



CLOVER

Montana 4-H Project Selection Guide 2021-2022

Head

Heart

Hands

Health



MONTANA
STATE UNIVERSITY

EXTENSION



Dear 4-H Members, Leaders and Parents,

Welcome to the 2021–2022 4-H year! It feels like a new beginning as we start down the path of programming in the communal and hands-on way we are accustomed. The challenges we conquered together taught some valuable lessons. We can move forward in tough times, goals can still be met, new technology can be mastered, and our way of life cannot be taken for granted. Take an opportunity to thank your 4-H volunteers, MSU Extension office personnel, and local agents. They have worked tirelessly to provide the best 4-H experience possible despite an unparalleled disruption. Youth development is a responsibility they take seriously and we all look forward to an exciting 4-H year. We have all learned new things we can apply to improve the future.

The work of volunteer 4-H leaders is supported by the resource materials in this project guide. With over 200 projects available, nearly any young person can find the topic of interest that sparks self-motivated learning under the guidance of a caring adult mentor.

Project work is the foundation of the 4-H experience. Couple a spark with a welcoming sense of belonging and 4-H members thrive. Combine project work with enrollment in a 4-H club, and young people will learn the many life skills necessary to make a successful transition to adulthood. And that's the true goal of 4-H: increasing personal abilities and developing life skills that youth will apply to many new situations. Along the way, young people will become contributors to your community by learning caring, character, connection, confidence, and competence. The development of the five C's and the opportunity for youth to contribute to their families, their communities, their schools, and their 4-H program is the pillar of 4-H youth development.

Push yourself beyond your comfort zone, find what you do best, try something new, and don't miss out because you're afraid to fail – 4-H is a safe place. All the while, remember that youth, parents, volunteers, and MSU Extension educators play an important role in the partnership that is 4-H. It's a partnership of all working together for the benefit of youth. It is truly our hope that through 4-H we can help to build closer families, better citizens, and stronger communities.

Sincerely,

Todd Kesner, PhD

Director, Montana 4-H Center for Youth Development

4-H Events Calendar

National 4-H Events

- Western 4-H Roundup (Award Trip): First week of January
- National Conference: Early April
- Citizenship Washington Focus (CWF): mid-June
- Leadership Washington Focus (LWF): Late June/July
- National Congress: Last week of November

Montana 4-H Events

- Legislative Breakfast: Early January
- Citizenship Seminar: In Conjunction with Legislative Breakfast
- State Shoot: First week of March
- Rec Lab: March/April
- Pre-Congress: Prior to Congress
- Congress: 2nd week of July
- State Horse Show: September/October
- Ambassador Fall Training: 3rd weekend in October (MEA Weekend)

Award Due Dates

- Scholarships: April 1 (Recognition at Montana 4-H Congress)
- State Awards: May 1 (Recognition at Montana 4-H Congress)
- Volunteer Awards: May 1
- County Ambassador: June 1 Roster Opens*
- Officer Team Applications: June 15 (Officer Selection during Pre-Congress)*

*= Youth Leadership

Cover photo by Nikki Bailey; Back cover photos, clockwise from top left, by: Jane Wolery; Nori Pearce; Jane Wolery; Maggie Bainter; Jane Wolery; Jane Wolery; Adriane Good; Kari Lewis.

Welcome to Montana 4-H

The 4-H Center for Youth Development serves as a resource to county faculty, local leaders, and youth in all counties and reservations as they learn by doing and make the best better. Listed below are staff members and a few of the major areas of responsibility associated with their position.

4-H Center for Youth Development

Todd Kesner, Director, Montana 4-H Center for Youth Development

Financial Management, Policies & Procedures, Evaluation, State Program Leader, Risk Management, Military Liaison, National Shooting Sports Liaison, Program Planning, Use of 4-H name and emblem.

Position Vacant, Citizenship, Sustainable Communities and International Programs Coordinator

International Exchange Programs, Citizenship Curriculum, Citizenship Seminar, Service Learning, International Program Guides, Citizenship Liaison, CYFAR grant

Brett Schomer, Event & Activity Coordinator

4-H Website, Recognition/Awards, Montana 4-H Congress, National 4-H Congress, Ambassadors, Leadership, Montana 4-H Brand and merchandise

Catherine Schafer, Communications Coordinator

Coordinate communications, social media and website

Emma Jobson, 4-H Agriculture and Natural Resources Specialist

Agricultural Program Education and Delivery, STEM in Ag and Natural Resources, Related State Events

Elisa Henry, Program Coordinator

4-H Enrollment Assistance, Volunteer Certification, Financial Recording, IRS Reporting, 4-H Center newsletter, 4-H Afterschool

Kelton Jensen, Volunteerism and Program Delivery Associate Specialist

Volunteer Leader Training and Resources, Volunteer Certification, 4-H Delivery, Methods, Club management, Officer Training Resources

4-H Project Staff

Roni Baker, Curriculum Coordinator

Curriculum Review/Revisions, Training, Clover Project Selection Guide, Cloverbuds, Exploring 4-H, Family Adventures, New Family Handbook, Communications, Self-Determined

Scott Francis, Outdoor Education Coordinator

Shooting Sports

4-H Foundation

José M. Herrera, Executive Director, Montana 4-H Foundation

Major Gift Acceptance and Fundraising, Overseeing Investment Portfolio and Budget, Education and Marketing

Maureen Moulchin, Office Manager, Montana 4-H Foundation

Bookkeeping and Fiscal Records, Database and Publications, Coordination of Board of Director Functions

Order Online

Download project materials online:

'4-H website' items at www.montana4h.org

'Available free online' items at store.msueextension.org (Extension Publications) or ask your leader or MSU Extension agent

Visit MSU Extension's online store: store.msueextension.org

4-H Publications

Extension Publications is located at 135 Culbertson Hall.

P.O. Box 172040 • Bozeman, MT 59717

Tel: (406) 994-3273 • Fax: (406) 994-2050

orderpubs@montana.edu

Tiffany Yung, Extension Distribution Coordinator

Accounting and curriculum ordering

Joel Tatz-Morey, Extension Distribution Associate

Publications and curriculum ordering

Table of Contents

Using this guide	5
Project Guidelines & Volunteerism Opportunities	5
4-H Membership/Age Requirement	5
4-H Priority Initiatives	6
Keeping Records	6
Other Projects	6
Cloverbuds & Exploring 4-H	6
Independent Study/Advanced	6
Self-determined	7
Animal Science	7
Beef	8
Cat	8
Dairy Cattle	9
Dog	10
Dairy Goat	10
Meat Goat	11
Horse	11
Horseless Horse	12
Additional Horse Projects	13
Pocket Pets	14
Poultry	14
Rabbit	15
Sheep	15
Swine	16
Veterinary Science	16
Livestock and other Judging	17
Engineering and Technology	17
Aerospace	17
Electric	18
Robotics	19
Small Engines	20
Welding	20
Woodworking	20
Environmental and Natural Sciences	21
Entomology	21
Forestry	22
Outdoor Adventures	22
Shooting Sports	23
Sport Fishing	25
Wildlife	26
Family and Consumer Sciences	26
Babysitting	26
Family Adventures	26
Interior Design	27
Sewing and Textiles	27
Quilting	28

Plant Sciences	29
Crop Science	29
Gardening	29
Range Science Management	30
Weed Science	30
Communication and Expressive Arts	30
Cowboy Poetry	30
Leathercraft	31
Photography	31
Visual Arts	32
Scrapbooking	32
Leadership and Personal Development	33
Citizenship	33
Leadership	33
Foods and Nutrition	34
Cake Decorating	34
Cooking	34
Baking	35
Food Preservation	35
Support Material	36
4-H Member Records	36
4-H Club Materials	36
4-H Leader Materials	36
Clover Communications	36
Service Learning	36
Certificates and Planning Materials	36
Additional Resources and Enrichment	37
Age 5–7	37
Age 8–19	37
Bioscience	37
Weather, Weeds, Wind and Woods	37
Junior Master Gardener	38
Healthy Decisions	38
Child Development	38
Communications	39
Theatre Arts	39

Using this Guide

This guide lists all projects offered on a statewide basis to youth enrolling in 4-H clubs in Montana. Statewide projects are under priority initiatives of Science, Citizenship and Healthy Living. As you look for projects, all the information needed to enroll is here in the guide. See the example [below].

- M Materials for the 4-H member enrolling in the project
- L Materials for 4-H leaders
- S Supplemental materials for leaders and/or members. These materials are optional.

Example of a project listing and how to use it:

Cat (Subcategory Title)

The Subcategory Title section gives a general description of what can be learned by completing the projects within.

Cat, Level 1 (Project Title & Level)

The Project Title & Level section gives a more specific description of a project, what is involved and what can be learned. As levels increase, so do project requirements and learning challenges.

Project Requirements—This section explains what is needed to complete a project book and finish the project.

Materials—This section provides a material list for members and leaders. See letter key [above].

- M Purr-fect Pals, BU8148, \$6.25 (Material name, publication number and cost)
- L Cat Group Helper's Guide, BU8151, \$6.25

Additional Resources for All Levels

(Additional project resource material will be listed at the end of each project section)

End of example.

4-H Clover Project Guidelines

The projects listed are all state supported projects available to Montana 4-H members for 2021–2022. Each project is followed by a description and listing of the materials needed to complete the project.

IMPORTANT NOTE:

Check with your 4-H leader or Extension agent to see which projects are offered in your area. Not all projects listed in this guide may be available in your community.

ADDITIONAL NOTES:

Projects should be completed in order, starting with Level 1. Publication number is needed to order materials. Prices subject to change.

4-H Volunteerism Opportunities

Volunteerism and Leadership involves youth and adults in significant roles where they can help facilitate the growth and success of others. Opportunities to contribute in meaningful ways to your club, your community, your country and your world can be varied and numerous. Through these projects, you can help others, serve as a mentor, tutor or coach, and fill important leadership roles that contribute to the overall vitality of your community.

4-H Membership/Age Requirement

Any youth who is 5 years old on or before Oct. 1 may join a 4-H Cloverbud group.

Cloverbuds is a non-competitive educational program for youth ages 5 to 8 years of age and is the ONLY project they can enroll in.

Youth age 8 on or before Oct. 1 may join a regular 4-H club as a full member who can enroll in several different projects. Given the differing maturity and ability of youth this age, a family may choose to have their child continue in a Cloverbud group even though s/he will turn 9 during the coming year. If a youth is 19 years of age on or before Oct. 1, s/he is not eligible to re-enroll in 4-H.

Individuals older than 19 years of age who have special needs are eligible to participate in 4-H provided they are still enrolled in high school.

4-H membership is open to all eligible youth. The U.S. Department of Agriculture (USDA), Montana State University and Montana State University Extension prohibit discrimination in all of their programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital and family status.

In recognition of the educational and developmental needs of youth, a general guideline is listed below to help determine which level of projects a youth might be enrolled in based on age.

<u>Classifications</u>	<u>Age Range</u>
Cloverbuds	5 to 7 years old
Junior/ Intermediate	8 to 13 years old
Senior	14 to 19 years old

Additional Projects

Some counties offer projects in addition to those listed in this publication. These projects usually meet a specific need within the county 4-H program. If you are interested in these, contact your MSU Extension office to find out more. Many projects also have opportunities for sharing and learning about your unique skills and talents through project achievement programs. Contact your Extension office to find out how to meet these goals.

4-H PRIORITY INITIATIVES

Science

For more than 100 years, 4-H has been a part of local communities trying new and innovative techniques to improve their quality of living. 4-H, with its connection to land-grant universities, has the ability to develop America's future generation of scientists and engineers. In 4-H, youth use a rich and diverse set of research-based curricula and activities that provide hands-on, real-world experiences delivered in both informal and formal settings. Delivered through the 4-H program, science curriculum offers an extraordinary range of engaging and challenging activities for youth of all ages and abilities. Some examples include Robotics, Animal Quality Assurance and Veterinary Science.

Healthy Living

A core belief of 4-H is health, as evidenced by the four H's in the 4-H clover: Head, Heart, Hands, and Health. 4-H is committed to the physical, mental and emotional health of our nation's youth so they may lead healthy and productive lives as youth and into adulthood. 4-H has become a national leader in health-related educational issues including chemical health, mental and emotional health, foods and nutrition, physical health and safety. Examples include Cooking 1–4 and Party Planning.

Citizenship

Since its inception, 4-H has placed emphasis on the importance of young people being engaged, well-informed citizens. By connecting to their communities and leaders, youth understand their role in civic affairs and are able to expand their role in decision-making processes. It's clear that civic engagement provides the foundation that helps youth understand the "big picture" of life and learn the skill sets that allow them to become wise leaders for the 21st century. Citizenship Seminar, service learning and international programs are just a few of the many opportunities to learn about and contribute to our global society.

Keeping Records

Keeping records is an important part of completing each project. They help you set goals, keep track of your attendance at meetings, record your demonstrations or talks and a whole lot more.

All 4-H projects require the use of record books, see page 36 for record keeping materials.

OTHER PROJECTS

Cloverbuds

Montana 4-H includes a special program for youth five to seven years old called Cloverbuds. Youngsters in the Cloverbud project work with other children on selected 4-H activities from a structured curriculum that is fun, hands-on and discovery-oriented. Youth of this age group enroll ONLY in this project and activities are non-competitive. Youth can explore horse and other animal projects, but can't enroll in them. Through Cloverbuds, children can develop age-appropriate skills and abilities. Guidelines for this project are different from those of the traditional 4-H program.

Each 4-H Activity Book is designed to be used for one year. Rotate through the books in the three years a member may be a Cloverbud. The Cloverbud Activity Book is designed to introduce Cloverbuds to many different 4-H areas. The booklets provide activities in Animal Sciences/Animal Life, Visual Arts, Family, Home, Health, Science and Natural Resources. The record sheet is included in the project book.

- M 4-H Cloverbud Activity Book A, 4HDL13, available free online
- M 4-H Cloverbud Activity Book B, 4HDL14, available free online
- M 4-H Cloverbud Activity Book C, 4HDL15, available free online
- L Cloverbud Completion Certificate, 4-H website

Exploring 4-H

Exploring 4-H is for beginning members in second through fourth grade, providing a "treasure hunt" for youth to explore the joys of 4-H by discovering their interests, potential 4-H projects, and finding 4-H where they live. Activities are organized into eight categories that can help youth explore 4-H activities.

- M Exploring the Treasures of 4-H: Fun, Friends and Learning, Youth Guide, BU8171, \$6.25
- L Exploring the Treasures of 4-H Helper's Guide, BU8172, \$10.50

Independent Study/Advanced

Independent study is for any youth looking for new challenges and opportunities in 4-H. This allows a member to explore topics that have not been investigated while remaining enrolled in a 4-H project. Members enrolling in the independent study phase of a project should develop a detailed learning plan for their work. They should identify an area of interest within the project area, set goals and locate resources (people, publications, materials) to carry out a project plan. They then determine specific experiences needed to accomplish project goals, set a realistic timeline for completion, carry out the project learning plan, share experiences with others, evaluate outcomes and determine what could be improved.

The individualized learning plan should be approved by a parent, 4-H adult volunteer leader or 4-H agent. For assistance in developing a personal learning contract, use self-determined project materials or other goal-setting materials. While independent study provides flexibility and creativity, it also requires serious planning, implementation and evaluation.

M You Decide, 5314, \$3.50

L Helping Them Decide, 5315, \$2.50

Self-determined

Self-determined offers an opportunity to develop and carry out a project of individual design. This means selecting a topic, deciding goals, obtaining resources and designing records. The member is responsible for developing the project with advice or direction of an adult. This project can cover any subject and may be related to any current 4-H project. Examples include ceramics, bookkeeping, and outdoor cooking. In some areas, counties offer projects. Design a project of special interest to you, as the success depends on your initiative. Those who select a worthwhile topic and become intrigued often do some of the best and most rewarding 4-H work. The member's manual and leader's guide suggest ways to proceed.

Evaluate your project by determining the extent to which the goals were accomplished, what was learned and how it could be improved.

M You Decide, 5314, \$3.50

L Helping Them Decide, 5315, \$2.50

ANIMAL SCIENCE

Animal Science projects teach subject matter related to each animal while helping develop life skills. In each level, choose from a variety of learning goals to develop an inquiring mind and a desire to seek out the scientific principles involved in raising and marketing livestock. You can develop leadership, initiative, self-reliance and sportsmanship through project activities. You'll learn to accept responsibility by having an animal to care for regularly and the principles of animal nutrition. Through animal science projects you also learn to care for, train and handle animals safely. Practice taking care of equipment and evaluate several methods of performing a task. You'll better understand and apply research in making wise decisions and investments and use it in managing animals and planning goals. Animal science projects are designed to stimulate your interest as you explore the livestock industry or establish a profitable livestock business of your own.

Are "We" ready for a 4-H Livestock Project?

Parents: Showing an animal at the county fair is an educational and memorable experience for youth in the 4-H Livestock projects. Showing livestock builds confidence and character in young people. They learn how to select, care for and keep records on their project.

From the time that an animal project is started until it is finished the youth is responsible for a major part of the daily care of their project. Successful 4-H members have caring adults in their lives who are truly enthusiastic about projects the member is taking. It is important that adults offer supervision, assistance and encouragement to the 4-H'ers. As an adult if you are willing to help in these ways, it will make a difference. However, be aware that while having caring adults is clearly important, it is equally important that parents and other adults not go too far with helping. It is important to support and assist to a reasonable extent, but not to do the chores and requirements called for by the project for the child. It is also inappropriate for a professional to own, care for or groom the project animals.

Families are encouraged to have realistic conversations about the time and other resources that animal projects require. Animal projects will take a minimum of one hour daily to care for the basic needs, such as feeding, watering and vet care of the animal. Market beef projects typically start in November or December and continue through July or August. Pig, sheep and goat market projects start in April or May and continue through July or August. Training and preparing an animal for show will take several additional hours per day. Breeding projects are a year-round commitment for both the member and family.

Each county fair or show in Montana will have its own unique rules and guidelines. It is the member's responsibility to read and understand the regulations and rules that govern their project and the shows they want to participate in. It is suggested that the youth obtain a copy of the county information that is specific to their project before they start the project.

Making a Decision

The family has decided to commit to the responsibility of owning animals and supporting youth members in taking a livestock project. Which Project? Below are several questions that should be answered as a family, to help prepare you for ownership of an animal.

- What are the goals for this project?
- What species will be raised?
- Will only market animals be raised, or will the project expand into breeding?
- How many animals can we feed at one time?
- How will we market the animal(s)? (both breeding and market)
- How much time and money do we have and want to invest?
- What are our facilities suitable for? Do they need improvement?
- Do we have the resources available to provide proper health care?
- Are we comfortable with selecting animals to purchase?
- Is there someone in the community that can help us select animals?
- What are the regulations at the local fair?
- Will we be showing in other fairs or jackpot shows?
- How will we transport the animals?

A great way to gather information is to attend and observe a show as a family. At the show you will see firsthand some of the work and commitment that is part of a livestock project. In addition, it is a great chance to meet and talk to exhibitors and producers. Most

of these people are happy to share thoughts and suggestions. It is important to develop good relationships with other producers as they are a great source of information.

Montana 4-H Animal Quality Assurance Policy

All 4-H members (and a parent or guardian) enrolled in any animal project, including breeding projects, must become certified through Animal Quality Assurance training at least once as a junior 4-H member and recertify once as a senior 4-H member. All new members are required to complete a county Animal Quality Assurance training workshop in their first year.

Discuss options with your county agent to determine the requirements and recertification opportunities available. In some counties, senior 4-H members, if previously certified, may recertify through county AQA training, by successfully completing an official online course offered by industry associations or universities, or by teaching AQA to younger members. Some counties require beginners (age 8–10) to take the class and then again as a junior (age 11–13).

General Project Requirements

By completing the minimum requirements at each level, you'll learn about every part of the project and be ready for the next level. The achievement program will help you set goals, record successes and be recognized for good work. Each level can take several years to complete. You are not expected to complete a level each year. In some projects, more than one level can be completed in a year if you are highly motivated. Remember, keeping records is an important part of every livestock project.

Beef

Beef is an excellent way to learn about an important industry in Montana and the rest of the nation. Through this project, you can learn about all aspects of the beef industry, either by directly caring for a calf or by learning about beef through the 4-H achievement program in each level. You may raise a market calf or manage a breeding animal at any level. Youth wishing to enroll in Market Beef or Breeding Beef must also be enrolled in Level 1, 2, or 3. If you enroll in independent study, you are expected to have already completed the three levels of the beef project and have set some learning goals for independent work.

Beef, Level 1

Enroll in Market and/or Breeding when registering

Level 1 activities are for youth who may or may not have their own calf. If you don't own a calf, these activities will help you decide if you want to raise calves by learning more about them. In this level, learn about beef cattle, breed identification, locating parts on a steer, judging, halter breaking, fitting a steer, showing a calf, recognizing a healthy animal, selecting feed ingredients and how to shop for beef and beef by-products.

All 4-H projects require the use of record books (see page 36).
4-H website: montana4h.org, Extension online store: store.msueextension.org

It may take up to three years to complete this level. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Bite Into Beef, BU8143, \$6.25

Beef, Level 2

Enroll in Market and/or Breeding when registering

Once you've completed the achievement requirements in level one, you're ready for Here's the Beef. In this level, learn about leg structure, how to present oral reasons in judging, feed ingredients, beef behavior, nose printing, parasites, fitting your market beef, ethical issues, beef carcass composition and retail meat cuts.

It may take three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Here's the Beef, BU8144, \$6.25

Beef, Level 3

Enroll in Market and/or Breeding when registering

As an advanced member, you have several opportunities to share your knowledge and experience about beef cattle with other members. You'll also gain leadership skills as you help others learn about cattle. In this level, teach others about beef cattle, explore career opportunities, and learn about selection, judging, fees, health, reproduction, meats and marketing.

It may take as long as three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Leading the Charge, BU8145, \$6.25

Additional Resources for All Levels

- S *Beef Resource Handbook for Market, Breeding and Feeder Calf Projects*, 4H117R, \$22.50
- L *Beef Helper's Guide*, BU8146, \$6.25. Find a variety of group learning activities, including skill-a-thons, quiz bowls, games, presentations, Beef Bingo and several management skill activities.

Beef Independent Study/Advanced (see pg 6)

Cat

Cat will help you learn more about one of our most common household pets. Explore all kinds of things about cats—from nutrition to showing—and learn the basics about care and companionship.

Cat, Level 1

This level is for youth who may or may not have a cat of their own. The important thing is you want to learn more about cats and care about animals. If you don't have a cat, activities in this level will help you decide whether you want a cat in the future. In the project, learn about breeds of cats, cost of raising a cat, and how to care for and groom a cat.

Take up to three years to complete this level. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Purr-fect Pals, BU8148, \$6.25

Cat, Level 2

After completing level one, you will advance to level two. Besides learning a lot about yourself and practicing important life skills, you will learn about organizations that have information about cats, how to show a cat, how to train a cat, about careers related to cats, how to read and understand a feed label, about external parasites that can affect cats and more.

Take up to three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Climbing Up, BU8149, \$6.25

Cat, Level 3

Designed for advanced members, this project offers a variety of ways to share knowledge and experience and develop leadership skills. In this level, learn how to develop a business plan, learn about genetics, explore career choices, organize a cat quiz bowl, research cat laws, and learn about diseases, reproduction, behavior and showmanship.

Take up to three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Leaping Forward, BU8150, \$6.25

Additional Resources for All Levels

M 4-H Cat Project, EM4809, \$3.50

M Cat Fitting and Showmanship, EM4810, \$3.50

L Cat Helper's Guide, BU8151, \$6.25. Find group activities in this guide—an excellent way to involve everyone in learn-by-doing cat project sessions.

Cat Independent Study/Advanced (see pg 6)

Dairy Cattle

The Dairy Project is for members who want to learn more about dairy animals. If ownership is not possible, this project allows you to have a contract with a dairy to care for one or more animals. Members usually start with a heifer calf or yearling heifer. Older members may start with a producing cow. Keep milk production records on all producing cows, using Dairy Herd Improvement Association (DHIA) guidelines. This project also provides an opportunity to start with a calf and raise it to a producing cow.

Dairy Cattle, Level 1

This level is for beginning members who may or may not own a dairy animal. Through the activities in this level, you will learn about the parts of the dairy cow, various dairy breeds and the cost to raise a calf. You will also learn how to care for a dairy animal and how to recognize desirable traits when selecting calves. If you don't already have a dairy animal, some activities in this level will help you decide whether you want to raise dairy cattle in the future. It may take up to three years to complete this level.

You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Cowabunga!, BU8161, \$6.25

Dairy Cattle, Level 2

Level 2 offers new challenges and opportunities to explore a range of activities related to dairy cattle and the dairy industry. In this level, learn about housing, hay quality, milking, animal health, parasites, behavior and food safety. You will also learn about ethical decision-making, judging and careers.

You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Mooving Ahead, BU8162, \$6.25

Dairy Cattle, Level 3

Whether you raise one calf or several cows, you are in an excellent position to share knowledge and experiences with others. You'll also find activities to help manage your herd, practice mastitis detection, balance a ration, detect pregnancy and deliver a calf. Learn about body condition scoring, selecting cattle through records, promoting dairy products and exploring career opportunities.

You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Rising to the Top, BU8163, \$6.25

Additional Resources for All Levels

L Dairy Resource Handbook, 4H127R, \$19.25

L Dairy Cattle Helper's Guide, BU8164, \$6.25. Four chapters

include Cow Talk Glossary Terms, Pedigree Power, a dairy pyramid game and a dairy skill-a-thon as well as many other resources.

Dairy Cattle Independent Study/Advanced (see pg 6)

Dog

Dog is perfect for youth who are interested in learning more about dogs, how to care for a dog, and how to train a dog in basic or advanced commands. The dog project is unique and not meant to conform to AKC dog show or other professional standards. Although beginners do not need to own a dog to participate in the first level of the project, more advanced levels do require dog ownership. Youth can sign up for Dog Obedience and Dog Agility to supplement their learning experience but must enroll in Level 1, 2 or 3.

Dog, Level 1

Enroll in Obedience and/or Agility when registering

In level 1, the activities are for those who may or may not have a dog of their own, but want to learn more. If you don't have a dog, some activities in this level may help you decide whether you want to make the commitment to own and care for a dog. Learn about basic care, training, breeds, parts of the dog, and how to keep a dog healthy and groomed.

Take up to three years to complete this level. You must complete a minimum of seven activities and three learning experiences each year to complete the project.

M Wiggles and Wags, BU8166, \$6.25

Dog, Level 2

Enroll in Obedience and/or Agility when registering

Level 2 offers opportunities and challenges to explore a wide range of activities related to dogs. Dog ownership is necessary to participate in this level. Explore more about dog health, nutrition, care, genetic problems, population control, showmanship, training, ethics and budgeting.

Take up to three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Canine Connection, BU8167, \$6.25

Dog, Level 3

Enroll in Obedience and/or Agility when registering

In this level, you will focus on advanced skills in dog training and management. By this level you may be ready to compete in AKC trials. You will investigate responsible breeding, diseases, caring

for geriatric dogs, training, service dogs, dog roles and careers related to dogs. You will also be presented with many leadership opportunities.

Take up to three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Leading the Pack, BU8168, \$6.25

Additional Resources for All Levels

- L Dog Resource Handbook 4H201R, \$21.00
- L Dog Helper's Guide, BU8169, \$6.25. Group games and activities provide helpers with ideas for facilitating learning. Service-learning opportunities are encouraged. Training activities and resources are highlighted.

Dog Independent Study/Advanced (see pg 6)

Dairy Goat

Although beginners do not need to own a goat, the more advanced levels of the project are designed for those who have one or more goats to care for. Raise a goat for milk, mohair, or even for packing.

Dairy Goat, Level 1

You will learn about both dairy goats (raised primarily for milk) and Angora goats (raised for mohair). Learn about the parts of the goat, breeds, costs to raise a goat, and how to care for a goat while developing important life skills.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Getting Your Goat, BU8352, \$6.25

Dairy Goat, Level 2

You'll learn how to keep your goat healthy, feed them for maximum production, prepare for kidding, develop judging skills and milk a goat properly.

This level may take up to three years to complete. You must complete at least seven activities and five learning experiences each year to complete this project.

M Stepping Out, BU8353, \$6.25

Dairy Goat, Level 3

Advanced 4-H members learn about genetics and breeding, careers in the goat industry, diseases, biosecurity, body condition scoring, pedigrees and quality assurance. At this level, you are in an excellent position to share knowledge and experiences with others.

This level may take up to three years to complete. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Showing the Way, BU8354, \$6.25

Additional Resources for All Levels

S Goat Resource Handbook, 4H135R, \$21.75

L Goat Helper's Guide, BU8355, \$6.25. Plan group meetings to get youth involved and excited to learn about goats. Youth will enjoy playing goat-related games, conducting skill-a-thons, giving demonstrations, participating in showmanship contests and other fun group activities.

Dairy Goat Independent Study/Advanced (see pg 6)

Meat Goat

Meat Goat is designed for members who want to learn about breeds of meat goats, health care, grooming, production, reproduction, management, showmanship, marketing and careers. Youth wishing to enroll in Market Goat or Breeding Goat must also be enrolled in Level 1, 2, or 3.

Meat Goat, Level 1

Enroll in Market and/or Breeding when registering

Learn about goat breeds and selection, feeding and management, goat health, goat body parts, record keeping, meat goat and dairy conformation, show preparations and sportsmanship.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Just Browsing, BU7909, \$6.25

Meat Goat, Level 2

Enroll in Market and/or Breeding when registering

Learn about goat diseases, identify poisonous plants, determine body conditions, water quality, goat predators, kidding, goat reproduction, the veterinary profession, selecting stock and showing meat goats.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Growing with Meat Goats, BU7910, \$6.25

Meat Goat, Level 3

Enroll in Market and/or Breeding when registering

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.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Meating the Future, BU7911, \$6.25

Additional Resources for All Levels

S Goat Resource Handbook, 4H135R, \$21.75

L Meat Goat Helper's Guide, BU7912, \$6.25. Groups will enjoy planning a program, completing project records, developing a management calendar, conducting a meat quality assurance program, participating in quiz bowls, skill-a-thons, tours, giving a presentation and exploring goat-related careers.

Meat Goat Independent Study/Advanced (see pg 6)

Horse

Horse projects provide youth with an opportunity to handle, care for, ride or drive horses. There are nine horse projects. Members must have completed levels 1–3 in Horsemanship to participate in the Advanced Horse Projects. Members are eligible to participate in Horse projects according to ability and skill level. SKILL LEVELS DO NOT NECESSARILY CORRESPOND TO YEARS. It is possible to complete several levels in a year; or youth may take several years to complete one level. Assessment sheets are provided for leaders to determine when a member completes the levels.

Montana Horse Helmet Policy

A certified equestrian helmet with safety harness fastened is required in over fence classes and gymkhana events, activities and practice sessions. Gymkhana refers to horseback speed events (timed or un-timed) that do not use livestock. Events in this category include, but are not limited to barrel racing, pole bending, keyhole, stake, rescue races, pony express race, etc. Events not included in this policy are calf roping, team roping, goat tying, and team penning that may be timed, but use livestock. Participants in the 4-H Horse Project are required to attend a helmet education workshop and/or view the video "Every Time, Every Ride" once as a junior 4-H member (8–13) and once as a senior 4-H member (14 and up). It is the responsibility of the parent or guardian of the 4-H member to see that headgear complies with standards and is in good condition. The Montana 4-H Center for Youth Development encourages the use of ASTM certified/SEI approved safety helmets in all equine events. Protective headgear may be used in all classes and shall not be discriminated against. Helmet use is encouraged in all 4-H horse activities any time a 4-H member is around a horse. Counties may establish more stringent policies regarding helmet use.

L Every Time Every Ride DVD (Horse Helmets), 5324, \$15.50

Horsemanship

Horsemanship is the basis for the horse project. Members must complete Horsemanship levels 1, 2 and 3 before entering another Horse project, with the exception of Horse Judging, Careers with Horses, Horse Showing and Packing, and Working Ranch Horse, which may be taken simultaneously with a mounted horse level. (See project descriptions for specific assessment requirements.) Horsemanship has seven levels. Depending on riding form, use the following to enroll in the appropriate level.

<u>Western</u>	<u>English</u>
Level 1	Level 1
Level 2	Level 2
Level 3	Level 3
Level 4	Level 4
Level 5	Level 5
Level 6	Level 6
Level 7	Level 7

NOTE: Remember, for the state horse show, you can show only one level above or below the level in which you are enrolled.

- M Horsemanship, Levels 1–3, 5246, \$5.50
- M Horsemanship, Levels 4–7, 5262, \$5.50
- M Horsemanship Resource Manual, Levels 1–7, 5346, \$6.25
- M 4-H Horse Showing Project Manual, 5253, \$3.50
- L Every Time Every Ride DVD (Horse Helmets), 5324, \$15.50

Horseless Horse

If you currently do not have a horse but think one day you will and will want to participate in other horse projects, you should enroll in this project. As a “Horseless Horse” project member, you can also participate in horse judging and horse career projects without your own horse.

Horseless Horse, Level 1

Learn how to identify parts of a horse, horse behavior, horse breeds, costs of raising a horse, how to care for a horse, horse facilities, horse safety rules and more. Learning about horses is not all you’ll do. You’ll have the opportunity to present a demonstration, take tours, watch a horse show and attend a horse clinic.

Do at least seven of the required and optional activities in Level 1. Complete at least 21 of the required and optional activities in Level 1 within three years to complete this project.

- M Giddy Up and Go, 01518Y, \$8.45

Horseless Horse, Level 2

Learn about selecting a horse, nutrition, care, teeth, bones, judging and how to give oral reasons.

Do at least seven of the required and optional activities in Level 2. Complete at least 21 of the required and optional activities in Level 2 within three years to complete this project.

- M Head, Heart and Hooves, 01519Y, \$8.45

Horseless Horse, Level 3

This level of the horseless horse project rounds your knowledge about horses and prepares you for eventual horse ownership. In this level, explore horse reproduction, diseases, health care and pasture management. Learn about appropriate shelters and financial planning, and be equipped to teach others about horses.

Do at least seven of the required and optional activities in Level 3. Complete at least 21 of the required and optional activities in Level 3 with three years to complete this project.

- M Stable Relationships, 01520Y, \$8.45

Horseless Horse, Level 4

Learn nine basic riding skills and 10 horsemanship skills. Also learn training techniques, all about trail riding and selection and use of tack.

Do at least seven of the required and optional activities in Level 4. Complete at least 21 of the required and optional activities in Level 4 within three years to complete this project.

- M Riding the Range, 01521Y, \$8.45

Horseless Horse, Level 5

Learn more advanced riding skills. Also learn the Quarter System, horse showmanship, ethics and leadership.

Do at least seven of the required and optional activities in Level 5. Complete at least 21 of the required and optional activities in Level 5 within three years to complete this project.

- M Jumping to New Heights, 01522Y, \$8.45

Additional Resources for All Levels

- L Horse Project Helper’s Guide, 01523F, \$8.45. Features group activities such as Horse Bingo, You be the Judge, Corral Your Character and Skill-a-thons.

Additional Horse Projects

Colt to Maturity, Levels 1–5

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 yearling. The project is designed to help you select a foal and train it to maturity. In order to enroll in this project, you must be 11 on Oct. 1; have completed Horsemanship levels 1, 2 and 3; and demonstrated ability to handle the project to the county horse leader or designated person. Stallions will be allowed only in the yearling phase. Check with local county fair rules on exhibiting.

The Project Leader or Agent can assist the member in setting goals for each project year. Completion of these goals will satisfy the requirements of this project.

- M 4-H Training Horses, Yearlings to Five-Year-Olds and Green Horses, 5336, \$3.50
- M 4-H Colt to Maturity, 5248, \$3.50
- M 4-H Horse Showing Project Manual, 5253, \$3.50

Working Ranch Horse, Levels 1–4

This project prepares you and your horse for general ranch work including roping, cutting, and penning. Also learn the heritage and traditions of the American cowboy. Competitions (called gatherings) may be offered at the county or regional level.

4-H members may enroll in the 4-H Working Ranch Horse Project independently or concurrently with the Horsemanship Project Levels 1–7 depending on county requirements. Skills assessments determine the project level of each participant and are conducted on the county level.

- M Working Ranch Horse, Levels 1–4, 5250, \$7.50

Horse Packing, Levels 1–5

This project develops your knowledge and skills in the art and science of using horses to transport materials. This project also provides opportunities for enjoying nature in a way that is otherwise difficult. Members may enroll in this project simultaneously with any other mounted horse project.

The project leader or agent can assist the member in setting goals for each project year. Completion of these goals will satisfy the requirements of this project.

- M 4-H Horse Packing Manual, 5251, \$3.50

Horse Driving, Levels 1–4

This is a project to teach basic horse driving skills, safety and training a horse to drive in single or multiple hitches. Members must have completed assessment for horse projects to participate in this project.

The project leader or agent can assist the member in setting goals for each project year. Completion of these goals will satisfy the requirements of this project.

- M 4-H Horse Driving Project, 5252, \$3.50

Horse Judging

This project teaches you to select and evaluate horses, give oral reasons and place classes of conformation horses and performance horses. Members may enroll in this project simultaneously with any mounted horse project.

The project leader or agent can assist the member in setting goals for each project year. Completion of these goals will satisfy the requirements of this project.

- M New Mexico 4-H Horse Judging Manual, 200R48, available free online

Green Horse, Levels 1–4

This project is for those who have horses that are not fully trained, but don't fit into the colt to maturity project because of age or ability. To participate in this project, you must be 11 on Oct. 1; have completed Horsemanship levels 1, 2 and 3; and have demonstrated an ability to handle the project to the county horse leader or designated person.

The project leader or agent can assist the member in setting goals for each project year. Completion of these goals will satisfy the requirements of this project.

- M 4-H Green Horse, Levels 1–4, 5256, \$3.50
- M 4-H Training Horses, Yearlings to Five-Year-Olds and Green Horses, 5336, \$3.50
- M 4-H Horse Showing Project Manual, 5253, \$3.50

Careers with Horses

This project is intended to acquaint you with careers in the horse industry and may be taken simultaneously with any mounted horse project.

The project leader or agent can assist the member in setting goals for each project year. Completion of these goals will satisfy the requirements of this project.

- M 4-H Horse Careers Manual, 5255, \$2.50

Horse Independent Study/Advanced (see pg 6)

Pocket Pets

Pocket Pets help you learn about small hand pets and how to care for them. This is an excellent beginning project, especially if you are a younger member who wants to learn what it's like to care for an animal. You will develop important life skills and practical skills through hands-on activities that will teach you about your pet's needs. Pets included in these materials are ferrets, snakes and turtles, hamsters, gerbils, mice, fish, frogs and toads, lizards, birds, guinea pigs and others.

Pocket Pets, Level 1

Learn about different kinds of pets, costs to raise them and how to care for them. You'll also be learning about yourself, too. Learn how to communicate effectively with others, how to make good decisions, how to be responsible and how to plan and organize.

You must complete at least seven activities and three learning experiences each year to complete this project. It may take up to three years to complete the project.

M Pet Pals, BU6359, \$6.25

Pocket Pets, Level 2

Level 2 will help expand your knowledge of pets and improve life skills. Learn about an animal's digestive system, pet breeding, nutritional requirements for pets, comparison shopping, signs of good animal health and how pets communicate.

You must complete at least seven activities and five learning experiences each year to complete this project. It may take up to three years to complete the project.

M Scurrying Ahead, BU6360, \$6.25

Pocket Pets, Level 3

This project provides several opportunities to develop leadership and communication skills. Find activities to help develop a business, explore careers and teach others. Learn about genetics, how to start your own business, the pet industry, explore animal welfare issues, think environmentally, investigate "pet" sayings and learn about pet diseases.

You must complete at least seven activities and five learning experiences each year to complete this project. It may take up to three years to complete the project.

M Scaling the Heights, BU6361, \$6.25

Additional Resources for All Levels

S *Pocket Pets Resource Handbook, 4H220R, \$15.50*

L *Pet Helper's Guide, BU6362, \$6.25. Find many fun and engaging group games and activities to further expand the pet project experience for youth.*

Pocket Pets Independent Study/Advanced (see pg 6)

Poultry

Poultry is designed to help you learn about chickens and other poultry. You can acquire an understanding of scientific poultry management and marketing practices, and gain business experience and insight into the values and principles of purchasing, marketing, financial record keeping and obtaining credit. This project will help you understand the poultry industry and its role in agriculture and the economy.

Poultry, Level 1

Enroll in Market and/or Breeding when registering

Learn about poultry and egg parts, breeds, costs to raise poultry, how to prepare for chicks, how to care for and handle birds, how to select pullets, show poultry and more. You'll also be learning about yourself, too. Learn how to speak to groups, work with other people, make decisions, take risks, plan, organize and be responsible.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Scratching the Surface, BU6363, \$6.25

Poultry, Level 2

Enroll in Market and/or Breeding when registering

This level offers new challenges and opportunities to explore a range of activities. Learn about egg production, the skeletal structure of birds, pecking orders, and how to: select and judge broilers, recognize a healthy flock, prevent diseases of poultry flocks, select breeding pens, read a feed tag, make an egg candler and build a budget.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Testing your Wings, BU6364, \$6.25

Poultry, Level 3

Enroll in Market and/or Breeding when registering

Learn about how to organize a judging clinic, how to manage a laying flock, how genetics influence poultry characteristics, how to

handle poultry products safely, how to process chickens for food, about advances in biotechnology and careers in the poultry industry.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Flocking Together, BU6365, \$6.25

Additional Resources for All Levels

S *National 4-H Poultry Judging, 4H460, \$7.45*

S *Beginner's Guide to Raising and Showing Chickens, DVD-3, \$15.00*

M *4-H Poultry Fitting & Showmanship, 4H1520, available free online*

L *Poultry Helper's Guide, BU6366, \$6.25. Guide youth by using this book to lead 15 learn-by-doing group activities.*

Poultry Independent Study/Advanced (see pg 6)

Rabbit

You will gain knowledge and skills in managing and caring for rabbits, selecting quality rabbits, feeding balanced rations and maintaining management records on which to base decisions regarding feed, production and breeding. You will also have opportunities to participate and assume responsibility in the 4-H rabbit program.

Rabbit, Level 1

Enroll in Market and/or Breeding when registering

This project is designed for the beginning rabbit member with little or no experience in raising rabbits. By the end of the project, you will be able to name several breeds of rabbits, identify the parts of the animal, discuss the sanitation methods needed to raise rabbits, describe good feeding and watering practices, learn to keep feed and financial records and demonstrate proper showmanship procedures.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M What's Hopping? BU8080, \$6.25

Rabbit, Level 2

Enroll in Market and/or Breeding when registering

The intermediate level project is designed for 4-H members who wish to expand upon their knowledge gained in the previous level. The level is designed to be completed in 2–3 years.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Making Tracks, BU8081, \$6.25

Rabbit, Level 3

Enroll in Market and/or Breeding when registering

Level 3 of the rabbit project is designed for those who want to explore interest areas of rabbit production. Chapters include breeding and genetics, diseases, keeping records, marketing and tanning hides. Select four to five required activities each year to complete. Youth may participate in this level for three years.

This level may take up to three years to complete. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M All Ears, BU8082, \$6.25

Additional Resources for All Levels

S *Rabbit Resource Handbook For Breeding, Market and Pet Rabbit Projects, 4H228R, \$13.50*

L *Rabbit Helper's Guide, BU8083, \$6.25. Fifteen exciting rabbit group activities make group learning fun and educational.*

Rabbit Independent Study/Advanced (see pg 6)

Sheep

In this project, learn a lot about the modern sheep industry either by directly caring for a lamb or by learning about sheep through the achievement program in each level. You may enroll in either a market lamb or breeding project at any level. Youth wishing to enroll in Market Sheep or Breeding Sheep must also be enrolled in Level 1, 2, or 3. If you enroll in the independent study, you must have already completed all three levels of the sheep project and set learning goals for your independent work.

Sheep, Level 1

Enroll in Market and/or Breeding when registering

The activities in Sheep Level 1 are for youth who may or may not have their own lamb, but want to learn more about sheep. Learn to identify the parts of a lamb, about the breeds of sheep, sheep behavior, uses of wool, about sheep by-products, fitting a sheep for show, showing a sheep, how to determine the health of a lamb, judging lambs and how to develop a management plan.

It may take three years to complete this level. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M Rams, Lambs and You, BU6367, \$6.25

Sheep, Level 2

Enroll in Market and/or Breeding when registering

Learn more about the sheep project, including sheep parasites, meat safety, judging, using medications safely, the digestive system of

sheep, health problems, management practices, careers, sheep production cycles, managing money, meat cuts and more.

It may take three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Shear Delight, BU6368, \$6.25

Sheep, Level 3

Enroll in Market and/or Breeding when registering

Gain leadership skills as you help others learn about sheep. In this level you are encouraged to teach others about sheep, explore career opportunities in the sheep industry, set production goals and make a budget for a sheep enterprise. You can also plan and conduct a sheep event in your community, address contemporary issues related to sheep production, learn about marketing and reproduction, plan and organize a judging contest and explore genetics.

It may take three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Leading the Flock, BU6369, \$6.25

Additional Resources for All Levels

- S *Sheep Resource Handbook for Market and Breeding Projects*, 4H194R, \$24.25
- L *Sheep Helper's Guide*, BU6370, \$6.25. *Helpers will enjoy involving youth in sheep skill-a-thons, sheep bingo, sheep pyramid, developing a management calendar and many more activities.*

Sheep Independent Study/Advanced (see pg 6)

Swine

Through this project, you can learn about all aspects of the pork industry, either by directly caring for a hog or by learning about swine. At any level you may enroll in market pig or breeding pig. Youth wishing to enroll in Market Swine or Breeding Swine must also be enrolled in Level 1, 2, or 3. If you enroll in the independent study, you are expected to have already completed the three levels of the swine project and to have set some learning goals for your independent work.

Swine, Level 1

Enroll in Market and/or Breeding when registering

Activities in Swine Level 1 are for youth who may or may not have their own pig. If you don't own your own pig, these activities will help decide if you really want to raise pigs or learn more. In this

level, learn to identify the parts of a pig, breeds, how to judge market hogs, explore the digestive system, identify pork cuts and how to fit and show a hog.

It may take three years to complete this level. You must complete a minimum of seven activities and three learning experiences each year to complete this project.

M The Incredible Pig, BU8065, \$6.25

Swine, Level 2

Enroll in Market and/or Breeding when registering

Learn about herd health, pork production from farrow to finish, cooking and preparing pork products, careers in agriculture, symptoms of swine disease, and how to: develop a pig health plan, balance a ration, and present oral reasons on a class of hogs.

It may take three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Putting the Oink in Pig, BU8066, \$6.25

Swine, Level 3

Enroll in Market and/or Breeding when registering

You will be encouraged to teach others about pigs, explore career opportunities in the swine industry, organize a judging and showmanship clinic, plan a swine quiz bowl, operate and manage a swine breeding operation, learn about managing waste and explore genetics.

It may take as long as three years to complete this level. You must complete a minimum of seven activities and five learning experiences each year to complete this project.

M Going Whole Hog, BU8067, \$6.25

Additional Resources for All Levels

- S *Swine Resource Handbook for Market and Breeding Projects*, 4H134R, \$20.00
- L *Swine Helper's Guide*, BU8068, \$6.25. *Group activities such as quiz bowls, skill-a-thons, glossary games, swine pyramid, exploring a meat contest and understanding quality assurance keep youth involved.*

Swine Independent Study/Advanced (see pg 6)

Veterinary Science

Veterinary science is designed to help you better understand animals. Knowledge in veterinary science assists in the protection of human welfare by applying the art and science of medicine to animals. Inspection of meat and poultry, the care of all food and pet animals, controls for diseases that already affect humans, and how to

safeguard our food supply are some of the things you'll learn. You are not required to own an animal to enroll in this project, but it would be helpful if you had one available to study.

Veterinary Science, Level 1

No matter what kind of animal you have, or even if you don't have one, this project will help you learn about animals. It will also help you decide if you want to purchase and care for animals in the future. Learn about the normal animal, basic anatomy and body systems, elementary principles of disease and careers with animals.

Take up to three years to complete this level. Each year you should identify at least four goals and complete a minimum of seven of the activities in Level 1.

M From Airedales to Zebras, BU8048, \$6.25

Veterinary Science, Level 2

Learn to create health records for your animal, investigate body systems, discover the importance of immunity, explore biosecurity measures, examine parasite life cycles, recognize the importance of quality assurance, conduct a food safety experiment, investigate disease-causing agents, apply math and science skills, and consider ethics and animal welfare.

Take up to three years to complete this level. Each year you should identify at least four goals and complete a minimum of seven of the activities in Level 2.

M All Systems Go! BU8049, \$6.25

Veterinary Science, Level 3

By now, you should be able to share experience and knowledge with others through some leadership roles in veterinary science. Learn about genetics and how to describe "typical" animal behavior, conduct an experiment about test reliability, compare reproduction in various species, consider the function of body organs and systems, investigate human-animal bonds, recognize the importance of animal population control and explore careers in veterinary science.

Take up to three years to complete this level. Each year you should identify at least four goals and complete a minimum of seven of the activities in Level 3.

M On The Cutting Edge, BU8050, \$6.25

Additional Resources for All Levels

L *Veterinary Science Helper's Guide, BU8051, \$6.25.*
Numerous group activities help youth develop essential life skills as they pursue their interest in veterinary medicine.

Veterinary Science Independent Study/Advanced
(see pg 6)

Livestock Judging

Livestock and Other Judging

This project teaches you to select and evaluate livestock, give oral reasons and place classes of livestock. Evaluation of livestock is an exciting and thought-provoking experience. The ultimate goal of livestock judging is to compare your perception of an animal against the ideal and then to contrast your opinion with another individual or a group.

- M South Dakota State University Livestock Judging Manual, 4HDL26, available free online
- M Judging Beef Cattle and Oral Reasons 101, 4HDL27, available free online
- M Judging Meat Goats and Oral Reasons 101, 4HDL28, available free online
- M Judging Swine and Oral Reasons 101, 4HDL29, available free online
- M Judging Sheep and Oral Reasons 101, 4HDL30, available free online
- M Livestock Quality Assurance for Youth Producers, 5300, \$8.00
- M 4-H Livestock Sales, 5310, \$2.50
- M New Mexico 4-H Horse Judging Manual, 4HDL19, available free online
- M Beef, Sheep and Swine Selection and Evaluation, 4H103R, \$11.50
- M Montana Judging Card, 5355, available free online or 4-H website
- S National 4-H Poultry Judging, 4H460, \$7.45

ENGINEERING AND TECHNOLOGY

Aerospace

Aerospace involves the fascination of flying an airplane, launching a rocket, conquering space and becoming an astronaut or pilot. Through fun and challenging activities, you will learn about flying, kites, hot air balloons, remote control airplanes, gliders and space shuttles.

Aerospace, Level 2

Whether you have just started exploring aerospace or already know about rockets, hot air balloons, airplanes and kites, you'll enjoy the activities in Lift Off. Learn how to build a straw rocket, make a paper airplane, build a real model rocket, make and read a map, identify

airplane models, investigate how weather affects flying, identify parts of a hot air balloon, discover how “angle of attack” affects kite flying and more.

Complete a minimum of seven activities and three leadership experiences each year (such as giving a demonstration, participating in a judging activity, taking a tour, exhibiting your project, or attending a workshop). Complete a total of 20 activities to complete this level. You may take three years to complete this level.

M Lift Off, BU6843, \$6.25

Aerospace, Level 3

Learn how to build your own drinking straw and balloon rocket, organize a model rocket launch day, make a paper flight simulator, make a flying wing (glider) and build a controllable glider. Also make a hang glider, build a Nagasaki Hata Fighter Kite and identify parts of a helicopter.

Complete a minimum of seven activities and three leadership experiences each year. Complete a total of 20 activities to complete this level. You may take three years to complete this level.

M Reaching New Heights, BU6844, \$6.25

Aerospace, Level 4

In this level, you will design, build and launch a model rocket, construct and use an altitude tracker, research how to qualify for a pilot’s license and plan the most fuel-efficient flight path for a commercial aircraft. You’ll also evaluate and design navigation systems, build a flat-style box kite, design and propose a new Emergency Medical Service (EMS) helicopter service, investigate gravity and complete a career profile.

Complete a minimum of seven activities and three leadership experiences each year. Complete a total of 20 activities to complete this level. You may take three years to complete this level.

M Pilot in Command, BU6845, \$6.25

Additional Resources for All Levels

L *Flight Crew Helper’s Guide, BU6846, \$6.25. Many activities are included for hands-on experiential group fun such as aerospace quiz bowls, skill-a-thons and an airport field day.*

Aerospace Independent Study/Advanced (see pg 6)

Electric

“Electric Excitement,” is the 4-H Electric Energy series. This project will help de-mystify the magic of electric circuits, magnetism, motors and electronics. From making educated guesses and testing them, to

building burglar alarms, learning how to select a really good stereo system and other consumer items, this project will get you actively involved in dozens of hands-on, fun activities.

Electric, Level 1

Are you ready to experience the magic of electricity? In this project, learn about the uses of electricity, selecting appropriate materials for your electric project, how to build a flashlight or switch, test conductivity, investigate circuits, test materials for magnetism, build and test a compass, build an electromagnet, build a galvanometer and build an electric motor.

Each year do at least three required activities and four optional activities. In addition, take part in at least two leadership experiences each year (such as giving a demonstration, participating in a judging activity, taking a tour, exhibiting your project, or attending an electric workshop). It may take three years to complete the level.

M Magic of Electricity, BU6848, \$6.25

Electric, Level 2

In this level, participate in activities such as learning about Ohm’s Law using a squirt bottle, using a Volt-Ohm meter, how to read circuit diagrams and how to build a circuit and measure voltages. You’ll also build a momentary switch and use it to communicate in Morse code, build a three-way switch, solder connections, build a rocket launcher and build a burglar alarm.

Each year do at least three required activities and four optional activities. In addition, take part in at least two leadership experiences each year. It may take three years to complete the level.

M Investigating Electricity, BU6849, \$6.25

Electric, Level 3

Put together a basic electrical tool and supply kit, interview an electrical inspector, learn about electrical codes, read an electric meter and electric service panels and decipher the symbols on wires and cables. You’ll be able to select the most appropriate light bulb for specific situations, learn how to read an appliance nameplate, measure the electric usage of appliances, test for voltage, determine if outlets are grounded, locate your home wiring system, replace a switch and identify what’s on each circuit.

Each year do at least three required activities and four optional activities. In addition, take part in at least two leadership experiences each year. It may take three years to complete the level.

M Wired for Power, BU6850, \$6.25

Electric, Level 4

Level 4 encourages you to move beyond basic electricity and explore electronics. Learn about diodes, transistors, LED's, photocells, SCR's, IC's and amplifiers. These items are all components of the family of solid-state electronics. They are also referred to as semiconductors because they can sometimes conduct electric currents and sometimes resist the flow of electric current. They are all an essential part of all modern-day electronics products found in the home, office and workplace.

Each year do at least three required activities and four optional activities. In addition, take part in at least two leadership experiences each year. It may take three years to complete the level.

M Entering Electronics, BU6851, \$6.25

Additional Resources for All Levels

L *Electric Group Helper's Guide, BU6852, \$6.25. Youth learn how to conduct an electric skill-a-thon, quiz bowls, electric Bingo and how to calculate amperage.*

Electric Independent Study/Advanced (see pg 6)

Robotics

Robotics introduces science, math, engineering and technology skills while teaching life skills. There are three different kinds of projects available in Robotics. 'Introduction to Modern Microcontrollers' is designed to be used with the SparkFun Inventor's Kit, the EV3 project is designed to be used with the Lego robotics kit and the Junk Drawer project is designed to be used with everyday materials.

*Some robotics curriculum is updated by online vendors during the year—please check online at the 4-H website for the latest available versions.

Introduction to Modern Microcontrollers

Microcontrollers are the electronic "brains" inside robots and other smart devices we use every day. Program a microcontroller to react, calculate or move a specific way when it measures a response from one or many sensors. This project combines electronics, mechanics, programming and, above all, creativity to learn the basics of microcontrollers. We will first introduce the Arduino microcontroller which is an open-source prototyping platform based on easy-to-use hardware and software. Arduino boards are able to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - activating a motor, turning on an LED, publishing something online. Other microcontrollers like Raspberry Pi, Picax, Beaglebone and Edison will be added as technology emerges.

To complete this project, complete a minimum of seven activities and one challenge per 4-H year; there are a total of 16 activities provided. Youth are encouraged to design challenges and programming to achieve the minimum requirements. This could be completed in one to three years.

M SparkFun Inventor's Kit - V4.1, \$99.95
<https://www.sparkfun.com/products/15267>

Robotics with EV3

Use the newest LEGO technology to learn what a robot is, how to build one, and how to program it. Activities are based on EV3 core set available from LEGO Education for about \$380. A computer for running programming software and internet access to watch videos are required. Appropriate for all age levels. Curriculum authored by The Ohio State University.

Complete a minimum of 6 activities (there are 12 activities provided), at least 2 learning experiences and at least 2 leadership/citizenship activities. The project book may take 2 years to complete.

M Robotics 1 with EV3, 4H507, \$8.00

Junk Drawer Robotics, Level 1

Youth are challenged to build robots from everyday items. Youth explore and learn about robot arms. Concepts covered include pneumatics, arm designs, and three-dimensional space. Big ideas include form and function, scientific habits of mind, and engineering design. None of the levels require or use computers. Youth will use their Robotics Notebook to record learning experiences, robotic designs and data from investigations.

Complete a minimum of seven of 18 activities listed each year. The level can be completed over two years.

M Give Robots a Hand, BU8431, \$8.45

M Youth Robotics Notebook*, BU8435, \$8.45

*There is one Robotics Notebook for three levels of the Junk Drawer Robotics curriculum. The notebook encourages youth to think and act like scientists and engineers.

Junk Drawer Robotics, Level 2

Youth learn about robots that move with legs, wheels and underwater. Concepts covered include friction, basic electrical power and motors, engineering constraints, gear system and buoyancy.

Complete a minimum of seven of 18 activities listed each year. The level can be completed over two years.

M Robots on the Move, BU8432, \$8.45

M Youth Robotics Notebook*, BU8435, \$8.45

Junk Drawer Robotics, Level 3

Youth will explore sensors and analog and digital systems. The track introduces simple electronic components; youth will build basic circuits to see how the components work. They will investigate basic elements of programming and instructions for robotic computer control. Youth are challenged to build robots from everyday items. None of the levels require or use computers. Youth will use their Robotics Notebook to record learning experiences, robotic designs and data from investigations.

Complete a minimum of seven of 18 activities listed each year. The level can be completed over two years.

M Mechatronics, BU8433, \$10.45

M Youth Robotics Notebook*, BU8435, \$8.45

Robotics Independent Study/Advanced (see pg 6)

Small Engines

Small Engines is designed to help you learn about small engines and other power equipment, especially equipment used around the home. Learn how gasoline engines operate, acquire skills needed to operate engines and equipment safely and become familiar with safety rules before starting and while operating engines. You will also create a desire for members to develop safe starting procedures and promote safe practices at home.

Small Engines, Level 1

Learn about the major parts of engines, how to start and maintain engines, safety around motors, how engines are lubricated, the importance of clean air to efficiently functioning engines, cooling systems, how to replace a spark plug and much more.

Complete at least seven activities and complete your records. You may take up to three years to complete this level of the project.

M Crank It Up! BU8186, \$6.25

Small Engines, Level 2

Prepare yourself for learning about different engine types, internal parts, specialized tools, engine size, compression, seasoning your engine, safety issues, starting your own business and more.

Complete at least seven activities and complete your records. You may take up to three years to complete this level of the project.

M Warm It Up! BU8187, \$6.25

Small Engines, Level 3

Learn about tearing down and rebuilding an engine, how to use diagnostic tools, "listen" to engines for specific problems and

practice properly maintaining engines. Learn to use the internet to find resources, rules and regulations, select a replacement engine, start your own small engines business and learn about small engine careers.

Complete at least seven activities and complete your records. You may take up to three years to complete this level of the project.

M Tune It Up! BU8188, \$6.25

Additional Resources for All Levels

L *Small Engines Helper's Guide*, BU8189, \$6.25. Find group activities, helpful hints for each activity in the youth guides and additional small engine project meeting ideas.

Small Engines Independent Study/Advanced (see pg 6)

Welding

This beginning-level project is designed for members 12 years of age and older by Oct. 1 of the 4-H year. Younger members may take this project under the guidance of a knowledgeable adult. It is recommended for use by 4-H members wanting to build, modify or repair steel-based projects. This project should take between three and six months to complete and may be repeated.

Welding

Learn how to find an area to work on a project, how to identify welding tools, welding safety and decide on appropriate projects for the year. Learn how to measure and mark materials, use a square, use a portable power drill, grinder, and more.

M Arcs and Sparks: Shielded Metal Arc Welding, 4H573, \$8.00

Welding Independent Study/Advanced (see pg 6)

Woodworking

Woodworking is a perfect project choice if you like wood and enjoy using tools and building things. Can you see yourself building a table, wood toy or a chair? As a beginning woodworker, you can build practical and useful objects. As your skills grow, you'll be able to make most of the objects in a house or even build a home! No matter what you make, the joy of completing a woodworking project is great. You'll build and construct items using wood and a wide variety of woodworking tools.

Project Requirements for levels 1-4

Each year complete at least seven required and optional activities listed. In addition, take part in at least two leadership experiences each year. To complete each level of woodworking, complete at least 21 total required and optional activities in three years or less.

Woodworking, Level 1

Learn how to find an area to work on a project, how to identify woodworking tools, woodworking safety and decide on appropriate projects for the year. Learn how to measure and mark boards, use a square, use a portable power drill, hand drill or brace, use a hand saw, identify different types of nails and screws, make a sandpaper block, construct a butt joint and use a hammer safely.

M Measuring Up, BU6875, \$6.25

Woodworking, Level 2

Level 2 introduces new tools and ideas. You'll be using power equipment and practicing new woodworking skills. You'll find plans for building a birdhouse, stool and letter holder. Learn about safety, potential careers, identify different woodworking tools, select wood based on grain and recognize the difference between plywood, fiberboard and other types of lumber. Develop a project plan and then use a combination square, make a miter cut, make a curved cut using a jigsaw, use a chisel, sander and staple gun and connect pieces of wood with glue, then select brushes for painting.

M Making the Cut, BU6876, \$6.25

Woodworking, Level 3

"Nailing It Together" will introduce you to woodworking skills, tools and equipment you may not have used before. Learn how to stay current with technology, explore career opportunities and make a boomerang, belt buckle, puzzle or bookshelf. You'll use a T-bevel, enlarge scale-drawn plans, make a dado joint, use a powered circular saw and a radial arm saw, use a hand plane and table saw, learn about hinges, hasps and flush plates, understand the difference between various clamps, make a dowel joint and use various types of wood stains.

M Nailing It Together, BU6877, \$6.25

Woodworking, Level 4

You'll design a woodworking shop and learn more about potential careers. You will use a router, jointer, portable planer and scraper, make mortise, tenon and dovetail joints and compare adhesives, bleaches and strippers, build a wood vehicle, step stool or door knocker.

M Finishing Up, BU6878, \$6.25

Additional Resources for All Levels

L *Woodworking Helper's Guide*, BU6879, \$6.25. Find a variety of group activities that help youth broaden their understanding of basic woodworking concepts. Each chapter contains ideas to reinforce a life skill.

Woodworking Independent Study/Advanced
(see pg 6)

ENVIRONMENTAL AND NATURAL SCIENCES

Discover the study of our natural environment and the outdoors. Through projects in this area, you investigate the great outdoors and participate in activities that prepare you for learning more about the outdoors and natural ecology.

Entomology

Entomology is an interest of yours if you've ever chased butterflies or caught ladybugs to get a closer look at them. You've been attracted to the largest group of organisms on earth – insects – and the 4-H entomology project may be just for you.

Entomology, Level 1

Learn about insects, their behavior and their life history. As you learn about the parts of insects, discover different ways of collecting insects, observe their behavior and differences, learn how insects communicate, how they see, about their habits, how to control them and how they move.

This level may take up to three years to complete. Complete a minimum of seven activities and participate in two entomology project leadership experiences each year (such as giving a demonstration, participating in a judging activity, taking a tour, exhibiting your project, or attending a workshop).

M Teaming with Insects, Level 1, BU8440, \$7.45

Entomology, Level 2

You'll have fun assembling proper collecting equipment, locating places where insects can be found, collecting insects at night and learning how to pin and label. Discover how insects use color to communicate, understand what insects eat and see how they develop and grow. You'll build an extractor and a separator, learn how to read insect control labels and explore careers in entomology.

You'll need to complete a minimum of seven activities and participate in at least two leadership experiences. The level may take up to three years to complete.

M Teaming with Insects, Level 2, BU8441, \$7.45

Entomology, Level 3

You may need additional resources to complete some of the activities in this level. Learn how to raise mealworms with different amounts of food, observe a colony of ants, manipulate bee behavior, organize

an insect club, make an identification key that others can use and explore how insects detect different odors. You'll plant a butterfly garden, raise mosquitoes in a rearing chamber and find and prepare a spider's web for display.

Complete a minimum of seven activities and two leadership experiences each year (such as giving a demonstration, participating in a judging activity, taking a tour, exhibiting your project or attending a workshop). This level may take up to three years to complete.

M Teaming with Insects, Level 3, BU8442, \$7.45

Additional Resources for All Levels

M Cut-out labels for insect collections, 2FM227, \$0.25

M Blank entomology labels, 2FM228, \$0.25

S Collecting, Mounting and Displaying Insects in 4-H, 5282, \$2.75

L Teaming with Insects Facilitator's Guide, BU8443, \$7.45. This guide provides practical tips, 14 group activities and supplementary information. Youth compare the leaping abilities of humans and insects, rear and release monarch butterflies, explore how insects transmit disease, study insect behavior, learn insect words, participate in a night safari and develop an insect promotion campaign.

Entomology Independent Study/Advanced (see pg 6)

Beekeeping Resources

PDFs available online at <https://extension.entm.purdue.edu/publications/pubs/bee.html>

Understanding the Honey Bee

Working with Honey Bees

Advanced Beekeeping Methods

PDF available online at <https://extension.entm.purdue.edu/publications/pubs/4h.html>

Indiana 4-H Beekeeping Helper's Guide

Forestry

Forestry products abound in Montana — from giant cedars in the west to pines in the southeast. Through the 4-H forestry project, you will discover how important these forests are to our state. You'll also learn about forest ecology and people's reliance on forest products. You'll explore the relationship between trees, people and communities.

Forestry, Level 1

Learn about the different types of trees and tree parts, characteristics of different forests, what forests need to grow and thrive, forestry careers and the many different products and benefits people get from forests.

Complete a minimum of six activities each year. Complete the entire level (at least 18 activities) within three years.

M Follow the Path, BU8038, \$6.25

Forestry, Level 2

Take a closer look at the inner workings of trees, explore forest change, learn about forest health concerns and discover the health benefits that trees have for people. Continue to learn about the different types of trees and tree parts, characteristics of different forests, what forests need to grow and thrive and the many products and benefits that people get from forests.

Complete at least six activities each year to complete the level. Complete at least 18 of the Reach for the Canopy activities within three years.

M Reach for the Canopy, BU8039, \$6.25

Forestry, Level 3

Learn to examine and distinguish different types of trees, learn about tree fruits, learn how to develop a community forest map, learn about genetics, look at forests on a global scale, learn how to care for trees and think about how to conserve forests.

Complete at least six activities each year to complete the level. Complete at least 18 of the Explore the Deep Woods activities to complete this within three years.

M Explore the Deep Woods, BU8040, \$6.25

Additional Resources for All Levels

L Forestry Helper's Guide, BU8041, \$6.25. This guide provides forest information, group youth activities and practical tips. Using this curriculum, youth develop a lifelong appreciation of forests.

Forestry Independent Study/Advanced (see pg 6)

Outdoor Adventures

Outdoor Adventures help youth experience the fun and excitement of the outdoors as they progress from day hikes to overnight camping trips to extended backpacking expeditions. The projects feature experiences related to food, shelter, "Leave No Trace" ethics, safety, navigating, equipment and camp management. Youth and adults can learn to preserve and appreciate the out-of-doors as they experience Montana's abundant natural resources. This is a great club project for a group of youth and adults who want to learn more about teamwork and responsibility as they plan their adventures.

Outdoor Adventures, Level 1

Youth will learn about shelter selection, "Leave No Trace" camping skills, outdoor cooking, environmental awareness and appreciation.

Complete at least six activities each year. It is recommended to complete two activities in Chapter 1 before the first short 1–2 hour day hike; two activities in Chapter 2 before a half-day hike; and two activities, including the Leave No Trace Activity in Chapter 3 and 4 before a full-day hike. Each level may take up to three years to complete.

M Hiking Trails, BU8043, \$6.25

Outdoor Adventures, Level 2

In Level 2, youth will experience planning and taking a day-long hiking trip in a more remote area. Youth will also learn about proper clothing needs, what to pack in a daypack, how to read topographic maps and new orienteering skills.

Complete at least six activities each year. Do at least 10 of the Camping Adventures activities and 10 Reach the Peak activities to complete this project and receive a completion certificate. Each level may take up to three years to complete.

M Camping Adventures, BU8044, \$6.25

Outdoor Adventures, Level 3

Level 3 focuses on being on the trail overnight. Youth will consider clothing needs and learn how to set up tents and use backcountry stoves safely. They will also learn about basic nutritional needs, menu planning, personal hygiene and basic first aid.

Complete at least six activities each year. Before backpacking, complete at least two activities in Chapter 1, including Gathering Group Gear, complete Food for Thought in Chapter 2; complete the Leave No Trace in Your Place activity in Chapter 3; and complete all the activities in Chapter 4. Complete at least 20 of the Backpacking Expeditions and Reach the Peak activities within three years to complete this project.

M Backpacking Expeditions, BU8045, \$6.25

Additional Resources for All Levels

L *Group Activity Helper's Guide, BU8046, \$6.25. Facilitates 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.*

Outdoor Adventures Independent Study/Advanced (see pg 6)

Shooting Sports

To enroll in 4-H shooting sports, youth must be 9 years old on Oct. 1 of the current 4-H year. The only exception is the BB Safety course which is open to those turning 8 years old by Oct. 1 of the current 4-H year and the Western Heritage Project.

Shooting Sports is a safe, fun and challenging activity that can become a lifelong passion to be shared with the family. The safe and responsible use of firearms and archery equipment is the primary focus of the 4-H Shooting Sports program. Members will improve marksmanship skills, have the opportunity to compete, and learn self-discipline and personal responsibility. All 4-H shooting sports leaders must attend a state training workshop and become certified in their shooting discipline before serving as project leaders. Some counties may have further requirements depending on shooting discipline. It is strongly encouraged, and required in some counties, that a parent, guardian or other responsible adult be willing to attend project meetings with the 4-H member. There is opportunity for practice under the watchful eye of trained leaders who have the final say in safety matters and the behavior of the youth enrolled. Keeping current record books is required of all members. Check with your county Extension office for further requirements.

All 4-H Shooting Sports curriculum is only to be used by a 4-H member enrolled in County Shooting Sports programs led by a 4-H certified Shooting Sports leader. No Shooting Sports projects that involve firearms, airguns or archery equipment may be taken independently without a certified leader.

Air Pistol

In this project, youth will learn safety and marksmanship skills when using a pistol. Sight alignment and sight picture will be stressed as will trigger control, proper stance and consistent shooting. Shooting is done off a rest and continues into offhand as skills improve.

Members must be 9 years old on Oct. 1 of the current 4-H year.

M 4-H Pistol Member Record Book, 4H753, \$8.00

L 4-H Pistol Discipline Manual is presented at the state 4-H shooting sports workshops.

L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Small Bore Pistol (.22)

In this project, youth will learn safety and marksmanship skills when using a pistol. Sight alignment and sight picture will be stressed as will trigger control, proper stance and consistent shooting. Shooting is done off a rest and continues into offhand as skills improve.

Members must be 9 years old on Oct. 1 of the current 4-H year.

**Competitors must be 10 years old or older by Oct. 1 of the current 4-H year to participate in the state shoot.*

M 4-H Pistol Member Record Book, 4H753, \$8.00

- L 4-H Pistol Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Air Rifle

Members learn the fundamentals of rifle shooting; sight alignment, sight picture, trigger control, breathing and proper stance.

Members must be 9 years old on Oct. 1 of the current 4-H year. Some counties with advanced projects may have further age guidelines.

- M 4-H Rifle Member Record Book, 4H750, \$8.00
- L 4-H Rifle Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Small Bore Rifle (.22)

Members learn the fundamentals of rifle shooting; sight alignment, sight picture, trigger control, breathing and proper stance.

Members must be 9 years old on Oct. 1 of the current 4-H year.

**Competitors must be 10 years old or older by Oct. 1 of the current 4-H year to participate in the state shoot. Some counties offering advanced projects may have further age guidelines.*

- M 4-H Rifle Member Record Book, 4H750, \$8.00
- L 4-H Rifle Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

BB Gun Safety

Members learn the fundamentals of rifle shooting; sight alignment, sight picture, trigger control, breathing and proper stance.

Members must be 8 years old on Oct. 1 of the current 4-H year. Some counties with advanced projects may have further age guidelines.

- M 4-H Rifle Member Record Book, 4H750, \$8.00
- M Daisy BB Gun Curriculum, 4HDL03, available free online. This book is available for Certified Leaders, please contact the state 4-H Center for Youth Development to access, (406) 994-3501.
- L 4-H Rifle Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Archery

The 4-H archery project teaches proper archery techniques regardless of bow type. Members may shoot a recurve or compound bow and

further divisions include additions of sights and other equipment. The county 4-H leader and county Extension Agent will assist youth in type of equipment that is appropriate for the age and stature of the 4-H member.

Members must be 9 years old on Oct. 1 of the current 4-H year. Check with your County Extension Office for further requirements.

- M 4-H Archery Member Record Book, 4H751, \$8.00
- L 4-H Archery Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Shotgun

Members of this project will learn basic through advanced skills in trap, skeet and sporting clay shooting depending on the facilities available in their county. As with all 4-H shooting sports projects, safety is a primary emphasis as is self-improvement. Members will also learn the types of shot, gauges, shooting techniques and the rules of competition.

Members must be 9 years old on Oct. 1 of the current 4-H year. Some counties may have further age guidelines and the county 4-H leader and county Extension Agent will determine the appropriateness of this project for members based on the age and stature of the 4-H member.

- M 4-H Shotgun Member Record Book, 4H752, \$8.00
- L 4-H Shotgun Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Muzzleloading

The 4-H muzzleloading project will teach differences between black powder or black powder substitutes and smokeless powder. Members will improve in marksmanship skills and learn the proper handling techniques necessary for the safe use of muzzleloading firearms. Depending on the county's program, cap and ball revolvers may be included and if used in the 4-H Western Heritage Project, a 4-H certified muzzleloading instructor must be present. Most projects also include inline muzzleloaders as well as traditional muzzleloaders.

Members must be 9 years old On Oct. 1 of the current 4-H year. Some counties may have further age guidelines and the county 4-H leader and county Extension Agent will determine the appropriateness of this project for members based on the age and stature of the 4-H member.

- M 4-H Muzzleloading Member Record Book, 4H755, \$8.00
- L 4-H Muzzleloading Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Hunting

The 4-H hunting/wildlife project includes sections focused on firearm and bow safety, but also teaches 4-H members conservation, wildlife habitat requirements, tracking, stalking skills, orientation, outdoor survival and more. This project can be expanded into almost any aspect of wildlife management and can be valuable to anyone spending time outdoors.

Members must be 9 years old on Oct. 1 of the current 4-H year.

- M 4-H Hunting/Wildlife Member Record Book, 4H754, \$8.00
- L 4-H Hunting/Wildlife Discipline Manual is presented at the state 4-H shooting sports workshops.
- L 4-H Shooting Sports Project: STEM Connections, SC8332, \$10.50

Montana 4-H Western Heritage Project (Western Action Shooting)

This project includes 4-H Western Action Shooting and more. Members will learn the history of 19th century firearms, period correct frontier clothing, hats, boots, holsters and the true lifestyles of those who lived in the Old West from many diverse walks of life. Some members may be interested in becoming Old West re-enactors while others might focus mainly on the shooting aspects of the project – or both. Firearm safety and responsible behavior is stressed throughout the project.

There are age divisions in the 4-H Western Heritage Project. Western Heritage age divisions – Members who are 9–11 years old by Oct. 1 of the current 4-H year may shoot .22 rifle only. Members age 12–13 years old by Oct. 1 of the current 4-H year may shoot .22 rifle, .22 pistol and shotgun. Members age 14 and older by Oct. 1 of the current 4-H year may shoot pistol, rifle, shotgun and any allowable caliber.

All age divisions participate under the immediate guidance of a certified 4-H Western Heritage Project instructor. Some counties may have further age guidelines and the county 4-H leader and county Extension Agent will determine the appropriateness of this project for members based on age and stature of the 4-H member, including use of a project eligibility assessment test. Each member's permission to participate rests with the certified 4-H instructor and the county Extension Agent.

- M 4-H Western Heritage Project, Youth Activity Guide, Levels 1–3, 5332, \$8.50
- L Western Heritage Project, Firearms, Gunleather, and Attire of the Frontier West 1860–1900, 5323, \$25.50 (soft cover or spiral bound edition)
- L Western Heritage Project, Firearms, Gunleather, and Attire of the Frontier West 1860–1900, 5323, \$45.50 (hard cover coffee table edition)

- L 4-H Cowboy Action Shooting Discipline Manual is presented at the state 4-H shooting sports workshops.

Shooting Sports Independent Study/Advanced (see pg 6)

Any independent study project in 4-H shooting sports that involves firearms or archery gear must be under the supervision of a certified 4-H instructor trained in the appropriate discipline. At home independent study projects may be conducted without an instructor if they are limited to posters, clothing or other educational exhibits that do not include firearms or archery gear.

Sport Fishing

Sport Fishing is a project made for Montana. After all, a river runs through it! Learn how to make your own fishing tackle, experience the world of aquatic ecology, and explore the relationship between fish, people and the environment. You'll also learn about casting methods, how to decide on the proper tackle and much more.

Sport Fishing, Level 1

Learn about tackle, different casting methods and how your actions affect the fishing environment, as you improve your fishing skills.

Complete a minimum of 6 activities in "Take the Bait." You must also participate in three additional learning activities, such as giving a demonstration, exhibiting at the fair, visiting a tackle shop or other activities to expand your knowledge. It may take up to three years to complete this level.

- M Take the Bait, BU7598, \$8.45

Sport Fishing, Level 2

Learn more about fishing, aquatic ecology, knot tying, types of casting methods, characteristics of fish and how to prepare a fish meal for your family. You'll better understand the importance of fishing regulations.

To complete this project, you must do a minimum of six activities in the manual as well as participate in at least three additional learning experiences. It may take up to three years to complete this level.

- M Reel In the Fun, BU7599, \$8.45

Sport Fishing, Level 3

Learn how to determine the age of fish, disassemble and reassemble a fishing reel, make artificial lures and flies, modify fishing equipment, design and craft a lure and collect and identify aquatic insects.

To complete this project, do a minimum of six activities in the manual as well as participate in at least three additional learning experiences. It may take up to three years to complete this level.

M Cast Into the Future, BU7600, \$8.45

Additional Resources for All Levels

L *Sport Fishing Helper's Guide*, BU7601, \$8.45. Youth identify fish characteristics, plan the club year, design a fish print 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 sportfishing quiz bowl and conduct a fishing skill-a-thon.

Sport Fishing Independent Study/Advanced
(see pg 6)

Wildlife

Wildlife

This project is for young people who enjoy wildlife and those who want to learn more about wildlife. This book introduces youth to 12 animal species. Members interested in wildlife are encouraged to use this manual as a basis for their first year in the project and supplement it with other information.

M 4-H Wildlife Science Level 1, 4H1044, \$6.00

L 4-H Wildlife Science Level 1, Facilitator's Guide, 4H1045, \$3.50

Additional Resources

L *Montana WHEP Level 3 Manual*, 5313 (Available for check out from State 4-H Office)

S *Furbearers of Montana*, 5257, \$1.25

S *Owls of Montana*, 5232, \$1.25

Web <http://fwp.mt.gov/education/ecosystem/home.html>

Web <http://fieldguide.mt.gov/>

Wildlife Independent Study/Advanced (see pg 6)

FAMILY AND CONSUMER SCIENCES

Family and Consumer Sciences projects help teach the necessary skills to make informed decisions and wise consumer choices. These projects teach everyday life skills — from clothing consumerism and construction to quilting and from home environments to child care.

Babysitting

This project curriculum familiarizes teens with the responsibilities of babysitting and provides the necessary information for them to become capable, caring, trustworthy and competent sitters. They will learn how to keep children safe and happy, talk with parents and adults, make responsible decisions and handle emergencies. Youth will also engage in hands-on activities, learn from guest speakers, do role plays, use their creativity and have fun while learning.

Babysitting

There are five chapters and lessons in the babysitting member guide that include safety, First Aid and CPR, child development, nutrition, entertaining children and the business of babysitting. Each lesson contains four to five areas of study/activity. Babysitting curricula is based on character traits including trustworthiness, respect, responsibility, fairness, caring and citizenship. This series should be combined with Certified First Aid and CPR instruction to complete the babysitting course requirements.

A member could work on this book for two years, but it is recommended that they finish the book in one year to become a certified babysitter. To be certified, he/she would also need certification from the Red Cross or another group in First Aid and CPR.

M/L I have what it takes to be YOUR Teen Babysitter, 5356, \$ to be determined

Child Development Independent Study/Advanced
(see pg 6)

Family Adventures

Family Adventures

Family Adventures is a special kind of project in Montana 4-H. Your family, no matter how you define it, will fit this project. Ask everyone in your family to join you. Your whole family doesn't have to take part, but try to get everyone to participate.

Fourteen "family adventures" are included in this project. Each family is encouraged to select seven adventures to complete the project. The adventures include: Cooking Together, Stories, Family Fun Time, Outdoor Adventures, Photo Stories, Fire Safety, Energy Adventures, About the Flag, Shopping Adventures, Family Tree, Family Rituals, Volunteering and Creating your own Adventure. You can always do more if wanted.

M Family Adventures, 5302, \$5.50

Family Adventures Independent Study/Advanced
(see pg 6)

Interior Design

Intermediate – Advanced. Design Decisions is used for all 4 levels of project completion. Develop a designer's touch by navigating through four exciting sections. In Level 1, learn and apply basic design concepts to walls, windows and floors. Level 2 explores how to design with style as you plan, select and care for furniture, fabrics and decorative items for a room. Level 3 is all about accessories and adding personality and interest to a room. Level 4 challenges youth to create a home that is healthy, energy efficient, and conserves natural resources.

Interior Design, Level 1

Youth will learn and apply basic design concepts to walls, windows and floors. Youth interested in a new color scheme, furnishings and accessories for their own rooms or for other projects will love this level. Design Decisions takes youth step-by-step through the design process.

Finish a minimum of one activity in two sections to complete the level. The level may be completed in one year but can be done in two.

M Design Decisions, 4H1600, \$9.45; or CD, \$6.45

Interior Design, Level 2

Explore how to design with style as you plan, select and care for furniture, fabrics and decorative items for a room.

Finish a minimum of one activity in 3 sections per year to complete the level. Youth may stay involved in this level for up to three years.

M Design Decisions, 4H1600, \$9.45; or CD, \$6.45

Interior Design, Level 3

In this level, learn about accessories and adding personality and interest to a room.

Complete all four sections of The Finishing Touch, and at least one activity per section.

M Design Decisions, 4H1600, \$9.45; or CD, \$6.45

Interior Design, Level 4

This level will challenge youth to create a home that is healthy, energy efficient and conserves natural resources. Explore career ideas, community service, safety tips and internet resources.

Each of six sections has activities to complete. Choose up to three sections and complete a minimum of one activity per section to complete this project level. This level can be taken as a project for three years.

M Design Decisions, 4H1600, \$9.45; or CD, \$6.45

Interior Design Independent Study/Advanced (see pg 6)

Sewing and Textiles

This category will help you explore the world of sewing and textiles by completing various sewing and textile projects.

Sewing, Level 1

Members will learn the tools of the sewing trade and how to use them. There are several projects members can complete in the Maker's Guide, improving their skills as they complete activities.

Utilize the lessons in Fundamentals and complete 3–4 projects per year in the Maker's Guide or similar skill level projects.

M STEAM Clothing: Maker's Guide to sewing stuff, 4H2240, \$6.50

M STEAM Clothing 1: FUNdamentals, 4H2210, \$12.50

M Sew Exciting, Level 1, 5350, \$6.00

M The Complete Photo Guide to Sewing, 5338, \$20.00

Sewing, Level 2

Advance your sewing skills to include; sewing in a set-in sleeve and a collar. You will explore various pocket applications, and fitting and design basics.

Utilize the lessons in Level 2 and complete 3–4 projects per year using skills learned at this level.

M STEAM Clothing 2: Simply Sewing, 4H2220, \$12.50

M The Complete Photo Guide to Sewing, 5338 \$20.00

Sewing, Level 3

Practice advanced sewing skills and garment construction techniques. Enroll if you and your leader agree you are ready. Skills include tailoring, linings, interfacing and sewing with challenging fabrics.

Utilize lessons in Level 3 to complete 1–2 projects per year using skills learned at this level.

M STEAM Clothing 3: A Stitch Further, 4H2230, \$12.50

M The Complete Photo Guide to Sewing, 5338 \$20.00

Sewing/Textiles Independent Study/Advanced (see pg 6)

Knitting

Beginning, Intermediate or Advanced levels

The 4-H knitting project is designed to teach the basic skills of knitting and then allows you to use creativity in producing articles that will enhance your wardrobe. There are three levels: beginning, intermediate and advanced.

Check with the MSU Extension office for appropriate guidelines for project completion and achievement recognition.

- M Knit Together, 4H416, \$4.50
- M University of Kentucky Knitting Project Book and Factsheets, 4JF13PA, available free online

Crochet

Beginning, Intermediate or Advanced levels

The 4-H crochet project is designed to teach you about tools and equipment, choosing materials and working from a plan. The project includes several basic stitches as well as pattern stitches. The three levels in the crochet project are beginning, intermediate, and advanced.

Check with the MSU Extension office for appropriate guidelines for project completion and achievement recognition.

- M University of Kentucky Crochet Project Book and Factsheet, 4JF10PA, available free online
- M Crochet 4-H Project Guidelines, 4HDL24, available free online

Embroidery

Beginning, Intermediate or Advanced levels

The 4-H embroidery project is designed to encourage creativity and to meet the needs of each individual member. There are three levels: beginning, intermediate, and advanced. Embroidery could include, but is not limited to crewel, huck or Swedish weaving and creative stitchery on clothing or other articles.

Check with the MSU Extension office for appropriate guidelines for project completion and achievement recognition.

- M University of Kentucky Embroidery Project Book and Factsheets, 4JF11PA, available free online

Shopping in Style

In Shopping in Style, youth will learn about clothing. Youth will learn what looks best on them and how to build a versatile wardrobe while staying in budget. Youth will be able to identify their clothing needs and learn to “put it all together” and present themselves with confidence.

Complete seven lessons in the project book per year. It may take three years to complete the project.

- M Shopping in Style, 4H435 \$12.50

Shopping in Style Independent Study/Advanced (see pg 6)

Quilting

This quilting project is designed to teach techniques and skills in making quilted, appliquéd or patchworked items for home or personal use. Youth choosing to do special projects would complete an Independent Study/Advanced Project.

Quilting, Level 1

This beginning quilting project will teach about quilting and piecing. Learn how to select fabrics, to cut and stitch the quilt top, as well as finishing the quilt. Some basic patterns will be included in this project.

Complete all seven activities in the book, take part in two learning experiences, complete two leadership activities, and write a project summary.

- M You Can Quilt!, 4H499, \$8.00

Quilting, Level 2

Youth can print the book or learn right from the CD. This project is designed for completion in two years. Since there is not a leader manual specific to this project, use the self-determined project (pg. 7) to set goals. The Quilt Quest Leaders Guide gives guidance to help youth succeed in quilt projects and has additional projects and resources.

Youth must finish two projects of their choice each year in the Block 1 book to complete the project. Youth may do more than two projects and could use other patterns included in the project book. This level is designed for completion in two years. Use the self-determined project to set goals.

- M Quilt Quest Project Block 1, Creative Corners, CD, 4H1320, \$8.45
- M Quilt Quest Project Block 2, Terrific Triangles, CD, 4H1330, \$8.45

Quilting, Level 3

Terrific Triangles CD includes a wide variety of designs using basic triangles — both half square and quarter square triangles, plus a couple using equilateral triangles. You can print the book or use right from the CD. Each Block in Quilt Quest increases in skills and mastery of quilting, building upon the previous Project Block.

Youth must complete two projects of their choice each year in the Terrific Triangles book to complete the project. Youth may do more than two projects and could use other patterns included in the project book. This level is designed for completion in two years. Use the self-determined project (pg. 7) to set goals.

- M Quilt Quest Project Block 1, Creative Corners, CD, 4H1320, \$8.45
- M Quilt Quest Project Block 2, Terrific Triangles, CD, 4H1330, \$8.45

Additional Resources for All Levels

S *Beginners Guide to Quilting, 16 Projects to Learn to Quilt, 5340, \$22.00*

S *Start Quilting with Alex Anderson, 5339, \$15.00*

L *Quilt Quest Leaders Guide, CD, 4H1310, \$10.45*

Quilting Independent Study/Advanced (see pg 6)

PLANT SCIENCES

Plant Sciences projects are designed to teach how plants and soils are exciting and interesting. Learn to identify plants, develop skills in caring for and using plants, recognize undesirable and poisonous plants, grow crops properly, harvest and process crops and to use them or market them. Learn about the relationships between all phases of natural resource management including wildlife, range, forestry, water and soils and develop an appreciative attitude toward sound management of natural resources and a broad understanding of relationships between agriculture and nature. You will also be able to seek out the scientific principles of plant growth and develop an interest in further work or careers.

Crop Science

Small Grains: Wheat, Oats, Barley, and Rye

This project is suggested for youth in grades 5–12. Level 1 and 2 members can study plant variety and selection, display stages of plant development, test seed germination and methods of seeding, learn about seasonal pests and determine pesticide hazards. Level 3 and 4 members can take soil samples, learn to recognize diseases, pests, and weeds, study production costs and market prices, learn about necessary nutrients and determine field acreages.

Complete at least three exercises in the book and make a project plan to complete the project.

M Small Grains: Wheat, Oats, Barley, and Rye, MJ0110, \$4.25

**Crop Science Independent Study/Advanced
(see pg 6)**

Gardening

Gardening, Level A

This book is for youth in grades 3–4. Learn how to plan an in-ground or container garden; prepare soil; and when, where, and what to plant. Level A introduces basic plant science, garden friends and foes, tool safety, using the vegetable harvest, and horticulture-related careers.

Youth “learn by doing” in 12 activities that include germinating seeds, growing a super-sized pumpkin, experiments with plant parts, and visiting a grocery store to explore vegetables.

Complete the activities in the book for year one. Six additional activities are listed to be completed in year two.

M See them Sprout, 4H1037, \$7.45

Gardening, Level B

This book is for youth in grades 5–6. Youth learn how to modify garden plans. Topics include seed varieties and cultivars, starting seeds indoors, using transplants, composting, and integrated pest management. Science topics include plant families, how plants respond to light, and how to grow new plants from plant parts. Youth “learn by doing” in 12 activities that include building a plant maze, making a worm box, judging vegetables, and composting.

Complete the activities listed in the book for year one. Six additional activities are listed to be completed in year 2.

M Let’s Get Growing, 4H1038, \$7.45

Gardening, Level C

This book is for youth in grades 7–9. Youth learn different planting methods, how to improve soil, and how to extend the growing season. They explore photosynthesis, hybrid vs. standard forms, herb gardening and preservation, plant companions, storing and saving seeds, how to identify and prevent weeds, insect damage, and animal pests. Youth “learn by doing” in 18 activities that include cross-pollinating flowers, making an acid/base indicator, producing a chromatogram, and helping others in garden projects.

Complete the activities in the book for year one. Six additional activities are listed to be completed in year two.

M Take Your Pick, 4H1039, \$7.45

Gardening, Level D

This book is for youth in grades 10–12. Youth learn to maximize garden space using different planting methods, then how to harvest, store, preserve, and/or sell vegetables and herbs. They study plant genetics, plant diversity, plants in space, integrated pest management and horticulture-related careers. Youth “learn by doing” in 18 activities that include using garden-planning software and apps, investigating effects of pollution, growing hydroponic plants, and conducting a cultivar trial.

Complete the activities in the book for year one. Six additional activities are listed to be completed in year two.

M Growing Profits, 4H1040, \$7.45

Additional Resources for All Levels

S *Suggested 4-H Garden Exhibits, 4H970W, \$2.00*

L *Gardening Helper’s Guide, 4H1041W, \$7.45. This guide*

provides additional information for adult volunteers to expand on topics in the youth manuals. This guide includes additional activities that are great for afterschool or club settings and includes answers to the questions posed in youth books.

Gardening Independent Study/Advanced (see pg 6)

Range Science Management

Rangelands are grasslands, shrublands, woodlands, wetlands, and deserts that are grazed by domestic livestock or wild animals. In this project you will learn the importance of rangeland and how rangeland is managed and how to identify common rangeland plants. You will build a plant press and begin your rangeland plant collection.

Range, Level 1

See project sheet on the Range Science CD

- M Range Science Resources CD, 5345, \$5.00
- M Range Plants of Montana, MSU Extension, EB0122, \$10.00
- M Range Plant Labels, 2FM203, Pad of 25 for \$0.25

Additional Resources

- S *At Home on the Range, Level 1, 5311, \$5.50*

Range Science Independent Study/Advanced (see pg 6)

Level 1 is a three-year project. Due to outdated curriculum, Montana State 4-H Curriculum Team (MCAT) is in the process of replacing Montana range curriculum. The above is temporary until MCAT has developed a suitable curriculum for the state.

Weed Science

Weed Science looks at one of the most important environmental issues in Montana. Weed science is the study of how unwanted plants grow, interact with other plants and animals, and respond to management. Through this project, develop knowledge and understanding of natural resource ecology and the interaction between nature, agriculture and recreation. Learn how to make a plant press, the science of weed control, various methods for controlling weeds, the impact of invasive plants, and how to monitor changes in the land. Study how weeds use different dispersal methods, learn why weeds are fierce competitors, and explore careers.

Weed Science, Level 1

This level is designed for youth ages 11–13. You will develop the basic understanding of invasive plants, causes of their invasion,

economic and environmental impact of weeds, weed identification, methods of weed dispersal and get an introduction to rangeland monitoring. Build a plant press and collect at least 25 weeds.

This level has 14 activities that must be completed before moving on to Level 2, in addition to one “more challenge” option. Work at your own pace, but complete the level in three years. Additionally, it is recommended to build the plant press during the first year and collect at least 25 weeds by the time you finish the level.

- M Weed Science, Level 1, 5352, \$9.50
- M Weed Science, Level 2, # and price TBD
- M Montana Noxious Weeds, EB0159, \$4.95

Additional Resources

- M *Missoula kNOweeds Curriculum -*
<https://www.missoulaeduplace.org/weed-curriculumhtml>
- S *Plant Identification Learning Kit (available at state 4-H Center for Youth Development)*
- S *Montana Noxious Weed Education Folder, 5343, \$2.00*
- S *Alien Invasive Pest Species Folder, 5344, \$2.00*

Weed Science Independent Study/Advanced (see pg 6)

COMMUNICATIONS AND EXPRESSIVE ARTS

These projects help develop your skills in communications and the arts. From photography and public speaking to outdoor adventures, these projects will enhance your abilities to communicate effectively with others in a variety of media and form positive relationships. Some of these projects can evolve into careers. Most can become lifelong hobbies that enrich one's life.

Cowboy Poetry

Cowboy Poetry is designed to teach you how to write original poetry. Learn about the basic rhyme patterns used in most poetry, some of the classic cowboy poems from the old masters, the basics of meter and rhythm and “free verse.” This project is designed to provide another way to practice public presentation skills, develop a greater appreciation for local history and everyday life and give opportunities to write an oral history of family and experiences in 4-H. This project is self-paced so you can learn at your own pace. There are no “levels” and you can re-enroll as often as you would like.

To complete this project, set goals and record project highlights in Montana 4-H record forms, write at least three original poems composed of at least four-line stanzas and demonstrate a specific rhyme pattern in original verse. The member manual also lists other

activities to make your experiences rewarding—from performing at local events to locating cowboy poetry in your local library and on the internet.

M Spurrin' the Words, Youth Guide, 5308, \$8.00

L Spurrin' the Words, Leader's Guide, 5309, \$8.00

Leathercraft

Leathercraft should be of interest to youth in rural or urban areas. It complements other projects using leather products, such as the livestock, horse and clothing projects. Use creativity to create projects and learn new skills. You will appreciate the natural beauty and usefulness of leather, learn the principles of good design, learn to be creative, original and strive for quality craftsmanship.

Leathercraft, Level 1

Select and tool two or more articles, practice simple lacing, finishing and assembly of leather articles, keep accurate records of costs and skills gained and share information with others.

M 4-H Introduction to Leathercraft and Creative Stamping, Unit 1, CO2001C, \$3.50

L 4-H Leathercraft Leaders Guide, CO2000, \$2.50

Leathercraft, Level 2

Use basic leather carving tools, practice elementary sketching and design, select, carve and tool two or more articles; share information with others and keep accurate records of costs and experiences.

M Beginning Leather Carving, Unit 2, CO2002C, \$3.50

L 4-H Leathercraft Leaders Guide, CO2000, \$2.50

Leathercraft, Level 3

Select, carve and tool two or more articles, including one or more of the following: inverted carving techniques, beginning dyeing, lining, simple molding and shaping or hand stitching. Share information learned and keep accurate records of project costs and experiences.

Materials for Levels 3–7

M 4-H Leathercraft, Levels 3–7, CO2003C, \$3.50

L 4-H Leathercraft Leaders Guide, CO2000, \$2.50

Leathercraft, Level 4

Learn how to figure carve and emboss. You will also perfect skills from previous levels, share information and keep accurate records of project costs and experiences.

Leathercraft, Level 5

Learn about solid color dyeing and shading, peer teaching, leading a class and keeping accurate records of project costs and experiences.

Leathercraft, Level 6

Learn more about carving, dyeing and shading. You will also select one or more pictures, scenes or portraits to carve, frame or mount the picture and share information with others. You will keep accurate records of project costs and experiences.

Leathercraft, Level 7

Make or rebuild a saddle, study references on saddle making and share information with others while keeping accurate records of project costs and experiences.

Leathercraft Creations

Units 8–10 focus on the creative use of leather. This project should be carried for more than one year per level, depending on your desired skills and interests.

Project Requirements – Unit 8

Develop a pattern using stamping tools, create balance in design and color and apply color to stamped designs. You will also tool two or more articles using creative design.

Project Requirements – Unit 9

Make two or more articles using non-tooled and non-sewn techniques like lacing, braiding, expanding, and sculpting.

Project Requirements – Unit 10

Learn about selecting the type of leather and patterns for leather projects. You will make two or more items using sewing techniques.

Materials for Units 8–10

M 4-H Leathercraft, Levels 8–10, CO2008, \$2.50

L 4-H Leathercraft Leaders Guide, CO2000, \$2.50

Leathercraft Independent Study/Advanced (see pg 6)

Photography

Photography provides an interesting activity or project for youth of all ages. Photography introduces a useful hobby and a career field; giving educational guidance to develop skills in taking and using pictures. Gain an appreciation of photography as an art, science and communication tool that will help to observe and appreciate your surroundings. Photography is an excellent way to record events, ideas and situations for later use.

Photography, Level 1

This beginning level is for studying photography. Activities cover four main areas: Equipment, Lighting, Composition, and Skill Building. Topics include flash, black & white photography, and taking selfies. Having access to a camera (phone or DSLR) is essential, as well as deciding how and where to store photos taken during the project.

To complete this level, explore each of the four project areas (equipment, lighting, composition and skill building), take part in two organized project experiences and two leadership/citizenship activities.

M Photography Basics, 01902Y, \$10.45

Photography, Level 2

This is an intermediate level for a serious study of photography. Activities build on the four main areas from Level 1 (Equipment, Lighting, Composition, and Skill Building) and include topics such as the Rule of Thirds, Selecting a Lens, and Panorama. Having access to a camera (phone or DSLR) is essential, as well as deciding how and where to store photos taken during the project.

To complete this level, explore each of the four projects (equipment, lighting, composition and skill building), take part in two organized project experiences and two leadership/citizenship activities.

M Next Level Photography, 01903Y, \$10.45

Photography, Level 3

This is an advanced level for a serious study of photography. Activities build on the four main areas from Levels 1 and 2 (Equipment, Lighting, Composition, and Skill Building) and include topics such as Smartphone Exposure Tips, Low Light Challenges, and Studio Portraits. Having access to a camera (phone or DSLR) is essential, as well as deciding how and where to store photos taken during the project.

To complete this level, explore each of the four project areas (equipment, lighting, composition and skill building), take part in two organized project experiences and two leadership/citizenship activities.

M Mastering Photography, 01904Y, \$10.45

Videography, Level 4

This is a digital storytelling project using video cameras. Youth will learn how to use video cameras, a tripod, video tips and how to capture and transfer video footage. Youth will plan and carry out a video project in the form of a family vacation movie, a PSA or a documentary. It is advisable to understand the basics of photography before beginning in this project.

Create a short practice video on your subject and a longer video that has a script and uses storyboard techniques. This video will demonstrate digital storytelling and follow the rubric requirements in the book.

M Movie Magic, 5325, \$8.50

Photography Independent Study/Advanced (see pg 6)

Visual Arts

Youth will enjoy many artistic experiences and develop skills for a lifetime through activities focusing on elements and principles of art. The project books can be used by members and helpers. Many of the activities can be adapted to work with any grade.

Get Started in Art

Explore the basic elements of visual art through activities on color, line, space, balance, and more, and then complete your own work of art. This project can be repeated as long as new learning takes place and new works of art are completed. Appropriate for all skill levels and ages.

M/L Get Started in Art, 4H592, \$8.00

Drawing, Fiber and Sculpture

Drawing, fiber and sculpting activities are included in this project to develop the member's artistic skills and talents. All of the activities focus on exploring the elements and principles of design and encourage development of skills.

M/L Sketchbook Crossroads, BU8140, \$8.00

Painting, Printing and Graphic Design

The three media, painting, printing and graphic designs are the areas members choose from to develop their artistic skills and talents. All of the activities focus on teaching the elements and principles of design.

M/L Portfolio Pathways, BU8141, \$8.00

Visual Arts Independent Study/Advanced (see pg 6)

Scrapbooking

Scrapbooking, Level 1

Scrapbooking is an excellent way to capture and preserve all your favorite 4-H activities. This introductory project is designed for

youth of all ages with limited experience in scrapbooking. Youth are required to complete the activities outlined in the project book.

M Scrapbooking: A 4-H Guide to Preserving Memories, 4H497, \$8.00

Scrapbooking Independent Study/Advanced (see pg 6)

LEADERSHIP AND PERSONAL DEVELOPMENT

Citizenship

Navigating Citizenship, Levels 1 and 2

The 4-H Citizenship Curriculum incorporates several different successful models of civic engagement to educate members about three specific areas: Montana Government, United States Federal Government and Montana Tribal Government. You will learn how to get involved, who's who and how each of us fits into the overall government process. Discover how to become an active citizen when you participate in this project.

There are two units in this project, and it can be taken over a three-year period. In Level 1, middle school youth will complete three activities in the Montana Government section and write a bill. They can choose to attend and present their bill at the 4-H Citizenship Seminar held in Helena every two years (must apply through your county). In Level 2, high school youth complete five activities related to Federal or Tribal Governments and have a choice of applying for the Citizenship Washington Focus trip in Washington D.C. if they are at least 15 years old. In addition, youth will want to take a service learning project.

- M Navigating Citizenship, 806, \$8.00
- M Agents of Change, Level 1 for Middle School Youth, BU8182, \$6.25
- M Raise Your Voice, Level 2 for High School Youth, BU8183, \$6.25
- L Service Learning Helper's Guide, BU8184, \$6.25

Global Citizenship

As you discover the world with this 4-H project, learn what it means to be a global citizen, find out about other cultures and cultural exchange programs.

This project can be completed throughout your 4-H career. Level 1: Complete a cultural study and seven activities. Level 2: Complete three activities and ask your family to host an international exchange delegate (ages 10+); prepare for and reflect on your experience. Level 3: Complete three activities and travel with 4-H to another state or country as an exchange delegate (for high school youth, age 14+); prepare for and reflect on your experience.

M Passport to The World, 807, \$8.00

Interstate Exchange/Hosting

Interstate Exchanges give an opportunity to travel and learn about other states within the United States. You must either host a youth from another state or county or stay in another state or county with a youth. This project will allow you to taste other foods and participate in events and activities with 4-H'ers in other states. Learn about geography, meet other people, have lots of fun traveling and siteseeing. The guide will lead you through the process, help think about traveling and safety and give great ideas to implement during travel.

Complete a project journal including the areas outlined in the youth guide and plan a project report using a form of media such as TV, radio or newsletter. Guidelines for eligibility in the exchange program are set by counties.

- M MT 4-H Interstate Exchange and Hosting, Youth Guide, 5328, \$5.50
- L MT 4-H Interstate Exchange and Hosting, Recommended Best Practices, 5329, available free online

Citizenship Independent Study/Advanced (see pg 6)

Leadership

Leadership

Leadership is an active process, a set of knowledge, attitudes and skills in working with others toward a common goal. Leadership is an opportunity to develop leadership skills and give of yourself to help others. This project is designed to teach teens to be better leaders through educational experiences, service and practice. After enrolling in the Leadership project, you should cooperatively decide on an area of focus with your leader and county agent. You will develop an individualized learning and action plan for leadership development; organize the necessary resources, implement your leadership plan, evaluate your outcomes and make changes to improve it. You will truly "learn by doing" as you enhance your leadership competencies.

Must be 13 years of age on Oct. 1 of the current 4-H year, have completed at least one year in 4-H and be enrolled in at least one other 4-H project. All 4-H Ambassadors must enroll in this project. Yearly project completion consists of selecting and completing one

activity that focuses on further developing each of the six leadership skills (six activities minimum) and planning, implementing and evaluating a plan of action. In level 1 it is recommended that you select one activity per chapter.

- M Learning to Lead: Leadership Level I, 5330, \$4.95
- M Leading to Learn: Leadership Level II, 5331, \$4.95
- M Leadership – Plan of Action, 4HDL11, available free online

FOODS AND NUTRITION

Foods and Nutrition will help you appreciate the part food plays in relationships with family and friends. You will also gain a better understanding of the principles of nutrition as they relate to personal appearance, physical fitness and health. As you prepare foods you will become skilled in the planning, purchasing, preparing, and serving of nutritious, appealing and satisfying meals and snacks.

Cake Decorating

Cake Decorating, Level 1

Members will learn to bake and frost single-layer cakes and learn simple decorating procedures.

Cake Decorating, Level 2

Members will learn to bake two-layer cakes and make flat surface flowers, simple nail flowers, roses, a variety of borders and special effects like Cornelli lace, lattice work, basket weave and others.

Cake Decorating, Level 3

Members will learn to bake stacked and tiered cakes, master all flat surface flowers, and learn to make flowers using a lily nail.

Cake Decorating, Level 4

Members design various patterns using techniques learned in level 1–3, experiment with scratch recipes and decorate cakes with their own designs.

Materials For Levels 1–4

- M 4-H Cake Decorating, 5341, \$8.00

Cake Decorating Independent Study/Advanced
(see pg 6)

Cooking

Cooking 101

This book is for young people who are just learning to cook and bake. The project covers kitchen and food safety, basic food preparation and nutrition. It includes MyPlate, microwave cooking, mealtime and measuring basics. There are recipes for snacks, side dishes, main dishes, quick breads and desserts.

It may take up to two years to complete the level. There are 40 different recipes to choose from and several learning activities to complete. Prepare two to three dishes from each recipe section: snacks, side dishes, breads and desserts (10–15 dishes total). Complete two learning activities: Explore MyPlate Activity, Demonstrate your knowledge of safety basics, Experiment: Test for Safety of Microwave Dishes, Experiment: How much Flour will a Measuring Cup Hold? and/or Demonstrate your knowledge of

Cooking Basics: Give a demonstration to a leader or at your club. Complete at least one community service activity.

- M 4-H Cooking 101, 01512Y, \$11.00

Cooking 201

Each level builds upon skills learned in 4-H Cooking 101. At the beginning of each section, background information is provided to help learn more about the science behind food preparation, the nutritional contribution of each food group and basic information about preparing foods. Recipes included for each food group. For example, as part of exploring the Milk Group, youth learn how to make white sauce. This skill is also used in the Meat and Beans Group to make Chicken Rice Casserole; in the Vegetable Group, several recipes use white sauce as a base.

It may take two or three years to complete the level. There are 40 different recipes to choose from and several learning activities to complete. Prepare two to three dishes from each recipe section: Fruits, Vegetables, Grains, Meat and Beans, Milk, and Desserts (10 to 15 dishes total). Give two to three informal demonstrations on food or kitchen safety to your helper, leader or club. Demonstrate knowledge on Cooking "How To" Basics. Complete at least one community service project such as baking food for a fund-raising bake sale.

- M 4-H Cooking 201, 01513Y, \$11.00

Cooking 301

The 4-H Cooking 301 project builds on the skills learned in 4-H Cooking 101 and 201. At the beginning of each section, background information is provided to help youth learn more about the science behind food preparation, the nutritional contribution of each food group and basic information about preparing foods in the food groups.

Recipes are included for each food group. This curricula includes outdoor cooking, party planning, slow cookers, yeast breads and much more!

Prepare two to three dishes from each recipe section: Fruit Group, Vegetable Group, Grain Group, Meat and Beans Group, Milk Group and Desserts (10 to 15 dishes total). Demonstrate your knowledge on cooking or baking techniques by giving a "How To" demonstration to your helper, leader, or club. Suggested topic areas include yeast breads, short cakes, grilled foods and party planning. Complete one or two food science experiments. Complete at least one community service project such as planning and hosting a holiday party for the elderly or baking cupcakes for a homeless shelter.

M Cooking 301, 01514Y, \$11.00

Cooking 401

This project book is organized into sections by MyPlate Food Groups. Each section provides background information to help the young person learn more about the science behind food preparation. This is especially important in understanding how to produce quality products and to troubleshoot what went wrong when mistakes happen. Recipes are included for each food group.

Prepare 2–3 dishes from each recipe section: Fruit Group and Vegetable Group, Grains Group, Protein Foods Group, Dairy Group and Desserts. Demonstrate your knowledge on cooking or baking techniques. Give 3–5 "how to" demonstrations to your project leader, helper or club. Suggested topics include flatbreads, pastry, candy, celebration meal planning or meat preparation. Complete 1–2 food science experiments. Complete at least one community service project.

M Cooking 401, 01515Y, \$11.00

Additional Resources for All Levels

L 4-H Cooking Helper's Guide, 01516F, \$7.00

Baking

Baking 1

Baking 1 helps first-year baking members learn baking basics—nutrition, measuring and kitchen safety. The project is organized to cover one topic or food at each club meeting. Learn the basics of baking by making quick breads and cookies.

Complete this project with a minimum of seven activities each year.

M Baking 1, 4HDL07, available free online

Baking 2

In Baking 2, you will learn how to make more advanced quick breads and cookies. You also will review basic measuring techniques and baking terms, and demonstrate the proper way to use baking equipment and utensils when making the recipes.

Complete this project with a minimum of seven activities each year.

M Baking 2, 4HDL08, available free online

Baking 3

Baking 3 is an introduction to yeast breads. It is very different from Baking 1 and 2, teaching different techniques. Yeast bread baking develops your creativity. The project is organized so one subject can be covered at each meeting.

Complete this project with a minimum of seven activities each year.

M Baking 3, 4HDL09, available free online

Baking 4

Baking 4 teaches about cakes, pies and pastries. Learn about baking cakes, pastry recipes and techniques and troubleshooting.

Complete this project with a minimum of seven activities each year.

M Baking 4, 4HDL10, available free online

Food Preservation

Food Preservation

This advanced-level project is designed to help you home preserve produce—from your garden, a store, or a farmer's market—so that you can enjoy nutritious fruits and vegetables all year. The pressure canning method is not covered in this project. Members will explore different home preservation methods, understand how a food's pH determines which home food preservation method to use, gather the proper equipment for water bath canning, track when produce becomes ripe, learn how to home preserve produce using the freezing method and home preserve applesauce using the water bath canning method.

To complete the project members should complete seven activities, at least two learning experiences and be involved in at least two leadership/citizenship activities.

M Canning and Freezing, 4H670, \$8.00

Food Independent Study/Advanced (see pg 6)

SUPPORT MATERIAL

Montana 4-H offers a number of publications and other materials that support the efforts of leaders and members.

<http://montana4h.org/projects/index.html>
<http://montana4h.org/volunteer/index.html>

4-H Record Book and Project Completion Guidelines

http://montana4h.org/projects/support/record_books/index.html

Topics on this site include - Why have record books, How to make them valuable, What records to use, videos to help you complete, online record books and much more.

Montana 4-H Record Books are now available online through a mobile-friendly website (ZSuite). It mirrors the Montana 4-H record sheets in an easy-to-use, efficient format. To access ZSuite, members or club leaders should contact the MSU Extension office to determine if this method is being used in the county. After entering information, a printed version can be downloaded that looks nearly identical to records you write in.

4-H Member Records

- For the Record: Guide to Completing Your Records, 4-H website
- My 4-H Year Member Record, 2FM0263, available free online
- Non-Animal Project Record, 2FM0264, available free online
- Animal Project Record, 2FM0265, available free online

4-H Club Materials

- Montana 4-H President and Vice President's Book, 5244, \$4.50
- Montana 4-H Historian Book, check with your MSU Extension agent
- Montana 4-H Secretary's Book, 5327, \$4.50
- Montana 4-H Treasurer's Book, 5242, \$4.50
- Montana 4-H News Reporter's Book, 5243, \$2.50
- Montana 4-H Youth Officer Training, 5335, \$4.75
- 4-H Parliamentary Practice for 4-H, 5303, \$4.00

4-H Leader Materials

- Clover Selection Guide, 5173, Free (limited supply), or available free online
- Getting Started as a 4-H Project Leader, L90530, \$3.50
- Montana 4-H Councils and Committees Guide, 5281, \$4.50
- Montana 4-H Leaders' Handbook, 5271, \$4.50
- New 4-H Family Handbook, 5280, \$3.50
- Starting a 4-H Club in Montana, 5278, \$2.50
- Montana 4-H Youth Officer Training, 5335, \$4.75
- 4-H Past, Present, Possibilities: Exploring 100 years of Montana 4-H, 5333, \$15.95

Clover Communications

Get comprehensive guidelines, tips, techniques and scoring rubrics for demonstrations/illustrated talks, prepared speeches, impromptu speeches, career communications, commercials and promo packages. This book gives detailed instructions for volunteers, leaders, parents and 4-H members in a variety of communications areas.

M Clover Communications, 5342, \$7.50

L Clever Clover Communication: Grab and Go Activities for 4-H Volunteers.

Several MSU Extension agents captured favorite lessons that are quick and easy to follow. Club leaders, camp counselors, and teen leaders will be able to grab a lesson, have a quick review of supplies and be able to present communications activities with ease. Download at the 4-H website.

Service Learning

Learn how to research and identify a topic, create an action plan, carry it out and then celebrate your successes. Recruit others from your club and make it a group project. You'll be able to apply your skills and knowledge to a real problem in your community or in the world.

M Agents of Change, Level 1 for Middle School Youth, BU8182, \$6.25

M Raise Your Voice, Level 2 for High School Youth, BU8183, \$6.25

L Service Learning Helper's Guide, BU8184, \$6.25.

Find group service learning activities like 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 styles and the value of service.

Certificates and Planning Materials

- Certificate of Achievement, 4-H website
- Certificate of Achievement (1–8 Years), 4-H website
- Cloverbud Completion Certificate, 4-H website
- Meeting Agenda, 4-H website
- Volunteer Leader Certificate, 5128, \$.25 each
- Yearly 4-H Club Planning, 4-H website
- Judging, see P. 17

ADDITIONAL RESOURCES AND ENRICHMENT

The curriculum listed under each 4-H project has been used in afterschool, in school and special interest group projects very successfully.

The additional curriculum listed below has been effectively used across the state for afterschool programs, project days, day camps and school programs.

All of these publications can be purchased from the resource listed. They are not all available at MSU Extension Publications.

Geared for Age 5-7

- Growing Up Wild, Age 3-7, \$25.20, available through <https://www.fishwildlife.org/projectwild/growing-wild>. Growing Up Wild is an early childhood education program that builds on children's sense of wonder about nature and invites them to explore wildlife and the world around them.
- Yea 4-H!, K-2, 3-5 and 6-8 Grades, \$50, <https://agrilifebookstore.org/>. This afterschool curriculum includes activities in foods, meteorology, pets, agriculture, citizenship, etc.

Geared for age 8-19

Bioscience

Bioscience is the study of living organisms. There are three units in this project and when you finish, you will be able to design experiments. In the neuroscience unit, learn the anatomy of the brain and nervous system, explore the visual system, and examine how you learn and store information as memories.

In the metabolomics unit, learn how living cells process fats, carbohydrates, proteins and other chemicals to sustain life. In the infectious diseases unit, learn details about bacteria's structure, the way they reproduce, how they cause infection, and the role of antibiotics.

- M Neuroscience: Getting to Know Your Inner Self (Unit 1), 5347, \$10.00
- M 4-H Metabolomics: You Are What You Eat (Unit 2), 5348, \$10.00
- M 4-H Infectious Diseases: Bacteria (Unit 3), 5349, \$10.00

Weather, Weeds, Wind and Woods

- Project Learning Tree, K-12, Contact Cindy Peterson, MSU Extension Forestry to get trained. Project Learning Tree is an award-winning environmental education program designed for teachers and other educators, parents, and community leaders working with youth from preschool through grade 12.
- Acres of Adventures, 2 book set \$17.95, available through <https://shop4-h.org/>. Each book in this two-volume series features 40 child-tested activities that can be administered in a 30-minute period with additional ideas for extending the activity time.
- Discover 4-H Clubs – Utah State University. These books provide a series of activities to do with youth. Each book has about 7 activities. Areas available to download include planet energy, archaeology, beading, family history, sewing, fitness, dog, and many more. <https://utah4h.org/discover/>

Power of the Wind

Youth will learn how the energy of the wind is transferred to machines to do work for us. Youth will also learn to think as an engineer and design and improve projects. Youth will use engineering skills to perfect their own designs. Some of the activities include a wind powered boat, making a Beaufort scale, observing and measuring wind and creating and testing a pinwheel.

M The Power of the Wind Youth Guide, BU8383, \$6.25

L The Power of the Wind Facilitator Guide, BU8384, \$6.25

4-H Weather and Climate Youth Learning Lab

The goal of this project is to study the world of weather and climate, and specifically how they are influenced by natural processes and human activities. While this Leader's Guide is written for the four states of Colorado, Montana, South Dakota and Wyoming, it can be applied in any state or region. When you finish teaching these activities, participants will have a better understanding of natural forces and human impacts through using the learning labs and conducting hands-on experiments and activities.

M/L4-H Weather and Climate Youth Learning Lab, Leader's Guide, 5351, available free online

Noxious Weeds

MSU Extension Publications, store.msuextension.org, also offers a wide array of informative resources to help both teachers and students learn about noxious weed identification, management, and impacts.

- kNOweeds K–12 Invasive Plant Curriculum, available for download: <https://missoulaeduplace.org/weed-curriculum.html>. This curriculum is designed to be a supplemental curriculum for teachers who want to integrate the topic of invasive weeds into their existing courses.

Junior Master Gardener

- Junior Master Gardener, Level 1, Grades 3–5 <http://imgkids.us/curriculum/>
- Teacher/Leader guide, \$56. Youth Handbook, \$15. The JMG teacher/leader guide provides teachers with tools to teach the world of gardening with eight chapters of novel, “hands-on” activities.
- Junior Master Gardener, Level 2, Grades 6–8 <http://imgkids.us/curriculum/>
- Operation Thistle, Plant Growth & Development, \$40.
- Operation W.A.T.E.R., Soils and Water, \$40.
- Junior Master Gardener: Health and Nutrition from the Garden, \$10. Children are motivated to eat the fruits of their labor in their study of “Health and Nutrition from the Garden.”
- Junior Master Gardener: Literature in the Garden, \$40. Cultivate a connection to children’s literature through gardening with this award-winning curriculum.
- Junior Master Gardener: Wildlife Gardener, \$40. The combined resources of the National Wildlife Federation and the Junior Master Gardener Program contribute to this curriculum about the habitat needs of wildlife and appreciation for the environment, including a community service learning project.

Healthy Decisions

Keeping Fit & Healthy

Keeping Fit & Healthy, Set of 3: \$14.50, <https://shop4-h.org/>

Keeping Fit: Youth will enjoy using the 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.

Staying Healthy: Youth design a personal fitness plan and track it using their own fitness file. Through interviews and personal experiences youth discover benefits to being fit as they practice making decisions, speaking with others and managing themselves.

First Aid in Action: 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 broken a bone; assemble a first aid kit; and interview members of the medical profession.

Food Science

What’s on Your Plate: Exploring Food Science <https://shop4-h.org/>.
What’s On Your Plate is a comprehensive food science curriculum

with hands-on experiments - some of which learners can eat as they discover the science behind food preparation. Youth will conduct food experiments, collect and analyze data and explore career opportunities. The youth science journal leads learners through the experiments and provides them with use-at-home information.

- Level 1, Unit 1 uncovers the “Secrets of Baking” with activities to understand science of baked goods – gluten, leavening and proper mixing. The first activity is “Great Globbs of Gluten.”
- Level 2, Unit 2 “The Power of Protein Chemistry” explores the many ways eggs are used in foods and how milk turns into cheese.
- Level 3, Unit 3 dives into “The Inner Mysteries of Fruits and Vegetables.” Activities include how to prepare fruits and vegetables so they look and taste appealing in color and texture. There are experiments that help youth discover process osmosis and diffusion when cooking fruit.
- Level 4, Unit 4 the “Be a Food Scientist” lets learners 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 about crystallization.

Food: Party Planner

An opportunity for youth to develop knowledge and understanding of nutrition, menu planning, safe food handling skills, kitchen equipment safety, consumer skills, fitness, meal and time management and careers related to food and nutrition. The manual can help you have as much fun planning as attending parties and other events.

M Party Planner: A 4-H Guide to Quantity Cooking, 4H477, \$8.00
S MyPlate, www.choosemyplate.gov/

Bicycle

In the bicycle project, learn and practice good bicycle safety habits, enjoy bicycling for exercise and learn about the parts of the bicycle and how to maintain it.

- M Bicycling for Fun, BU8334, \$6.25
M Wheels In Motion, BU8335, \$6.25
S Don’t Get Stuck: Fix It! DVD, BU8399, \$10.50
L Bicycle Helper’s Guide, BU8336, \$6.25. This guide is designed to provide engaging and fun group activities for cycling enthusiasts. It contains information and activities related to basic bicycle handling, traffic skills and bicycle events and activities the whole group will enjoy.

Child Development

What can you do to help yourself and others handle emergencies, develop home-alone skills, stay healthy, and relate appropriately to others? All of these issues are covered in this child development curriculum.

- M Level A, Building a Bright Beginning, 4H973, \$6.00
M Level B, Building Blocks of Learning, 4H974, \$6.00
M Level C, Building a Strong Foundation, 4H975, \$6.00

- M Level D, Building Relationships Toward a Brighter Tomorrow, 4H976, \$6.00
- L Child Development Helper's Guide. The curriculum is designed to help young people develop knowledge regarding children in areas of development, health and safety, food and nutrition, discipline, and families and careers. It also develops life skills.

Communications

Experiential activities in this curriculum provide opportunities for youth to practice and gain confidence in communicating in a variety of situations. If you have a Speakers Bureau or Toastmasters in your community, they might provide additional opportunities for youth to learn. (This curriculum is written as a facilitator guide.)

- M Communications, Module 1 (Beginner, grades 3-5), 01508F, \$7.45
- M Communications, Module 2 (Intermediate, grades 6-8), 01509F, \$7.45
- M Communications, Module 3 (Advanced, grades 9-12), 01510F, \$7.45

Theatre Arts

Three books are written for the group facilitator who will lead a group of youth in Theater Arts discovery. This curriculum will help youth understand the power of non-verbal communication, improvisation, pantomime, script writing, cultural and historical influence, stage design, and costume design. Life skills and workforce development are woven throughout the curriculum, as youth master more sophisticated theater techniques and ideas.

- M/L Imagination in Action, Beginner, BU8445, \$7.45
- M/L Imagination in Action, Intermediate, BU8446, \$7.45
- M/L Imagination in Action, Advanced, BU8447, \$7.45

[illegible]

[illegible]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

MONTANA 4-H FOUNDATION

— A sponsor of the Clover Project Selection Guide —

Funding ur Future

Over 3,800 youth and adult volunteers in Montana donate approximately 200,000 hours annually in planning and conducting exciting educational activities. Economic impact of this volunteer commitment equals 2.8 million dollars and is equivalent to 104 full time staff positions!

1 in 8 school-aged children in Montana are 4-Hers.

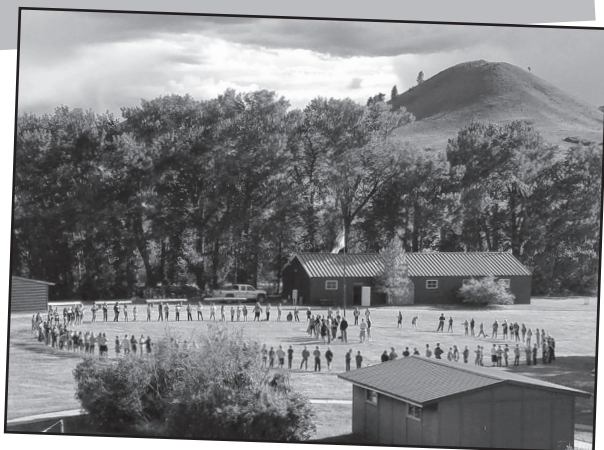
Montana 4-H youth are supported by over 3,800 trained volunteers.

More than 22,000 youth participate in 4-H in Montana, making it the largest out-of-school youth program in Montana and the nation (7 million).

*Numbers are based on averages from the last five years

Today, as it did 100 years ago, 4-H emphasizes traditional values such as personal growth and life-skill development through hands-on learning.

Celebrating OVER 100 years of Montana 4-H!



Are You a Donor?

Testimonials prove that 4-H lasts a lifetime and gifts to 4-H really do fund the future. There is no limit to what 4-H can do for an individual and a community. There are countless ways for you to give back to 4-H ... donors show their support each year through annual fund gifts, memorials and tributes, and estate gifts through one's will. (EIN# 23-7051460)

Helping Montana Youth

The Montana 4-H Foundation has supported Montana 4-H for over 50 years, originally established by the Montana 4-H Local Leaders Association. As a non-profit, educational organization, the Montana 4-H Foundation makes its mission to help 4-H youth by raising private funds, managing financial resources and maintaining a vital partnership with MSU Extension and the 4-H Center for Youth Development to fund educational opportunities for youth, volunteer leaders and staff.

Where Does Your Donation Go?

In 2021, more than \$250,000 will be given by the Foundation to Montana 4-H through program support, grants and scholarships. Support of alumni and friends is essential to continue this level of commitment into the future.



mt4hfoundation.org/give





18 U.S.C. 707

www.montana4h.org

Project updates, programs and events,
up-to-date 4-H calendar and more...

Printed June 2021

