

4H is

WINE
 MUSIC
 PHOTOGRAPHY
 VETERINARY SCIENCE
 CREATIVE ARTS
 ECONOMICS
 CHILD DEVELOPMENT
 CLOTHING
 FOOD AND NUTRITION
 HOME ENVIRONMENT
 NEEDLEWORK

MN
 2000
 FHM-38
 Rev. 1982

HOME MANAGEMENT
 SELF DETERMINATION
 AEROSPACE
 AUTOMOTIVE
 BICYCLE
 ELECTRIC
 HORSE
 SMALL ENGINES
 SNOWMOBILE
 TRACTOR
 CONSERVATION
 ENTOMOLOGY



CAREERS
 HEALTH
 SAFETY
 JUNIOR LEADERSHIP
 TEEN LEADER
 PLANT AND SOIL
 TEEN LEARN-IN
 FRUIT
 FLOWER GARDENING
 PLANT PATHOLOGY
 POTATO
 INDOOR GARDENING

VEGETABLE GARDENING
 SNOWMOBILE
 TRACTOR
 CONSERVATION
 ENTOMOLOGY
 FORESTRY
 POULTRY
 CAREERS
 HEALTH
 SAFETY
 JUNIOR LEADERSHIP

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What is 4-H?

The four leaf clover is a symbol of luck, but for seven million American boys and girls it also means 4-H.

The four H's on the clover stand for head, heart, hands, and health. Anyone from age 9 to 19 may join 4-H. Some counties offer special programs for younger children.

4-H is rural, small town, downtown and uptown, in highrises, housing projects, suburbs, and on farms.

In 4-H you learn to work and play with friends your own age. 4-H makes learning fun.

As a 4-H member you learn by doing. The 4-H program means belonging to a club or a short-term special interest group that may or may not have monthly meetings. The 4-H program also means choosing and learning about a project that has a special interest for you and taking part in activities such as:

- exhibiting your project at the county fair
 - camping and trips
 - sports such as softball
 - activities such as talent shows, favorite food displays
 - community service
- . . . and much more

Your 4-H group will have adult leaders who are really teachers. They will help you form ideas and complete the projects you select. 4-H members and leaders receive guidance and materials from county extension agents.

As we work and learn together, our MOTTO is . . .

"To Make The Best Better"

Which Project is for Me?

This booklet describes the 4-H projects from which you can choose when you become a 4-H member in Minnesota. Not all counties offer all projects. Your county extension office will tell you which projects are available in your county.

Most 4-H projects relate closely to subjects taught at the Institute of Agriculture, Forestry and Home Economics at the University of Minnesota. Most of the project material is prepared by extension specialists in these subject matter areas.

The information given for each project suggests activities and things to make and do. Ages indicate the general age level for which the projects have been designed. They are **guides** not **requirements**.

TYPES OF PROJECTS

Projects may be individual or group. On most individual projects you will receive a booklet, a record sheet, and help from your project leader. Group projects are conducted in small groups with an adult or teen leader. Use of project booklets and records is the choice of the leader. Some projects are self-study or self-directed; usually, the self-determined project materials are used, with little or no help from a project leader.

SELECTING PROJECTS

Select projects you are interested in and want to learn more about. Think about . . .

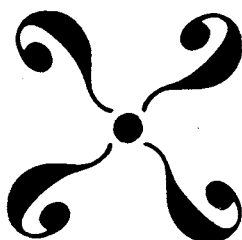
- what you like to do
- where you live—city, town, suburb, farm
- what materials or equipment you need
- what the project will cost
- who will be able to help you—parents, brothers, sisters, friends, other adults

- which project your friends are taking
- how the project will help you

Many projects are divided into beginner, junior, and advanced levels. Members are not always required to take the first unit of a project. In some projects there is a natural sequence from one unit to the next and it may be desirable to take the units in order.

HOW MANY PROJECTS

First year members should start with one or two projects. As members grow older and gain experience, they are ready to take on new challenges. Final decision about the number of projects should be based on member preference, past experience, and the counsel of parents and leaders.



RECOMMENDED PROJECTS FOR 1ST YEAR MEMBERS

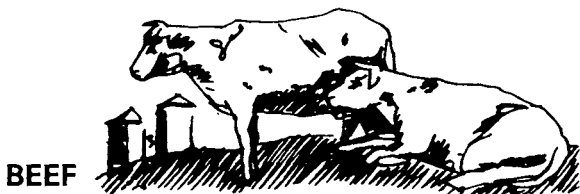
The beginning level of all projects is designed specifically for the 9- 10-year-old. Projects that are especially good choices for beginning 4-H'ers and new clubs are:

- You're in Charge: Self-Management (personal management)
- Fit It All Together (foods)
- Discovering With 4-H, for 8- and 9-year olds
- Adventures in Dairyland (with leader help)
- Rabbits

- Pets
- Super Shopper
- Adventures With Woodworking
- Creative Arts
- Flower Gardening (with leader or parent help)
- Vegetable Gardening (with leader or parent help)
- Indoor Gardening (with leader or parent help)

4-H Projects

Animal Science Projects



BEEF

Manage and keep a feed record for at least six months on one or more grade, pure-bred or crossbred beef animals.

1411—Beef Steer—Members learn how to select, feed, care for, evaluate, and market steers in a profitable manner. (9 & older)

1412—Breeding Heifer—Members learn to select, manage, care for, and develop a breeding heifer into a profitable beef enterprise. (9 & older)

	Age in months	Born between
Calf	7-11	Sept. 1-Dec. 31
Summer yearling	11-15	May 1-Aug. 31
Junior yearling	15-19	Jan. 1-Apr. 30
Senior yearling	19-23	Sept. 1-Dec. 31
Two-year-old	23-27	Mar. 1-Aug. 31

1413—Market Heifer—Members learn how to select, feed, care for, evaluate, and market heifers for slaughter in an efficient, profitable manner. (9 & older)

1414—Cow-calf—Members learn how to select, manage, care for, and evaluate a cow and calf for the development of a profitable beef breeding enterprise. (12 & older)

1415—Dairy Beef—Members learn how to select, feed, care for, and evaluate market dairy steers in a profitable manner. (9 & older)

DAIRY

1111—Calf—Members learn how to select, manage, care for, and develop a breeding heifer into a profitable dairy enterprise. Calves must be dropped between September 1 of the previous year and February 28 of the current year.

1112—Junior Yearling—Manage and keep a feed and financial record on one or more grade or purebred heifers which are 12-18 months old on August 31 of the current year. Continuation of calf project. (9 & older)

1113—Senior Yearling—With the same grade or purebred animals continue calf projects. For a substitute yearling keep a feed and financial record beginning not later than February 1. Senior yearlings must be between 18-24 months old on Feb. 28 of the current year. (9 & older)

1114—Two-Year-Old—With the same grade or purebred animal(s) or substituting two-year-old(s). Members learn how to select, feed, manage and exhibit dairy cows. After cow has freshened, start a lactation, production, feed, and financial summary. Any substitution must be made prior to the animal's first freshening. (9 & older)

1115—Advanced—Using the same grade or purebred animals, continue the two-year-old project. (13 & older)

1116—Herd Management—Members learn how to analyze the management of a dairy herd using the family's herd for examples. (15 & older)

1117—Adventure in Dairyland—Learn about dairy animals, milk and milk products, dairy animals, and people—without an animal. Especially useful for urban and rural non-farm youths as well as others who wish to learn about dairy production and processing. (9-13)

DOG

1210—Dog—Members develop initiative, dependability, pride of ownership, leadership, and cooperation as they learn to raise, train, understand, and enjoy dogs. (9 & older)

GOAT

1121—Kid—Members learn how to select, feed, care for, develop, and exhibit a dairy goat. (9 & older)

1122—Yearling Not in Milk—Continuation of kid project. (9 & older)

1123—Goat in Milk—Continuation of kid project. (9 & older)

HORSE

1310—Horse—Members develop leadership, initiative, self reliance, and sportsmanship as they learn how to select, train, feed and manage a horse or pony. A 4-H'er may enroll without having a horse. If a horse is to be a part of the project, it may be either owned or leased. One or more grade or purebred horses of any age will qualify. Care, feeding, grooming, training,

and exercising of the animal(s) by the 4-H'er must start prior to April 1 and continue for the rest of the year. For safety, only foals, mares, and geldings will be allowed at horse shows and no substitution of horses will be allowed after April 1 for any reason. (9 & older)

MEATS

1811—Meats I—Beginning 4-H members learn about meat inspection, grading, quality, cut identification, selection, pricing and buying, microbiology, storage, cookery, and nutrition so that they become more knowledgeable consumers of meat and meat products. (9 & older)

1812—Meats II—(Option 1) Intermediate 4-H members learn about new meat merchandising and utilization techniques, new meat products, meat cookery, and meat nutrition as well as gain experience in presenting such newly acquired information to other 4-H members, to the public at fairs, before civic groups, etc. (12 & older)

1813—Meats II—(Option 2) Intermediate 4-H members learn about meat animal evaluation and pricing, meat grading, meat judging, and meat pricing. (12 & older)

1814—Meats III—Advanced 4-H members learn about knowledge and understanding of meat marketing in Minnesota. This project is self-directional (do your own thing).

PETS

1710—Pets—A self-study program for youth to learn to develop an appreciation and understanding of small pets: cats, birds, fish, reptiles, hamsters, mice and rats, guinea pigs, etc. (9 & older)

POULTRY

The following four projects are production projects for youth of any age using chickens, turkeys, ducks, or geese in which members learn to properly care for and manage poultry. The object of the project is to produce economical, high quality meat for consumption. There is also opportunity to study the preparation for and marketing of this product.

1511—Market chickens—(9 & older)

1512—Market Turkeys—(9 & older)

1513—Market Ducks—(9 & older)

1514—Market Geese—(9 & older)

1515—Egg Production—Same purposes and objectives as for market poultry except emphasis is on the egg. (9 & older)

1516—Show And Hobby—Learn to raise and exhibit show and hobby species, i.e. bantams, guinea hens, pigeons, pheasant, quail. Gives youth an opportunity to learn selection and mating of poultry to achieve standard characteristics and observe genetic principles. (9 & older)

1517—Poultry Science—Carry out a science project using poultry or poultry products. Program for older youth. (14 & older)

RABBITS

1610—Rabbits—Youth develop leadership, initiative, dependability, and pride of ownership as they learn to select, feed, care for and manage two or more does of medium or heavy breeds suitable for meat and fur. Members learn to care for young rabbits and understand economics of the project. (9 & older)

SHEEP

Raise and keep a feed record for at least

three months on one or more purebred* or commercial** ewes or wether lambs born after January 1 of the current year.

1421, 1424, 1425—Ewe Lamb—Youth develop initiative, dependability, pride of ownership, and leadership as they learn to select, feed, care for, evaluate, and manage a developing ewe, yearling ewe, or aged ewe. (9 & older)

1422—Market Lamb—Members learn how to select, feed, care for, and market lambs in a profitable manner. (9 & older)

1423—Feeder Lamb—Members learn how to select, feed, market, and manage a group of lambs in an efficient, profitable feeding enterprise. (12 & older)

SWINE

Raise and keep a feed record for at least three months on one or more purebred* or commercial** gilts or barrows.

1431—Barrow—Members learn how to select, care for, feed, and market barrows in a profitable manner. (9 & older)

1432—Gilt—Members learn how to select, feed, manage, and develop a gilt into a profitable swine program. (9 & older)

1433—Swine Litter—Members learn how to care for, feed, breed, and manage a swine enterprise. (12 & older)

Check with extension agent regarding specific date for farrowing, ownership, and weighing of animals to qualify for county and state shows.

VETERINARY SCIENCE

This project may be taken by members who have an animal in any of the previous livestock projects. Animals such as cats,

*Purebred—animal that is registered.

**Commercial—animal that is grade or crossbred.

guinea pigs, mice, or birds can be used. Ownership of an animal is not required. The purposes are to help understand the animal's health, and methods of preventing disease and, through experience in the project, gain some understanding of veterinary medicine. Records consist of lessons completed in the bulletin.

1021—Unit I—The Normal Animal—Members learn about body structure, functions of organs, attitude, behavior, and maintaining health by studying the normal animal. (10 & older)

1022—Unit II—Animal Diseases—Members learn about diseases and their control as related to bacteria, viruses, external and internal parasites, nutritional deficiencies, poisons, stress, and heredity. (11 & older)

1023—Unit III—Immunology, Zoonoses—Members learn how animals and their systems overcome disease and illness and how diseases are transmitted between animal and man. (13 & older)

Economics

5010—Commodity Marketing Program—Intended for intermediate and advanced 4-H'ers. 4-H girls and boys in town and country can study the marketing of a particular commodity of their interest from production to the final consumer. (14 & older)

5051—Super Shopper—An individual project or club program for boys and girls to learn about shopping. Learn how to make decisions when shopping by understanding basic ideas about money, stores, quality, quantity, and prices. Members also learn about wants, needs, values, basic shopping tips, and their rights and responsibilities as shoppers. (Ages 9-12)

5052—Teaching Super Shopping—A project for teens interested in learning about consumer education through being a leader for project, club, or community groups interested in consumer decisionmaking, advertising, comparative shopping, and consumer rights and responsibilities. (Ages 13 & older)

Expressive Arts

PHOTOGRAPHY

7701—Adventures With Your Camera, Unit I—For beginners in photography to learn to take and make pictures. Teaches how to use a simple camera, how to pick subjects, and how to take pictures.

7702—Exploring Photography, Unit II—This unit follows unit I. Learn how to compose pictures, how shutter speeds and lens openings control light, and how to take action pictures.

7703—Mastering Photography, Unit III—This unit contains sections on equipment, nature spots, landscape, people, and existing light photography. Learn how to take creative double exposures.

7704—Darkroom Techniques, Unit IV—This unit is for members wishing to process their own black and white and color film and make enlargements. Study and practice developing techniques. Learn to select equipment and set up a darkroom.

7705—Exploring Movie Making—This unit introduces the members to motion pictures. It should follow the first three units. The unit gets into basic ingredients of a good movie, how to use a movie camera, titling, editing, and showing movies. Includes a section on caring for movie film and camera.

7706—How to Produce a Slide Show—For the creative person who wants to learn slide show production, this project features how to make slides and produce the show in five easy steps.

PERFORMING ARTS

Flexible self-directed project emphasizing experimentation in various areas of music, theatre arts, and stage presentation. Includes skits, plays, reading, scene design, construction, costume design, and technical work. There is no specific project material; members develop this as a self-determined self-study project. (9 & older)

VISUAL ARTS

7801—Creative Arts—The 4-H creative arts project is for 4-H members who like to draw, paint, model, carve, design, print, letter, construct, make puppets, and enjoy looking at works of famous artists.

- You will explore many art materials and invent new ways to use them.
- You will explore how you feel about things and invent ways to express yourself through art.
- You will explore your community and invent ways to share your artistic skills with others.
- You will explore the pleasures found in art and invent ways to make your leisure time more satisfying.

Home Economics Projects

CHILD DEVELOPMENT

9100—Playing With Children I—Project to help beginning project members better understand children and their basic needs, plan for and guide play activities, choose

and use books and stories—through reading, discussing, and actually working with children. (Ages 9-10)

9101—Working With Children II—Helps project members continue activities and ideas learned in first project. Gives information on growth and development of children, choosing and using toys, safety with children, and babysitting. (Ages 11-12)

9102—Living With Children III—Project members build on ideas and experiences from previous projects and learn about discipline, feelings, television, and careers. Through reading, discussing, doing activities, and working with a child they apply learnings to a real situation. (Ages 14-16)

9103—Teens Learning About Children—A self-determined, independent, individual study project in which older teens plan experiences and locate resources to study one or two topics in depth. Or, they might assume major care of a baby or very young children and record their experiences and learning about children. (15 & older)

CLOTHING & TEXTILES

9211—Beginning Clothing I—Project to help members learn about clothes and themselves. Members will learn how to become more attractive, how to buy, make, and care for clothes that do something for them. Topics covered in this unit are: grooming, how clothing makes you feel, selection and use and care of small sewing equipment, the sewing machine, fabrics, and care of clothing. Members are encouraged to make simple items such as tote bag, ski boot strap, sewing room wall hanging, bike bag, chef's apron, ski bag, or sun visor. For first year clothing and textiles members. (Suggested ages 9-10*)

9212—Beginning Clothing II—This unit helps the second year member plan for great looks and smart dressing. Project objectives are to learn: grooming—review of hair care; how to select a hair style, how to make the most of a professional hair appointment—how clothing speaks, selecting clothes that make you look your best, what to consider when planning a wardrobe, how fabric is made, how to care for the sewing machine, how to select pattern and fabric, and how to make a simple garment. Suggested garments to make: blouse or shirt, T-shirt, skirt, vest, jumper, simple pants or shorts. (Suggested ages 10-11*)

9213—Beginning Clothing III—Members who have mastered many basic skills and are ready for new techniques. In this unit members are to learn: how to choose clothing that is becoming and goes well with the things they have, how to express themselves through clothing, simple pattern alterations, how to press their garments, how to fit a garment, how to be a wise shopper, how to improve your personal appearance, care of clothing, and more about fabrics and interfacings. Members may make a garment or outfit using one of the construction techniques learned in this unit: collar, set in sleeve, buttons and buttonholes. (Suggested ages 11-12*)

9214—Intermediate Clothing—Project for those who want to increase their knowledge and skill in wardrobe planning, color, design fabric characteristics, grooming, fabric construction and finishes, and care of clothing. Members have the opportunity to use different types of fibers and fabrics, and learning materials have been prepared for three separate sub-units: unit 21-cotton and cotton blend, unit 22-man-made, and unit 23-wool. Members should remain in this project two to three years. (Ages 13-15)

9215—Advanced Clothing Exploration in Clothing and Textiles—Project for members to question, set objectives, plan, and explore a topic in the clothing area that interests them. The topics should be challenging and exciting to them personally. Six basic steps are included in the unit to help members select, plan, present, and evaluate their personal exploration. Possible topics: clothing alterations, and updating past styles, study clothing needs of handicapped or elderly persons, examine clothing needs of children or infants, construct or buy a garment for a young child, design a sewing room, construct a garment using a fabric you have never sewn with (fake fur, leather, vinyl, corduroy, etc.), study figure types and appropriate clothing and styles needed to enhance each figure type, study local advertising for clothing promotions in newspapers or nationwide magazines. This is the main project for all advanced members. (Suggested ages 16-19)

9215—Advanced Clothing Tailoring for Teens—This is an optional project for those members who want to learn how to tailor a garment using either custom or simplified tailoring techniques. Some possible techniques to learn include pad stitching, taping the lapel roll line, use of fuseable interfacings, lining a garment, and making shoulder pads.

FOOD AND NUTRITION

9311—Beginner; Fit It All Together—A beginning project to fit together food preparation, nutrition, and the latest dietary guidelines, food buying, fitness and healthy lifestyle. Members learn basic skills and information through reading, food preparation, and participation in activities. (Ages 9-12)

9312—Beginner; All-American Foods—A project to help members learn about re-

gional American foods and how to prepare them; discover the people, history, and traditions of our country through foods eaten; learn to judge nutritive value of foods eaten; compare prices and kinds of foods; practice safe preparation and clean up of food; serve foods in various ways; understand the whys of food preparation and nutrition. (Ages 11-12)

9313—Junior; Quick Meals—A project to help members learn to prepare meals using convenience foods; try out variations and learn their effects; practice safety in food preparation; compare prices, ingredients, forms of products, and label information; know nutritional values of foods; plan meals to save time and include variety; practice courtesy and variety in serving meals; get ideas for demonstrations; see recipes printed in metric and U.S. measurements. (Ages 13-14)

9314—Advanced; Family Meals—A project to help members learn to plan, purchase, and prepare complete family meals using a variety of preparation methods for meats and vegetables; select foods and serving sizes based on nutrient content and calorie needs; increase skills in food preservation; find and use additional sources of ideas on meal planning, purchasing, preparing, and serving. (Ages 15 and older)

9316—Foods With An International Flavor—A project to help members learn about foods and traditions from five countries and Scandinavia through information on: each land and its people; food favorites and meal customs of each country; each country's foods in the basic food groups; holidays, customs, recipes, and other things to do from each country. (Ages 15 and older)

9317—Self-Determined Projects in Foods—A project for members who wish to plan and carry out an independent, in-depth

study of an area of foods and nutrition of their choice. The guide suggests ideas and places to find information. Areas included could be food for athletes, wild edible plants, natural foods, nutrition during pregnancy, food additives, diets, food controversies, careers in foods and nutrition, etc. (Ages 15 and older)

HOME ENVIRONMENT



9411—Exploring Your Home; Home Environment, Unit I—Members develop an awareness of the place where they live—home, yard, and people. Focus on learning skills for home care and making the home more attractive. Includes becoming more responsible for self, family, and resources. (Ages 9-10)

9412—Where I Live; Home Environment, Unit II—Getting more involved with doing things at the place where the member lives. Includes home care, repair (inside and outside), storage, accessorizing, finishing, refinishing, recycling, and heritage. (Ages 11-12)

9413—Home Environment III—A self-directed, self-determined study project in which members plan experiences and locate resources to study one or two topics in depth. Topics might include furniture styles, interior design, redecorating, remodeling, house plans, buying furnishings, buying a home, buying appliances, storage areas, etc.

NEEDLE ARTS

9220—Knitting—Learn basic knitting stitches, terms, and tools, to experience satisfaction and enjoyment through knitting, to develop appreciation for beauty in knitted items. (10 & older)

9221—Crocheting—Learn basic crocheting stitches, terms, and tools, to experience satisfaction and enjoyment through crocheting; to develop appreciation for beauty in crocheted items.

Leadership

JUNIOR LEADERSHIP

6510—For 4-H members to study the “big ideas” about leadership and learn to lead and teach under the guidance of an adult 4-H leader. If under 16, enroll in at least one other project. (14 & older)

Mechanical Science Projects

AEROSPACE

4051—Model Rocketry—Learn to build and fly model rockets. Younger members start with simple stage models. Older members with experience may design their own rockets. (9 & older)

4052—Model Airplanes—Gain a beginning understanding of the principles of flight by building and flying model airplanes. Project will be of special interest to younger members. (9 & older)

4053—Flying—Members learn about flying, including what makes an airplane fly, instrumentation, navigation, radio communications, and weather. Of special interest to older members. Good introduction to flight training. (12 & older)

4054—Self-Determined Aerospace Science—Members explore an area of interest in aerospace science and share their knowledge with others. (14 & older)

AUTOMOTIVE

4231—Unit I—The Car and the Highway—Gain a basic understanding of the automobile and highway safety. (14 & older)

4232—Unit II—Maintenance and Operation—Learn about the engine, fuel, lubrication, and tire care. (15 & older)

4233—Automobiles and Energy—Driving for economy, maintaining car health, car characteristics and economy, other fuel saving tips. (14 & older)

4234—Safe and Easy Motorcycling—Advanced project. Members learn safety, motorcycle controls and protection. Getting set to ride, fundamentals of motorcycling, street riding, rider spills. (15 & older)

4235—Know Your Limits—Drugs and Driving—Advanced unit which focuses on the danger of mixing drugs with driving—Learn the facts, not just the hearsay on the dangers of mixing drugs with driving. (15 & older)

4236—Automotive Careers—Advanced unit for members to learn about careers in the automotive industry. (15 & older)

4237—4-H Wheels—Special program designed for predrivers grades 9 and 10.

BICYCLE

4211—Unit I—Your Bicycle and You—Designed to acquaint members with types of bicycles, parts, adjustment, care, and “rules of the road.” (Ages 9-11)

4212—Unit II—Maintaining Your Bicycle—Care of wheels, tires, chain, brakes, and accessories. (Ages 10-12)

4213—Unit III—Enlarging Your Cycling World—Learn how to personalize and customize your bicycle. Also has fun activities and service to the community. (Ages 11-14)

ELECTRIC

4101—Unit I—Exploring the World of Electricity—Learn about simple electrical circuits, measuring electricity, electrical terms. Project to acquaint member with electricity.

4102—Unit II—Electricity's Silent Partner—Magnetism—Deals with relationship of electricity and magnetism and the way they work together.

4103—Unit III—Working with Electricity—Explains and illustrates aspects of working with electricity including tools for electricians, wires and codes, electrical connections, understanding basic electrical equipment, planning home wiring and doing it safely, grounding and maintaining home electric equipment.

4104—Unit IV—Electricity for Family Living—Explains the common uses of electricity in the home: the proper use of lighting, lamps, and fixtures; operation of electrical appliances and motor driven appliances; maintaining safety and energy conservation.

4105—Unit V—Behind the Switch—Explains how electricity is produced, transmitted, and distributed and explains fuels used to power generators.

4106—Unit VI—Introduction to Basic Electronics—Introduces the member to the principles of electronics, beginning with the flow of electrons and current. Includes description of resistors and capacitors and later describes the functions of tubes in transistors and solid state components.



SHOP

4411—Working With Wood and Tools—Learn how to read a rule, use the coping

and crosscut saw, use the hammer, and select nails. Make a simple article of wood and learn how to finish wood. (9 & older)

4412—The Wonderful World of Wood—For second year members. Learn number sizes, reading and using drawings, drawing equipment, steel tape, folding rule, wing dividers, T level, marking gauge, hand saws, hand drills, bit brace, auger bits, jig saw, electric drill. Make wood projects. (12 & older)

4413—Building Bigger Things—Information on types of wood, woodworking tools, and drawings for articles are given. Learn about different types of lumber, and how to measure them. Learn more about hand tools and wood joints. (12 & older)

4414—The Craftsman—For intermediate or advanced member. Learn use of power tools, gluing, and wood finishing. Make articles. (15 & older)

SMALL ENGINES

This project explains small engines used on lawnmowers, go-carts, and similar equipment. They may be 2- or 4-cycle.

4221—Unit I—Small Engines—Four-stroke Cycle Engine. Learn power and design of four-stroke engines, including engine theory and fuel systems. (10 & older)

4222—Unit II—Two-Stroke Cycle Engines—Power and design. More on engine theory, ignition, and fuel systems. To be used after Unit I. (10 & older)

4223—Unit III—Lawn and Garden Equipment—Designed to encourage members to expand and apply their interest in small engines to lawn mowers, rotary tillers, and garden tractors.

TRACTOR

4241—Tractor and Farm Machinery Care and Safety—Special Interest for Certification. This unit covers safe operation of tractors and farm machinery to meet minimum requirements for certification under the Hazardous Occupations in Agriculture Order. Must be given by adult leaders. (14 & older)

Natural Science Projects

CONSERVATION

3101—Exploring the Environment—Study of various aspects of the environment including native plants and animals, soil, and water. Introduction to more specialized or advanced projects in forestry, geology, plant and soil sciences, entomology, wildlife, water, and energy. (9 & older)

3102—Specialized Projects in Conservation—Designed for advanced members to develop their own areas of study such as air, ecology, energy, water, and wildlife which are not offered in other 4-H projects. (12 & older)

ENTOMOLOGY

3220—Your 4-H Entomology Project — Project is designed to familiarize 4-H'ers of any age with collection and biology of insects. Learn importance of insects to the welfare of man. (9 & older)

FORESTRY

3301—Forest Appreciation, Unit I—Learn what a tree is and how it grows, how to identify trees, facts about wood, and kinds of forests in Minnesota. Select activities and experiments from the manual, *Forest Appreciation* to understand and appreciate the role of the forest. (10 & older)



3302—Forest Management, Unit II—Learn principles and techniques employed in managing Minnesota's forests. Specific topics are: measuring land, distance, direction, individual trees, the forest, protecting forests from insects, diseases, fire, animals, and history and methods of harvesting forest stands. Reforestation and forest improvement. (12 & older)

3303—Forest Products and Uses—For older members to receive in-depth project information on the history and geographic distribution of forest types, types of products produced by forests, how they are manufactured, and the additional value a forest provides to wildlife, water storage, and recreation.

GEOLOGY

3401—Geology—Rocks and Minerals. Includes three areas of study: 1) household mineralogy—learning the use of mineral matter in the home, kinds and history of birthstones; 2) rocks and minerals—rock identification, labeling, and display. Learn the importance of iron ore, granite, and limestone to Minnesota; 3) lapidary work—introduces members to the state stone and how to tumble stones and utilize the product. (9 & older)

3402—Introduces the members to the various topographical features of the state and the forces that were responsible for creating these features in Minnesota, and the U.S. study of topographical maps. (11 & older)

3403—Minnesota's Water—Introduces members to a general knowledge of the physical properties of water, an under-

standing of the hydrologic cycle, the importance of water, and the need for wise management. (11 & older)

Personal Growth and Development

CAREERS

6100—Careers—Learn the variety of vocational opportunities available and how to plan for future employment. Use the self-determined record, 4-HM 181, and suggested career resource materials to develop your project. (15 & older)

CITIZENSHIP

6301—Me, My Family, and Friends—This unit focuses on self identity, self-acceptance, and relations with family and friends. It says "Good citizenship is knowing who I am and being able to relate to others." (Ages 9-11)

6302—My Neighborhood—Unit 2 takes the member beyond the family and close friends into the neighborhood and school. It says "Good citizenship is knowing and sharing with neighbors." (Ages 9-11)

6303—My Clubs and Groups—This unit helps 4-H'ers to learn to function in organized groups so they can be more effective participants. It says "Good citizenship is participating in group decisionmaking." (Ages 9-11)

6304—My Community—Unit 4 opens the doors for community understanding and involvement. It is a multi-year unit and may be continued as long as a 4-H'er wishes. (Ages 12 and over)

6305—My Heritage—In Unit 5 4-H'ers learn about family heritage through developing a family tree. They also study their

heritage from other selected areas of interest. (Ages 14 and over)

6306—My Government—Included in this unit are discussions on governmental systems, laws, and voting. (Ages 14 and over)

6307—My World—This unit will help 4-H'ers who are interested in international study and experiences to explore their areas of interest. (Ages 14 and over)

DISCOVERING WITH 4-H

6200—Discovering With 4-H—Series of activities designed for small groups with teen or adult leader. Members have fun, develop skills, have creative and social experiences, have experiences in decisionmaking, and receive recognition. (Ages 7-9)

HEALTH

6441—Good Health and You—Beginner. Learn what makes a healthy person; develop good health habits. (Ages 9-11)

6442—Swing Into Life With Health—Junior. Continue good health practices plus study the areas of grooming, physical fitness, diet attitudes, and disposition. (12 & older)

6443—Community and Personal Health—To help older youth become knowledgeable about community health problems, agencies, and resources available and to promote problem solving or "action" oriented programs. (15 & older)

PERSONAL MANAGEMENT

6501—You're in Charge: Self-Management—Members learn the "big ideas" of management—decisionmaking, values, resources, goals, standards, organization—as they relate to their self-worth and apply them to day-to-day living skills: cooking, cleaning, safety, care of personal

appearance, repairing, and communications. First level recommended group project with project leader. Second level individual or group project. (Ages 9-12)

6502—Social Management—Living as if People Mattered—Continuation of management principles applied to social relationships. Meeting someone new, showing appreciation, making friends, asking for help, solving conflicts, trying something new. Recommended as a pre-junior leader project. (Ages 13-15)

6503—Life Management—Being On Your Own—Continue study of management principles on advanced level as applied to living in the adult world. Topics: goals and your next home, values and your career, decisionmaking and money management, resources and personal business, organization and the things you own, standards in your personal relationships. (Ages 17-18)

SAFETY

6701—Beginner: Safety—Make safety a part of your life at home, in school, at work, or play, on the farm, and on the highway through activities described in the project manual. (9 & older)

6702—Junior: Safety—Continued activities in safety but at a more advanced level, involving more people. (12 & older)

6703—Advanced: Safety—Plan and carry out programs of safety involving the community. (15 & older)

SELF-DETERMINED

6800—Self-Determined Project—Develop a project all your own if you wish to study, do, or make something not included in the listed projects. Set your goals and make plans to carry them out. Develop your own

record, describe your progress and accomplishments. Booklet is available to help you. (13 & older)

TEEN PROGRAMS—UNDERSTANDING SELF AND OTHERS

“Teen Programs—Understanding Self and Others” is a group determined program involving youth at all stages of development. The key word to “Teen Programs—Understanding Self and Others” is flexibility—both in content and methodology. Content is completely open—limited only by the interest and imagination of the planning committee and the availability of human and material resources. No bulletins or records available. To be *planned and conducted as a group under direction of adult.*

Plant and Soil Science Projects



FRUIT

2300—Learn how to properly grow, store, and market fruit. Learn to apply up-to-date and scientific methods to fruit production. Grow or maintain one or more of the following: 25 or more strawberry or raspberry plants, 3 or more grapevines, fruit trees, currant, or gooseberry bushes. (11 & older)

FLOWER GARDENING

2311—Beginner—Grow several kinds of flowers to beautify your home. Prepare the soil, plant seed or transplants. Learn the basic requirements for plant growth.

Learn to recognize some common annuals. Know the difference between the life cycles of annuals, biennials, and perennials. Learn how to prepare flowers for exhibit. (9 & older)

2312—Junior—Plan, plant, and care for a flower garden. Draw a garden plan, prepare the soil, apply fertilizer, plant seeds or transplants, and study and control weeds, insects and diseases. Learn how to prepare flowers for exhibit, arrange flowers, and exhibit flower arrangements. (12 & older)

2313—Advanced—Learn about the growth requirements of plants. Learn to plant, care for and use many kinds of annuals and perennials. Members should learn how to use and exhibit cut flowers, make flower arrangements, and learn about commercial methods of growing and marketing flowers. Share knowledge with other members through experimentation, science exhibits, demonstrations, and project help.

INDOOR GARDENING

2321—Beginner—Learn to identify and grow several kinds of house plants. Make a tropical or desert dish garden and care for it for several months. Learn what plants need to grow. (9 & older)

2322—Junior—Learn the growth requirements of many different kinds of house plants. Select houseplants to fit various light locations in the home. Learn to identify and control pest problems. Make a dish garden or terrarium and care for it for several months. Learn to make flower arrangements. Propagate houseplants by taking cuttings, division, or air layering. (12 & older)

2323—Advanced—Requirements are the same as for the junior project. In addition,

conduct experiments, make science exhibits, and visit greenhouses to learn about commercial methods of growing and marketing foliage and flowering plants. (15 & older)

VEGETABLE GARDENING

2331—Beginner—Grow a small garden with at least three or more vegetables for family use or help with the family garden. Draw a garden plan on paper. Prepare the soil, plant the seeds and transplants, care for the garden. Keep a record of varieties planted and harvesting dates. Learn to prepare vegetables for exhibit. (9 & older)

2332—Junior—Grow a garden large enough to produce six to eight different kinds of vegetables for your family. Draw a garden plan to scale. Prepare the soil, plant, and care for the vegetables. Learn proper cultural practices, weed control, harvesting times, and methods. Keep records and prepare vegetables for exhibit. (12 & older)

2333—Advanced—Understand the growth requirements of vegetable plants. Experiment with vegetable varieties, watering methods, fertilizer application, soil improvement, mulches, and pest control methods in home or commercial vegetable garden: Keep records. Help other members through demonstrations and project meetings. (15 & older)

LAWN AND LANDSCAPE DESIGN

2211—Beginner—Learn to care for the home lawn and landscape materials. Learn about the growth requirements of landscape plants, how a tree grows, and how to plant trees and shrubs. (9 & older)

2212—Junior—Care for the home lawn and landscape materials. Learn to follow correct practices of mowing, watering, fertilizing, weed and pest control in caring for

the home lawn. Learn about soil testing varieties of lawn grasses, ground covers, shrubs, and trees suitable for planting. (13 & older)

2213—Advanced—Care for and improve home lawn and landscape plantings. Draw a landscape plan for the home grounds. Learn to select varieties of landscape materials suitable for your area. Plant and care for new trees, shrubs, ground covers. Learn how to prune trees and shrubs. Get acquainted with methods of growing landscape materials commercially. Visit nurseries. Propagate trees or shrubs, grow and sell landscape materials, or start a lawn service in your community. (15 & older)

PLANT AND SOIL

2011—Unit I—Exploring the World of Plants and Soils—An overview of the world of plants and soils. The member conducts simple experiments related to the following five areas: plant reproduction, soils, plant growth factors, plant characteristics, and growing and using plants. (Ages 9-10)

2012—Unit IIA—Plant Reproduction—A general survey of how plants reproduce. The member observes seeds and how they grow, learns the parts of a flower, uses cross fertilization to develop hybrid plants, and grows plants from vegetative plant parts such as cuttings, tubers, roots, and bulbs. (Ages 12-14 & older)

2013—Unit IIB—Soils—A survey of the world of soils. The member conducts simple experiments or activities in classifying, mapping, improving, protecting, and managing soils. (Ages 12-14 & older)

2014—Unit IIC—Plant Growth Factors—Project participants study the factors affecting plant growth. Climate, moisture,

light, air, and growth regulators are explored. (Ages 12-14 & older)

2015—Unit IID—Plant Characteristics—Members conduct experiments which show the function of different plant parts, such as roots, stems, and leaves in plant growth. Seed germination, elementary plant photosynthesis, use of growth regulators, and other plant growth studies are included. (Ages 12-14 & older)

2016—Unit IIE—Growing and Using Plants—Project participants explore the world of plants and soils by studying uses for plants. Areas covered include plants for: food, clothing, medicine, transportation, conservation, pleasure, beverages, fuel, sports, wildlife, domestic animals, paper, and housing. (Ages 12-14 & older)

2017—Unit III—Plant Growth and Food Production—Topics included are soil and crop management, costs of raising a crop, soil conservation principles, physical and chemical factors of soil affecting plant growth, rainfall studies, and weed and crop identification. (15 & older)

2018—Corn Project—For intermediate and advanced members. "Learn by doing" production, harvesting, and marketing of corn. Younger members may enroll with agent's permission.

2019—Small Grain Project—For intermediate and advanced members. Younger members may enroll with agent's permission. Learn and apply principles and techniques in the production, harvesting, and marketing of small grains.

PLANT PATHOLOGY

2711—Unit I—Plant Disease Specimen Collection—Collect, identify, and display examples of plant diseases. Study plant diseases and learn how to control them. (11 & older)

2712—Unit II—Cold Seed Test—Conduct experiments concerning the effect of fungi in the soil or the effects of temperature and moisture on seed germination and plant growth. (14 & older)

POTATO

2100—Potato—Grow potatoes for family use or for marketing and keep a record of costs. (12 & older)

A Word to Parents . . .

4-H projects are centered around the home and family. As a parent, you need to help your son or daughter get the most from this 4-H experience. Here are some things you can do. You can:

- Become involved in and lend support to what your son or daughter is doing; guiding your child, but not doing the job for him.
- Help your child select a suitable project.
- Attend 4-H meetings and special events.
- Assist the local leader with 4-H activities.
- Encourage your son or daughter to participate in 4-H activities and county events.
- Give your son or daughter an opportunity to develop project skills at home.
- Be a good example for 4-H members.
- Help at the county and state fair.

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4-H Pledge

"I pledge—

MY HEAD to clearer thinking,

MY HEART to greater loyalty,

MY HANDS to larger service,

MY HEALTH to better living,

for my HOME, my CLUB, my COMMUNITY, my
COUNTRY, and my WORLD."

*Your County Extension Agents or local
4-H Leaders can tell you more about the
4-H program.

CONTACT:

A large, empty rectangular box with a thick black border, intended for providing contact information.

UNIVERSITY OF MINNESOTA



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