North Dakota 4-H Project Guide
Age Guidelines for North Dakota 4-H

Youth ages 5 to 18 may participate. Two categories make up the North Dakota 4-H program. Youth ages 5 to 7 are Cloverbud members. Youth who are 8 years old before Sept. 1 are regular members of 4-H.

Cloverbud Members (Grades K-2)
Cloverbud experiences are designed as a series of short-term, structured activities that help youth gain self-understanding, practice social interaction skills and develop positive attitudes. The Cloverbud program focuses on age-appropriate skills, abilities and involvement. Cloverbuds do not participate in competition because it is not developmentally appropriate for this age group.

Regular Members (Grades 3-12)
Youth who are 8 years old before Sept. 1 or are in third grade are considered regular 4-H members. If a youth turns 19 years of age prior to the beginning of the 4-H year (Sept. 1), she/he is not eligible to re-enroll in 4-H.

Enrollment Guidelines and Project Expectations for a 4-H Club Member

Youth participate under the direction of a trained adult and within the scope of the North Dakota State University Extension Service. The 4-H program year begins Sept. 1 and ends Aug. 31.

Certain things are expected from each 4-H member:

- Enroll online at www.4honline.com. If you have been a member of North Dakota 4-H, you already have an account. Please do not create a new profile or account to re-enroll. Your email address is your login. If you do not remember your password, click “I forgot my password.”
- Identify goals for your work.
- Develop a written plan of action, including “Planning For My Project Adventure” (PA093) and “ND 4-H Project Plan” (PA095) or complete the Project Planning Guide at the beginning of many project books or project activity guides.
- Select one or more projects you plan to study for the year.
- Assume full responsibility for your projects, including management and work, where practical. Shared responsibility needs to be described as part of the project plans and report.
- Arrange with parents or others for the financing of the project.
- Include a record of each project and related activities in the “4-H Plan of Action” (PA096) or the Achievement Guide in the front of many project activity guides.
- Summarize accomplishments from each year using the “North Dakota 4-H Participation Summary” (PA098).

NOTE – Project literature is available through local county offices of the NDSU Extension Service. Additional information may be found in NDSU Extension Service publications, Experiment Station publications and U.S. Department of Agriculture publications also available through the Extension offices. County Extension staff can answer questions regarding the 4-H youth development program.

Cost of 4-H Materials

To cover the costs of production and distribution of 4-H materials, a price has been assigned to several materials. Prices from the 4-H mall are subject to change. Prices listed in the project guide were current at the time of printing. Helper guides used by volunteer leaders are free of charge. Staff in your county Extension office will be able to answer questions you may have on the cost of 4-H materials. Materials that can be found on the NDSU 4-H website (www.ndsu.edu/4h) are marked “Web.”
**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 club, my community,
my country, and my world.

**4-H Motto**

"Make the Best Better."

**4-H Colors**

White and Green

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**4-H Creed**

I believe in 4-H work for the opportunity
it will give me to become a useful citizen.
I believe in training of my HEAD for the power
it will give me to think, to plan, and to reason.
I believe in the training of my HEART for the nobleness
it will give me to become kind, sympathetic, and true.
I believe in the training of my HANDS for the dignity
it will give me to be helpful, useful, and skillful.
I believe in the training of my HEALTH for the strength
it will give me to enjoy life, to resist disease, and to work efficiently.
I believe in my World, my Country, my State, and my Community, and in my responsibility for their development.

In all these things I believe, and I am willing to dedicate my efforts to their fulfillment.

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North Dakota 4-H Project Guide • More project information is available at www.ndsu.edu/4h/project_sheets
Individual Project Descriptions

Animal Science

Beef (Grades 3-12)

Beef “Skills for Life” Series

- Bite Into Beef, Level 1, Project Activity Guide – GBB121 ($5.75)
  Youth engage in activities to identify breeds, locate parts, judge, halter break and show a calf, fit a steer, recognize a healthy animal, select feed ingredients, and shop for beef and beef byproducts.

- Here’s the Beef, Level 2, Project Activity Guide – GBB122 ($5.75)
  The activity guide challenges youth with activities related to leg structure, presenting oral reasons in judging, feed ingredients, behavior, nose printing, parasites, fitting, ethical issues, beef carcass composition and retail meat cuts.

- Leading the Charge, Level 3, Project Activity Guide – GBB123 ($5.75)
  Selection and judging, feeds, careers, health, reproduction, and meats and marketing encourage youth to deepen their learning.

- Beef Helpers Guide – GBB221
  Helpers find a variety of group learning activities, including skillathons, quiz bowls, games, presentations, Beef Bingo and several management skill activities.

Additional Beef Project Resources

- Beef Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- 4-H Sheep or Beef Breeding Record – GB095 (Web)
  Record for beef animal(s) raised for breeding
- Market Animal Project Record – GB096 (Web)
  Record for beef animal(s) raised for market
- Beef Lifetime Record – GBB096 (Web)
  Individual record for each breeding heifer or cow

Dairy Cattle

- Cowabunga! Level 1, Project Activity Guide – GBF141 ($5.75)
  Youth explore dairy cattle breeds, select calves, identify parts of dairy cattle, recognize desirable traits, identify stages of calving and care, pack a show box, and groom and show a calf.

- Mooving Ahead, Level 2, Project Activity Guide – GBF142 ($5.75)
  Youth deepen their learning by focusing on housing, hay quality, milking, keeping animals healthy, parasites, behavior and food safety. They explore ethical decision making, judging and careers.

- Rising to the Top, Level 3, Project Activity Guide – GBF143 ($5.75)
  Advanced youth practice mastitis detection, balancing a ration, pregnancy detection, delivery of a calf, body condition scoring, selecting cattle through records, promoting dairy products and exploring career opportunities.

- Dairy Cattle Helper’s Guide – GBF241
  This guide contains several activities that can be used at 4-H meetings. Youth can play Dairy Bingo, and participate in a dairy quiz bowl, dairy pyramid game and dairy skillathon.

Additional Dairy Project Resources

- Dairy Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- 4-H Dairy Production Record – GBF095 (Web)
  Record for keeping information on dairy animal(s) and their production.

- Dairy animals used for exhibits must be owned and managed by May 1 of the current 4-H year. Any animal born after May 1 must be progeny animals owned from the date of their birth by the exhibitor.
Goats (Grades 3-12)

Dairy Goats

- **Getting Your Goat, Level 1, Project Activity Guide – GBG141 ($5.75)**
  Whether youth own a dairy goat or are just curious about goats, these activities provide enjoyable, hands-on experiences to introduce them to goats. Selection, feeding, management, fitting, showing and responsible goat ownership are emphasized.

- **Stepping Out, Level 2, Project Activity Guide – GBG142 ($5.75)**
  Youth with goats explore how to keep their goats healthy, feed them for maximum production, prepare for kidding, develop judging skills, milk goats properly and much more. Exciting activities for teams and individuals are included.

- **Showing the Way, Level 3, Youth Leadership Guide – GBG143 ($5.75)**
  Experienced goat project youth will find these advanced activities challenging and fun as they delve into genetics, careers, national industry issues, diseases, biosecurity, body condition scoring, linear appraisal, breeding programs, pedigrees, dystocia, quality assurance and leadership opportunities.

- **Dairy Goat Helper’s Guide – GBG246**
  Helpers can use this resource to plan group meetings to get youth involved and excited to learn about goats. Youth will enjoy playing goat-related games, conducting skillathons, giving demonstrations, participating in showmanship contests, and experiencing many other fun and educational group activities.

Additional Goat Project Resources

- **Goat Project Sheet – [www.ndsu.edu/4h/member_information/project_sheets](http://www.ndsu.edu/4h/member_information/project_sheets)**
- **Dairy Record – GBF095 (Web)**
  Record for keeping information on dairy animal(s) and their production

Goats used for exhibits must be owned and managed by May 1 of the current 4-H year. Any animals born after May 1 must be progeny animals owned from the date of their birth by the exhibitor.

Meat Goats

- **Just Browsing, Level 1 – GBG144 ($5.50)**
  Youth will use “just browsing” to learn goat breeds and selection, feeding and management, goat health, body parts, recordkeeping, meat goat and dairy conformation, show preparations and sportsmanship.

- **Get Growing With Meat Goats, Level 2 – GBG145 ($5.50)**
  Youth actively explore goat diseases, identifying poisonous plants, determining body condition, water quality, goat predators, kidding, goat reproduction, the veterinary profession, selecting stock and showing meat goats.

- **Meating the Future, Level 3 – GBG146 ($5.50)**
  Youth discover how to select breeding sires, balance a ration, prevent diseases, control internal and external parasites, practice biosecurity, practice sound ethics, conduct a meat goat judging clinic, judge goats, give oral reasons and explore meat goat products.

- **Meat Goat Helper’s Guide – GBG247**
  This guide is packed with activities that involve the entire group. Youth enjoy planning a program; completing project records; developing a management calendar; conducting a meat quality assurance program; participating in quiz bowls, skillathons and tours; giving a presentation; and exploring goat-related careers.

Additional Goat Resource

- **Goat Project Sheet – [www.ndsu.edu/4h/member_information/project_sheets](http://www.ndsu.edu/4h/member_information/project_sheets)**
- **Market Animal Project Record – GB096 (Web)**
  Record for animal(s) raised for market

Horse (Grades 3-12)

Youth will develop life skills while exploring horse science. Units 1-3 are designed for use without owning a horse. Units 4-5 address riding skills.

- **Giddy Up & Go, Unit 1 – GBH151 ($6.95)**
  Youth who may or may not have a horse or pony of their own but want to learn about horses will enjoy Giddy Up and Go. They will learn the basics of horse behavior, breeds and safety around horses through a variety of activities, including teaching others.

- **Head, Heart & Hooves, Unit 2 – GBH152 ($6.95)**
  Youth learn more about acquiring and raising a horse, including selecting a horse, horse nutrition and care, equine teeth and bones, and judging, including giving oral reasons.

- **Stable Relationships, Unit 3 – GBH153 ($6.95)**
  Youth explore horse reproduction, diseases and health care, pasture management, providing appropriate shelter and building a financial plan.

- **Riding the Range, Unit 4 – GBH154 ($6.95)**
  Youth learn nine basic riding skills and 10 horsemanship skills, training techniques, trail riding, and selection and use of tack.

- **Jumping to New Heights, Unit 5 – GBH155 ($6.95)**
  Youth learn more advanced riding skills, the Quarter System, horse showmanship, ethics and leadership.

- **Group Activity Helper’s Guide – GBH254**
  Get involved at group meetings using any of the 17 activities.
Green Horse – GBH156 (Grades 5-12) Web/$2
This project is for those who own or have available a colt or filly to care for and train. This is a five-year progressive project beginning with a young horse. The project is designed to help you select a foal and train it to maturity.

4-H Working Horse Levels 1-4 – GBH157 ($7.95)
This project is designed to enhance good ranch hands and develop good horsemanship skills. Ranch horses must be able to go through a gate, ground tie or hobble and stand while the rider is mounting or dismounting. The rider will learn how to care for livestock efficiently on the ranch. (Montana publication)

Additional Horse Project Resources
- Horse Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- Horse Record – GBH095 (Web)
  Record for keeping information on a member’s horse.
- Horse videos available for checkout from your local office of the NDSU Extension Service (see North Dakota 4-H website)

A 4-H member exhibiting in the state horsemanship show must have owned or had free access to the management of the horse being exhibited by May 1 of the current year.

Dogs
Every youth who has a dog will enjoy this series. Not only are the activities fun and educational, but they also help the dog become a perfect member of the family.

Wiggles and Wags, Level 1, Project Activity Guide – GBE131 ($5.75)
Youth learn basic skills for dog care and training. Activities include knowing breeds, selecting a dog, knowing the parts of a dog, keeping a dog healthy and groomed, and training.

Canine Connection, Level 2, Project Activity Guide – GBE132 ($5.75)
Youth explore more about dog health, nutrition, care, genetic problems, population control, showmanship, training, ethics and budgeting.

Leading the Pack, Dog Level 3, Youth Leadership Guide – GBE133 ($5.75)
Experienced youth investigate responsible breeding, diseases, caring for geriatric dogs, training, service dogs, dog roles and careers related to dogs. This guide provides youth with numerous leadership opportunities.

Dog Helper’s Guide – GBE236
Group games and activities provide helpers with ideas for facilitating learning. Service learning opportunities are encouraged. Training activities and resources are highlighted.

Pets (Grades 3-12)

Cat
- Purr-fect Pals, Level 1, Project Activity Guide – GBD131 ($5.75)
  As youth begin their learning about cats, they engage in activities to select a cat, identify breeds, name the parts of a cat, handle and groom a cat, care for its health and budget for its care.
- Climbing Up, Level 2, Project Activity Guide – GBD132 ($5.75)
  Youth step up their learning through activities on cat senses, the meaning of cat sounds, tricks they can teach a cat, signs of illness and health emergency situations, feeding, special diets, traveling with a cat and showing it.

- Leaping Forward, Level 3, Youth Leadership Guide – GBD133 ($5.75)
  Youth explore veterinary procedures, cat body systems, diseases, reproduction, genetics, older cat needs, behavior, showmanship, community laws, animal welfare and personal strengths.
- Cat Helper’s Guide – GBD231
  Helpers will find the group activities in this guide are an excellent way to involve everyone in learn-by-doing cat project sessions.

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Pets

- **Pet Pals, Level 1, Project Activity Guide – GBK161 ($5.75)**
  Youth learn about pets through activities such as selecting a pet, identifying pet parts, pet art, handling pets, providing the right kind of housing and meeting the daily needs of pets.

- **Scurrying Ahead, Level 2, Project Activity Guide – GBK162 ($5.75)**
  Youth develop planning and decision-making skills as they practice feeding and caring for their pets, observing pet behavior, exhibiting pets, debating pet sayings and creating a story about a pet.

- **Scaling the Heights, Level 3, Youth Leadership Guide – GBK163 ($5.75)**
  Through these activities, youth explore genetics, pet issues, reproduction, caring for newborns, starting a business and entering exciting careers.

- **Pet Helper’s Guide – GBK267**
  Project helpers will find many fun and engaging group games and activities to further expand the pet project experience for youth.

Additional Pets Resource

- **Pets Project Sheet –**
  [www.ndsu.edu/4h/member_information/project_sheets](http://www.ndsu.edu/4h/member_information/project_sheets)

Poultry (Grades 3-12)

- **Scratching the Surface, Level 1, Project Activity Guide – GBC121 ($5.75)**
  Youth participate in activities such as identifying poultry species and breeds, selecting poultry, feeding and handling, washing and showing poultry, exploring an egg and cooking eggs.

- **Testing Your Wings, Level 2, Project Activity Guide – GBC122 ($5.75)**
  Youth select layers, keep their poultry healthy, identify pecking order in a flock, read a feed tag, explore retail products, identify poultry bones, grade carcasses, use the standard of perfection to evaluate poultry, make a budget and examine an egg using an egg candler.

Additional Poultry Project Resources

- **Poultry Project Sheet –**
  [www.ndsu.edu/4h/member_information/project_sheets](http://www.ndsu.edu/4h/member_information/project_sheets)

- **Poultry Record – GBC095 (Web)**
  Record for keeping information on raising poultry

  - Secure poultry to be exhibited no later than June 1 of the current year from a National Poultry Improvement Plan-certified hatchery.

Rabbit (Grades 3-12)

- **What’s Hoppening, Level 1, Project Activity Guide – GBI151 ($5.75)**
  Youth learn selection, handling, breeds, parts, management, equipment, feeding, health, breeding and kindling.

- **Making Tracks, Level 2, Project Activity Guide – GBI152 ($5.75)**
  Youth learn to select a rabbit, detect diseases, tattoo their rabbit, keep records, show rabbits and judge rabbits, including giving oral reasons.

- **All Ears, Level 3, Youth Leadership Guide – GBI153 ($5.75)**
  Advanced youth fully explore rabbit management practices through breeding genetics, culling, designing a rabbitry, marketing rabbits, preventing diseases and registering a rabbit.

- **Rabbit Helper’s Guide – GBI257**
  Fifteen exciting rabbit group activities make group learning fun and educational.

Additional Rabbit Project Resources

- **Rabbit Project Sheet –**
  [www.ndsu.edu/4h/member_information/project_sheets](http://www.ndsu.edu/4h/member_information/project_sheets)

- **Rabbit Record – GBI095 (Web)**
**Sheep (Grades 3-12)**

- **Rams, Lambs and You, Level 1, Project Activity Guide – GBJ161 ($5.75)**
  Youth who own sheep or are just curious about them will learn about sheep parts, breeds and how to care for sheep through hands-on experiences.

- **Shear Delight, Level 2, Project Activity Guide – GBJ162 ($5.75)**
  Youth with sheep will explore how to keep their sheep healthy, feed them for optimal production, prepare for lambing, develop judging skills, develop a business plan, and explore genetics, careers and national industry issues.

- **Leading the Flock, Level 3, Youth Leadership Guide – GBJ163 ($5.75)**
  Experienced sheep project youth will find these advanced activities challenging and fun as they develop leadership and teaching skills, develop a business plan, and explore genetics, career and national industry issues.

- **Sheep Helper’s Guide – GBJ262**
  Helpers will look forward to conducting project meetings that get youth involved and excited about learning. Youth will enjoy playing sheep word games, conducting skillathons, participating in showmanship contests, and experiencing many other fun and educational group activities.

**Additional Sheep Project Resources**

- Sheep Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- 4-H Sheep or Beef Breeding Record – GB095 (Web), record for keeping information on sheep raised for breeding
- Market Animal Project Record – GB096 (Web), record for keeping information on sheep raised for market
- 4-H Sheep Breeding Project Lifetime Record – GBJ095 (Web), individual record for keeping information on a breeding ewe
- Youth Market Lamb Project Guide – GBJ166 (Web), information to help select facilities, equipment and the lamb for a market lamb project

**Swine (Grades 3-12)**

Youth will go “hog wild” over these swine activity guides. The Swine Facts section in each activity is filled with subject matter for those who want to know more.

- **The Incredible Pig, Unit 1 – GBL171 ($5.75)**
  Naming breeds, learning body parts, judging market hogs, exploring a digestive system, examining a healthy pig, identifying pork cuts, and practicing fitting and showing are just a few of the activities for youth.

- **Putting the Oink in Pig, Unit 2 – GBL172 ($5.75)**
  Exciting challenges for youth include managing baby pigs, balancing a ration, exploring swine diseases, preparing pork, discovering swine careers and packing a show box.

- **Going Whole Hog, Unit 3 – GBL173 ($5.75)**
  Advanced youth plan a breeding system, judge breeding gilts, design a swine operation and complete a job application, plus many more activities.

- **Swine Group Activity Helper’s Guide – GBL272**
  Group activities such as quiz bowls, skillathons, glossary games, swine pyramid, exploring a meat counter and understanding quality assurance keep youth involved.

**Additional Swine Project Resources**

- Swine Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- 4-H Market Animal Project Record – GB096 (Web) Record for keeping information on swine raised for market
- North Dakota 4-H Swine Breeding Project Record – GBL095 (Web) Record for swine raised for breeding

**Swine used for exhibits must be owned and managed by may 1 of the current year. Any animals born after may 1 must be progeny animals owned from the date of their birth by the exhibitor.**
Veterinary Science (Grades 3-12)
The Veterinary Science project is designed to help you better understand animals. Veterinary science goes beyond dealing with just the animal. It involves the protection of human welfare by applying the arts and science of medicine to animals.

- From Airedales to Zebras, Unit 1 – HBI111 ($5.75)
  Youth learn about the normal animal, basic anatomy and systems, elementary principles of disease and careers with animals.
- All Systems Go, Unit 2 – HBI112 ($5.75)
  Youth examine health and disease topics, normal and abnormal conditions in animals, and veterinary careers.
- On the Cutting Edge, Unit 3 – HBI113 ($5.75)
  Youth participate in deeper investigations of normal and abnormal systems, preparation for college and exploration of the diversity of the veterinary profession.

Veterinary Science Group Activity Helper’s Guide – HBI211
These supplemental materials provide helpers with activities to facilitate learning for various ages of youth. Numerous group activities help youth develop essential life skills as they pursue their interest in veterinary medicine.

Additional Veterinary Science Resource
- Veterinary Science Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Plant Science

Crop Production (Grades 6-12)

- Production Agronomy (CROP) (Grades 6-12)
  (no project manual available – members are encouraged to seek resources from sources such as the NDSU Extension Service, www.ag.ndsu.edu/extension)

Additional Agronomy Resources
- Crop Production Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- Preparing Crop Sheaves for Exhibit – GCA091 (Web)
  Guide for constructing a crop sheaf for exhibition
- North Dakota 4-H Crop Production Work Sheet – GCA095 (Web) For use by youth enrolled in the agronomy project area to record information from their project

Horticulture (Grades 3-12)
Youth who like to work outdoors and get their hands dirty, plant seeds and watch them grow will enjoy using this series.

- See Them Sprout, Unit A – GCC101 ($6.95)
  Youth learn to plan a garden as well as plant the seeds, use garden tools safely and harvest crops. Youth autograph pumpkins, grow plants from roots, make a rain gauge and roast pumpkin seeds.
- Let’s Get Growing, Unit B – GCC102 ($6.95)
  Youth use transplants in a garden, start seeds indoors, observe how plants respond to light and grow new plants from plant parts. They make a worm box, freeze vegetables and make a compost pile.
- Take Your Pick, Unit C – GCC103 ($6.95)
  Youth learn to test and improve soil, extend the growing season, cross-pollinate flowers and assist others in garden projects. Youth also explore photosynthesis; plant, harvest, and dry herbs; and learn to pickle vegetables.
- Growing Profits, Unit D – GCC104 ($6.95)
  Youth explore double-crop planting methods, the effects of pollution on plants, plant genetics, pest management and starting a plant business. Youth learn how to construct raised beds for planting, and investigate hydroponics and spuds in space.
Group Activity Helper’s Guide – GCC201
This guide provides the helper with activities, ideas and content to help support youth growth and learning in a caring and supportive environment. Included are easy-to-use reference tables and group activities.

Additional Gardening Project Resources
- Horticulture Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- Growing Flowers for Containers and Gardens – GCB192 (Web) Provides ideas and flower tips for growing
- 4-H Container Gardening – GCC01 (Web) Growing plants in containers instead of planting in the ground gives everyone the opportunity to garden
- Gardening Delights for All – GCC193 (Web) ($2) General tips and information for all types of gardening
- Harvesting and Preparing Vegetables for Exhibit – GCC091 (Web) ($2) Reference for preparing vegetables for exhibit
- Garden Journal – GCC095 ($2) A place for recording your garden’s progress

Butterfly WINGS, Facilitator Guide – HBC213
Digital download from 4-H Mall
The guide provides supplemental information and tips for facilitating the youth project activities, including in-depth answers to questions. Engaging group activities are provided for in each chapter and can be adapted to 4-H project groups, clubs, after-school programs, camps or other youth groups.

Teaming With Insects
Teaming With Insects increases youth science literacy using insects and their relatives. Each manual has age-appropriate activities in the following categories (chapters): Be an Entomologist, Biodiversity, Invasive Species, Integrated Pest Management and Forensic Entomology.

- Teaming With Insects, Level 1 – HBC101 ($6.95) (Grades 3-5)
  Level 1 introduces the world of insects. Activities focus on how they look and move, and provide some background for studying important entomology topics.
- Teaming With Insects, Level 2 – HBC102 ($6.95) (Grades 6-8)
  Level 2 shows youth how to make insect collection tools and expands on the basic concepts of biodiversity, invasive species, integrated pest management and forensic entomology.
- Teaming With Insects, Level 3 – HBC103 ($6.95) (Grades 9-12)
  Level 3 delves even deeper into the basic concepts and encourages youth to take control of their learning by doing their own research using the scientific method and reference materials.
- Teaming With Insects Helper’s Guide – HBC212
  The facilitators guide provides helpful information on exploring insect study, the contribution of insects to biodiversity, how to manage pests, invasive species and forensic entomology.

Additional Entomology Resource
- Entomology Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Entomology

Butterfly WINGS
Youth participate in authentic, hands-on, collaborative research as they collect information about the butterflies in their communities and enter the data they collect into the interactive WINGS website.

Butterfly WINGS, Youth Project Guide – HBC111
Digital download from 4-H Mall
Youth explore butterfly habitats, learn how to identify common butterflies, become citizen scientists and contribute data as they enter their findings on the website. Youth create investigations to answer questions or solve problems and share their findings with others.

Forestry (Grades 3-12)

Forests of Fun
This curriculum opens the world of forests to youth. At every age level, youth engage in activities to learn about trees, forests, forest ecology and human reliance on forests. Youth discover forest resources near home and around the world.

- Follow the Path, Unit 1 – DDA111 ($5.50)
  Youth explore types of trees and tree parts, characteristics of various forests, what forests need to grow and thrive, and the products people get from trees and forests.
- Reach for the Canopy, Unit 2 – DDA112 ($5.50)
  Youth take a closer look at the inner workings of trees, explore forest change, learn about forest health concerns and discover the health benefits of trees for people.
- Explore the Deep Woods, Unit 3 – DDA113 ($5.50)
  Youth examine and distinguish types of trees, look at forests on a global scale, learn to care for trees and think about how to conserve forests.
Forestry Group Activity Helper’s Guide – DDA211
This guide provides useful forest information, group youth activities and practical tips for helpers. Using this curriculum, youth develop a life-long appreciation for forests and have loads of fun in the process.

Additional Forestry Resource
Forestry Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Outdoors Skills (Grades 3-12)
This project is designed to encourage members to explore skills developed through activities and opportunities provided by the natural environment of North Dakota. Supplemental outdoor skill lessons are available on the 4-H website under the Outdoor Skills section.

Additional Outdoor Skills Resource
Outdoor Skills Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Outdoor Adventures
Hiking Trails, Unit 1 – DEA101 ($5.75)
Youth learn shelter selection, leave-no-trace camping skills, outdoor cooking, and environmental awareness and appreciation.

Camping Adventures, Unit 2 – DEA102 ($5.75)
Youth experience planning and taking a day hiking trip. Activities include clothing needs, what to pack in a daypack, reading topographic maps and orienteering skills.

Backpacking Expeditions, Unit 3 – DEA103 ($5.75)
Through these activities, youth focus on being on the trail for an extended period of time. They consider clothing needs, setting up tents, using backcountry stoves, basic nutritional needs, menu planning for multiday hikes, and personal hygiene and basic first aid.

Outdoor Adventures Group Activity Helper’s Guide – DEA201
This guide enables helpers to facilitate the teaching of the three levels of the Outdoor Adventures curriculum. Activities include risk management, the role of a leader, trip planning, health-care planning, menu planning, leave-no-trace camping ethics, adapting programs to special-needs populations and evaluation of programs.

Birdwatching
Birdwatching – DDC111 (Web)
North Dakota has many habitats for a variety of bird life. From the Badlands to the prairies, these habitats make North Dakota a great place to go bird watching. Bird watching (sometimes referred to as birding) is a great hobby; it’s interesting and fun with much to be learned.

Fishing
Sport Fishing for Adventure
Take the Bait, Unit 1, Project Guide – DDC101 ($5.75)
(Grades 3-5)
Youth have fun tying knots, casting to a target, rigging various lines, selecting tackle, identifying where the fish are, using different baits and lures, identifying fish, cooking fish, and naming internal and external fish parts.

Reel in the Fun, Unit 2, Project Guide – DDC102 ($5.75)
Youth locate fishing information on the web; cast using a spinning rod, fly rod and bait-casting reel; practice responsible citizenship; research fishing regulations; decorate a lure; sew a fly wallet; tie an artificial fly; and test a water sample.
Cast Into the Future, Unit 3, Project Guide – DDC103 ($5.75)
Youth develop their leadership skills as well as their fishing skills as they take a friend fishing, demonstrate how to disassemble and reassemble a fishing reel, design and conduct a sport fishing skillathon, make artificial flies, design and craft a lure, customize tackle, build and use a kick net, respond to ethical situations and interview a professional fisherman.

Sportfishing for Adventure Helper’s Guide – DDC201
This guide is an excellent resource. Youth work together to identify fish characteristics, plan the club year, design a fish print T-shirt, powder paint a jig head, make a plastic worm, tie knots, complete a boat safety checklist, plan and conduct a fishing trip, play PERCH Bingo, organize a sport fishing quiz bowl and conduct a fishing skillathon.

Shooting Sports
4-H Shooting Sports curriculum is designed to assist young people in personal development, establish a personal environment ethic, and explore life-long vocational and avocational activities.

Introduction to N.D. 4-H Shooting Sports program – DEB101 ($2)
Safe Shooters Members Manual – DEB102 ($2)
N.D. 4-H Shooting Sports Rifle Rules – DEB092 ($2)

Additional Shooting Sports Resource
Shooting Sports Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

For more information, check out the 4-H Outdoor Skills Shooting Sports webpage or contact your county office of the NDSU Extension Service.

Environment (Grades 6-8)
Exploring Your Environment
Youth experience the challenge and excitement of exploring the ecology, science and technology of the environment.

Earth’s Capacity, Level 1 – DA111 ($6.95)
Earth’s Capacity focuses on environmental stewardship and issues such as transportation choices, waste management, composting, recycling and natural resources. (64 pages)

Ecosystems Service, Level 2 – DA112 ($6.95)
With Ecosystems Service, youth will have the opportunity to engage in hands-on activities that focus on our ecosystems, climate change, life cycles, ecological footprints and living a sustainable life. (56 pages)

Exploring Your Environment Facilitators Guide – DA201
The guide provides training, supplemental activities and resources to help the facilitator deliver the Exploring Your Environment curriculum. (68 pages)

Additional Environment Resource
Environment Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Nature Trails
Nature Trails, Unit 1, Member Manual – DD121 (Grades 6-7) Web
Youth will learn about autumn changes, waterfowl identification, firearm safety, feeding wild birds, managing land for wildlife, birds and bird nests, fish and fishing, amphibians and reptiles, water conservation, geology of North Dakota and much more.

Nature Trails, Unit 2, Member Manual – DD122 (Grades 8-10) $2
Youth will learn tree identification, growing trees from seed, bird migration, careers in natural resources, recycling, upland game birds, small mammals, wildlife tracks, life in a wetland, wild flowers, native grasses and much more.
Nature Trails, Unit 3, Member Manual – DD123 (Grades 11-12) $2
Youth will learn about nature’s decomposers, soils, introducing new species, furbearing mammals, furbearers with musk glands, big-game animals, weeping watersheds, prairie potholes, aquatic plants, waterfowl nesting structures, attracting wildlife, developing a habitat plan, homes for birds and bats, trees, forest production and much more.

Nature Trails, Unit 1, Leader’s Guide – DD221
Nature Trails, Unit 2, Leader’s Guide – DD222

Wildlife
Wildlife, Level A, Member Manual – DDC121 ($5) (Grades 3-4)
Youth are introduced to 12 animal species and encouraged to explore basic animal concepts by studying information about the featured species.

Wildlife, Level B, Member Manual – DDC122 ($5) (Grades 5-6)
Basic wildlife concepts are introduced. Youth are challenged to observe differences among species.

Wildlife, Level C, Member Manual – DDC123 ($5) (Grades 7-9)
Advanced wildlife concepts and topics are introduced and discussed. Youth are encouraged to understand these concepts by completing inquiry-based activities.

Wildlife, Level D, Member Manual – DDC124 ($5) (Grades 10-12)
Youth are encouraged to locate their own resources (using books, internet, etc.) to learn all they can about wildlife as they move into the adult world.

Science, Engineering and Technology

Aerospace Adventures (Grades K-12)
Soaring Above and Beyond Aerospace Adventure Series
Youth explore the Aerospace Adventure series. Through fun and challenging activities, youth will learn about flying, kites, hot air balloons, remote control planes, gliders and rockets.

Preflight Aerospace, Stage 1, Project Guide – HCA131 ($5.75) (Grades K-2)
Youth and their helpers have a great time working together as youth learn how to talk like a real astronaut, find out how an airplane works and have fun at the same time.

Lift Off, Aerospace, Stage 2, Project Guide – HCA132 ($5.75) (Grades 3-5)
Youth blast off with this guide as they fly kites, participate in airplane contests, launch rockets, explore space, make a glider, construct a straw rocket and experience disorientation.

Reaching New Heights, Aerospace, Stage 3, Project Guide – HCA133 ($5.75) (Grades 6-8)
Youth soar as they learn to fly an airplane, launch a rocket, conquer space and become an astronaut or pilot. Youth make a shuttle on a string, a Japanese kite, a hang glider and a control panel of an aircraft.

Pilot in Command, Aerospace, Stage 4, Project Guide – HCA134 ($5.75) (Grades 9-12)
Youth create their own altitude tracker, determine the most fuel-efficient routes between airports and make a box kite. Youth also explore pilot certification requirements, evaluate past and present navigation systems, learn about airport issues in their community and explore aerospace careers.

Flight Crew, Aerospace Helper’s Guide – HCA231
This helper’s guide provides group-oriented experiences that will keep youth coming back for more. Many activities are included in this guide for hands-on experiential group fun, such as aerospace quiz bowls, skillathons and an airport field day.

Additional Aerospace Resource
Aerospace Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Bicycle (Grades 3-8)
Literature is not available. Participants are encouraged to seek out resources.

Electricity (Grades 3-12)
Electric Excitement Series
Youth demystify the “magic” of electric circuits, magnetism, motors and electronics. From making educated guesses (forming hypotheses) and testing them to building burglar alarms to learning how to select a really good stereo and other consumer items, these activity guides contain dozens of hands-on, useful and fun projects.

North Dakota 4-H Project Guide • More project information is available at www.ndsu.edu/4h/project_sheets
- **Magic of Electricity, Unit 1, Project Guide – HCE151 ($5.75)** (Grades 3-5)
  Youth explore why certain things insulate from electricity better than others, the effect that magnetism has on various substances, and how to build a flashlight, build and test a compass, and build an electromagnet and electric motor.

- **Investigating Electricity, Unit 2, Project Guide – HCE152 ($5.75)** (Grades 6-8)
  Youth build circuits and test voltages, build a rocket launcher and a burglar alarm as they practice decision making and communication. This unit is designed for youth who understand magnetism, electron flow and circuit design.

- **Wired for Power, Unit 3, Project Guide – HCE153 ($5.75)** (Grades 8-9)
  Youth build on skills learned in levels 1 and 2, plus learn some new ones, such as measuring electrical usage, replacing electrical switches and determining electrical leads. Youth also evaluate different light bulbs and test for electrical power.

- **Entering Electronics, Unit 4, Project Guide – HCE154 ($5.75)** (Grades 9-12)
  Youth learn about diodes, transistors, LEDs, photocells, SCRs, ICs and amplifiers. This guide is designed for intermediate to advanced learners. An understanding of DC circuits, voltage, amperage, current flow, polarity and some soldering is needed.

- **Electric Excitement Helper’s Guide – HCE251**
  This helper guide includes a variety of group activities for groups of three to 15 youth. Youth learn how to conduct an electric skillathon, quiz bowls and electric bingo, and how to calculate amperage.

**Additional Electricity Resource**
- Electricity Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

**General Engineering (Grades 3-12)**
No specific curriculum piece is available for this project area. Youth are encouraged to be creative and develop their own learning.

**Wind Energy (Grades 6-8)**
Youth design, create, build and test a wind-powered device. The device must solve a problem and requires the designer to balance options and constraints. The youth learn about the transfer of energy and using machines to make work easier, and they explore the properties of electromagnetism while using wind power.

- **The Power of the Wind Youth Guide – DC101 ($5.75)**
The Power of the Wind activities involve young people in the engineering design process as they learn about the wind and its uses.

**Small Engines (Grades 3-12)**
With more than 60 fun activities, the Start Your Engines curriculum helps youth understand how small engines work and how to keep them working.

- **Crank It Up! Level 1, Youth Activity Guide – HCG101 ($5.75)**
  Youth focus on basic small-engine knowledge, study external engine parts, discover tools of the trade and learn about the concepts behind what makes small engines work. They explore the uses of small engines and safety issues.

- **Warm It Up! Level 2, Youth Activity Guide – HCG102 ($5.75)**
  Youth explore the internal parts of engines, learn about engine sizes, compression ratios, seasoning their engines and safety issues. Youth also learn about occupational possibilities and about starting their own business.

- **Tune It Up! Level 3, Youth Activity Guide – HCG103 ($5.75)**
  Youth tear down and rebuild an engine, use diagnostic tools, research rules and regulations about using small engine machines, and select replacement engines.

**Small Engines Helper’s Guide – HCG256**
The helpers guide includes group activities, helpful hints for each activity in the three youth guides and additional small-engine project meeting ideas.

**Additional Small Engines Resource**
- Small Engines Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

**Welding**

- **Arcs and Sparks, Unit 1, Member Manual – HCH163 ($7.50)** (Grades 7-12)
  Youth will learn to join metals, about welding equipment and electrodes, to strike the arc and run flat beads, to cut, make butt lap and fillet welds, to solder and much more. (Ohio publication)

- **Arc Welding, Unit 2, Member Manual – HCH164 ($2)** (Grades 8-12)
  Youth will learn to weld in the horizontal, vertical and overhead positions, weld high-carbon spring steel and alloy steel and much more.

**Additional Welding Resource**
- Welding Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
Woodworking (Constructing With Wood)  
(Grades 3-12)

Woodworking Wonders
Youth create and construct using wood and woodworking tools. From the basics of a tape measure and hammer to advanced equipment such as routers and table saws, these projects have something for everyone. Youth develop life skills such as decision making, planning, organization and problem solving while making fun and useful items.

- Measuring Up, Level 1, Project Activity Guide – HCH101 ($5.75) (Grades 2-4)
  Youth will develop the basic skills that woodworkers use, such as measuring, squaring and cutting a board, driving nails, and using clamps and screws. The final project may be a picture frame, a letter holder, a box or an airplane.

- Making the Cut, Level 2, Project Activity Guide – HCH102 ($5.75) (Grades 4-6)
  More experienced youth who have used basic hand tools will measure, cut, sand, drill, use advanced hand and power tools, apply paint, and use bolts and staples. Woodworking project choices include building a sawhorse, birdhouse, toolbox or stool.

- Nailing It Together, Level 3, Project Activity Guide – HCH103 ($5.75) (Grades 6-8)
  Youth who are competent with hand tools and have used power tools practice measuring angles; cutting dado and rabbet joints; using a circular saw, a table saw and a radial arm saw; smoothing lumber with a hand planer; and sanding and staining wood.

- Finishing Up, Level 4, Project Activity Guide – HCH104 ($5.75) (Grades 9-12)
  Youth who are wood craftsmen and competent with a table saw, radial arm saw, drill press and jig saw move up to using a router, portable planer and jointer; making a blind mortise and tenon joint; making dovetail joints; and experimenting with adhesives and various chemical wood strippers.

Woodworking Wonders Helper’s Guide – HCH265
This guide provides the helper with a variety of group activities that help youth broaden their understanding of the basic woodworking concepts. Each chapter contains ideas to reinforce a life skill. For example, chapter three has a variety of games that youth can play to promote communication.

Additional Woodworking Resources
- Woodworking Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
- Supplemental Woodworking Project Plans – HCH099 ($2)
  Includes plans for several woodworking items

General Science Investigation (Grades 3-12)
No specific curriculum piece is available for this project area. Youth are encouraged to be creative and develop their own learning, which might include the 4-H National Youth Science Day experiment, as well as other general scientific investigations of their choice. This should not be something that already would be included in another project area.

Technology (Grades 6-8)
Discovering Computer Science and Programming Through Scratch

- Level 1: Youth Guide – HCD117 ($10.95) (Grades 6-8)
  Youth interact with a series of tutorials and challenges within the Scratch environment. Youth can work on the activities individually, with partners or in a guided instructional setting.

- Level 1: Facilitator Guide – HCD217
  This guide explains the activities introduced in the youth guide. It suggests many “unplugged” activities. It also includes discussions questions, previews of skills and blocks introduced, and hints or suggestions to help youth better understand each activity and concept.
Robotics (Grades 4-12)
This curriculum focuses on physical science concepts related to robotics, engineering design processes and the exploration of possible careers in the field. In addition to hands-on, team-atmosphere learning, the curriculum offers an online space for youth to experiment with robotic components and programming using virtual robotic tools.

- Robotics with EV3 – ($8.95) (Grades 3-12)
  Use the newest LEGO technology to learn about what a robot is, how to build one and how to program it.

Additional Robotics Resource
- Robotics Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Additional Citizenship Resource
- Citizenship Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Service Learning (Grades 5-12)
Service learning engages young people in actively giving back to the community and reflecting thoughtfully on the implications of service. Young people organize personalized journeys into service learning and discover their own abilities to make the world a better place.

- Agents of Change – AH101 ($5.75) (Grades 5-8)
  Youth follow a series of exciting activities that engage them in their community and allow them to reflect on their experiences. Youth identify community needs, plan a service project and execute their idea using the manual.

- My Hands to Larger Service - ?? ($7.50)
  Teen leaders in 4-H have been leading community service project for years. Here's a project book that supports their efforts. This book takes you through the nature of service, making plans, recruiting a “crew,” getting it done and evaluation your accomplishments.

- Service Learning Helper’s Guide – AH201
  This exciting guide for leaders offers group service learning activities such as community mapping, identifying group roles and journaling. It offers advice for mentors seeking to guide youth through enriching learning experiences. Reflective journaling helps leaders explore their personal leadership style and the value of service.

Leadership (Grades K-12)

- Step Up To Leadership
  Youth will share in the fun as they learn the dynamic process of leadership. Mentor guides include background information and interactive activities in relationship building, communication, group process, planning and organizing. All activities offer a cross-cultural perspective. The fun continues with an interactive website to enhance and support learning.

- My Leadership Portfolio – FF103 ($5.75) (Grade 9-12)
  Older youth focus on “real life” leadership activities. Through youth-directed activities, individuals assume greater leadership responsibilities.

Citizenship, Personal Development and Leadership

- Careers (Grades 6-8)
  Literature is not available. Participants are encouraged to seek out resources.

- Citizenship (Grades 4-12)

  **Citizenship Public Adventures**
  Teens channel their energy toward solving real problems in their community. Youth change a piece of the public world, discover the possibilities of democratic citizenship and build a commitment to taking action in new and exciting ways. They plan and conduct a project that will create change or improve something that is valuable to many people.

  - WeConnect: A Global Facilitator Guide – AD201
    This program model and curriculum are designed to show youth that they are participants in a global society, inspiring a sense of understanding and confidence in relating and connecting to other people.
Leadership Mentor Guide 1 – FF201 (Grade K-5)
This guide provides the mentor with ideas and suggestions for working with youth as they follow the activities in the grades 3-5 workbook or the K-2 activities. My Leadership Workbook activities are printed in the guide with additional mentor tips and suggestions.

Leadership Mentor Guide 2 – FF202 (Grades 6-12)
My Leadership Journal and My Leadership Portfolio activities are printed in the guide with additional mentor tips and suggestions. This guide provides helpful background information on working with youth in leadership development. The mentors can learn more about their own leadership skills by using the leadership assessment tool.

Leadership Road Trip – Where Are You Going? ?? ($8.95) (Grades 6-12)
This book is intended for youth old enough to explore the nature of leadership. Youth begin their leadership adventure by answering questions about themselves and the people close to them, setting goals, practicing communication and making a commitment to lead.

Additional Leadership Resource
Leadership Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Communications (Grades 3-12)

Module 1 – BA111 ($6.95) (Grades 3-5)
Topics in this book include communication preferences, active listening, identifying aggressive communication, using visual aids, making introductions, and writing letters and songs.

Model 2 – BA112 ($6.95) (Grades 6-8)
Topics in this book include conflict resolution; online communications; social media; cultural differences in communication; writing thank you notes, news releases and speeches; and careers in communication

Model 3 – BA113 ($6.95) (Grades 9-12)
Topics in this book include understanding interpersonal electronic communication usage, evaluating advertisements, writing resumes and cover letters, safety in online communications, leadership and teamwork, and digital storytelling.

Additional Communications Resources
Communication Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
Communication Curriculum Digital Downloads available from www.4-hmall.org ($7.99 each)

Creative Arts

Creative Arts (Grades 3-12)

Arranging Flowers, Member Manual – CD122 ($2) (Grades 3-12)
Youth will learn basic principles of flower arrangements, care of fresh-cut flowers and arrangements, how to make a fresh floral corsage, use of alternate flower materials and much more.

Building Plastic Models from a Kit – FE101 (Web)

Clay and Plaster (Ceramics), Member Manual – BCA121 ($2) (Grades 4-12)
Youth will learn to make articles from clay and plaster for decorative or practical purposes. Youth can mold a lump of clay, work with a piece of pre-molded plaster ware, and use paints, glazes or other finishes.

Glue Solution, Member Manual – BCA140 ($2) (Grades 5-10)
This project is an introduction to glues and how they work. Youth will learn about glues and their properties, selecting a glue and glue safety.

Scrapbooking, Genealogy and Family History – FG108 (Grades 3-12) Web
This project is an introduction to create a scrapbook to record life's memories. Use the skills learned in this project to create a 4-H portfolio.

Wood Arts, Member Manual – BCA125 ($2) (Grades 3-12)
Youth will learn about wood and techniques for working with wood as an art form. Activities include working with driftwood, dry wood, wood whittling, chip carving, wood burning, painting wood items and decoupage.

Metal Arts – No project material is available. Projects maybe part of a welding project.

Cake Decorating – BCA151 (Web)
This project takes the beginning cake decorator from basic through intermediate skills and into the advanced placement, where the member is decorating stacked cakes.

4-H Filmmaking Studio DVD – BCD184 ($10)
The 4-H filmmaking DVD compiles 11 virtual workshop videos designed to teach users about video production and filmmaking. This DVD is made for viewing on a computer. Also available online at http://online.4-hcurriculum.org/curriculum/filmmaking/.

Jewelry Making – BCA171 (Web only)
In this project, you will be learning an array of jewelry-making techniques while exploring the use of ordinary household items to make attractive and interesting jewelry.

Getting Started in Art – BC110 ($8.95) (Grades 3-12)
Youth explore the basic elements of visual art through activities on color, line, space, balance and much more. This book is designed for the 4-H member and is appropriate for all skill levels and ages.
Leathercraft

- **Introduction to Leathercraft, Unit 1, Member Manual – BCA130 ($2)** (Grades 3-9)
  Youth will learn to work with leather stamping tools and to finish leather.

- **Beginning Leather Carving, Unit 2, Member Manual – BCA131 ($2)** (Grades 3-9)
  Youth will learn to work with leather-carving tools and a swivel knife, and to punch holes for lacing.

Theater Arts (Grades 3-12)

- **Theatre Arts Journal – BBC144 ($4.95)**
  This is designed as a place for youth to jot down ideas and craft projects as directed by the Theatre Art books. The Theatre Arts Imagination in Action curriculum is written for grades 5 to 8 but can be adapted for younger and older youth. Three books are in the series. Each book is written for the group facilitator, who will lead a group of youth in theatre arts discovery. This revised 4-H curriculum will help youth understand the power of nonverbal communication, improvisation, pantomime, script writing, cultural and historical influences, stage design and costume design.

- **Theatre Arts Book 1, Beginners – Leader Guide – BBC211** (Grades 5-8)
- **Theatre Arts Book 2, Intermediate – Leader Guide – BBC212** (Grades 5-8)
- **Theatre Arts Book 3, Advanced – Leader Guide – BBC213** (Grades 5-8)

Visual Arts

- **Drawing and Painting, Member Manual – BCB170 ($2)** (Grades 5-12)
  This is an introduction to drawing and painting. You will draw with pencil, chalk, crayon, pen and ink; blend and shade; draw from nature; make surface rubbings; paint with watercolor, poster paint, oil and acrylics; use the brush; mix colors; and mat and frame their art and much more.

- **Sketchbook Crossroads, Level 1, Project Activity Guide – BC111 ($7.50)**
  Youth will learn the elements and principles of design in three media: drawing, fiber arts and sculpting.

- **Portfolio Pathways, Level 2, Project Activity Guide – BC112 ($7.50)**
  Youth will learn the elements and principles of design in three media: painting, printing and graphic design.

Additional Creative Arts Resource

- **Creative Arts Project Sheet – www.ndsu.edu/4h/member_information/project_sheets**

Photography (Grades 3-12)

- **4-H Focus on Photography, Level 1 – BCD181 ($6.95)**
  Youth will focus on equipment basics, taking sharper pictures, the concept of lighting and flash, photo composition approaches, sequencing and evaluating photographs.

- **4-H Controlling the Image, Level 2 – BCD182 ($6.95)**
  Youth will explore depth of field, aperture and shutter speeds, hard and soft lighting, silhouettes and flash techniques. Youth also will learn to evaluate composition using the rule of thirds, the golden triangle and the golden rectangle; use different viewpoints; and understand positive and negative space.

- **4-H Mastering Photography, Level 3 – BCD183 ($6.95)**
  In this third-level book, youth will understand the use of wide-angle and telephoto lenses, filters and special film, light meters, shooting photos with different light sources, and the use of natural and artificial lighting for effect.

Additional Photography Resource

- **Photography Project Sheet – www.ndsu.edu/4h/member_information/project_sheets**

Healthy Lifestyle Education

Food and Nutrition

Baking

- **Baking 1 – Beginning Baking – EC111 (Web/$2)**
  This is designed for beginning 4-H youth members wishing to develop skills necessary to produce a wide variety of basic baked products, including biscuits, muffins, pancakes and cookies.

- **Baking 2 – Quick Breads & Cookies – EC112 (Web/$2)**
  This is designed for 4-H youth who are continuing to develop skills in measuring, mixing, preparing and baking basic quick breads and cookies. In this project, they will learn to make quick loaf breads, coffeecake, cornbread, gingerbread and a variety of cookies.

Additional project information is available at www.ndsu.edu/4h/project_sheets
This is an introduction to yeast breads. Youth will learn the importance of bread in the diet, about ingredients and how they affect the finished project, and how to make white yeast bread with and without a bread machine.

This is designed for the advanced 4-H youth. Learn how to make cakes from scratch, how to finish a cake, and how to make sponge and butter cakes, and various pastries.

Cooking Series

Cooking 101 – EC131 ($10.50)
Cooking 101 covers kitchen and food safety, basic food preparation and nutrition. The curriculum includes experiments, such as testing to determine which dishes are microwave-safe and a flour-measuring activity, as well as recipes, equipment information and a glossary.

Cooking 201 – EC132 ($10.50)
Cooking 201 builds on the skills acquired in Cooking 101 and provides information about the science behind food preparation, the nutritional contribution of each food group and some basic information about preparing foods from each of the food groups. Topics include food safety, fire safety in the kitchen, nutrition labels, experiments with rice and bacon, meal planning and recipes.

Cooking 301 – EC133 ($10.50)
Cooking 301 builds on the skills acquired in Cooking 101 and 201 and provides in-depth exploration of outdoor cooking on a charcoal or gas grill, party planning, cooking with slow cookers, and making yeast breads and shortened cakes.

Cooking 401 – EC134 ($10.50)
Cooking 401 builds on the skills acquired in Cooking 101, 102 and 103. The curriculum provides an in-depth exploration of preparing ethnic foods; cooking with herbs and spices; planning celebration meals; preparing meats by roasting, braising and stewing; cooking dry beans; and making pastry, foam cakes and desserts made with milk.

Cooking Helpers Guide – EC235
This complements the series to develop life skills and abilities in the areas of food and kitchen safety, food preparation, meal planning, food science and nutrition.

Exploring Food Science Series

What’s On Your Plate? Unit 1, The Secrets of Baking – Youth Science Journal – EC151 ($9.95)
Activities allow youth to expose the gluten generated by different types of flour, experiment with different types of leavening, and explore how different ingredients and mixing affects the final results of baked goods.

What’s On Your Plate? Unit 2, The Power of Protein Chemistry – Youth Science Journal – EC152 ($9.95)
Activities will include cracking and separating eggs, different ways of cooking eggs, using egg whites to make soufflés and making Queso Fresco.

Activities investigate how to prepare fruits and vegetables so they taste and look appealing in color and texture.

What’s On Your Plate? Unit 4, Exploring Food Science – Be a Food Scientist! – Youth Science Journal – EC154 ($9.95)
Youth will look at a day in the life of a food scientist, as well as practice being one as they create a new beverage and learn a basic food science skill – crystallization.

What’s On Your Plate? Unit 1, Exploring Food Science – The Secrets of Baking – Facilitator Guide – EC251
This facilitator guide provides tips for success in teaching “The Secrets of Baking.” This step-by-step guide has instructions, photos and explanations, and includes pages from the Youth Science Journals, along with answer key.

What’s On Your Plate? Unit 2, Exploring Food Science – The Power of Protein Chemistry – Facilitator Guide – EC252
This facilitator guide provides tips for success in teaching “The Power of Protein Chemistry.” This step-by-step guide has instructions, pictures and explanations, and includes pages from the Youth Science Journals, along with answer key.

This facilitator guide provides tips for success in teaching “The Inner Mysteries of Fruits and Vegetables.”

What’s On Your Plate? Unit 4, Exploring Food Science – Be A Food Scientist! – Facilitator Guide – EC2534
This facilitator guide provides tips for success in teaching “Be a Food Scientist.”

Food Preservation (Grades 3-12)

Food Preservation – ECC115 (Web/$2)
This is a basic food preservation project. Youth will learn how to freeze or can foods properly for future use. They also will learn how to maintain the quality of the food during the freezing or canning process.

Additional Food and Nutrition Resource

Food and Nutrition Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
**Health (Grades 3-12)**

**Keeping Fit and Healthy**

- **First Aid in Action, Level 1, Project Activity Guide – ED111 ($5.75)**
  Youth practice first-aid skills to treat cuts, scrapes, nosebleeds and bee stings. They learn how to respond to someone who is choking or has a broken bone, assemble a first aid kit and interview members of the medical profession.

- **Staying Healthy, Level 2, Project Activity Guide – ED112 ($5.75)**
  Youth use a self-assessment tool to identify personal talent areas; explore hygiene, nutrition and physical activities; and share what they discover with a new appreciation of personal interests and talents.

- **Keeping Fit, Level 3, Project Activity Guide – ED113 ($5.75)**
  Youth design their own personal fitness plan and track it using their own fitness file. Through interviews and personal experiences, youth discover the benefits of being fit as they practice making decisions, managing themselves and speaking with others.

**Additional Health Resource**

- Health Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

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**Family and Consumer Science**

### Child Development (Grades 3-12)

Literature is not available. Participants are encouraged to seek out resources.

### Home Environment

  Youth will learn how to use design elements and principles, use resources wisely and take care of what they have.

- **Design My Place CD – CD110 ($10) (Ages 8-12)**
  This introduction to the home environment and home interiors allows youth to explore elements and principles of design, create items for their own space or home, and learn about the use of materials such as fabric, metals, wood, yarns and much more.
  
  - For more ideas and information, check out the Design Decisions website at http://4h.unl.edu/4hcurriculum/homeenvironment/.

**Additional Home Environment Resource**

- Home Environment Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

### Consumer Management (Grades 3-12)

Literature is not available. Participants are encouraged to seek out resources.

### Money Management (Grades 7-9)

**My Financial Future**

- **My Financial Future: Beginner Notebook – CC131 – ($11.95)**
  This is for middle and high school age youth to organize finances and learn about savings, risk management and consumer skills.

- **My Financial Future: Advanced Notebook – CC122 – ($11.95)**
  Youth learn about financial literacy concept.

- **My Financial Future: Facilitator Guide – CC231**
  This covers topics in youth notebooks and has answer keys.

### Fiber Arts

Youth will learn to manipulate fiber through one or more steps to a finished product. Fibers include those from plants and animals, as well as some that are human-made. Most techniques in this project have existed for many years, and their uses have adapted as times have changed.

- **How to Crochet – BCA155 ($7) (Grades 3-12)**
  This project is an introduction to crocheting. Youth will discover how to buy yarn, thread and equipment; learn crochet and finishing techniques; learn how to care for crocheted items; and much more.
How to Embroider – BCA158 ($7)
This embroidery project is designed to encourage creativity and teach embroidery skills.

How to Knit – BCA156 ($7) (Grades 3-12)
Youth can learn about knitting tools and yarns, knitting terms and how to follow knitting directions. Youth also will learn to do basic knitting stitches and techniques, and how to combine them to make various patterns and knitted articles, as well as learn how to care for knitted articles.

Latch Hooking, Member Manual – BCA165 ($2) (Grades 8-12)
This project is an introduction to latch hooking. Youth will learn to knot yarn to canvas to create a design or pattern while making a latch hook item.

Macramé, Member Manual – BCA160 (Grades 6-12) Web/$2
This project is an introduction to macramé. Youth will learn about macramé materials and to make basic knots needed to make an item from a pattern of knots.

How to Needlepoint – BCA159 ($7)
This booklet is for beginners to learn needlepoint and basic stitches including Continental and Basketweave.

Quilting for Fun, Member Manual – CB111 ($2/Web) (Grades 3-12)
This project provides youth with a chance to explore an art form that is re-emerging as a popular social activity, connecting generations and encouraging creativity. Quilting is the process of sewing three layers together by hand or machine to form one. The top, a combination of fabrics, is pieced together to form a pattern that may reflect everything from fabric photos of a special event to a traditional design.

Additional Fiber Arts Resource
Fiber Arts Project Sheet – www.ndsu.edu/4h/member_information/project_sheets

Clothing and Textiles

Sewing

Pillows, Totes and More Member Manual – CB100 ($3) (Grades 4-6)
Youth will learn to select tools, use the sewing machine, learn about fabrics, use simple hand-sewing techniques and much more. Simple, nongarment projects are included.

Sew Fun! Member Manual – CB107 ($6) (Grades K-12)
This project is designed as an introduction to sewing for members of any age who are interested in learning to sew. This clothing project taps into your creativity and opens a whole new world for you. Activities include stitching by hand, choosing fabrics, selecting a pattern and sewing a garment.

STEAM Clothing: Beyond the Needle – CB165 ($12.95) (Grades 3-12)
Youth will learn the design basics and create a portfolio to exhibit samples made to practice specific techniques. If you love art, then this STEAM Clothing manual is for you.

Purchasing

Shopping in Style CD – CB108 ($9.95)
This project covers all aspects of consumerism and clothing choices. Topics include fads and fashion, body shape, clothing choice, clothing inventory, clothing budgets, and clothing care and repair.

Additional Sewing Resources
Clothing and Textiles Project Sheet – www.ndsu.edu/4h/member_information/project_sheets
Group Projects

Cloverbud (Grades K-2)
Cloverbud experiences are designed as a series of short-term, structured activities that help youth gain self-understanding, practice social interaction skills and develop positive attitudes. What is important for those working with this program to realize is that the Cloverbud program focuses on age-appropriate skills, abilities and involvement. Cloverbuds do not participate in competition because it is not developmentally appropriate for this age group.

- **Cloverbud Member Book – FD040** Youth record their participation in the general program (order one per member)
- **Cloverbud Leader Brochure – FD240** Provides strategies for 4-H Cloverbud leaders to implement the Cloverbud program and curricula successfully as well as outlines ideas for volunteer and parental involvement
- **Cloverbud Parent Brochure – FD241** Provides information about the 4-H Cloverbud program
- **Cloverbud Button – FD090** ($0.50)

Individual Lessons Available on the Web
- **Caring for a Pet – FD001**
- **Green and Growing – FD002**
- **Where in the World? – FD003**
- **Exploring With Electricity – FD004**
- **Way Cool Science – FD005**
- **Friends and Me – FD006**
- **Setting the Table – FD007**
- **Rooted in Community – FD008**
- **Cultural Kaleidoscope: American Indians – FD009**
- **Nature Explorers – FD010**
- **Insect Investigations – FD011**
- **Printing With Nature – FD012**
- **Building Works of Art – FD013**
- **Needlepoint on Plastic Canvas – FD014**
- **Textile Creations – FD015**
- **Color Your World – FD016**
- **Dairy Treats – FD017**
- **Food Adventurer – FD018**

Additional Cloverbud Resources
- **Cloverbud Project Sheet**—www.ndsu.edu/4h/member_information/project_sheets
- **Seed Chart** (goes with Green and Growing – FD002)
- **Continent Cut Outs Handout** (goes with Where in the World? – FD003)
- **Kissing Fish Handout** (goes with Way Cool Science – FD005)
- **Napkin Folding Handout** (goes with Setting the Table – FD007)
- **Secret Table Manners Handout** (goes with Setting the Table – FD007)
- **Magic Cedar Basket Handout** (goes with Cultural Kaleidoscope – FD009)
- **Aerospace, Stage 1, Pre Flight Aerospace Youth Activity Guide – HCA131** ($5.50)
- **Flight Crew, Helper’s Guide – HCA231**
- **Leadership, Leadership Mentor Guide 1 – FF201**

Other Group Projects

- **Acres of Adventure – GA201 and GA202** (Grades 3-5)
  This after-school agricultural program contains 40 hands-on lessons developed in cooperation with curriculum specialists from the National Consortium of State Agriculture in the Classroom programs, Extension 4-H professionals and experts from the field of child-care education. This curriculum has two units that develop the understanding, appreciation and application of science through a variety of agriculturally-based activities.
- **Healthy North Dakota 4-H Clubs**
  To receive the Healthy North Dakota 4-H Club designation, clubs are required to incorporate at least one health, nutrition, food safety or physical activity into a minimum of six regular meetings during the year. 4-H clubs interested in participating in the North Dakota Healthy 4-H Club program should contact their local office of the NDSU Extension Service.
  - **“Eat Smart. Play Hard.” poster contest**
    Part of the Healthy North Dakota 4-H Club project is a statewide poster contest that emphasizes the importance of making healthful food choices, getting regular exercise and families eating together. Club members receive recognition certificates and an incentive item.
- **Family Mealtime Challenge**
  The goal of the Family Mealtime Challenge is to encourage families to eat with all members of their immediate family present five times per week for a month (four weeks).
- **Exploring the Treasures of 4-H (FD101)** and **Treasures of 4-H Helper’s Guide – FD201** (Cloverbud/Grades 2-4)
  This youth activity guide provides a “treasure hunt” for youth to explore the joys of 4-H by discovering their interests and potential 4-H projects, and finding 4-H where they live with the guidance of parents or other adult helpers.
- **There’s No New Water – DBD201** ($16)
  This water conservation and water quality curriculum is grounded in a simple yet powerful concept that water is a finite natural resource and its quantity and quality must be preserved, protected, used and reused responsibly. The curriculum includes six sequential learning modules and is intended for delivery in out-of-school group settings to be facilitated by an adult. (155 pages)
Judging Contest Resources

Large Livestock – Beef, Dairy, Goats, Sheep and Swine
- 4-H Live Animal Evaluation Manual – GB091 ($2) Reference for learning about evaluation of a live animal and preparing for livestock judging activity or team
- 4-H Livestock Showmanship Manual – GB092 ($2/web) Reference for preparing beef animals for show
- Goat Showmanship Manual – GBG091 ($2/web) Reference for showing goats
- N.D. 4-H Lamb Ultrasound Carcass Value Evaluation – GBJ097 (web) Guide to interpret carcass value

Horse
- North Dakota 4-H Horse Show and Judging Guide – GBH092 ($2)
- Horse Judging Guide – GBH646 ($2/web) Reference for horse judging

Poultry
- Poultry Fitting and Showmanship Contest Outline – GBC091 ($2) Reference for displaying and showing poultry at an event or contest

Crop
- ND Seed Identification Guide – GCA671 (web)
- Identifying Weeds and their Seeds – GCA672 ($2/web)

Land
- Land and Homesite Judging in North Dakota – DBC618 ($2/web)

Range
- Range Judging Handbook for North Dakota – DDB628 ($2/web)

Communication Arts
- Communication Arts Program – BA800 (web)
- 4-H Demonstrator – BAA806 (web)
- Making Your Interpretive Readings Come Alive – BAA807 (web)

Consumer Choices
- Consumer Choices Publication – CC616 (web)
Member Resources

The following materials are designed to help members in becoming acquainted with the North Dakota 4-H program, selecting a project and recording accomplishments achieved through their 4-H careers. Every member is expected to keep records of his/her project work.

**Complete Record Set (Grades 3-5)**
Includes the following:
- North Dakota 4-H Complete Record Coversheet – PA094 (Web)
- Planning My 4-H Project Adventure – PA093 (Web)
  This is a support piece to be used by youth to plan and evaluate their project.
  Each youth completes one sheet each year.
- My 4-H Program Book – PA092 (Web)
  This is a place for members to copy their meeting responsibilities planned for the year.

**Complete Record Set (Grades 6 -12)**
Includes the following:
- North Dakota 4-H Complete Record Coversheet – PA097 (Web)
- North Dakota Plan of Action – PA096
  This is the youth’s overall goals for the year and record of accomplishments.
  Each youth completes one record each year.
- North Dakota 4-H Project Plan – PA095
  Use one sheet to plan and evaluate each project.
- My 4-H Program Book – PA092
  Youth record their meeting responsibilities for the year.
- North Dakota 4-H Participation Summary – PA098 (Web)
  This is to be used by youth to summarize accomplishments for the year. (optional)
- Guide for the 4-H Helper – PA200 (Web)
  This guide is to be used by youth when they need to find a helper to assist them with a project.

**North Dakota 4-H Recreation: Games and Activities – FJ825 (Web)**
Incorporating recreation in your 4-H club meetings is beneficial to your club members, your 4-H volunteers and the parents who participate. Being involved in recreation has physical, social and mental health benefits. Recreational activities also encourage leadership and team building. This guide offers activities for all ages that can be used in 4-H club meetings and at 4-H events.

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For more information on this and other topics, see www.ndsu.edu/4h

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