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State Curriculum Guides for

Industrial Arts

1951-61

An Annotated Bibliography by

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**U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE**
Abraham Ribicoff, Secretary

Office of Education • Sterling M. McMurrin, Commissioner

State Curriculum Guides for Industrial Arts (1951-61): An Annotated Bibliography¹

Introduction

THE FOLLOWING CURRICULUM guides represent current State instruction material for industrial arts. This volume updates the original annotated bibliography, published in 1958, entitled *State Curriculum Guides for Industrial Arts*. Only guides bearing a publishing date from 1951-1961 are included. State supervisors of industrial arts, consultants, or persons most responsible for the program of industrial arts in each State department of education identified the guides. All State departments of education which have materials available in this field are represented.

The annotations indicate some of the important material covered in each curriculum guide. Explanatory notes are related especially to general objectives, instructional areas, content organization, projects, laboratory or shop layouts, teaching aids, and reference material.

To secure individual curriculum guides, it is suggested that contact be made directly with the State department concerned to ascertain their availability and cost. Some guides are out of print or in tentative revision. They are so indicated.

ALABAMA

COURSE OF STUDY, GRADES 1-12. State Board of Education: Montgomery, 1954. Bulletin #8. (See p. 349-353, Industrial Arts)

Part of the overall State course of study. Contains statement of objectives; several topical suggestions for content in metalworking, mechanics, clay products, woodworking, electricity, and graphic arts; definitions of shops.

ALASKA—None

ARIZONA

A GUIDE FOR THE IMPROVEMENT OF THE TEACHING OF INDUSTRIAL ARTS IN THE SCHOOLS OF ARIZONA. State Department of Public Instruction: Phoenix, 1951. Bulletin #10. 49 p. (out of print)

Provides industrial arts instructors with administrative, instructional, and personal guides for teaching. Annotated bibliography.

¹ District of Columbia and Puerto Rico included.

ARKANSAS

INDUSTRIAL ARTS, HOME MECHANICS. State Department of Education: Little Rock, 1953. 34 p. (out of print)

Contains instructional units of woodworking, electricity, plumbing and heating, masonry, painting, yard repairs, and automotives. Course has detailed activities (manipulative), and informational units. Suggests projects, equipment, and supplies for each unit.

INDUSTRIAL ARTS, GENERAL SHOP. State Department of Education: Little Rock, 1953. 145 p. (out of print)

Contains statement of objectives; instructional units in woodwork, electricity, drawing, sheetmetal, printing, and machine shop. Content divided into activities (manipulative) and informational units. Suggests handtools, equipment, supplies, and teaching aids. Annotated bibliography.

CALIFORNIA

GUIDE FOR INDUSTRIAL ARTS' EDUCATION IN CALIFORNIA. State Department of Education: Sacramento, 1958. Rev. ed. 39 p.

History, objectives, definitions of industrial arts, and relationship to the total program of education; program of industrial arts at the elementary, junior high school, senior high school, and college levels; characteristics of an industrial arts program; overview of industrial arts teacher-education programs in California.

GUIDE FOR PLANNING AND EQUIPPING INDUSTRIAL ARTS SHOPS IN CALIFORNIA SCHOOLS. State Department of Education: Sacramento, 1956. 40 p.

Contains educational specifications for the housing and layout of industrial arts shops. Suggests role of teacher in planning, and steps in planning facilities. Recommends junior and senior high school shop layouts with suggested equipment. Contains shop layouts in automechanics, shop classrooms, drawing, electricity, electric-radio (electronics), graphic arts, handicrafts, general metals, general woods, comprehensive general shop, and photographs of various facilities.

INDUSTRIAL ARTS FOR ELEMENTARY SCHOOLS. State Department of Education: Sacramento, 1957. 54 p.

Explains purpose of industrial arts in elementary school and equipment, supplies, and tool charts. Has kindergarten teaching unit for the circus, with suggested industrial arts activities.

MATHEMATICS AND INDUSTRIAL ARTS EDUCATION. California State Department of Education: Sacramento, 1960. 100 p.

Guide for the improvement of instruction in mathematics courses relating to industrial arts in the areas of auto mechanics, industrial drawing and drafting, electricity/radio (electronics), graphic arts, handicrafts, metal (general), and wood (general), in grades 7 through 12. Presents a selected reference for each of the above areas to assist both the industrial arts teacher and the mathematics teacher.

SAFETY INSTRUCTION IN INDUSTRIAL ARTS EDUCATION. State Department of Education: Sacramento, 1955. 60 p.

Concerns safety instruction for all areas of industrial arts. Includes safety instructions for specific machines in metalworking, graphic arts, and auto mechanics. Suggests test questions. Bibliography.

SUGGESTED COURSES OF INSTRUCTION IN INDUSTRIAL ARTS FOR THE JUNIOR HIGH SCHOOL LEVEL. State Department of Education: Sacramento, 1953. 48 p.

Contains course outline for junior high school exploratory and basic work in drawing, general wood, general metal, electricity, handicrafts, graphic arts, and comprehensive general shop. Outlines activities, skills, and processes; related technical information; and suggested project areas.

SUGGESTED COURSES OF INSTRUCTION IN INDUSTRIAL ARTS FOR THE SENIOR HIGH SCHOOL LEVEL. State Department of Education: Sacramento, 1955. 71 p.

Contains course outline for intermediate and advanced work in automotives, drafting, electricity-radio (electronics), graphic arts, handicrafts, metal (general) photography, wood (general), and comprehensive shop. Organizes content under headings: activities, skills, and processes; related technical functional information; and suggested project areas.

COLORADO—None

CONNECTICUT

CURRENT PRACTICES IN CONNECTICUT SECONDARY SCHOOLS, INDUSTRIAL ARTS. State Department of Education: Hartford, 1954. 23 p. (out of print)

Presents trends and current practices in some Connecticut schools in relation to programs for girls, curriculum development, community relations, work experience, special jobs, exhibits and intro-area cooperation, shop techniques, and related instruction.

DELAWARE—None

FLORIDA

A GUIDE—INDUSTRIAL ARTS IN FLORIDA SCHOOLS. State Department of Education: Tallahassee, 1959. Bulletin #12. 99 p.

Deals with concepts, philosophy, and organization of industrial arts as a subject-matter area in the elementary, junior, and senior high schools. Outlines schedule for determining the number and the type of industrial arts laboratories consistent with school enrollments and educational objectives. Appendix lists texts and student personnel duties. Bibliography.

A B C'S OF INDUSTRIAL ARTS. State Department of Education: Tallahassee, 1955. 19 p. (out of print)

Answers pertinent questions about industrial arts: purpose, advantages, program, cost, etc.

INDUSTRIAL ARTS EDUCATION, INSTRUCTIONAL UNITS FOR ELEMENTARY GRADES. State Department of Education: Tallahassee, 1958. Bulletin #76F-1. 51 p.

The bulletin suggests construction activities related to science, social studies, arithmetic, and music. Contains basic equipment, tools, and instructions. Well illustrated. Bibliography.

SAFETY IN THE SCHOOL SHOPS. State Department of Education: Tallahassee, 1953. 23 p. (out of print)

Identifies persons responsible for safety. Contains shop accident-report form. Suggests what to teach and how to teach safety. Recommends specific safety instruction for certain basic shop equipment.

GEORGIA

CURRICULUM FRAMEWORK FOR GEORGIA SCHOOLS. A Guide to Curriculum Building. State Department of Education: Atlanta, 1954. 59 p. (See p. 33 for Industrial Arts)

A general curriculum guide. Suggests experiences in the practical arts through activities in the 7th grade. Recommends offering courses in industrial arts in the 8th and 9th grades.

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INDUSTRIAL ARTS FOR GEORGIA SCHOOLS. (A Handbook for Teachers and School Administrators). State Department of Education: Atlanta, 1958. 111 p.

Characteristics of human growth; curriculum patterns; selection, preparation, and presentation of subject matter; administrative organization; records and forms; safety; evaluation; public relations; school shop planning (layouts). Recommends instructional units in mechanical drawing, woodworking, art metalwork, electrical work, general metalwork, sheet metalwork, machine shop, welding, and foundry. Outlines content under 2 headings: *know* and *do* topics. Bibliography.

INDUSTRIAL ARTS FOR THE MIDDLE GRADES (A Course of Study for Grades 7, 8, or 9). State Department of Education: Atlanta, 1960. 163 p.

A supplement to the curriculum guide, *Industrial Arts for Georgia Schools*, published in 1958. Presents a synthesis of operations, processes, and related technical information of several important industries. Suggests problems, activities, projects of vital interest to students, and techniques for presenting the subject matter.

HAWAII

COURSE OUTLINE FOR GENERAL METALS. (10th, 11th, and 12th Grade) State Department of Education: Honolulu, 1957. 24 p.

Contains drafting principles—sheet metal layout, bench metal and wrought iron, sheet metal, forging and heating, treating, machine shop and welding—arc and gas. Course outline suggests what the student should do under column "Manipulative Operations" and what the student should know under columns "Technical Knowledge" and "Related Information."

COURSE OF STUDY—GENERAL SHOP ELECTRICITY, ELECTRICITY/ELECTRONICS 1 & 2, ELECTRICITY/ELECTRONICS 3 & 4. State Department of Education: Honolulu, September 1960. 127 p.

Presents a course of study in electricity in a general shop program for 8th- or 9th-grade level. Course is divided into electricity/electronics 1 & 2, and a course for electricity/electronics 3 & 4. Gives personnel charts, approved booklist, equipment list, film list, and sources.

INDUSTRIAL ARTS GUIDE. State Department of Education: Honolulu, January 1960. Bulletin #3. 102 p.

Includes objectives and behavior changes. Has detailed teaching guide for instruction units in drawing, woodworking, metalwork, and electricity. Each area is divided into projects, operations, technical information, general information, and vocational guidance information. Presents tests and teaching aids, films, and filmstrips. Bibliography.

INDUSTRIAL ARTS HANDBOOK. State Department of Education: Honolulu, 1952. Rev. ed. Bulletin #7. 91 p. (not available)

Presents overview of industrial arts program (definition, purpose, and objectives for elementary, intermediate, and senior high school); organization (size of classes, time allotment); how to organize the course of study (determine objectives and select subject matter); requisition and report forms; teaching suggestions; administration; safety. Bibliography.

MECHANICAL DRAWING. State Department of Education: Honolulu, 1957. Bulletin #3 (Reprint January-1960), 27 p.

Presents a guide for senior high school mechanical drawing. Gives course objectives, teaching method and procedures, course content, methods and evaluation-tests, orientation and introduction outline, occupational information and guidance outline, instruments, tools, and equipment list.

RESOURCE MATERIAL FOR INDUSTRIAL ARTS TEACHERS. State Department of Education: Honolulu, 1952. 283 p. (not available)

Includes 101 assignment sheets, 36 information sheets, 64 job sheets, and 33 operation sheets. Covers topics such as abrasives, sharpening tools, basic tools, threading, safety, fluxes, nails, drafting symbols, how to make a scoop, and rough filing.

SAFETY MANUAL FOR INDUSTRIAL ARTS EDUCATION. State Department of Education: Honolulu, 1958. 37 p.

Comprises a proposed program of safety education for the schools when tools and machines are used. Suggests safe practices by use of colors and proper painting of equipment and buildings as approved by the safety rules committee.

SENIOR HIGH SCHOOL WOODWORK COURSE OUTLINE. State Department of Education: Honolulu, 1958. 9 p.

Presents course outline for Woodwork I and Woodwork II.

IDAHO

INDUSTRIAL ARTS STUDY GUIDE FOR GRADES 7-12. State Department of Education: Boise, 1955. 97 p.

Contains definition of industrial arts, objectives, purposes, scope, and shop organization; floor plans and tool lists; instructional areas in woodworking, drawing, electricity, and metal. Outlines content under 2 headings: detailed know and do units. Bibliography.

LEATHER CRAFTS, A TENTATIVE HANDBOOK FOR TEACHERS. State Department of Education: Boise, 1956. 43 p.

Incorporates objectives, daily instructional schedule, suggested operations, project procedures, history of leather, and a test. Bibliography.

PLASTICS, A TENTATIVE HANDBOOK FOR TEACHERS, GRADES 7-12. State Department of Education: Boise, 1956. 60 p.

Comprises objectives, project suggestions, analysis form, and project chart. Incorporates 20 operations sheets, 6 assignment sheets, 4 information sheets, and 4 lesson plans. Bibliography.

ILLINOIS

INDUSTRIAL ARTS IN GRADES SEVEN AND EIGHT. State Board for Vocational Education: Springfield, 1953. Series A-Bulletin #140. 104 p.

States need for industrial arts, philosophy, objectives, how to start a program, and safety. Suggests instructional areas in sketching and planning, woodcraft, metalcraft, leathercraft, Keene cement craft, pottery (ceramics), plastics, block printing, jewelry, silk screen printing, bookbinding, photography, and bicycle repair. Detailed know and do units. Suggests instructional materials and shop organization. Contains shop layouts, equipment, supply lists, and criteria for evaluating program. Bibliography.

INDIANA

A GUIDE FOR TEACHING ELECTRICITY IN INDUSTRIAL ARTS IN INDIANA. (Draft copy for discussion purposes only) Department of Public Instruction: Indianapolis, 1960. 71 p.

Contains section on safety, occupational and technical information, and evaluation on electricity. Lists instruction units on introduction to electricity, sources, effects, terms, conductors and insulators, electrical laws, use of meters, circuits, batteries, magnetism, electromagnetic induction, over current protective devices, residential wiring, and uses of electricity. Provides abundance of resource material.

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HEALTH AND SAFETY IN THE INDUSTRIAL ARTS EDUCATION AND INDUSTRIAL VOCATIONAL EDUCATION SHOP AREAS OR LABORATORY. State Department of Education: Indianapolis, 1956. 25 p.

Incorporates general health and safety factors essential for industrial arts and farm shops. Includes suggestions for planning industrial arts facilities, and vocational agricultural rooms and buildings. Recommends instructional areas in graphic arts, general woodworking, general metals, electricity and communications, transportation and power, planning and drafting, and crafts. Suggests plan for industrial education programs for grades 7 through 12.

IOWA—None

KANSAS

A CURRICULUM GUIDE FOR THE SECONDARY SCHOOLS OF KANSAS. State Department of Public Instruction: Topeka, 1960. 118 p. (p. 79-83)

An overall curriculum guide in the various subject-matter areas taught in the public schools, such as: social studies, mathematics, and industrial arts. Includes section for industrial arts dealing with personal values, teaching objectives, habits to be developed, definitions, minimum organizational standards, course content (grades 7-9, general shop; grades 10-12, general area shops; and grades 11-12, unit shops). Makes recommendations concerning the program.

KENTUCKY

INDUSTRIAL ARTS FOR KENTUCKY HIGH SCHOOLS. State Department of Education: Frankfort, 1953. Educational Bulletin #4, Vol. XXI. 399 p.

Includes general objectives, organization and administration, planning and equipping school shops. Explains how to select, prepare, and present subject matter. Offers instruction units in mechanical drawing, woodworking, metalworking (machine shop, sheet metal, foundry, forge and heat-treating, welding), electrical work, automotive shop, and printing. Operational and information units. Suggests student activities for a comprehensive general shop and farm shop. Contains audiovisual aids. Bibliography.

LOUISIANA

INDUSTRIAL ARTS FOR SECONDARY SCHOOLS. State Department of Education: Baton Rouge, 1958. Bulletin #872. 142 p.

Comprises philosophy and values of industrial arts, grade placement, time allotments, credits, shop layouts, factors in determining programs, equipment, administration and organization, and tool storage and distribution. Incorporates instruction areas in bookbinding, ceramics, drawing, electricity and radio, general shop, graphic arts, home mechanics, leathercraft, metals, model-making, motor mechanics, photography, plastics, plumbing, and woodworking. Detailed operation and information units with suggested list of equipment for each area. Professional books, supplies, films. A bibliography of industrial arts education publications.

MAINE

CURRICULUM GUIDE—INDUSTRIAL ARTS IN MAINE. Maine Association for Industrial Education. Gorham State Teachers College: Gorham, 1954. (State Department of Education, Augusta) 56 p.

Suggests content for three levels of instruction—basic, intermediate, and advanced. Includes instructional areas in electricity, metalwork, transportation, and woodwork. Contents: suggested projects, problems, activities; operations and processes; and related information. States specific objectives for each area and general objectives for industrial arts. Bibliography.

MARYLAND—None

MASSACHUSETTS—None**MICHIGAN**

BIBLIOGRAPHY OF INDUSTRIAL ARTS TEXTBOOKS. State Department of Public Instruction: Lansing, 1953. 21 p. (out of print)

Suggests texts in the following instructional areas: auto-mechanics, bicycle mechanics, building construction, ceramics, crafts, design and planning, drafting, electricity, farm shops, finishing, general shop, graphic arts, home mechanics, jewelry making, leathercraft, metalwork, plastics, related information, upholstery, weaving and braiding, woodwork. Texts are coded as to grade level, operations, related information, and project or activities.

INDUSTRIAL ARTS EDUCATION, LET'S GET TOGETHER. State Department of Education: Lansing, 1953. Bulletin #299. 7 p. (out of print and being revised)

Viewpoint of some administrators and shop teachers about industrial arts, such as: its purposes, aims, objectives; the shop as a dumping ground; good housekeeping; discipline; school maintenance; supervision; and professional status. Includes statement of common ground on divergent viewpoints.

INDUSTRIAL ARTS PROGRAMING. Department of Public Instruction: Lansing, 1961. Tentative revision. 16 p.

Suggests industrial arts programs and activities for junior and senior high schools. Discusses the unit shop versus the general shop, principles of shop planning, student-directed organizations, course of study and selection of project, and the industrial arts curriculum and college entrance requirements. Includes safety engineer checklist. Bibliography.

SCHOOL SHOP PLANNING. State Department of Public Instruction: Lansing, 1959. Bulletin #2135. 35 p.

Recommends procedures in preplanning for school shop and facilities. Makes suggestions for the advisory committee, developing physical facilities, determining nature and extent of new industrial arts facilities in school shop planning. Selected bibliography and terminology.

MINNESOTA

TEACHER'S GUIDE FOR METAL CASTING IN THE SCHOOL SHOP. State Department of Education: St. Paul, 1957. 17 p.

Describes safe practices and molding procedures. Recommends tools and equipment. Cites sources of materials and equipment and offers project suggestions. Bibliography.

TEACHING GUIDE FOR 7th-GRADE GRAPHIC ARTS. State Department of Education: St. Paul, 1952. Code XXIII-B-62. 10 p.

Includes objectives and suggested student activities in linoleum block, stenciling, and silk-screen work. Organizes content under manipulative skills to be learned and related information. References.

TEACHING GUIDE FOR 7th-GRADE LEATHERWORK. State Department of Education: St. Paul, 1952. Code XXIII-B-57. 12 p.

Includes units on: (1) What is this thing called leatherwork? (2) Designing, processing, and putting attachments on leather projects. (3) How can we make our leather projects more attractive? Organizes content under operations and information units. Suggests teacher approaches and student activities. Describes hand tools, equipment, and audiovisual aids. Bibliography.

TEACHING GUIDE FOR 7th-GRADE PLASTICS. State Department of Education: St. Paul, 1951. 9 p.

Contains instructional units on various operations; cutting and polishing plastics; laying out and forming thermoplastic; drilling, punching, and countersinking plastics; cementing and joining plastics; coloring and dyeing plastics; internal and external carving; and overlays and inlays. Operations and information units. Suggested projects. Bibliography.

TEACHING GUIDE FOR 7th-GRADE WOODWORK. State Department of Education: St. Paul, 1952. Code XXIII-B-63. 13 p.

Contains instructional units for various woods: plywood, basswood, pine walnut, maple, or oak. Operation and information units. Suggests teacher approaches and student activities. Lists audiovisual aids. Bibliography.

TEACHING GUIDES FOR 7th- AND 8th-GRADE PLASTICS. State Department of Education: St. Paul, 1957. Code XXIII-B-73. 34 p.

Contains objectives, 4 instructional units for the 7th grade, and 6 for the 8th grade. Operation and information units. Presents tips on tools and processes. Reports sources of supply and audiovisual aids. Bibliography.

TEACHING GUIDE FOR 8th-GRADE WOODWORK. State Department of Education: St. Paul, 1953. Code XXIII-B-68. 9 p.

A continuation of 7th-grade woodworking; contains units about various woodworking machines. Suggests teaching approaches for units. Bibliography.

TEACHING GUIDE FOR 8th- AND 9th-GRADE ELECTRICITY. State Department of Education: St. Paul, 1955. Code XXIII-B-71. 38 p.

Contains instructional units in electricity for magnetism, flow of electricity, heat from electricity, light from electricity, power from electricity, and communications. Organizes content under activities: operations, displays, and information units. Contains sample test, bulletins, charts, posters, and films. Suggests teaching approach to units. Bibliography.

TOOL AND EQUIPMENT LIST FOR GENERAL AREA SHOP. (Machine Tools) State Department of Education: St. Paul, 1957. Code XXIII-B-67. Revised 9/1/57. 5 p.

Suggests woodworking and metalworking machine tools and equipment for a 1-teacher general shop.

TOOL AND EQUIPMENT LIST FOR GENERAL AREA SHOP. (Handtools) State Department of Education: St. Paul, 1953. 10 p.

Suggests handtools and miscellaneous small equipment for instructional areas in wood, graphic arts (including drawing), metal, electrical, assembly and disassembly, and miscellaneous arts and crafts (including leather and plastics).

MISSISSIPPI

INDUSTRIAL ARTS FOR MISSISSIPPI HIGH SCHOOLS, Grades 7-12. State Department of Education: Jackson, 1959. Bulletin #147. 105 p.

Emphasizes philosophy and objectives and the organization and administration of an industrial arts program and suggested shop procedures. Lists course outlines for handcrafts, composite general shop, mechanical drawing, and advanced shop. Incorporates shop planning with suggested layouts, tools, and equipment. Includes nine attached floor plans for the various shops. Cites tools and equipment list, films, and shop forms. Bibliography.

MISSOURI

A-GUIDE FOR INDUSTRIAL ARTS—GRADES 7-8. State Department of Education: Jefferson City, 1957. Publication No. 109-G. 87 p.

Provides information on basic principles and problems to be considered in planning the junior high school curriculum; lists general growth characteristics of early adolescents which have implications for education; sets forth a point of view for industrial arts education; suggests floor plans and equipment lists. Recommends teaching plan in drawing and planning and sketching, electricity, metalwork, woodwork, leather, plastics, and ceramics. Content is arranged in 5 columns: (1) Areas of course, (2) Suggested projects and sources of projects, (3) Demonstrations, (4) Topics for class discussion and special reports, and (5) Other activities. Suggests several projects developed as job assignment sheets. References.

INDUSTRIAL ARTS GENERAL WOODWORK. State Department of Education: Jefferson City, 1951. Publication No. 65. 82 p. (out of print)

Comprises objectives, shop layouts, tools, and equipment; manipulative and informative units. Suggests teaching plan, 5 project plans, 13 information assignments, audiovisual aids, and test. Bibliography.

MONTANA—None**NEBRASKA**

INDUSTRIAL ARTS FOR NEBRASKA SCHOOLS—An Instructional Guide. State Department of Education: Lincoln, Revised 1956. Reissued 1959. 164 p.

Explains philosophy and objectives which are characterized by behavioral changes and safety in shop. Contains instruction areas in drawing and planning, woodworking, metalworking, practical electricity, general crafts (general ceramics, general leatherwork, general plastics, art metal, and jewelry), machine maintenance, machine woodworking, and farm mechanics. Includes bibliography for each instruction area, directory of publishers, and sources of inexpensive educational materials.

NEVADA

INDUSTRIAL ARTS IN NEVADA. State Board of Vocational Education, State Department of Education: Carson City, 1961. Rev. 43 p.

Explains general objectives, organization, and administration of the program. Includes instruction units in drawing, woodworking, metalwork (simple machines, sheetmetal, art metal, moulding), general crafts (metal tooling, plastic, leather), general electricity, and home mechanics. Organizes content under manipulative skills and related information. Suggests tools, equipment, and supplies needed for the entire course, and teaching aids.

NEW HAMPSHIRE

INDUSTRIAL ARTS NEW HAMPSHIRE. State Department of Education: Concord, and Keene Teachers College, Keene, 1959. 47 p.

Presents a General Shop and a Unit Shop organizational plan. Points out industrial arts relationship (1) to other subjects in the elementary and comprehensive high school, and (2) to the comprehensive high school and education beyond high school. Suggested content for courses of study are: electricity/electronics, general metals, graphic arts, internal combustion engines and power transmissions, machine shop, mechanical drawing, and woodworking.

NEW JERSEY

A GUIDE FOR PLANNING SCHOOL FACILITIES FOR INDUSTRIAL ARTS EDUCATION. State Department of Education: Trenton, 1956. 10 p.

Recommends facilities for elementary, junior, and senior high school programs. Suggestions for planning mechanical drawing, classroom exits, orientation in buildings, ventilation and heating, floors, walls, ceiling, utilities, and others. Emphasizes five general laboratories with selected activities: (1) Wood, leather, plastic, ceramics, home mechanics, and textiles; (2) Machine shop, art metal, ornamental iron, sheet metal, and foundry; (3) Electricity, internal combustion engine, refrigeration, radio, and television; (4) Printing, silk-screen, bookbinding, rubber stamp, block printing, and photography; (5) Agricultural arts.

INDUSTRIAL ARTS—GUIDE FOR TEACHING THE LAPIDARY ARTS. Vocational Division, State Department of Education: New Brunswick, July 1958. 79 p.

Presents information on the method of introducing lapidary arts in the shop curriculum. Describes use of materials and equipment needed in cutting and polishing gem stones. Includes glossary of terms, pictures of stones, and color charts.

INDUSTRIAL ARTS GUIDE TO TEACHING ART METAL. Vocational Division, State Department of Education: New Brunswick, July 1960. 87 p.

A manual to serve as a guide to the instructor in introducing a unit of art metal work. Suggests course outline, tools, equipment, materials, and processes. Information topics on various metals, hints, shop rules. Lists teaching aids. Bibliography.

INDUSTRIAL ARTS TEACHER GUIDE FOR ELEMENTARY GRADES. Course of Study, Vocational Division; Curriculum Laboratory, State Department of Education: New Brunswick, 1958. 69 p.

General aims and objectives, administration, and safety instruction for grades 5 through 8; suggests instruction areas in wood, metal, leather, plastics, electricity, mechanical drawing, ceramics, and home mechanics. Outlines content under: Tools and equipment, materials and supplies, skills and processes, related information, and suggested projects. Cites additional information to assist teachers as more instructional areas are included for each grade level.

INDUSTRIAL ARTS TEACHER GUIDE—BASIC ELECTRICITY. Vocational Division, State Department of Education: New Brunswick, July 1960. 160 p.

Presents objectives for industrial arts electricity. Contains units in magnetism, flow of electricity, heat from electricity, light from electricity, power from electricity, and communications. Suggests demonstrations, visual aids, tools and equipment, films, textbooks, and bibliography.

INDUSTRIAL ARTS PLASTICS. Vocational Division, State Department of Education: New Brunswick, 1960. 84 p.

Presents aims and objectives of course in industrial arts plastics. Discusses various types of plastics, tools, and industrial processes. Contains projects for grades 5 through 12.

RESOURCE BOOK ON CERAMIC MATERIALS. Vocational Division, State Department of Education: New Brunswick, Received December 1961 (no publishing date). 346 p.

Bulletin contains four parts: Part I discusses classification of ceramic products, unique properties, and selected problems encountered in planning a ceramic program; Part II deals exclusively with clays; Part III relates how to improve various types of clay bodies; and Part IV is devoted to a discussion of ceramic wares. Included in this discussion are earthenwares, stonewares, porcelain and china, oven-proof wares and refractory wares. Bibliography.

SILK SCREEN PROCESS PRINTING. Vocational Division, State Department of Education: New Brunswick, July 1958. 79 p.

Comprises general and specific objectives, history, background and development of stencil making, developing of stencil printing, and place of silk-screen printing in the graphic arts. Suggests equipment for silk screen, along with constructing of frames and bases. Cites five units of silk-screen printing. Includes audiovisual aids and reference materials.

NEW MEXICO—None

NEW YORK

(Publications printed in limited quantities; generally not available outside of the State)

ART METAL PROJECT IDEAS FOR INDUSTRIAL ARTS. University of the State of New York, The State Education Department: Albany, 1958. 188 p.

Provides 49 project ideas each with a diagram and description. Involves steps such as working drawing, creative activities, procedure, related technical information, demonstrations, related cultural information, and references. Includes color and finishing, jig, and forms tools, chart of annealing properties of nonferrous metal in the appendix. Recommended in grades 7, 8, and 9 as a teacher's reference book; in grades 10, 11, and 12 to be used in regular work in general metals course. Bibliography.

CERAMICS FOR THE INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP. University of the State of New York. The State Education Department: Albany, June 1959. 15 p.

Contains instructional ideas, plans, equipment list, supply list, and brief bibliography that will be helpful in starting ceramics in grades 7, 8, and 9.

ELECTRICITY FOR THE INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP. University of the State of New York, The State Education Department: Albany, June 1959. 15 p.

Contains an overview of the work, projects, suggested layouts, equipment, supplies, bibliography, and the sources of equipment and supplies that would be helpful in teaching electricity.

ELECTRICITY PROJECT IDEAS FOR INDUSTRIAL ARTS. University of the State of New York, The State Education Department: Albany, 1958. 124 p.

Contains 29 project ideas and 19 experiments for electricity. Includes a diagram and description for each project. Outlines steps in schematic diagram and pictorial drawing, bill of materials, creative activities, procedure, related technical information, demonstrations, and related cultural information. Recommended for use in grades 7, 8, and 9 as a teacher's reference book; in grades 10, 11, and 12 used in regular work in a general electricity course. Bibliography.

ELECTRONICS, PROJECT IDEAS FOR INDUSTRIAL ARTS. University of the State of New York, The State Education Department: Albany, 1957. 140 p.

Provides 28 project and 16 experiment ideas. For each idea, includes a description of equipment, schematic and pictorial drawing, building materials, most important steps and processes in the construction, and related information. Recommended for use in grades 7, 8, and 9 as a teacher's reference book; as elective work in general electricity course for grades 10, 11, and 12; and as a foundation for a course in industrial arts electronics for 11th- and 12th-grade pupils. Bibliography.

INDUSTRIAL ARTS SHOP PLANNING. University of the State of New York, The State Education Department: Albany, 1956. 63 p.

Suggests procedures for various equipment layouts that emphasize the six sections of work in the comprehensive general shop (general ceramics, general electricity, general metals, general printing, general textiles, and general wood). Includes illustrations and photographs of the different shops with a detailed explanation of functional considerations.

INDUSTRIAL ARTS, SYLLABUS IN GENERAL CERAMICS. University of the State of New York, The State Education Department, Albany, 1956. 69 p.

Contains definition of industrial arts, objectives, records and time allotment. Includes 18- and 36-week course outline. Suggests instructional units in hand building of free forms; hand building to a template; tilemaking; throwing on a potter's wheel; turning thrown ware; making jigger molds and templates; making jigger ware; making plaster models, patterns, and molds; decorating unfired ware; decorating bisque ware; overglazing; preparing and applying glaze; kiln managing; testing samples of clay; preparing and caring for clays; blending, adjusting, and improving clay bodies; compounding and adjusting casting slips. Projects, demonstrations, and related lessons (planning, social economics, guidance, science, safety, hygiene, and consumer values). Suggests outside preparation. Illustrates record forms. Bibliography.

INDUSTRIAL ARTS, SYLLABUS IN GENERAL WOODWORK. University of the State of New York, The State Education Department: Albany, 1956. 93 p.

Incorporates definition of industrial arts, objectives, records, and time allotment. Contains 18- and 36-week course outline, instructional units in common hand and machine tools, boat-building, carpentry and concrete form construction, furniture construction and upholstery, model aircraft, and pattern-making. Projects, operations and processes, demonstrations and related lesson topics (planning, social economics, guidance, science, safety and hygiene, and consumer values). Suggests outside preparation. Illustrates record forms. Bibliography (tests, charts and posters, audiovisual aids).

INDUSTRIAL ARTS, SYLLABUS IN GENERAL ELECTRICITY. University of the State of New York, The State Education Department: Albany, 1956. 95 p.

Reports definition of industrial arts, objectives, records, and time allotment. Contains 18- and 36-week course outlines. Presents instructional units in wire, signal systems, lighting systems, power systems, household appliances, heating devices, magnets, electrochemistry, motors and generators, control devices, radio and electronic devices, and measuring instruments. Projects, demonstrations, and related lessons (planning, social economics, guidance, science, safety and hygiene, and consumer values). Suggests outside preparation. Illustrates record forms. Bibliography.

INDUSTRIAL ARTS, SYLLABUS IN GENERAL PRINTING. University of the State of New York, The State Education Department: Albany, 1955. 87 p.

Contains definition of industrial arts, objectives, records, and time allotment. Presents 18- and 36-week course outlines. Comprises instructional units in letterpress printing, stockwork and bindery, silk-screen printing, relief cuts for letterpress printing, offset lithographing, intaglio printing, papermaking; photography, and stenciling. Projects; operations and processes; demonstrations, and related lessons (planning, social economics, guidance, science, safety and hygiene, and consumer values). Suggests outside preparation. Illustrates record forms. Bibliography (films, periodicals, manuals, and charts).

INDUSTRIAL ARTS, TENTATIVE SYLLABUS IN GENERAL TEXTILES. University of the State of New York, The State Education Department: Albany, 1953. No. 1418. 96 p.

Contains definition of industrial arts, objectives, records, and time allotment. Presents 18- and 36-week course outlines. Incorporates instruction units in planning and designing, dyeing, printing and stenciling, testing and fabric analyzing, preparing yarn, warping looms, weaving, repairing fabrics, making articles from cloth and miscellaneous fabrics. Organizes content under: projects, operations, and processes, demonstrations, and related lessons (planning, social economics, guidance, science, safety and hygiene, and consumer values). Suggests outside preparation. Illustrates record forms. Bibliography (supplies, supply houses, audiovisual aids).

INDUSTRIAL ARTS EDUCATION—ORGANIZATION AND ADMINISTRATION University of the State of New York, The State Education Department: Albany, 1960. 92 p.

Contains philosophy of the industrial arts and the place of industrial arts in the elementary, junior, and senior high school program. Explains the various types of industrial arts shops: comprehensive, general, general unit, and unit. Makes suggestions for secondary school sequence of courses and for a plan for organizing industrial arts departments. Discusses supervision of industrial arts, organization of the instructional program, and teaching methods.

INDUSTRIAL ARTS SYLLABUS IN GENERAL METALWORK. University of the State of New York, The State Education Department: Albany, 1960. 88 p.

Contains definitions of industrial arts, objectives, class and student records, time allotment and regent credit. Suggests an 18- and 36-week course outline. Presents instruction areas composed of projects, operations and processes, and demonstrations and related art in metal, auto-mechanics, bench metal, forging and heat treating, foundry, machine shop, ornamental iron, plumbing, sheet metal, and welding. Recommends outside preparation. Bibliography for each area.

INDUSTRIAL ARTS SYLLABUS IN TRANSPORTATION. University of the State of New York, The State Education Department: Albany, 1959. 98 p.

Cites definition of industrial arts transportation and its objectives. Outlines content under "demonstrations" and "operation and processes" for the various forms of transportation—automotive; aviation; marine; bicycle; motorbike and motorcycle; farm tractor; diesel engine; ice skates, skiing, and snow shoes in winter, the jet engine, railroads, and car model building. Bibliography.

PRINTING FOR THE INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP. University of the State of New York, The State Education Department: Albany, June 1959. 19 p.

Provides answers to questions commonly asked when a printing center is being considered for the comprehensive general shop. Contains material on types of work represented, projects, teaching content, suggested layouts, equipment, supplies, and sources of equipment and supplies. Bibliography.

PROJECT IDEAS—JEWELRY, INDUSTRIAL ARTS. University of the State of New York, The State Education Department: Albany, 1956. 106 p.

Embodies many project ideas concerning pins, rings, earrings, cuff links, bracelets, chains, forks, and pendants. For each project, includes descriptions and diagrams, most important steps or processes in the construction, and related information. Recommended in grades 7, 8, and 9 as a teacher's reference book; as a part of the elective work in a general metalworking course in grades 10, 11, and 12; and as a foundation for an advanced course in jewelry-making for 11th and 12th grades. Bibliography.

RESEARCH PROJECT IDEAS FOR INDUSTRIAL ARTS. University of the State of New York, The State Education Department: Albany, 1960. 141 p.

Contains project ideas and experiments relating to research in industrial arts, science, and mathematics. Includes the following: stroboscope, diffraction grating spectroscope, glass bead microscope, color mixer, box camera, contact print box, tin can enlarger, slide viewer, photo depth viewer, hilsch tube, solar furnace, arc welder, hydrogen organ, electroscope, microtome, ukulele, hatchet planimeter, li-sajous pendulum, centrifuge, computer, sextant, transit, small animal maze, dehydrator, ant house, incubator, apparatus to measure oxygen consumption in plants, rain gage, anemometer, aling psychrometer, and mercury barometer. Each of the project ideas or experiments has a photograph, working drawing, bill of material, creative activities and future implications, procedure, related technical information, demonstrations, applied science and related cultural information and references, safety precautions, sources of supplies, and equipment. Bibliography.

SUGGESTED RELATED INFORMATION FOR THE CERAMICS AREA, INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP COURSE. University of the State of New York, The State Education Department: Albany, 1951. 138 p.

Comprises a series of 62 (10 min.) selected lesson topics in general ceramics for the 7th-, 8th-, and 9th-grade comprehensive general shop. Each lesson has a story, objectives, references, assignment, and test. Topics covered are planning, social economics, guidance, science, safety, hygiene, and consumer values. Bibliography (books, films, periodicals, and bulletins).

SUGGESTED RELATED INFORMATION FOR THE METAL AREA, INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP COURSE. University of the State of New York, The State Education Department: Albany, 1949. Reprinted 1960. 148 p.

Includes a selected series of 68 (10 min.) lesson topics in general metalwork for the 7th-, 8th-, and 9th-grade comprehensive general shop. Each lesson has an introduction, objectives, references, assignment, and test. Topics covered are: planning, social economics, guidance, science, safety and hygiene, and consumer values. Bibliography (books, catalogs, films, periodicals, manuals, and charts).

SUGGESTED RELATED INFORMATION FOR THE PRINTING AREA, INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP COURSE. University of the State of New York, The State Education Department: Albany, 1952. 134 p.

Recommends 60 (10 min.) related lesson topics for general printing for the 7th, 8th, and 9th grades. Each lesson includes: the story, objectives, references, assignment, and test. Lessons are listed under planning, social economics, guidance, science, safety and hygiene, and consumer values. Bibliography (books, films, periodicals, and manuals).

SUGGESTED RELATED INFORMATION FOR THE TEXTILES AREA, INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP COURSE. University of the State of New York, The State Education Department: Albany, 1953. 134 p.

Suggests 59 (10 min.) related lesson topics in general textiles for 7th, 8th, and 9th grades. Each lesson includes a story, objectives, references, assignment, and test. Lists lesson topics under heads of planning, social economics, guidance, science, safety and hygiene, consumer values. Bibliography (books, films, periodicals, and manuals).

TEXTILES FOR THE INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP. University of the State of New York, The State Education Department: February 1960. 15 p.

Contains basic teaching content and a list of the necessary equipment and supplies. Demonstrates layout patterns, designing, cutting, assembling, stitching, and other processes which may be involved in fabricating textile articles. Bibliography.

TEXTILES, PROJECT IDEAS FOR INDUSTRIAL ARTS. University of the State of New York, The State Education Department: Albany, 1957. 137 p.

Contains 34 project ideas. For each project includes diagrams and descriptions, most important steps and processes in the construction, and related information. Deals with the fabrication of articles made from cloth. For use in grades 7, 8, and 9 as a teacher's reference book; as an important part of the regular work in a general textile course in grades 10, 11, and 12; and as the foundation for an advanced course in textiles for 11th- and 12th-grade pupils. Bibliography.

WOODWORKING FOR THE INDUSTRIAL ARTS COMPREHENSIVE GENERAL SHOP. University of the State of New York, The State Education Department: Albany, June 1959. 15 p.

Contains teaching content, suggested projects, shop layouts, equipment, machines, tools, and ideas helpful to persons responsible for organizing or expanding wood-working in the general shop. Bibliography.

NORTH CAROLINA

A GUIDE TO CURRICULUM STUDY IN INDUSTRIAL ARTS. State Board of Education: Raleigh, 1959. 54 p.

Bulletin is intended to be a resource for curriculum improvement. Provides information to give school administrators, board of education members, and lay people a better understanding of industrial arts. Deals with curriculum study questions on industrial arts, definition, differences between industrial arts and vocational industrial education, the place of industrial arts in education, status of industrial arts in North Carolina, content of the curriculum in industrial arts, and the organization of the industrial arts program. Bibliography. Appendix: The group project—a beginning experience in industrial arts, interpreting industry through the line production project, research and experimentation in the junior high school, integrated physics, and industrial arts in 1970.

HANDBOOK FOR ELEMENTARY AND SECONDARY SCHOOLS. State Department of Public Instruction: Raleigh, 1953. Publication No. 235. p. 273-74.

Suggests objectives and recommends subject areas of planning, woodworking, metalworking, and electricity. Part of overall guide in elementary and secondary education.

NORTH DAKOTA

INDUSTRIAL ARTS COURSE OF STUDY (HIGH SCHOOL). State Department of Public Instruction: Bismarck, 1953. 160 p. (Being revised)

Contains statement of objectives for industrial arts. Recommends instructional areas in mechanical drawing and planning, woodworking, general metal, electricity and crafts (electricity, metal tooling, plastics, leather), home mechanics, motor mechanics, and welding. Outlines each unit under purpose, objectives, suggested activities, manipulative skills to master, related information, teaching aids and devices, references and sources of supply, tools and equipment, and evaluation. Presents four shop layouts. Discusses administrative factors and instructional technique. Lists free and low-cost teaching aids, books, periodicals, sources of supply, and films.

OHIO

A GUIDE FOR INDUSTRIAL ARTS IN OHIO SCHOOLS. State Department of Education: Columbus, 1960. 40 p.

Explains the functions, purposes, and practices of industrial arts. A pictorial overview of drawing, graphic arts, woods, metals, electricity, power mechanics, and industrial crafts. Outlines programs for the elementary school (K-6), the junior high school, and senior high school. Presents an industrial arts program guide covering 7 areas for grades 7 through 12. Cites pertinent factors affecting the planning of facilities with shops based on total school enrollments.

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ELEMENTARY ELECTRICITY, SUGGESTED OUTLINE FOR DEVELOPING AN INDUSTRIAL ARTS PROGRAM. State Department of Education: Columbus, 1958. 16 p.

Provides an outline for an electrical unit. Suggests related topics, experiments, and manipulative problems. Discusses organization and administration. Lists equipment. Bibliography.

GRAPHIC ARTS: SUGGESTED OUTLINE FOR DEVELOPING A GRAPHIC ARTS UNIT. State Department of Education: Columbus, 1958. 11 p.

Comprises introduction, purposes, objectives of industrial arts, and suggestions for developing the program. Instructional areas include letterpress printing, linoleum and/or block printing, silk-screen printing, and bookbinding. Suggests tools, equipment, and references.

INDUSTRIAL ARTS EDUCATION FOR SEVENTH AND EIGHTH GRADES. State Department of Education: Columbus, 1956. 12 p.

States objectives and recommends instructional areas of drawing and sketching, woodwork, general metals, electricity, leatherwork, ceramics, graphic arts, plastics, and photography. Suggests equipment for 20-25 students.

ORGANIZATION AND ADMINISTRATION FOR INDUSTRIAL ARTS EDUCATION. State Board of Education, State Department of Education: Columbus, 1959. 86 p.

Provides teachers, supervisors, and administrators with a guide (1) to develop learning experiences, (2) to organize, and (3) to administer an industrial arts department. Discusses departmental organization, departmental administration, responsibilities and duties of the teacher, class administration, personnel organization in the shop, mechanical devices for use in pupil personnel, shop records, supplies and equipment, safety and safety inspection. Appendix has suggested forms and references.

PROPOSED PLAN FOR SCHEDULING INDUSTRIAL ARTS. State Department of Education: Columbus, 1958. 2 p.

Discusses how to schedule industrial arts courses. Recommends sequence of industrial arts as, Industrial Arts I, II, III, and IV which parallels the 9th-, 10th-, 11th-, and 12th-grade levels.

SHEET METAL. State Department of Education: Columbus, 1955. 12 p.

Objectives, organization, and management, and 11 suggested projects. Content organization under two heads: related information and things a student should learn to do. Suggests material and equipment. Bibliography.

OKLAHOMA

SAFETY EDUCATION IN THE SCHOOL SHOPS OF OKLAHOMA. State Department of Education: Oklahoma City, original ed., 1938; rev. 1939, 1942, 1947, 1954. 56 p.

Comprises a proposed program of safety education for use in school shops. Suggests safe practices for the most common shop-work division in Oklahoma school shops. Bibliography.

A SUGGESTED COURSE OF STUDY FOR INDUSTRIAL DRAWING IN OKLAHOMA HIGH SCHOOLS. State Department of Education: Oklahoma City, 1954. 57 p.

Includes objectives, purposes of drawing, teaching methods, and grade placement. Presents summary of a suggested course of study and outlines problems and learning units. Offers drawing checklists, hints, teaching aids, and useful projects. Shows drafting-room layout, drawing stool, bench, and cabinet. Annotated bibliography.

OREGON—None**PENNSYLVANIA**

AUTOMOTIVE AREA OF INDUSTRIAL ARTS INSTRUCTION, PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-A. 41 p.

Includes aims and objectives, organization of instruction, teaching aids, equipment, and supplies. Outlines content under things to do and know. Contains instructional units in power generation, power flow, and road control. Shows shop layout. Annotated bibliography.

CERAMICS AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1955. Bulletin #331-B. 94 p.

Embraces aims, organization of instruction, teaching aids, equipment, and supplies. Outlines content under things to do and know. Contains instructional units in pottery and tile, keen cement, concrete and masonry, metal enameling, and glass-working. Shows shop layout. Annotated bibliography.

ELECTRICITY AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1954. Bulletin #331-C. 83 p.

Comprises objectives, organization of instruction, teaching aids, equipment, and supplies. Outlines content in 4 parts: (1) understanding electricity, (2) distributing electricity in the home, (3) electricity at work in the home, (4) electricity at work in industry. Shows shop layout. Annotated bibliography.

GRAPHIC ARTS AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION. State Department of Public Instruction: Harrisburg, 1952. Bulletin #331-D. 54 p.

Includes objectives, organization of instruction, teaching aids, equipment and supplies. Outlines content under things to do and know. Contains instructional units in composition, layout and design, presswork, offset-lithography, platemaking, silk-screen, and binding. Shows shop layouts. Annotated bibliography.

HOME MECHANICS AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1952. Bulletin #331-E. 52 p.

Comprises objectives, organization of instruction, teaching aids, equipment, and supplies. Outlines content under things to do and know. Contains instructional units in care of tools and equipment, woodworking, upholstery, painting, decorating, and woodfinishing, electricity, metalworking, water supply and waste disposal, heating, cement and plaster work, and landscaping. Shows shop layout. Annotated bibliography.

INDUSTRIAL ARTS IN PENNSYLVANIA. State Department of Public Instruction: Harrisburg, 1951. Bulletin #331. 115 p. (not presently available)

Embraces various aspects of the industrial arts program, including its origin, development, place, objectives, curriculum, administration, legal status, and instruction.

METAL-FORMING AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-F. 63 p.

Comprises aims and objectives, organization of instruction, teaching aids, and equipment and supplies. Content is outlined by a learning unit of things to do and things to know. Includes pictures of suggested shop layouts of metal-forming in a general metals shop—foundry, forging, welding, heat treatment, patternmaking, and cold-forming industries. Bibliography of books, magazines, and films.

METAL-MACHINING AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-G. 63 p.

Contains aims and objectives, organization of instruction and grade levels, teaching aids, equipment, and supplies. Content is outlined by a learning unit of things to do and things to know. Includes pictures of shop layouts, of boring, grinder operations, shaper operations, treading, milling machine operations, and knurling and drilling in a V-block. Bibliography of books, magazines, and films.

PLANNING AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-H. 40 p.

Involves aims and objectives, organization of instruction, teaching aids, equipment, and supplies. Outlines content under things to do and know. Shows shop layout. Annotated bibliography.

SHEET METAL AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-J. 43 p.

Embodies aims and objectives, organization of instruction, teaching aids, equipment, and supplies. Outlines content under things to do and know. Suggests content for all grades, including senior high school. Shows shop layout. Annotated bibliography.

PLASTICS AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-I. 53 p.

Contains aims and objectives, organization of instruction, teaching aids, equipment, and supplies. Outlines content under things to do and know. Shows shop layout. Annotated bibliography.

TEXTILES AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1955. Bulletin #331-K. 53 p.

Comprises aims and objectives, organization of instruction, teaching aids, equipment and machinery, and supply lists. Content is outlined by a learning unit of things to do and things to know. Includes shop illustrations of rope and net work, fiber and yarns, textile design, weaving, dyeing and printing, textile fabrication, rugmaking, and machine-knitting. Provides a shop layout.

WOODWORKING AS AN AREA OF INDUSTRIAL ARTS INSTRUCTION IN PENNSYLVANIA PUBLIC SCHOOLS. State Department of Public Instruction: Harrisburg, 1953. Bulletin #331-L. 53 p.

Incorporates aims and objectives, organization of instructional material and devices, rug-making, and machine-knitting. Provides a shop layout.

RHODE ISLAND—None

SOUTH CAROLINA—None

SOUTH DAKOTA

COURSE OF STUDY FOR ELEMENTARY GRADES. State Department of Public Instruction: Pierre, 1954. Bulletin #64 (General bulletin, see pages 602-608—Industrial Arts).

Reports a 6-week unit on construction and industrial arts as part of the subject "Art and Drawing in Elementary School." Lists content, objectives, and activities for each grade, 1-8.

TENNESSEE—None**TEXAS**

PRINCIPLES AND STANDARDS FOR ACCREDITING ELEMENTARY AND SECONDARY SCHOOLS AND LIST OF APPROVED COURSES, GRADES 7-12. Texas Education Agency: Austin, October 1961. Industrial arts excerpt, pages 140-168, Bulletin #615. (pre-publication copy)

Outlines a sequence of courses for each instructional area of woodworking, metalworking, drafting, electricity and electronics, graphic arts, power mechanics, and handicraft, on the basis of three levels of difficulty and complexity for grades 7 and 8, 9 and 10, and 11 and 12.

UTAH

AUTOMOTIVE SCIENCE—UTAH HIGH SCHOOL INDUSTRIAL TECHNOLOGY. State Department of Public Instruction: Salt Lake City, September 1960. 127 p.

Contains objectives of auto-mechanics. Outlines instructional schedules for a 36-week course. Each course is organized around selected topics, activities, problems, and references and aids. Suggests teaching aids and industrial visits sample forms. Includes reference books and an inventory of tools.

BUILDING CONSTRUCTION—UTAH HIGH SCHOOL INDUSTRIAL TECHNOLOGY. State Department of Public Instruction: Salt Lake City, September 1960. 75 p.

Cites five building construction objectives. Outlines 37 instructional schedules of courses for 37 weeks. Each course is organized around selected topics, activities and problems, and references and aids. Recommends forms to use for visits to various contractors. Includes tool lists, materials and their sources, and reference books.

ELECTRONICS—UTAH HIGH SCHOOL INDUSTRIAL TECHNOLOGY. State Department of Public Instruction: Salt Lake City, September 1959. 101 p.

Contains philosophy, objectives, and instructional schedule for 36 week course in electronics. Includes weekly schedule developed around selected topics, activities and problems, and references and aids. Field trips to industrial plants, charts for industrial visits, electronic parts, instructional aids, and references are described.

GENERAL ELECTRICITY—A GUIDE TO THE TEACHING OF INDUSTRIAL ARTS. State Department of Public Instruction: Salt Lake City, September 1958. 97 p.

Comprises objectives and a history of electrical developments. Suggests things students should learn—things to do and things to know. Presents 22 learning units in outline form, such as static electricity, magnetism, magnetic effects of current electricity, and measuring voltage, and amperage. Includes selection of projects, technical vocabulary, tool list, equipment list, and supply list.

INDUSTRIAL DRAFTING—UTAH HIGH SCHOOL INDUSTRIAL TECHNOLOGY. State Department of Public Instruction: Salt Lake City, September 1959. 75 p.

Presents philosophy and objectives. Provides 14 units of drafting for first semester and 7 units for second semester. Outlines guidance for selecting enrollees, field trips to industrial plants, with sample forms for these trips. Lists visual aids and industrial drafting references.

METAL INDUSTRIES—UTAH HIGH SCHOOL INDUSTRIAL TECHNOLOGY. State Department of Public Instruction: Salt Lake City, September 1959. 87 p.

Contains philosophy, objectives, and industrial films, course length, class size, and facilities. Provides an instructional schedule for metal work—170 hours of manipulative skills and 170 hours of related work. Appendix contains: references; applied mathematics; applied science; field trips to industrial plants; instructional films; various metals, alloys, etc., arranged alphabetically; and 3 drawings.

PLANNING INDUSTRIAL ARTS FACILITIES. State Department of Public Instruction: Salt Lake City, 1959. 59 p.

Comprises philosophy and descriptions of the industrial arts program. Recommends space requirements at the high school level for woodworking, electricity/radio, drawing, general metals, auto-mechanics, graphic arts, crafts, home mechanics, and the general shop. Describes industrial arts facilities combined with farm mechanics. Explains storage of tools. Appendix of floor plans for school shops.

VERMONT—None

VIRGINIA

COURSE OUTLINE FOR ELECTRICITY. State Department of Education: Richmond, 1958. Industrial Arts Bulletin #5. 77 p.

Includes objectives, terminology, and recommended subject areas for grades 8-12. Contains outline of operations and related information for beginning electricity (18 weeks); advanced electricity (18-54 weeks); practical home appliance servicing (supplement); electricity in communications (36 weeks); electrical drafting (supplement, 18 weeks); electric motors—operation and maintenance (supplement, 36 weeks). Each outline lists manipulative operations, related information, suggested references, and projects. Suggests instruction, organization, and planning, for example, student personnel system, lesson plan, shop safety, information sheets, sample record forms, and progress report. Bibliography.

COURSE OUTLINE FOR GENERAL DRAWING. State Department of Education: Richmond, 1959. Industrial Arts Bulletin #6. 68 p.

Includes general and specific objectives, procedures in acquiring industrial arts objectives, characteristics of industrial arts at the different grade levels, possible subject areas and grade levels, and terminology. Outlines operations and related information for instructional areas of general drawing, mechanical drawing (18 weeks), mechanical drawing (18-54 weeks), architectural drafting supplement, map drawing supplement, engineering drawing supplement, and suggested references. Discusses instructional organization and planning. Lists addresses of publishing companies.

COURSE OUTLINE FOR METALWORKING. State Department of Education: Richmond, 1957. Industrial Arts Bulletin #4. 86 p.

Contains objectives, characteristics of industrial arts at the different grade levels, possible subject areas and grade levels, and terminology. Outlines manipulative operations and related information for instructional areas in art metalwork, sheet metal, metal-machining, and forming metal. Discusses instructional organization and planning. Bibliography.

COURSE OUTLINE FOR WOODWORKING. State Department of Education: Richmond, 1957. Industrial Arts Bulletin #3. 70 p.

Includes general and specific objectives, procedures for acquiring objectives, characteristics of industrial arts at different grade levels, possible subject areas, and terminology. Outlines operations and related information for instructional areas in beginning woodworking, furniture design, furniture upholstery, and boat-building (model and full-size). Discusses instructional organization and planning. Bibliography.

SAFETY IN THE INDUSTRIAL ARTS LABORATORY. State Department of Education: Richmond, September 1959. 30 p.

Deals with accidents in the area of industrial arts, regulations concerning safety, and safety education requirements. Discusses physical hazards, human factors, safeguarding machines, personal safeguarding, teacher liability, and safety education aids. Bibliography.

WASHINGTON

INDUSTRIAL EDUCATION—RELATIONSHIP BETWEEN INDUSTRIAL ARTS EDUCATION AND TRADE AND INDUSTRIAL EDUCATION. State Department of Public Instruction: Olympia, 1958. 32 p.

Analyzes relationship between industrial arts education and trade and industrial education by comparison with general education, objectives, students, grade level of learners, classes, time allotment, teacher qualifications, areas of instruction-shop and equipment, instructional methods and materials, etc. Illustrates relationship between the two programs with pictures.

WEST VIRGINIA—None

WISCONSIN

PHILOSOPHY AND OBJECTIVES FOR INDUSTRIAL ARTS IN THE WISCONSIN SCHOOLS. State Department of Public Instruction: Madison, 1949. Curriculum Bulletin #19, Industrial Arts Bulletin #1. 51 p. (reprinted in 1953)

Includes statement of philosophy for different levels of education. States objectives for general education, national industrial arts objectives, Wisconsin industrial arts objectives, and industrial arts objectives at various grade levels. Suggests how to organize an industrial arts program for grades 1-14. Bibliography.

RESOURCE UNITS FOR INDUSTRIAL ARTS IN WISCONSIN SCHOOLS. State Department of Public Instruction: Madison, 1951. Curriculum Bulletin #19, Industrial Arts Bulletin #2. 67 p.

Discusses the development and philosophy of the resource unit. Suggests how to prepare and use a resource unit. Outlines sample items for a resource unit on the engine lathe. Bibliography.

WYOMING

INDUSTRIAL ARTS. State Department of Education: Cheyenne, 1955. 31 p.

Involves objectives and instructional units for various grade levels. Suggests instructional units (18 weeks) for 7th grade in drawing and woodwork, for 8th grade in metalwork and general crafts, for 9th grade in general electricity and home mechanics. Lists tools, equipment, and supplies for each unit. References.

DISTRICT OF COLUMBIA

JUNIOR HIGH SCHOOLS, INDUSTRIAL ARTS EDUCATION TEXTBOOKS. Approved for use 1956-57, Public Schools of the District of Columbia, Washington, D.C. 11 p.

An approved list of textbooks for industrial arts and other subjects.

MANUAL ARTS COURSES, COURSE OF STUDY FOR JUNIOR HIGH SCHOOL, GRADES 7, 8, 9. Public Schools of the District of Columbia, Washington, D.C. (rev. ed. 1947-48), reprint 1952. 238 p.

Contains objectives, instructional units in bookbinding, drawing, electricity, general shop, metalcrafts, printing, shoe repair, and woodworking. Organizes content under two headings: manipulative and informational. Provides unit for slow-moving group. Bibliography.

MANUAL ARTS—COURSES OF STUDY FOR SENIOR HIGH SCHOOLS, GRADES 10, 11, 12. Public Schools of the District of Columbia, Washington, D.C., 1947-48 (revised and reprinted 1951-52). 358 p.

Contains objectives. Includes instructional units in auto, sign, and house painting; auto mechanics; bookbinding; drafting—architectural, cartographical (map drawing), and mechanical; electricity; forge; foundry; machine shop; masonry; metal crafts (gem cutting, jewelry-making, ceramics, plastics); metalwork (sheet metal, tin, forge, foundry, welding); printing (hand composition, press work); photoengraving, offset, linotype operation; shoe repairing; leathercrafts; woodworking (cabinetmaking, upholstery, bench woodworking, woodworking machinery); carpentry and patternmaking. Outlines content under manipulative and informational units. Bibliography.

SENIOR HIGH SCHOOLS, INDUSTRIAL ARTS EDUCATION TEXTBOOKS. Approved for use 1956-57, Public Schools of the District of Columbia, Washington, D.C. 4 p.

An approved list of textbooks for industrial arts.

PUERTO RICO

ARTES INDUSTRIALES, BOLETIN DE ORIENTACION—PARTE I, II, III. Departamento de Instrucción Publica, Estado Libre Asociado de Puerto Rico, Hato Rey, 1955. Parte I—33 p., Parte II—14 p., Parte III—Revised 1956. 47 p. (written in Spanish)

Part I contains norms and standards for the industrial arts program: objectives and requirements for intermediate schools—time allotment, teacher's program, coordination with other subjects, and teacher's qualifications; work experience program (high school)—objectives, program requirements, organization; industrial arts shop organization—size, light, ventilation, physical facilities, safety, working area, care and maintenance of equipment, tool panels, show areas, assembling and finishing areas, color dynamics, pupil personnel. References.

Part II includes organization principles for laboratory of industries and unit shops. Introduction, objectives, organization, description and plan of the industrial laboratory, areas of study, suggested projects, related information, and recommendations. Bibliography.

Part III contains guides for courses in industrial arts—teaching methods, related information, planning, related social studies, science, guidance, safety, consumer information—on electricity, woodwork, metal, ceramics, and leathercrafts. Preparation of lesson plans, instructional sheets, and project planning. References.

ARTES INDUSTRIALES, GUIA PARA EL MAESTRO DE ESCUELA INTERMEDIA, AREA DE ESTUDIO: DIBUJO TECNICO. Departamento de Instrucción Publica, Estado Libre Asociado de Puerto Rico: Hato Rey, 1961. Rev. 57 p. (written in Spanish)

Presents an introduction to drawing, objectives of course, and teaching units. Part I (first year) discusses student interest and relationship of technical drawing to everyday life in industry, at home, at school, as an occupation, and as a universal language. Part II (second year) concentrates on the areas of wood, metals, electricity, graphic arts, etc. Part III (an advanced semester for select students) deals with geometrical problem solutions, special aspects of technical drawing, dimensions, interpretation, sketching, drawing instruments, lettering, orthographic projection, scale drawing, pictorial drawing, development, working drawing. Recommends teaching aids. List of films on drawing. Bibliography.

ARTES INDUSTRIALES, GUIA PARA EL MAESTRO DE ESCUELA INTERMEDIA, AREA DE ESTUDIO: ELECTRICIDAD. Departamento de Instrucción Publica, Estado Libre Asociado de Puerto Rico: Hato Rey, 1955. 30 p. (written in Spanish)

Includes introduction, objectives, and general principles of electricity in the laboratory of industries. Contains related information in socio-economics, science, drawing, guidance, safety, and consumer's knowledge. Suggests basic skills and experiments to be developed. Cites general principles for teaching electricity in the unit shop. Contains introduction to the unit course, information on manipulative skills, experiments, and teaching aids. References.

ARTES INDUSTRIALES, GUIA PARA EL MAESTRO DE ESCUELA INTER-MEDIA, AREA DE ESTUDIO: TRABAJO EN MADERA. Departamento de Instruccion Publica, Estado Libre Asociado de Puerto Rico: Hato Rey, 1955. 18 p. (written in Spanish)

An introduction to woodworking. Presents objectives of the course, general principles for teaching woodworking in the laboratory of industries. Discusses woodwork in the unit shop, manipulative tools, and equipment. Deals with related topics on advance woodworking and supplementary activities. References.

ARTES INDUSTRIALES—SINTESIS DEL PROGRAMA: PAUTAS Y ORIENTACION GENERAL. Departamento de Instruccion Publica, Estado Libre Asociado de Puerto Rico: Hato Rey, 1960. 39 p. (written in Spanish)

Explains functions and objectives of industrial arts program. Discusses relationship to modern life, vocational programs, the esthetic and social point of view, chart depicting contribution to general education, and instructional content organization. Recommends short dally courses such as, drawing, commercial art, design, elementary and advanced architectural design, general mechanics, photography, serigraphy, printing and composition, plastics, ceramics, and textiles. Suggests coordinated visits and activities with the home economics department, industrial arts club, and work experience programs in the community. Cites general criteria for evaluation of teaching industrial arts. Appendixes—Student evaluation; bylaws for organizing industrial arts clubs; and methods for securing industrial arts materials.