243-248

Identify major present or potential uses of electricity in the transportation industry.

Power: Mechanics of Energy Control, Bohn, Ralph C., and Angus J. MacDonald, McKnight and McKnight, Bloomington, Illinois, pp. 240-245

Energy and Transportation: Industry and Careers, Geil, John J. and Johnson, Stephen B., Prentice-Hall, Inc., Englewood Cliffs, New Jersey, pp. 101-116

Understand how solar energy is used to produce electricity.

General Power Mechanics, Crouse, Worthington, Margules, Anglin, McGraw-Hill, Inc., New York, New York, 1973, p. 22

Exploring Power Mechanics, Glenn, Howard, 3rd Edition, Charles A. Bennett Co. Inc., Peoria, Illinois, 1973, pp. 6-7

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970.
Solar Electricity - pp. 158-159, 188, 232-233

Exploring Power Technology: Basic Fundamentals,
Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976.
Solar Electricity - pp. 183-190

Identify major sources of power and at least one device using each.

General Power Mechanics, Crouse, Worthington, Margules, Anglin, McGraw-Hill, Inc., New York, New York, 1976, pp. 3-92 and 17-22

Identify how water is used as an energy source.

Power: Mechanics of Energy Control, Bonn, Ralph and Angus MacDonald, McKnight and McKnight, 1970, pp. 161-162

General Power Mechanics, Crouse, Worthington and Margules, McGraw-Hill, Inc., New York, New York, 1968, pp. 5-6, 8-9

Identify the "simple" machines and give an example of a use for each.

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970, pp. 39-45

Energy and Transportation: Power, Geil, John, Prentice Hall, Inc., New Jersey, 1976, pp. 2-5, 32,38, 45-47

Introduction to Power Systems, Suess, et. al., 1st Edition, Bruce Publishing Co., Beverly Hills, California, 1976.
Simple Machines - pp. 53-85, 89-93

Exploring Power Technology: Basic Fundamentals, Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976.
Early Power Sources - pp. 19-24

Compare the operation of two and four-cycle engines.

Exploring Power Mechanics, Glen, Harold, 3rd Edition, Charles A. Bennett Co., Peoria, Illinois, 1973, pp. 108-180

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, pp. 43-51, 254-265

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970.
Two Cycle - p. 198
Four Cycle - p. 197

Introduction to Power Systems, Suess, et. al., 1st Edition, Bruce Publishing Co., Beverly Hills, California, 1976
Two Cycle - p. 176
Four Cycle - p. 175

Exploring Power Technology: Basic Fundamentals, Walker, 1st Edition, Goodheart-Willcox, South Holland, Illinois, 1976

Two Cycle - pp. 49-66
Four Cycle - pp. 67-96

Identify the major differences between the gasoline engine and the diesel engine.

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, pp. 43-51, 254-266

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970, pp. 174-181

Analyze the fuel systems of typical small four and two-cycle engines.

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, pp. 97-102, 192-205, 292-296

Exploring Power Technology: Basic Fundamentals, Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976, p.75

Identify the parts on diagram of the typical 8-cylinder engine ignition system.

General Power Mechanics, Worthington, Margules, Crouse, McGraw Hill, New York, New York, 1968, pp. 237-247

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, New York, New York, 1976, pp. 175-188

Understand the octane ratings, additives, and uses of gasoline.

General Power Mechanics, Worthington, Margules, Crouse, McGraw-Hill, New York, New York, 1968, pp. 207-209

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, New York, New York, 1976, pp. 189-192

Understand the designations of oil weights, grades, additives, and uses.

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, New York, New York, 1976, pp. 19-21, 214-225

General Power Mechanics, Worthington, Margules, Crouse, McGraw-Hill, New York, New York, 1968, pp. 182-187

Analyze the economic and social impact of the petroleum industry.

Industry and Careers, Geil, Hohn and Johnson, Stephen B., Prentice Hall, Inc., New Jersey, 1976, pp. 42-52

Explain the differences in the operational principles of rocket, jet and turbine engines.

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970
- Rocket - pp. 183, 184, 230
- Jet - pp. 180, 181
- Turbine - pp. 124, 170, 173, 182

General Power Mechanics, Worthington, Margules, Crouse, McGraw-Hill, New York, New York, 1968, pp. 405-415

Introduction to Power Systems, Suess, et. al., 1st Edition, Bruce Publishing Co., Beverly Hills, California, 1976.
- Turbine - pp. 6, 12, 167-171

Exploring Power Technology: Basic Fundamentals, Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976.
- Rocket - pp. 151-160
- Jet - pp. 127-144
- Turbine - pp. 145-150

Explain how gas, water, and steam turbines work.

General Power Mechanics, Worthington, Margules, Crouse, McGraw-Hill, New York, New York, 1968, pp. 71-74, 492-494

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970.
- Gas Turbine - p. 182
- Water Turbine - pp. 12, 161, 168
- Steam Turbine - pp. 170, 173

Introduction to Power Systems, Suess, et. al., 1st Edition, Bruce Publishing Co., Beverly Hills, California, 1976.
- Steam Turbine - pp. 7, 167-171

Exploring Power Technology: Basic Fundamentals, Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976.
- Gas Turbine - pp. 145-150
- Steam Turbine - pp. 195-196

Explain the operation of a hydraulic system capable of raising an object.

General Power Mechanics, Worthington, Margules, Crouse, Anglin, 2nd Edition, McGraw Hill, New York, New York, 1976, pp. 381-385

Explaining Power Mechanics, Glenn, Howard, Charles A. Bennett Co., Inc., Peoria Illinois, 1973, pp. 54-56

Demonstrate a knowledge of how engine power is rated.

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, New York, New York, 1976, pp. 136-141

Explaining Power Mechanics, Glenn, Howard, Charles A. Bennett Co., Inc., Peoria Illinois, 1973, pp. 126-130

Identify the parts of AC and DC motors and explain the operation of each.

Understanding Electricity and Electronics, Buban and Smith, 3rd Edition, McGraw-Hill, New York, New York, 1975, pp. 280-292

Exploring Power Technology: Basic Fundamentals, Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976, p. 162

Explain how an automobile storage battery produces electricity.

General Power Mechanics, Worthington, Margules, Crouse, Anglin, McGraw-Hill, New York, New York, 1968, pp. 215-217

Exploring Power Technology: Basic Fundamentals, Walker, John, Goodheart-Willcox Co., South Holland, Illinois, 1976, pp. 163-166

Explain how magnetos, auto generators, and alternators function.

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, New York, New York, 1976, pp. 163-174

Power: Mechanics of Energy Control, Bohn, Ralph and MacDonald, McKnight and McKnight, Bloomington, Illinois, 1970.
Magneto - p. 211
Generator - pp. 124, 126, 211
Alternator - pp. 129

Introduction to Power Systems, Suess, et. al., 1st Edition, Bruce Publishing Co., Beverly Hills, California, 1976.
Generator - pp. 133-134
Alternator - pp. 134-155

Exploring Power Technology: Basic Fundamentals, Walker, John,

Goodheart-Willcox Co., South Holland, Illinois, 1976.
Magneto - p. 84
Generator - p. 89, 161, 215
Alternator - p. 162

Explain the theory of electron flow.

General Power Mechanics, Worthington, Margules, Crouse, 2nd Edition, McGraw Hill, New York, New York, 1976, p. 73

Understanding Electricity and Electronics, Buban and Smith, 3rd Edition, McGraw-Hill, New York, New York, 1975, p.2

VI. WOODWORKING

Describe the processes of sharpening, adjusting, and cleaning woodworking tools.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, p. 296.

Woodwork Tool Maintenance, Cunningham, Beryl M., and William F. Holtrop, Charles A. Bennett Co., Inc., Peoria, Illinois, 1956.
Entire book

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 180-183, 176-177.

Describe a finished bill of materials and stock cutting list.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972, pp. 13, 99-102

Cabinetmaking and Millwork, Feirer, John L., Charles A. Bennett Co., Inc., Peoria, Illinois, 1977, pp. 205-208

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 55-59.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 104-108.

Solve problems concerning board feet.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, p. 623.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 104-108.

Identify different layout tools and their uses.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 71-78.

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 44-51.

Describe the process of squaring stock.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972, p. 106

Units in Woodworking, Douglass, J. H. and others, Delmar Publishers, Albany, New York, 1973, p. 46.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 116-130.

Woodwork Visualized, Cramlet, Ross C., The Bruce Publishing Co., Milwaukee, Wisconsin, 1967, p. 91.

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 128, 158-162, 188, 194-196.

Identify methods of enlarging and transferring designs on wood and other materials.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 80-85.

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 427-428.

Identify woodworking hand tools used for specific types of cutting operations.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 149, 201.

Compare the process of crosscutting and ripping stock.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman,

The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 175, 177, 191.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, p. 162.

Identify the various sawing operations and safety rules for the use of power sawing equipment.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, p. 176.

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 105-106, 148, 247, 133, 140, 208.

Identify the tools, machines, and processes for cutting irregular pieces.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 152, 222, 246, 248, 313, 595.

Describe the various planning, joining, shaping, turning and routing operations and the rules for the safe use of handtools and machine tools when performing each.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972, pp. 223-375.

General Woodworking, Groneman, Chris H., McGraw-Hill Book Co., New York, 1976, pp. 14-144
Safety - p. 11

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 200-350.

Technical Woodworking, Groneman, Chris H., and Everett R. Glazener, McGraw-Hill Book Co., New York, 1976, pp. 71-205.

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 110-280.

Differentiate among chamfers, bevels, tapers, and the methods for laying out and cutting each.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972

Chamfers - pp. 260, 282, 340
Bevels - pp. 260, 282, 297, 340, 343
Tapers - pp. 261-263, 282, 384

Cabinetmaking and Millwork, Feirer, John L., Charles A. Bennett Co., Inc., Peoria, Illinois, 1977
Chamfers - pp. 300, 374, 378, 398, 448, 686
Bevels - pp. 229, 280-281, 288, 310, 312, 314, 319, 323, 346-347, 358, 361, 369, 374, 378, 392, 448, 450, 458, 598-600
Tapers - pp. 290-292, 318, 319, 378-380, 471

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 153, 156, 164, 174, 181, 252.

Technical Woodworking, Groneman, Chris H., and Everett R. Glazener, McGraw-Hill Book Co., New York, 1976
Chamfers - pp. 60, 119, 121
Bevels - pp. 51, 60, 119
Tapers - pp. 82, 119

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 132, 189, 273, 137, 131, 264, 265.

Identify the various sanding, drilling, boring, and mortising operations, and the rules for the safe use of power machines and hand tools for each operation.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972
Sanding - pp. 312, 340, 398, 409, 415, 419-421
Drilling - pp. 239-241, 298-312, 362
Boring - pp. 239-241, 304-310
Mortising - pp. 24, 129-130, 139, 311, 316-320, 349

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 484-501, 363, 354, 329-333, 321-348, 346, 501.

Technical Woodworking, Groneman, Chris H., and Everett R. Glazener, McGraw-Hill Book Co., New York, 1976
Sanding - pp. 68, 126, 130-132, 153, 159, 165-167, 169, 170, 201, 203
Drilling - pp. 65-67, 124, 127-132, 392
Boring - pp. 65-67, 127-129
Mortising - pp. 129, 133-136

Units in Woodworking, Douglass, J. H. and others, Delmar Publishers, Albany, New York, 1973
Sanding - p. 142
Drilling - pp. 97, 150-157
Boring - pp. 63-65, 96, 97
Mortising - pp. 23, 77, 93, 94, 136, 137

Woodworking Technology, Hammond, Donnelly, McKnight and McKnight, Bloomington, Illinois, 1972, pp. 215-222, 105-106, 233, 237, 219, 222-249.

Identify major wood joints and their uses.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 415-425.

Identify processes involved in the production of plywood, veneer, and laminated wood.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 647-770, 635-642.

Compare plywood, lumber, particle board, masonite, and celotex in terms of their structural properties.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 423, 644, 655, 647, 649, 687, 685, 600-620, 679, 737.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 42, 45-50, 48, 45, 35, 12, 44, 24-31.

Identify processes used in the application of plastic laminates to plywood, solid wood, or hard-board.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 644, 673, 670-671.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 644, 673, 670, 671.

Identify tools, machines and materials used in preparing wood surfaces for finishing.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972, pp. 404-406.

Cabinetmaking and Millwork, Feirer, John L., Charles A. Bennett Co., Inc., Peoria, Illinois, 1977, pp. 786-792.

General Woodworking, Groneman, Chris H., McGraw-Hill Book Co., New York, 1976, pp. 225-227.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 573, 550, 535, 485, 491.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 315-317.

Identify how the following finishes are selected and applied: varnish, lacquer, bleaches, shellac, enamel, paint, and stains.

Advance Woodworking and Furniture Making, Feirer, John L., and Gilbert Hutchings, Charles A. Bennett Co., Inc., Peoria, Illinois, 1972, pp. 400-412

General Woodworking, Groneman, Chris H., McGraw-Hill Book Co., New York, 1976, pp. 229-248.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 539-546, 512.

Principles of Woodworking, Holtrop, William F., and Herman Hjorth, The Bruce Publishing Co., Milwaukee, Wisconsin, 1961, pp. 450-478.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 315-340.

Identify materials and tools (hand and power) used for wood fastening.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 295, 291-295.

Analyze how forest conservation benefits mankind.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 600-630.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, p. 60.

Identify the common processes used for producing lumber (sawing, planing, grading, and drying).

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 600-620.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, p. 60.

Identify the ways in which wood and wood products are used in housing construction.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 707-709.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 435-437.

Identify popular types of house framing built over foundation walls.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 709-712.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, pp. 398-413.

Distinguish between pre-cut and pre-fabricated building construction.

Modern Wood Technology, Hacket, Donald F., and Patrick E. Spielman, The Bruce Publishing Co., Milwaukee, Wisconsin, 1968, pp. 694-696.

Wood Technology, Baker and Yeager, Howard Sams and Company, Indianapolis, Indiana, 1974, p. 92.

Identify occupational roles in the administration and operation of the construction industry.

Exploring Careers in Industry, Miller, et.al., McKnight Publishing Co., Bloomington, Illinois, 1966, pp. 3-9.

Identify lumbering and sawmill occupations.

Industrial Arts Woodworking, Feirer, John. L., Charles A. Bennett Co. Inc., Peoria, Illinois, 1977, pp. 14-18.

VII. GENERAL

Compare mass and custom production in terms of the economic advantages and disadvantages of each.

Manufacturing: A Basic Text for Industrial Arts, Fales, et. al., 1st Edition, McKnight Publishing Co., Bloomington, Illinois, 1980. Mass Production - pp. 14-25

Wood Technology, Yeager and Baker, Howard W. Sams, Co., Indianapolis, Indiana, 1976, pp. 351-353.

Identify essential aspects of the free enterprise system.

Manufacturing: A Basic Text for Industrial Arts, Fales, et. al., 1st Edition, McKnight Publishing Co., Bloomington, Illinois, 1980, pp. 170-171.

Identify the functions of the following occupational areas in industry: production design, quality control, safety engineering, plant layout, tooling, accounting, and office and clerical work.

Construction: Industry and Careers, Spence, William P., Prentice Hall, Englewood Cliffs, New Jersey, 1976, pp. 25-27, 65-86.

Identify the functions of the following roles in the construction industry: architect, contractor, civil engineer, skilled tradesman, realtor, clerk, and materials supplier.

Construction: Industry and Careers, Spence, William P., Prentice Hall, Englewood Cliffs, New Jersey, 1976, pp. 65-86, 74.

Analyze the role of labor and labor unions in American history.

Construction: Industry and Careers, Spence, William P., Prentice Hall, Englewood Cliffs, New Jersey, 1976, pp. 69, 104, 12, 70-78, 103-104, 110-116, 100-102.

Manufacturing: A Basic Text for Industrial Arts, Fales, et. al., 1st Edition, McKnight Publishing Co., Bloomington, Illinois, 1980, pp. 29, 15.

Identify current and projected future employment opportunities in the wood products industry.

Exploring Careers in Industry, Miller, et. al., McKnight Publishing Co., Bloomington, Illinois, 1975, p. 133.

World of Contruction, Lux, Ray, Blankenbaker, McKnight Publishing Co., Bloomington, Illinois, 1982, pp. 128-134.