

2020 FAMILY GUIDE



2020 Ohio 4-H Family Guide

Changes in the Lineup

New

- 92 *4-H Around the Globe*
- 365.30 *String Art Idea Starter*
- 441R *Agricultural Career Cards*
- 758 *Western Heritage Project: Youth Activity Guide Levels 1–3*
Western Heritage Project: Firearms, Gunleather, and Attire of the Frontier West 1860–1900

Revised or Replaced New Title (Old Title)

- 365.11 *Camp Counseling Idea Starter* (same)
- 750 *Rifle Member Record Book* (same)
- 751 *Archery Member Record Book* (same)
- 753 *Pistol Member Record Book* (same)

Discontinued

- 365.05 *Rocks, Minerals, and Fossils Idea Starter*



The Family Guide is designed especially for volunteers, members, and families involved in 4-H through community and project clubs, EFNEP groups, and special school and community enrichment programs.

Provided by 4-H cost recovery funds.

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information, visit cfaesdiversity.osu.edu. For an accessible format of this publication, visit cfaes.osu.edu/accessibility.

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View sample pages of project books online.
Plus, read reviews from other 4-H
members, volunteers, and parents.

ohio4h.org/projectcentral

Welcome to Ohio 4-H

About 4-H

4-H is a non-formal educational youth development program offered to individuals ages 5 to 19.

Among all the fun things to learn about in 4-H are animals, computers, public speaking, cooking, art, gardening, natural sciences, and much more. You can participate in 4-H in many ways—through clubs, camps, your school, and short-term programs offered through your county or the state office.

No matter what you select or how you participate, all 4-H programs focus on active involvement and quality experiences that stimulate lifelong learning of values and skills.

Pledge

I pledge

My **head** to clearer thinking,

My **heart** to greater loyalty,

My **hands** to larger service, and

My **health** to better living,

For my club, my community, my country, and my world.

Motto: To Make the Best Better

The 4-H motto refers to each member. It means that each member will do the “best” that he/she possibly can in whatever is attempted. The member will then strive to improve the next time so his or her initial “best” becomes “better.” The 4-H motto encourages members to stretch their abilities and capacities to reach greater achievement within their own potential.

Member Recognition

Each county 4-H program in Ohio has a standard for measuring youth success. Many counties recognize members with a certificate of achievement for attending regular club meetings, taking part in club and project events, presenting a project demonstration, and participating in community service. Additionally, members who achieve their goals in leadership, citizenship, and service activities, often called “honor members,” also receive certificates of achievement.

County-level project judging assesses the quality of the member’s project performance. A member receives

a grade ribbon for how well the project is completed. As a result, some members earn the opportunity to compete beyond the county. Typically trophies, rosettes, and state fair participation honors are awarded to 4-H members who succeed at these levels.

Additional opportunities for recognition are available through county, state, and national award programs. These awards include state trips, national conferences, and educational scholarships. To learn more about awards and scholarships, go to ohio4h.org/awards.

Message from State 4-H Leader

Dear 4-H Parents,

Welcome to Ohio 4-H 2020! As parents of 4-H members, you provide invaluable contributions to the success of 4-H. As a matter of fact, if it were not for parents, 4-H would not even exist, let alone thrive and grow. You provide information and opportunity for your children to initially enroll in 4-H. You provide encouragement and assistance in guiding 4-H members through their projects and club experiences. And you often provide transportation to and from 4-H meetings, events, competitions, and other important components of the 4-H learning experience.

The goal of 4-H is to develop in youth citizenship, leadership, responsibility, and life skills through experiential learning programs and a positive youth development approach. 4-H is preparing youth for success in their individual lives, with their families, in their future employment, and in their communities. Thanks for helping us achieve our mission!

Sincerely,



Kirk Bloir, Interim Ohio 4-H State Leader

Expressing Thanks

Volunteers and donors are vital to the overall success of 4-H. They give their time, talent, and money to support current 4-H members. Members receiving medals, certificates, scholarships, trips, and other awards are encouraged to make it a priority to express appreciation to the donors and sponsors who made the awards and scholarships possible. If you are a winner, remember to take a few moments to write a “Thank You!” and tell your donor or sponsor how your award or scholarship has benefited you.

Understanding 4-H Membership

4-H Membership Eligibility

Ohio 4-H membership is based on a child's age AND grade as of January 1 of the current calendar year. Eligibility for Cloverbud participation begins when a child is age 5 and enrolled in kindergarten. Eligibility for participation in 4-H projects and competitive events begins when a child is age 8 and in third grade. Any youth age 9 or above is eligible for project membership, regardless of grade level. Membership requires enrollment in an authorized Ohio 4-H club or group under the direction of an OSU Extension professional or an approved adult volunteer. A youth's 4-H eligibility ends December 31 the year he or she turns 19.

Joining Ohio 4-H is a privilege and responsibility for individuals and is subject to the Ohio 4-H Code of Conduct and applicable policies of The Ohio State University.

Accommodations can be made for youth with disabilities through our Winning 4-H Plan. Visit ohio4h.org/about/join-4-h to make an accommodation request.

4-H Membership Expectations

The expectations for 4-H membership are a balance of 4-H project work, involvement in a 4-H club, participation in 4-H activities and events, and working towards improving one's personal growth. 4-H members and their parents/guardians are also expected to abide by the Ohio 4-H Code of Conduct throughout the year, and sign off on this code as part of the annual membership process. For more information on the membership process, contact your local 4-H professional. For more information about expectations for completing projects, see page 5.

Cross-County Line Membership

Youth are expected to affiliate with the 4-H program in their county of residence.

- 4-H membership in two counties simultaneously is not permitted.
- In situations where the county of residence does not have a 4-H program, youth may not join 4-H in another county.
- If county financial support for Ohio State University Extension ceases to exist, 4-H membership status already established in that county will end on the

date the funding ends (established by Extension Administration). 4-H membership of youth, residing in a county that has lost funding, who have pre-established cross-county line 4-H membership agreements in place will be permitted to continue participation in their non-resident county through December 31 of that 4-H membership year.

For more information about cross-county lines membership, contact your local Extension office.

4-H and FFA Membership

Ohio 4-H members are sometimes also FFA members, often within the same county or in an adjacent county. These members especially need to keep in mind the 4-H policy about 4-H projects being separate from school projects. To keep work in both organizations clearly separate, 4-H members are advised to take different species or non-livestock projects in the two organizations or, at the very least, to take market animals in one and breeding animals in the other. The idea is to refrain from exhibiting the same project more than once. See chart for allowable and not allowable examples.

	4-H	FFA
Allowable	Breeding Gilt	Market Hog
Allowable	Market Steer	Market Hog
Allowable	Welding (door stop)	Welding (boot scraper, made for ag class)
Not Allowable	Market Lamb	Market Lamb
Not Allowable	Welding (door stop, made for ag class)	Welding (door stop, made for ag class)

Please check your junior fair exhibition rules about exhibiting both 4-H and FFA projects and animals.

Project Enrollment for 4-H Members and Showing Animals at the Ohio State Fair

4-H members must be enrolled in their county in any project they enter to show in the Ohio State Fair Junior Livestock Shows (including poultry, rabbits, and dogs), regardless of whether that project is offered for county exhibition. (See more on next page.)

A 4-H member cannot enroll the same animal in two separate projects, except for dog projects and 4-H PetPALS.

A Note About Cost Recovery

Club leaders, project helpers, and other volunteers often ask about the cost of project books. Why are 4-H members required to buy them? The cost of a project book, which is usually \$6, covers the cost of curriculum development, printing, storage, and delivery.

This cost recovery plan is seen as the most desirable option among alternatives such as state membership or other fees. Each book purchased supports the Ohio 4-H program at the state and county levels. Ohio 4-H depends on your support in delivering high-quality, experiential education to its members. We strive to provide project books that offer value. Unless specifically stated otherwise, please help us by purchasing a new book each year for every project in which your son or daughter enrolls.

Understanding 4-H Projects

Project Work Through 4-H

Each project book contains a wealth of information and activities for planning and conducting a project. The projects can be completed by participating in activities through organized project groups or by carrying out the activities individually under the guidance of a parent or other adult.

projects are for members with some experience in a project area, and advanced-level projects are for members experienced in a project area. There are exceptions though! Some projects were written with certain ages in mind. In those cases, the project descriptions give the ages. Also, some projects are described with an “X,” meaning they are appropriate for all skill and age levels.

Frequently Asked Questions

What is a 4-H project?

A 4-H project is made up of three types of activities:

Hands-on activities: making, producing, practicing, observing, testing, interviewing, caring for, etc.

Organized activities: demonstrations, speeches, workshops, camps, county judging, project activities, exhibits, etc.

Leadership/Citizenship activities: conducting, planning, teaching, assisting, informing, organizing, etc.

Does a 4-H member have to take a project?


Yes. However, there are two ways to take a project, either as an individual project or as a group project.

How does a member select a project?

When choosing a project, consider your interests, background, what is necessary to start your project, and what is available to help you complete it. Review this guide as a family, club, or group. A good rule of thumb is to select no more than two projects as a first-year member.

Included in the description of each project is a level—beginning (B), intermediate (I), or advanced (A). These are primarily skill levels, so that if you have little or no experience in a project area, for example, you are a beginner, regardless of your age. Intermediate-level

County fairs and the state fair often have age requirements different than those for project enrollment. When participating in a fair event, be sure to review the related guidelines.

Once you've selected your project(s) for the year, request the project book(s) from your 4-H club leader. Look for the  to see if the project you selected needs an additional resource book. Each project book is \$6 unless stated otherwise here or by your county Extension office.

Where does a member begin when planning a 4-H project?

Once a member has selected a project, he/she should start by reading the section of the project book called the Member Project Guide, usually located near the front. The Member Project Guide offers step-by-step

Ohio 4-H Conference

**March 14, 2020
Greater Columbus
Convention Center**

Join your peers for a full day of educational seminars, a luncheon, silent auction, vendors, and time to get to know others in 4-H throughout the state!

instructions for conducting the activities that make up the 4-H project.

Can a school project be used as a 4-H project too?

No. In order for a member to achieve the progression of knowledge, attitudes, skills, and aspirations necessary for positive youth development, all 4-H experiences in which a 4-H member is involved must be separate and different from previous or simultaneous experiences in other programs, groups, businesses, and organizations.

Does a member have to do everything the Member Project Guide suggests?

No, although completing the Member Project Guide in the recommended time frame is the best way to succeed in fair judging. How much to complete is up to the member, parents, and advisor. Depending upon their interests and abilities, members may plan to do a little or a lot. Project plans also can change as a member's interests and needs change.

How much time can be spent on a project?

It can be a matter of days, weeks, or even months, depending on the size and scope of the member's plan. Some projects also can be repeated to accomplish additional project goals.

Is it necessary to attend county-level judging to complete a project?

For some members, project completion is nothing

more than participating in project activities, completing a predetermined number of project goals, and reviewing accomplishments with a parent or project helper. Some counties require attendance at county-level judging. Always check with your project helper for specific judging requirements. For example, sometimes it is necessary to bring an exhibit along with your project book to interview judging.

How can a 4-H member qualify to compete at the Ohio State Fair?

For non-animal and non-livestock events, qualifying for the state fair involves competing at the county level and being selected as state fair representative. Some counties hold events that are not state fair events, and some counties do not hold all of the events that take place at the state level. In addition, if you are taking a project with age guidelines and are outside of the recommended age range, be sure to double-check county and state fair regulations about participating (ohio4h.org/ohiostatefair). Generally speaking, youth outside the recommended age range are not eligible for competition. For animal and livestock events, be sure to check state fair guidelines at ohio4h.org/animalsciences.

Please note: Ohio State Fair eligibility, as indicated by a green ribbon (🎗️), is current at time of printing but is subject to change. Eligibility for the coming year is usually available in February at ohio4h.org/ohiostatefair.

Statewide Programs

4-H Event Youth Assistant

This statewide group of 4-H teens assists with Ohio State Fair events. In this process, members have an opportunity to enhance their leadership skills and be involved in the State 4-H program. Applications are due May 15. Visit ohio4h.org/families/just-teens for more information.

4-H PetPALS

4-H PetPALS (People and Animals Linking Successfully) is an intergenerational 4-H program connecting youth and their pets with senior adults in various healthcare facilities. Members learn to select, socialize, and train appropriate pets to participate in animal-assisted activities. For more information, go to 4hpetpals.osu.edu.

Alumni and Friends

Special events, volunteer opportunities, updates about 4-H happenings, reconnecting with friends, and networking with new ones are only a few of the opportunities for Ohio 4-H alumni and friends. Join today at ohio4h.org/alumni.

Camping

4-H camping programs include day camps, overnight camps, and camps that focus on specialty areas such as animal sciences, creative arts, shooting sports, and STEM. Other camps focus on specific groups of youth including children of those serving in the military, Cloverbuds, teens, and youth with special needs. For more information on 4-H camps and their facilities, go to ohio4h.org/camp or contact your county Extension office.



CARTEENS

4-H CARTEENS, a traffic safety program conducted by 4-H teen leaders and their program partners, is for first-time juvenile traffic offenders referred by local courts. The program's goals are to reduce the number of repeat juvenile traffic offenders, increase teen awareness of traffic/vehicular safety, and improve public speaking and leadership skills of teen instructors. For information on 4-H CARTEENS, please go to ohio4h.org/families/just-teens/carteens or contact your county Extension office.

Cloverbuds

The youngest 4-H members are called Cloverbuds (youth age 5 and in kindergarten to age 8 and in the third grade). 4-H volunteers lead activities that explore topics such as health, earth and the environment, citizenship, plants and animals, science and technology, personal development, creative arts, and more! For more information, visit ohio4h.org/cloverbuds or contact your county Extension office.

Dog Achievement Program

In this non-competitive program, 4-H members have fun, learn more about dogs, and earn certificates and pins by completing categories of achievement such as basic training, exercise, and health and safety. More information about DAP is available at ohio4h.org/DAP.

Health Heroes

As 4-H Health Heroes, members learn how to be advocates for change by teaching peers and younger youth, participating in health-related events, and influencing others to adopt a healthy lifestyle. After completing a training, youth attend periodic meetings in Columbus and develop action plans to put the fourth H into practice. Pledge your health to better living and complete the application at ohio4h.org/healthyliving. (Available to members in high school.)

International Exchange

Open your world! Ohio families have the opportunity to share their lives and learn about another country without leaving home by hosting youth or adults from around the world for three and a half weeks each summer (applications due April-May). Interested in traveling? Ohio youth can live with host families in other countries for one month

each summer, too. Traveler applications are due December 1 and partial scholarships are awarded to all selected candidates. For more information, visit ohio4h.org/youth/international.

Ohio Military Kids

The mission of Ohio Military Kids is to support the children and families of all branches of the military by delivering a wide range of recreational, social, and educational programs as they cope with the stresses of knowing their deployed family members may be in harm's way. Ohio 4-H offers staff support and resources to provide these programs in partnership with the Ohio National Guard. To learn more or to serve as a volunteer or camp counselor for our youth programs, visit us at go.osu.edu/OMK and on Facebook (OhioMilitaryKids).

Shooting Sports

The Ohio 4-H Shooting Sports program teaches young people the safe and responsible use of archery equipment; the fundamentals of firing air guns, .22 caliber and muzzleloading rifles, pistols, and shotguns; the basic principles of hunting; and the value of studying historic lifestyles and heritage crafts. To learn more about these projects and shooting sports camp, go to ohio4h.org/shootingsports.

State Fashion Board

State 4-H Fashion Board members are selected from across the state to assist in conducting the Ohio State Fair 4-H Fashion Revue, assist with educational programming efforts related to textiles and clothing, and serve as advocates for Ohio's 4-H textiles and clothing projects and programs. Applicants are selected at the county level and interviewed during the Ohio State Fair Clothing Days. To learn more, please visit ohio4h.org/families/just-teens/state-4-h-fashion-board or contact Laryssa Hook at hook.26@osu.edu.

STEM Pathways

Explore STEM Pathways challenges and programs in science, technology, engineering, and math to enhance your curiosity, critical thinking, problem-solving, communication, and teamwork. Discover how these workforce skills are necessary to compete in a high-tech global society. The STEM Pathways formula is simple: Engagement + Problem Solving = Learning! For more information, contact your local Extension office or visit ohio4h.org/stem-pathways for challenge curriculum and videos.

Teen Leadership Council

This merged group of the Ambassador program and Teen Advisory Council is a statewide group of 4-H teens and young 4-H alumni that provides a youth stakeholder perspective in the planning, implementation, and evaluation of Ohio 4-H programming. Applications are due the Friday following Ohio State Fair. Visit go.osu.edu/TLC for more information.

Volunteers

At its heart, Ohio 4-H is an organization of volunteers dedicated to positive youth development. Learn more about joining our efforts at ohio4h.org/volunteer or by contacting your county Extension office. Already a volunteer? Take a look at the Ohio 4-H Volunteer Handbook at ohio4h.org/volunteerhandbook.

Statewide Events

Cloverbot Challenge

The Ohio 4-H Cloverbot Challenge occurs in June and gives 4-H Cloverbuds the opportunity to work cooperatively in teams to problem-solve using STEM skills. A new theme is selected each year. Teams research a topic, build a working model of their solution to the Challenge issue, and create a poster to illustrate their findings. Find out more at ohio4h.org/cloverbot-challenge.

Ohio Youth Institute (OYI)

Based on the World Food Prize, an international award that recognizes professionals who have improved access to food, high school students participating in the Ohio Youth Institute research a global food issue, write an essay, and present findings at a statewide competition. Selected participants are offered the opportunity to participate in the Global Youth Institute and, as college students, can apply for USDA internships. Consider making this the basis of a 4-H self-determined project. Learn more at ohio4h.org/ohio-youth-institute.

Science Saturdays

4-H Science Saturdays help kids explore science topics by connecting them with scientists and researchers at The Ohio State University who do cool science stuff every day! Designed for kids in grades 3 through 6 who want to discover new things and learn by doing, the program runs on selected Saturdays during the school year. Visit ohio4h.org/science for more information.

Ohio 4-H Conference

This one-day event brings together hundreds of Ohio's volunteers and older 4-H youth in a spirit of

celebration, exploration, personal development, and community service. Register in February 2020 and plan to attend on March 14, 2020.

Dairy

Dairy Palooza is a day-long event usually held at one and sometimes two locations in Ohio. This event includes quality assurance training and adult sessions in the morning. Afternoon workshops focus on current topics of dairy interest, often including showmanship with actual animals, science experiments, animal health protocols, demonstrations with dairy products, and clipping and fitting techniques for the show. Registration includes a t-shirt, free items that link to QA training, and valuable door prizes for those who stay the entire day. ohiodairypalooza.com

Dairy Quiz Bowl provides an opportunity for youth enrolled in a 4-H dairy project to demonstrate their knowledge of the dairy industry in a competitive team setting with double elimination. Junior and senior divisions are offered. Program is typically held in June, with the opportunity for a senior team to represent Ohio at the national contest held at the North American International Livestock Exposition in Louisville, KY.

Dairy Judging Team activities promote dairy judging and communication skills. Clinics are offered during the year, and the Ohio 4-H Dairy Judging Contest is held at the Spring Dairy Expo in March. From these educational events, teams are selected to represent Ohio at various contests. ohio4h.org/dairy

National 4-H Dairy Conference: The conference hosts about 200 youth from 4-H dairy projects around the United States. Participants learn about production, processing, marketing, and use of dairy products. Program is held annually in Madison, WI, in association with World Dairy Expo. national4hdairyconference.org



Horse

Events include State 4-H Horse Bowl Contest, Judging Contest, Hippology Contest, and Communications Contest. Winners go on to compete at the Eastern National 4-H Roundup in Louisville, KY. Runner-ups compete at Quarter Horse Congress in Columbus in October. State 4-H Poster Contest, Groom and Clean, and Competitive Trail Ride are also offered.

ohio4h.org/horse

Livestock Judging Teams

Youth develop and practice livestock evaluation skills by placing market and breeding classes of livestock (beef, goat, sheep, and swine) during the Ohio State Fair. Top three senior teams represent Ohio 4-H at national or regional contests, and an all-state team comprised of the top senior participants will represent Ohio at the national contest in Louisville, Kentucky. Rules and registration available at ohio4h.org/events/ohio-state-fair-4-h-livestock-judging-contest.

Ohio State Fair Animal Skillathons

Show what you know about animals at the Ohio State Fair Skillathons! Ten skillathons for nine different species (beef, dairy, dog, goat, horse, poultry, rabbit, sheep, and swine) evaluate your knowledge about different animal industries. Skillathons are free,

and you do not have to be a state fair exhibitor or be enrolled in an animal project to participate. Schedule, rules, and study resources are available at go.osu.edu/OSFSkillathons.

Poultry

Ohio 4-H members test their knowledge about all aspects of poultry in the Ohio State Fair 4-H Avian Bowl contest. They can also develop and practice their poultry evaluation skills by grading eggs as well as placing market and live bird classes at the 4-H Poultry Judging contest. The first place senior team in each contest has the opportunity to represent Ohio at the National 4-H Poultry and Egg Conference held with the North American International Livestock Exposition in Louisville, KY, in November. ohio4h.org/events/ohio-state-fair-4-h-poultry-judging-contest and ohio4h.org/events/ohio-state-fair-4-h-avian-bowl-contest

Welding Workshop

The Youth Welding Workshop provides a unique opportunity for youth ages 10 to 18 years to develop their arc welding (stick or SMAW) skills OR their oxyacetylene welding and cutting skills. Through these instructor-led sessions, students get one-on-one assistance to begin at their own level and expand their skills throughout the day. No experience necessary! Format, date, and time for 2020 is to be determined.



The image shows a collection of educational materials for a horse learning lab kit. It includes a dark grey tote bag, several spiral-bound booklets titled 'HORSE LEARNING LAB KIT', a large poster titled 'Anatomy of the Foot' with detailed diagrams of a horse's hoof, and several smaller cards or pamphlets. The items are arranged on a white background within a decorative border featuring various farm-related icons like a lightbulb, a globe, a rabbit, a pig, a cornucopia, and a person.

Ohio 4-H Learning Lab Kits


Learning Lab Kits are your answer for species-specific, hands-on, durable learning materials. Use for teaching, evaluation, and contests. Perfect for 4-H clubs, FFA chapters, skillathons, and ag association activities. Get hours of learning and fun on many topics:

Beef • Horse • Dairy • Goat • Dog Poultry • Rabbit • Sheep • Swine and more!


ohio4h.org/learninglabkits

Individual Projects

Project Resources

Unless otherwise indicated, each project book costs \$6 when purchased through a local county Extension office. For a slightly higher price plus shipping, all 4-H books and other Extension publications are available at extensionpubs.osu.edu. Projects that require resources in addition to the project book, such as a resource handbook, member project guide, or livestock record, are indicated with a .

State Competition



Projects with a corresponding event at the Ohio State Fair are indicated with a . Although participation in fairs is optional, we encourage family participation in this type of learning activity. To participate in 4-H events at the Ohio State Fair, whether livestock or non-livestock events, a 4-H member must be enrolled in the project in the county. (Some state fair events operate independently of 4-H and thus do not require enrollment.) For some events, 4-H members are selected for state fair as a result of county competition. For others, youth can enter on their own. Specific rules and regulations can be found by clicking on Competitions at ohiostatefair.com.

About 4-H

91 Discovering 4-H

This project book is for young first-year members and others who want to discover and explore the broad array of topics offered by 4-H. Any member in need of an easy-to-read, easy-to-use introduction to animals, health, food and nutrition, nature, insects, plants and soils, machines and tools, recreation, and clothing benefits from doing this project, which is easily completed in one year. 2018. **B**

92 4-H Around the Globe


 Are you curious about other countries? This intermediate-level project takes a look at 4-H through an international lens, with close-ups of Ghana, Kosovo, Nicaragua, and South Korea. Key factors make each country's 4-H program different, and dedication to 4-H makes us all the same. 2020. Available December 2019. **I**, 



Animal Sciences

Beef

ohio4h.org/livestock

117 Beef Project and Record Book

Complete this required project book every year a beef project is taken. This streamlined publication can be used by members at all levels for all beef categories in the list that follows. Use with 117R *Beef Resource Handbook*.  2016.

- 117B *Beef Breeding* **X**, 
- 117BF *Beef Feeder (Market)* **X**, 
- 117DF *Dairy Beef Feeder (Market)* **X**, 
- 117M *Market Beef* **X**, 

Required Supplement for Beef Projects

117R *Beef Resource Handbook*

This one-time purchase contains essential information for members taking a market beef, beef breeding, beef feeder, or dairy beef feeder project. An excellent resource for skillathons! 2011. (\$16)

Optional Supplements for Beef Projects

103R *Beef, Sheep, and Swine Selection and Evaluation*

This optional resource is for beginners who want to learn more about selecting and evaluating livestock. Purchase only once and refer to it when selecting projects or before attending a judging contest. 2004. (\$9)

Pennsylvania Livestock Judging Manual is an optional book for older youth that builds advanced evaluation skills. Learn to use performance data in oral reasons. Refer to it for information on how to handle market animals and understanding expected progeny differences. 1994. Available online at ohio4h.org/publications.

Companion Animals and Rabbits

ohio4h.org/companionanimals

Want to share your love of animals? No matter how old you are or what kind of animal you care for, you may be able to participate in the Ohio 4-H PetPALS program, a group program that links youth and their pets with senior adults. For more information, see page 30.

 State Fair eligible;  Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

200 All About Dogs



Ever wonder how prehistoric dogs met prehistoric humans? Want to know how dogs think and the meaning behind their body language? Curious about what keeps dogs happy and healthy? Discover these answers and the valuable roles these furry companions play in our lives. For beginning-level members who may or may not have a dog. Not for members enrolled in a dog project. 2017. **B**,

201 Dog Project and Record Book

Complete this required project and record book every year a dog project is taken. Get to know all aspects of dog care and welfare while keeping complete records of your experience as a dog owner. Use one project book each year, even if your dog is involved in more than one project and even if you have more than one dog. Appropriate for dogs who are family pets and for dogs who are used for show. Use with 201R *Dog Resource Handbook*. 2017.

Use 201 *Dog Project and Record Book* for all of these dog projects:

201D You and Your Dog

Recommended as a first-year dog project and also as a complement to other dog projects. Can be taken every year. **X**,

201O Obedience

Covers beginning and advanced obedience training and rally. **X**,

201S Showmanship

Learn the basics of dog showmanship. **X**,

201P Performance

Includes agility, drill team, canine freestyle, and other performance events. **X**,

201W Working Dogs

Includes assistance dogs such as Pilot Dogs, Inc., Canine Companions for Independence, and other service dog organizations. **X**,

202 Dog Achievement Program

Earn pins and certificates as you select from hundreds of activities that cover basic training, exercise, health and safety, etc. This is a one-time purchase good for every year in the project. Perfect for youth who do not have access to a dog club or to volunteers with dog experience and for those who are not interested in competing. Use with 201R *Dog Resource Handbook*. 2015. (\$12). Also available free online at ohio4h.org/publications. **X**

Required Supplement for Dog Projects

201R Dog Resource Handbook



This one-time purchase contains essential information for members taking a dog project and includes everything from selecting a dog that's right for you, proper care, training techniques, dog anatomy, competition, and much more. An excellent resource for skillathons! 2018. (\$16.50)

215 Cavy Project and Record Book



Complete this required project and record book every year a cavy project is taken. Use with 215R *Cavy Resource Handbook: A 4-H Guide to Guinea Pigs*. 2012. **X**,

Required Supplement for Cavy Project

215R Cavy Resource Handbook: A 4-H Guide to Guinea Pigs



This one-time purchase contains essential information for members taking a cavy (also known as a guinea pig) project. Topics covered include general care, history, anatomy, selection, housing and equipment, records, nutrition, health, reproduction, grooming and showing, marketing, and careers. An excellent resource for skillathons and for every cavy enthusiast! 2012. (\$12)

Optional Supplement for Cavy Projects

The *Standard of Perfection 2016–2020* from the American Rabbit Breeders Association is the ultimate resource for anyone breeding or exhibiting rabbits or cavies. Current edition and price are available online in the ARBA Store at arba.net.

216 Purr-fect Pals, Level 1

Learn about being a good cat owner by taking this beginning-level project. You learn about cat breeds, behavior, good health, grooming, and feeding. Designed for youth in grades 3 to 5. This project can be taken for three years. 2005. **B**,

217 Climbing Up! Level 2

Build on what you learned in Cat 1 by taking this intermediate-level cat project. Learn more about cat identification and characteristics, training and showing, health and nutrition, and responsible cat ownership. Designed for youth in grades 6 to 8, but may be taken by youth in any grade after completing Cat 1. Cat 2 can be taken for three years. 2005. . . **I**,

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

218 Leaping Forward, Level 3

Dig deeper into some of the cat topics you've already explored in Cat 1 and Cat 2 (breeds, nutrition, health, and behavior) and meet some new topics (genetics and aging cats). Investigate cat-related careers and practice your organization and presentation skills. Designed for youth in grades 9 to 12, but may be taken by any youth after completing Cat 1 and Cat 2. Cat 3 can be taken for three or more years. 2005. **A**,

Helper Supplement for Cat Projects

The *Cat Helper's Guide* provides club helpers ways to involve everyone in learn-by-doing cat project sessions. Available from National 4-H at shop4-H.org.

220 Pocket Pets Project and Record Book

Complete this required project and record book every year a pocket pet project is taken. Species include gerbils, hamsters, mice, and rats. Use with 220R *Pocket Pets Resource Handbook*. 2011. **X**,

Required Supplement for Pocket Pets Projects

220R Pocket Pets Resource Handbook

This one-time purchase contains essential information for members taking a pocket pet project. Species include gerbils, hamsters, mice, and rats. Topics covered include history, selection, handling, housing, nutrition, health, reproduction, grooming, and showing. An excellent resource for skillathons and for the small animal enthusiast! 2011. (\$12)

225 Breeding Rabbit Project and Record Book

Breeding rabbits are rabbits kept for exhibition or rabbits bred to produce offspring. Complete this project book every year a breeding rabbit project is taken. Use with 228R *Rabbit Resource Handbook*. 2015. **X**,

226 Market Rabbit Project and Record Book

Complete this required project book every year a market rabbit project is taken. Use with 228R *Rabbit Resource Handbook*. 2015. **X**,

227 Pet Rabbit Project and Record Book

Complete this required project book every year a pet rabbit project is taken. Use with 228R *Rabbit Resource Handbook*. 2003. **X**,

Required Supplement for Rabbit Projects

228R Rabbit Resource Handbook for Breeding Rabbit, Market Rabbit, and Pet Rabbit Projects

This one-time purchase contains essential subject matter information for members taking a breeding rabbit, market rabbit, or pet rabbit project. An excellent source for skillathons! 2003. (\$10.50)

Optional Supplement for Rabbit Projects

The *Standard of Perfection 2016–2020* from the American Rabbit Breeders Association is the ultimate resource for anyone breeding or exhibiting rabbits or cavy. Available online in the ARBA Store at arba.net.

Dairy Cattle

ohio4h.org/dairy

Dairy Beef Feeder (See Beef on page 10)

122 Dairy Heifer Project and Record Book

Complete this required project and record book every year a dairy heifer project is taken. Learn how to raise, care for, manage, and keep records for one or more dairy heifers. Use with 127R *Dairy Resource Handbook*. 2001. **X**,

126 Dairy Cow Project and Record Book

Complete this required project and record book every year a lactating dairy cow project is taken. Learn how to care for, manage, and keep records for one or more dairy cows. Use with 127R *Dairy Resource Handbook*. 2003. **X**,

Good Production Practices 

Be sure to use the list of Good Production Practices (GPPs) when working on your food animal project. Ask your local county Extension office for a copy of the latest GPPs or find them online at ohio4h.org/aqca.

State Fair eligible; Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

Required Supplements for Dairy Projects
127R Dairy Resource Handbook

This one-time purchase contains important information for members taking a dairy heifer or dairy cow project. Purchase once and use it for many years. An excellent resource for skillathons! 2004. (\$15)

Optional Supplement for Dairy Projects

Dairy Judging is an excellent introductory reference for anyone interested in learning more about evaluating dairy cattle. Covers the PDCA Unified Scorecard, terminology, preparing and presenting oral reasons, and linear evaluation. Practice exercises and resources are provided. Available online at holsteinfoundation.org.

Showing Ready serves as a guide for youth, parents, and dairy project leaders who are interested in learning the basic skills associated with caring for and exhibiting dairy cattle at fairs and other shows. Along with the basics, such as washing and halter training, detailed sections cover clipping and showmanship skills. Available online at holsteinfoundation.org.

Goats

ohio4h.org/goat

135 Goat Project and Record Book

Complete this required project and record book every year a dairy, market, or specialty goat project is taken. Good Production Practices (GPPs) and animal records sections help you learn how to care for and manage your animal or herd. Use with 135R *Goat Resource Handbook*. 2015.

- 135BD *Breeding—Dairy Goats* X,
- 135BM *Breeding—Meat Goats* X,
- 135F *Fiber Goats* X
- 135H *Harness Goats* X
- 135M *Market—Dairy, Meat, or Cross Goats* ... X,
- 135P *Pack Goats* X
- 135PY *Pygmy Goats* X
- 135C *Companion—Pet Goats* X

An animal in the Companion—Pet Goats project can be any breed and any sex, but it is kept as a pet and not enrolled in any other project category.

Required Supplement for Goat Projects
135R Goat Resource Handbook

This one-time purchase contains essential information for members taking a goat project, starting with breeds, ending with careers, and including everything in between. An excellent resource for skillathons! 2016. (\$17)

Horses

Learn how to qualify for state fair at horse.osu.edu.

173 Horseless Horse

Learn about horses without owning one. Over 20 different horse-related subjects are covered in easy-to-use worksheets. Also useful for the educational portion of club meetings. Written for the beginner but suitable for members of all ages. 2016. B

174 Beginning Horse Management

This beginning-level project is for ALL youth starting in the 4-H horse program. The basics of caring for a horse, learning to ride, and showmanship are covered in 170 pages, many with color photographs. There is no time limit to complete this project. 2016. (\$14). . . B

175 Light Horse Selection

Judge horses and classes after studying basic horse anatomy for a sound basis in the selection of pleasure or breeding stock. Use with 190R *Equine Record Book*. 1997. I

177 Horse Training: How to Talk to Your Horse

Train horses from birth to maturity. Understand horse behavior and how to use it to create a good relationship between horse and horseman. Videos that support this project are available at ohio4h.org/horsetrainingvideos. Use with 190R *Equine Record Book*. 2003. (\$19) I

180 Learning to Jump

Want to put your horse skills to work on something new? This project starts with a foundation of proper riding techniques, then teaches you the basics of how to jump in an easy-to-understand sequence of exercises. Expert tips and a troubleshooting guide keep you on track to have fun and stay safe while learning to jump. Use with 190R *Equine Record Book*. 2014. I

Ohio State University Extension, 4-H Youth Development publications are available through OSU Extension offices and online at extensionpubs.osu.edu. Ohio residents receive the best price when they order and pick up their purchases through local Extension offices.



When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

181 Draft Horse

Are you fascinated with draft horses and want to know more about these magnificent giants? Learn about their care, feeding, harnessing, hitching, showing, and much more. Use with 190R *Equine Record Book* each year project is taken. 📖 2013. I

182 Small Equine

This intermediate project is for a miniature horse, donkey, or mule. Learn the basics of caring for small equine, guiding in-hand and driving, and showmanship. Youth must complete 191R *Horses, Safety, and You*, and 174 *Beginning Horse Management* before taking this project. Use with 190R *Equine Record Book* each year project is taken. 2019. I

184 Standardbred Horses

Learn how to safely harness your horse to a cart and drive, whether it is a Standardbred racehorse or a pleasure driving horse. Use with 190R *Equine Record Book*. 📖 2000. I

185 Equine Reproduction and Genetics

Explore breeding, and mare and foal management in a project that requires commitment. Use with 190R *Equine Record Book*. 📖 2005. A

188 Trail Riding

Team up with your horse for competition or pleasure trail riding. Learn the basics of conditioning your horse. Use with 190R *Equine Record Book*. 📖 2013. (\$9) I

189 Dressage

By patiently developing a horse’s mental and physical abilities, youth work toward a perfect understanding between horse and rider. This project asks youth to complete a “Planning Your Project” section, several activities, learning experiences, and citizenship/ leadership activities; keep records; and write a one-page report. Requires access to a horse. Use with 190R *Equine Record Book*. 📖 2011. I

762 Horse Nutrition

Explore digestion, nutrients, feedstuffs, rationing, and poison plant identification to protect the health of the horse you love. Use with 190R *Equine Record Book*. 📖 2000. (\$12). A

Required Supplements for Horse Projects

190R *Equine Record Book*

Required for horse projects 175, 177, 180, 181, 182, 184, 185, 188, 189, and 762. Complete one record book every year. 2016.

191R Horses, Safety, and You

This is required reading for all 4-H members and their parents to acquaint them with the safety issues involved with a 4-H horse project. Viewing videos on safety and ethics, and on helmet use is required with this publication. 2003.

Helper and Youth Supplement for Horse Projects

179R *Uniform Rules for 4-H*

Horse Shows

Contains updated rules and regulations including a new division on Ranch Riding. Required for all 4-H horse shows and events throughout Ohio. 2018.

Llamas and Alpacas

ohio4h.org/animalsciences

132 *Llama and Alpaca Project and Record Book*

Complete this required project and record book every year a llama or alpaca project is taken. Get to know all aspects of llama and alpaca care while keeping complete records of your experience as a llama or alpaca owner. Use with 132R *Llama and Alpaca Resource Handbook*. 📖 2007. X

Required Supplement for Llama and Alpaca Projects

132R *Llama and Alpaca Resource Handbook*

This one-time purchase contains essential information for llama or alpaca projects, starting with their uses and selection, ending with training, and including everything in between. An excellent resource for skillathons and for the llama and alpaca enthusiast! 2008. (\$12)

Poultry

ohio4h.org/poultry

150 *Poultry Project and Record Book*

Complete this required project and record book every year a poultry project is taken. Are you interested in raising chickens, ducks, geese, turkeys, or guineas? This project can help you take better care of your birds through the experience of feeding, watering, and monitoring your animal’s health. 2015.

150CE *Chicken, Exhibition* X, 🦋

150CM *Chicken, Market* X, 🦋

150CEP *Chicken, Egg Production:*

Hens and Pullets X

150DE *Duck, Exhibition* X, 🦋

🦋 State Fair eligible; 📖 Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

150DM Duck, Market	X
150GE Goose, Exhibition	X, ♀
150GM Goose, Market	X
150TE Turkey, Exhibition	X, ♀
150TM Turkey, Market	X, ♀
150H Helmeted Guinea Fowl	X

Optional Supplements for Poultry Projects

Need reliable, research-based sources for information about your poultry project? The website articles.extension.org/poultry is especially good, and there are many others. Learn more at ohio4h.org/poultryresources.

The **American Standard of Perfection 2015** from the American Poultry Association is the ultimate resource for anyone raising chickens, ducks, geese, turkeys, and guinea fowl. Current edition and price are available online from APA at amerpoultryassn.com.

The **Bantam Standard 2011** from the American Bantam Association supports bantam breeders and their special interests. Current edition and price are available online from ABA at bantamclub.com.

National 4-H Poultry Judging You may want this optional resource for evaluating poultry. It is a good reference to study before participating in a judging contest. Current edition and price are available online from University of Nebraska-Lincoln at marketplace.unl.edu.

Sheep

ohio4h.org/livestock

198 Market Lamb Project and Record Book

Complete this required project book every year a market lamb project is taken. Use with 194R *Sheep Resource Handbook*. 📖 2000.....X, ♀

199 Sheep Breeding Project and Record Book

Complete this required project book every year a sheep breeding project is taken. Use with 194R *Sheep Resource Handbook*. 📖 2000.....X, ♀

Required Supplement for Sheep Projects

194R Sheep Resource Handbook for Market and Breeding Projects

This one-time purchase contains essential subject matter information for members taking a market lamb or sheep breeding project. An excellent resource for skillathons! 2011. (\$19)

Optional Supplements for Sheep Projects

103R Beef, Sheep, and Swine Selection and Evaluation

This optional resource is for beginners who want to learn more about selecting and evaluating livestock. Purchase only once and refer to it when selecting projects or before attending a judging contest. 1995. (\$9)

Pennsylvania Livestock Judging Manual is an optional book for older youth that builds advanced evaluation skills. Learn to use performance data in oral reasons. Refer to it for information on how to handle market animals and understanding expected progeny differences. 1994. Available online at ohio4h.org/publications.

Swine

139 Market Hog Project and Record Book

Complete this required project book every year a market hog project is taken. Use with 134R *Swine Resource Handbook*. Includes Good Production Practices. 📖 2015.....X, ♀

140 Swine Breeding Project and Record Book

Complete this required project book every year a swine breeding project is taken. Use with 134R *Swine Resource Handbook*. Includes Good Production Practices. 📖 2015.....X, ♀

Required Supplement for Swine Projects

134R Swine Resource Handbook for Market and Breeding Projects

This one-time purchase contains essential information for members taking a market hog or swine breeding project. An excellent resource for skillathons! 2001. (\$15.50)

Optional Supplements for Swine Projects

103R Beef, Sheep, and Swine Selection and Evaluation

This optional resource is for beginners who want to learn more about selecting and evaluating livestock. Purchase once and refer to it when selecting projects or before attending a judging contest. 1995. (\$9)

Pennsylvania Livestock Judging Manual is an optional book for older youth that builds advanced evaluation skills. Learn to use performance data in oral reasons. Refer to it for information on how to handle market animals and understanding expected progeny differences. 1994. Available online at ohio4h.org/publications.

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

Veterinary Science

244 From Airedales to Zebras, Level 1

This is the first in a series of three veterinary science projects to help you learn all about animals. Complete a variety of activities to learn about animals' basic needs, the purpose of body systems, how to improve biosecurity in your home or farm, identifying common veterinary tools, and so forth. Designed for youth in grades 3 to 5, but may be taken by any youth in the first three years of this project. 2004. **B**,

245 All Systems Go! Level 2

Explore a wide range of activities related to veterinary sciences. Research proper environments for animals, examine parasite life cycles, conduct a food safety experiment, investigate disease-causing agents, and more. Designed for youth in grades 6 to 8, but may be taken by any youth who has completed *From Airedales to Zebras*. May be taken for three years. 2004. **I**,

246 On the Cutting Edge, Level 3

Learn more about animal behavior, animal diseases, genetics, and anatomy and physiology. Delve deeper into careers in veterinary medicine and other animal-related careers. Designed for youth in grades 9 to 12, but may be taken by any youth who has completed Veterinary Science 1 and 2. 2004. **A**,

Helper Supplement for Veterinary Science
The **Veterinary Science Helper's Guide** is for volunteer leaders looking for ideas to make meetings fun and educational. Available at shop4-H.org.

Clothing and Textile Science

The Ohio 4-H clothing program helps develop knowledge, skills, and understanding about clothing appearance, buymanship, and construction. Projects are available for males and females with all levels of experience. Please refer to the individual project member guides for detailed information and consult your county Extension office for specific requirements related to local and state evaluation opportunities.

Multiple Projects: 4-H members who take more than one clothing project must complete separate learning experiences related to each, **including creating a separate, complete, Total Look outfit for each clothing project.**

Repeating Projects: Members who repeat clothing projects should attempt new challenges each year such as doing more advanced experiments and

surveys, and sewing more complicated patterns or harder-to-handle fabrics.

Learn about sewing by making your own quilt
Check out 499 *You Can Quilt!* and 498 *Quilting the Best Better*, listed under Creative and Leisure Arts.

Beginning-Level Projects

For members with little or no clothing experience.

407 Accessories for Teens

This project is designed as a beginning-level project for teens. Make at least one accessory to achieve a more complete appearance in an outfit. Complete activities related to using accessories effectively, taking a wardrobe inventory, and accessorizing for a Total Look. Do at least one leadership/citizenship activity. 1995. **B**,

409 Sew Fun

This project will have you sewing in no time! Members of any age learn basic sewing skills with an easy introductory project—fully elastic-waisted skirt, shorts, pants, or capris. A member who successfully completes this project can repeat it or move on to 413 *Sundresses and Jumpers* or 419 *Terrific Tops*. 2017. **B**,

410 Designed by Me

Explore current fashion and various embellishment (or decorating) techniques to design a one-of-a-kind top that reflects your personality. Choose a T-shirt, sweatshirt, button-down shirt, or a simple jacket and add at least two embellishment methods to show your style. Complete a neatness check, and learn how to make decorative stitches and sew on a button. This fun and easy project is practical too! 2018. **B**,



413 Sundresses and Jumpers

If you have covered the basics and want to learn even more, this is the book for you. Plan and make a sundress or jumper (with or without a top), and choose accessories. Then learn how to present your best self. 2011. **B**,

419 Terrific Tops

Want a flattering top that fits your personality? Make your own with this easy-to-follow project. Sew, crochet, or knit a top from a pattern you choose. Learn how to take your measurements accurately and add a few new sewing skills. Build an outfit around your new top and add accessories for a one-of-a-kind look! 2019. **B**,



State Fair eligible; Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

Intermediate-Level Projects

For members with some 4-H clothing experience.

411 *em-bel-lish: A 4-H Guide to Wearable Art*



This intermediate-level project is for members who want the opportunity to embellish clothing. Numerous possibilities include appliqué, batik, beading, dyeing, embroidery, and many other techniques. Not a clothing construction book and not a how-to book, this is a general project guide that involves exploring embellishment ideas, identifying likely clothing items, learning a few techniques, and putting together a complete outfit. This project can be completed in lots of fun ways, all depending on what you want to learn. Interested members without clothing experience should start with 410 *Designed by Me*. 2012. I, ♀

412 *Sew for Others*

This intermediate project is for members of all ages with some experience in clothing construction. Construct one complete outfit for the person of your choice or adapt three different garments for a disabled or handicapped person. Analyze coloring, figure type, size, and preferences of the “other.” Compare styles, colors, fabrics, workmanship, cost, and special features of ready-to-wear outfits with the outfit constructed for the other. Do at least one leadership/citizenship activity. If this project is repeated, a different category of “others” should be selected each time. 2000. I, ♀

415 *Ready, Set, Sew Active!*



In this intermediate project, make at least one garment in an outfit assembled for active sportswear. Along the way, evaluate your buying habits, complete a plan for accessories, and evaluate your total look. 2019. I, ♀

418 *Loungewear*

Items constructed for this project, which is designed for members with some clothing project experience, can be simple or complex. Plan and make the outer layer of an outfit for lounging such as a cotton robe, a fleece shawl, or a terry cloth cover-up—whatever fits your sewing ability, lifestyle, and loungewear needs. Make or select other garments and accessories (sleepwear and footwear) to complete your loungewear outfit. 2011. X, ♀

424 *Clothing for Middle School*

In this intermediate-level project for youth in grades 5 to 8 or 9, you make (a) at least one garment with sleeves or (b) a skirt or pants plus a top such as

a vest, collarless jacket, sweater, blouse, shirt, or other top with or without sleeves. Assemble a total outfit featuring the garments made to wear to school. Check and improve personal grooming habits and posture. Strive for a Total Look each school day, and do needed repairs. Do at least two leadership/citizenship activities. 2000. I, ♀

430 *Shopping Savvy*

This fun and informative project is for members with some clothing project experience. After members take stock of their current wardrobe, they compare different brands of the same clothing item, study current fashion trends, learn proper clothing care and, of course, go shopping! This project does NOT involve sewing or clothing construction skills. 2011. I, ♀

Advanced-Level Projects

For members who have mastered basic clothing construction or consumer projects, and who are ready for new challenges.

406 *Clothes for High School and College*

This project is an advanced-level project designed for members in high school with some clothing experience. Construct an outfit with a minimum of two pieces, or a one-piece garment with sleeves, plus some other style detail not tried before. Do a wardrobe inventory and analyze personal color, texture, and lines. Practice good grooming and repair clothing. Do at least two leadership/citizenship activities. 1993. A, ♀

408 *Creative Costumes*

Participants choose to make a costume in one of four categories: historical, ethnic/cultural, theatrical, or special interest. Goals include understanding clothing and its significance, and applying new knowledge to planning and making a costume. Projects are evaluated on the Seven Clues to a Total Look and on fit, construction, design, accessories, authenticity, and knowledge of the costume’s history. This advanced project is for teens and may be repeated, however, a different category of “costumes” must be selected. 1995. A, ♀

417 *Dress-Up Outfit*

This advanced-level project is for members who have mastered basic clothing construction techniques and who are ready for new challenges. Make at least one dress-up garment to be worn as part of a total dress-up outfit. Visit stores and examine ready-made dress-up garments. Analyze personal coloring, body build, image, and personality. Do at least one leadership/citizenship activity. 1990. A, ♀

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

420 Outerwear for Anywhere



Take this project to use your advanced-level skills to make a coat, jacket, or other outer garment. Evaluate patterns and fabric to match your skill level and to master new sewing skills. Learn about support fabrics for shaping undercollars, constructing collars and coat linings, and new tailoring methods. This edition is streamlined and new references are included. 2016. **A**,

425 Look Great for Less

In this advanced-level project, members are challenged to use creativity and resourcefulness to pull together a Total Look outfit as inexpensively as possible. Compare different types of clothing stores, explore second-hand shopping, learn when sales are most likely to occur, evaluate clothing quality, then shop for an outfit! This project does not require sewing skills. 2013. **A**,

426 Clothing for Your Career

This project is for advanced-level members of any age. Using the Seven Clues to a Total Look, make and evaluate an outfit that has a minimum of two pieces, provides several new challenges, and fills a job or interview need. Learn about styles that look best on different body types, explore a job in which you are interested, and learn about planning a wardrobe that projects a positive image. Do at least two alteration/recycling experiences, and compare costs with an alteration or repair service. 2000. **A**,

432M Sewing and Textiles (non-Clothing) Master

This project is for members who want to sew something other than clothing, namely home decor, and requires specialized or professional-level skills. 4-H members of any age can complete this project, but should have considerable previous sewing experience and be able to plan and complete the project on their own with minimal supervision or assistance. Available online at ohio4h.org/publications. 2014. **A**

Communication

Communication skills and activities are built into every project. Doing a demonstration for fellow club members, presenting to outside groups, and interviewing are common activities for 4-H members. If you are interested in a project that focuses on communication skills, please check to see if one is offered in your county. Ohio 4-H offers the following projects and communications events at the state fair. Go to ohio4h.org/ohiostatefair for more information.

377 Finding Your Voice: Public Speaking Made Easy



Want to learn a skill you can use for the rest of your life? This project shows members with little or no public speaking experience how to prepare and deliver speeches in front of crowds, large and small, with confidence. Take a look at how the pros manage this skill, then learn how to handle various speaking situations, deliver different types of speeches, and resolve problems you may experience along the way. Your confidence builds with each activity! 2014. **B**,

Optional Supplements for Communication

909R Demonstrations

Recommended as a resource for individuals and teams who are planning to participate in a demonstration contest. Learn the basics of giving an illustrated talk and using visual aids. Available online at ohio4h.org/publications.

Creative and Leisure Arts

Cake Decorating

492 Cake Decorating Project and Record Book

Track your learning as you gain new skills and showcase your cake decorating talent! Complete this project and record book every year a cake decorating project is taken. Includes separate Skills and Techniques Record. Use with 492R *Cake Decorating Resource Handbook*. 2012. **X**,

Required Supplement for Cake Decorating

492R Cake Decorating Resource Handbook

This all-inclusive cake decorating book from Wyoming 4-H includes everything from baking the cake to decorating with special effects. 2001.

Collecting

496 My Favorite Things



Are you interested in creating a personal collection? Want to take a collection you already have to the next level? Learn about various types of collections, the ins and outs of the collecting process, and how to best display your items. Appropriate for members of all ages. 2014. **B**,

State Fair eligible; Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

Fine Arts

498 *Quilting the Best Better*



This project is for 4-H members who have completed *You Can Quilt!* Now you can practice and refine your quilting skills by using the half-square triangle method on a built-in community service project and on your own lap quilt. Use some advanced tools and gadgets too! 2015. I, R

499 *You Can Quilt!*



Curious about quilting but don't know where to start? Look no further! Just gather quilting tools, select and cut fabrics, stitch pieces together, and before you know it—you're quilting! Choose from two patterns to make a mini quilt. 2018. I, R

You can go beyond these quilting project books by taking a 365 Self-Determined project. Define a project according to your own interests and still be eligible for Quilt Day at the state fair. See page 29 for more information on self-determined projects.

592 *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. Ceramics, drawing, painting, sculpture, printmaking, design, and crafts are all possibilities. Appropriate for members of all skill levels and ages, this project can be repeated as long as new learning takes place and new works of art are completed. 2012. X, R

593 *Seeing Through Graphic Design*

Learn more about visual communication with this hands-on approach to graphic design. Activities cover color, typography, design basics, symbolism, and branding. Showcase what you learn in a project portfolio. 2019. I, R

Genealogy

442 *Family History Treasure Hunt*



This revised version of the popular genealogy project book guides you through six years of activities. Discover your family history as you go on a treasure hunt for jewels of information such as interesting relatives, special events, and curious stories of days gone by. The records you create will last a lifetime. May be repeated. 2018. (\$10) X, R

Photography

584 *Focus on Photography, Level 1*

Learn how to use your digital or film camera to take quality pictures, and how to evaluate them before and after you take them. This introduction to the world of photography covers camera settings, lighting techniques, and composition skills. Fixed lens, or "point and shoot," cameras are okay. 2007. (\$10) B, R

585 *Controlling the Image, Level 2*

Practice different techniques in lighting, image focus, and composition. Learn how to get quality candid pictures, action shots, and creative artistic images. Improve your photography skills with assignments that require creativity, problem-solving, patience, and practice. Need film or digital, adjustable lens camera. 2007. (\$10) I, R

586 *Mastering Photography, Level 3*

Choose a theme and take photos that display your mastery of camera equipment, lighting techniques, and unusual composition. Create a professional portfolio that demonstrates your proficiency in a photography career area. Need film or digital, adjustable lens camera. Additional equipment such as wide angle and telephoto lenses, filters, and light meter is useful. 2007 (\$10) A, R

589M *Photography Master*

This project is for members who want to make a photography project in a category that is different from other 4-H photography project categories or that requires specialized or professional-level skills beyond those typically used in other 4-H photography projects. Members of any age may complete this project, but should have previous photography experience (comparable to what is required for other advanced-level 4-H photography projects), and be able to plan and complete the project on their own with minimal supervision or assistance. 2013. Available online at ohio4h.org/publications. A, R

Scrapbooking

497 *Scrapbooking: A 4-H Guide to Preserving Memories*

This project is designed for youth with limited or no experience in scrapbooking. Requires completion of project activities and creation of a scrapbook. Can be repeated by completing additional activities and a new scrapbook each year. 2010. B, R

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

Writing

588 *The Writer in You*



Find the motivation you need to start or continue your exploration of the art of writing. Explore why to write, where to get ideas, theme, character, plot and setting, word choice, imagery and dialogue. Keep it all in one place to create a portfolio each year. 2016. I

Food and Nutrition

The Ohio 4-H Food and Nutrition program helps develop knowledge, skills, and understanding of nutrition, menu planning, safe food handling, kitchen equipment safety, consumer knowledge, fitness, meal and time management, and food and nutrition-related careers. Please consult your county Extension office for specific requirements related to local and state evaluation opportunities.

All Ohio 4-H food and nutrition projects use MyPlate, which incorporates current USDA recommendations about eating and exercise. Depending on a project book's publication date, it may refer instead to the older MyPyramid or Food Guide Pyramid, but 4-H members should still know the MyPlate recommendations. For information about MyPlate, go to choosemyplate.gov.

Beginning-Level Projects

Beginning-level projects are for members of any age with little or no experience in food preparation and nutrition.

459 *Let's Start Cooking*



This project takes a fresh look at basic cooking and baking skills. You'll learn about kitchen equipment and food prep, and how to read recipes and measure ingredients. Then you'll tackle how to slice and dice food, and how to cook in a microwave oven, on the stove, and in a conventional oven—all while keeping safety in mind. 2015. B, I

481 *Everyday Food and Fitness*



Learn how to prepare healthy and hearty snacks using MyPlate as a guide, and discover how powerful healthy food can be for your body and mind. Fun and easy recipes help build your skills in the kitchen. See how well your current diet fits into the MyPlate food groups. Find out what makes grains great, and why vitamins and nutrients are so beneficial. This project shows you how to add exercise to a healthy diet and find the path to a better quality of life. 2018. B, I

484 *Snack Attack!*

In this beginning-level project 4-H members learn how to select and prepare healthful snacks. Designed to be completed in one year, this project includes seven activities and related recipes. Members who complete this project are encouraged to take other beginning-level food and nutrition projects. Updated to include MyPlate. 2016. B, I

487 *Take a Break for Breakfast*



Starting each day with a nutritious breakfast is important, and now it's fun too. See how you can combine foods from different food groups for fun and delicious ways to start the day. Intended for members who have completed at least one other beginning-level food and nutrition project. 2019. B, I

Intermediate-Level Projects

Intermediate-level projects are for members of any age with some experience in food preparation and nutrition.

461 *Let's Bake Quick Breads*



Learn how and why quick bread recipes are so tasty as you bake your way through updated activities. See what makes a wheat kernel tick, and learn how the quick bread ingredients react with one another. You'll also explore careers in the kitchen, and learn how to alter a recipe for more healthful benefits. Includes gluten-free recipes. 2015. I, I

463 *Sports Nutrition: Ready, Set, Go*



Eating well and exercising daily are two keys to a healthy life. This project shows why these habits are worth forming. Learn how to balance the calories you eat with the calories you burn, why to hydrate, and how carbs, protein, and fats work to support your body and mind. Use what you learn as you compete in sports or just want to increase your fitness level. 2018. I, I

472 *Grill Master*

Progress from grill apprentice to grill master as you focus on the safe use of a grill while preparing delicious meals. By completing six activities and a selection of recipes, you'll learn about appropriate portion sizes, cooking meat to safe temperatures, and using gas and charcoal accessories, all while learning to prepare a complete meal. Includes related recipes. Because of the grill, recommended for youth ages 11 and above. 2011. I, I

I State Fair eligible; A Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

475 *Star Spangled Foods*

Discover the customs and traditions that influence some favorite regional American foods and the way we like them by experimenting with keeping and serving food at its best. Includes MyPlate guidelines. 2012..... I,

477 *Party Planner: A 4-H Guide to Quantity Cooking*



The secrets of cooking for a large party can be yours. These eight activities and recipes show you how to plan, budget, and safely prepare foods for large groups. Updated to include MyPlate. 2018. I,

485 *Racing the Clock to Awesome Meals*

This project focuses on the knowledge and skills needed to prepare quick, nutritious, low-cost meals. It builds on basic food preparation skills so that youth can tackle difficult recipes while being creative with ingredients. This project, which includes seven activities and related recipes, can easily be completed in one year. 2010..... I,

486 *Dashboard Dining: A 4-H Guide to Healthful Fast Food Choices*

Look at fast food in a whole new light! This project book shows you how to make fast food menus part of a healthy lifestyle. From understanding true food portions and healthful choices to “designing” your meals with your new nutrition knowledge—you will learn skills to last a lifetime! 2012..... I,

Want to learn about canning and freezing food?

Check out 670 *Canning and Freezing*, an intermediate gardening and plant science project listed under Natural Resources on page 24.

Advanced-Level Projects

Advanced-level projects are for members with substantial experience in food preparation and nutrition.

462 *Yeast Breads on the Rise*

Master the art of baking delicious yeast breads. Learn the principles of yeast bread preparation, and learn how mixing techniques and ingredients determine product character and quality. Includes MyPlate guidelines. 2016. A,

467 *You're the Chef*

Prepare creative, nutritious meals using the oven, range top, microwave, slow cooker, and stir-fried foods. Vegetarian foods and selecting foods at the deli are included in this project. 2014. A,

469 *Global Gourmet*



Create rich and delicious meals from Mexico, Africa, Japan, India, Italy, Greece, and Germany as you explore food history, customs, and nutrition to better understand our world. 2016. A,

474 *Beyond the Grill*



Explore a variety of outdoor cooking skills while finding easy ways to follow the USDA's MyPlate guidelines. Experiment with a pie iron, solar cooker, and rotisserie, and hone your skills on the grill, then throw a cookout party and use what you've learned! 2013..... A,

476 *Pathways to Culinary Success*

Explore a variety of new experiences to gain a basic understanding of culinary arts. Learn techniques used by cooks and chefs, the use of basic equipment, and the art of meal presentation. Prepare meats, stocks and sauces, pies and pastries, and garnishes! Career exploration, advanced recipes, and activities are included. Youth taking this project should have completed projects at the beginning and intermediate levels. 2001. A,

Healthy Living

300 *You're the Athlete*

For youth who participate in sports and for the adults who work with them. Learn the fundamentals of being a well-rounded athlete with research-based information and fun activities that develop important knowledge, attitudes, skills, and aspirations in sportsmanship, time management, goal setting, nutrition and sports, strength and conditioning, leadership, conflict resolution, and careers in athletics. Activities are designed for use in developing your personal sport-specific interests. Complete the project activities individually, with team members, or with other groups. For members 11 and older. Updated to include MyPlate. 2018. (\$11) I,

351 *Staying Healthy*

Are you ready to learn how to keep your body healthy? Have fun learning to keep fit, increase your brain power, and express yourself in positive ways. 2005..... B,

352 *Keeping Fit*

Develop a personal fitness plan to gain the benefits of exercise and test your fitness knowledge. 2005. I,

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

353 *First Aid in Action*

Ideal for 3rd to 5th grade 4-H members. Learn about first aid and create your own family first aid kit. 2005. **B**,

357 *Alcohol and Drug Abuse*



Designed for advanced-level youth interested in learning about this growing problem. In addition to how alcohol and drugs affect brain performance, this project covers the nature of addiction, how alcohol is marketed, why teens use, and how best to respond to the problem. 2016. **A**,

358 *The Truth About Tobacco*



The nicotine in cigarettes and other tobacco products threatens the health of those who use tobacco and those exposed to secondhand smoke. So why does anyone smoke? In this project, youth learn more than just physical effects of tobacco use, but how tobacco products are made, marketed, and consumed in America. 2016. **A**,

359 *Your Thoughts Matter: Navigating Mental Health*



What does mental health really mean? How many people are affected by mental health issues such as anxiety and depression? Be part of the solution by learning the answers to those questions and more. Intended for advanced-level youth who are interested in learning more about mental health, why it is important to overall well-being, and steps that promote understanding and action. *This project is not intended as a resource for those in crisis. If you or someone you know is struggling with a mental health issue, please seek adult or professional help immediately.* 2018. **A**,

Home Living

405 *The Laundry Project*



Everyone loves clean laundry but how do you do it? Learn about laundry machines and products, how to be environmentally friendly in the laundry room, and how to sort and clean laundry items. Conduct an experiment to learn how heat affects different types of fibers too! Appropriate for members of all ages with no experience in doing laundry. 2015. **B**,

491 *It's My Home*



You can be a big contributor to your household in so many ways. Why not do so AND keep your own sense of style? This project covers basic design elements, organization, upcycling, and service learning. All the activities can be done with your excellent decision making, good taste, and big heart. 2018. **B**,

494 *Makeover My Space*

Ready to make a big change in your bedroom or in a common room in your home? This project, which is all about room makeovers, is intended for members with little or no design experience who are old enough to complete a significant interior decorating project independently. Ten project activities cover planning, design basics, color, flooring, walls, windows, and lighting. 2012. **I**,

495 *Your First Home Away from Home*

Plan your college dorm room, first apartment, or house using housing, furnishing, equipment, and management principles. Specifically for youth ages 15 and above. Available online at ohio4h.org/publications. 1990. **A**,

Leadership and Citizenship

Optional Supplements for Club Officers

Club Officer Resources

Club officer handbooks for president, vice president, secretary, treasurer, news reporter, health officer, safety officer, and recreation leader are available online. To access these and other club resources, go to ohio4h.org/members/officers.

384RI Parliamentary Procedure Pocket Guide

384RS Parliamentary Procedure Pocket Guide (set of 5)


Whether you are already a club leader or want to become one, this quick reference supplies information about planning and conducting meetings at your fingertips.

Based on Robert's Rules of Order, it covers agendas, simple procedures like opening and closing, motions, and amendments. 2018. (\$23 for set, \$6 for single copies)

370 *One on One*


This is a mentoring project designed for teens ages 13 and older with at least two years of 4-H experience. Teens mentor at least one beginner 4-H member and complete a series of learning experiences with their

State Fair eligible; Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

protégés. Available online at ohio4h.org/publications. 1994. **A**, 


371 Club Leadership 1



Would you like to become a 4-H club officer, or are you one already? This project is for members who have some experience in leadership and who want to learn more about what it takes to become a well-balanced and successful leader in 4-H and in life. You'll look at inspirational leaders and various leadership styles, then develop your skills through a series of fun activities using real-life examples from your club experiences. 2014. **I**, 


383 Club Leadership 2




Make the best better in your 4-H club by improving your leadership skills and the way you assist advisors and club members. Use your life experiences to find your leadership strengths, assess past teamwork, improve your speaking skills, and build relationships. Also, discover innovative ways to get to know your team, to communicate to resolve issues, and to develop a team plan. Intended for current club officers or chairs of committees. 2017. **A**, 

372 Diversity: The Source of Our Strength




Explore the many forms diversity takes in your daily life. See life from various perspectives and have fun learning about new situations and people who are different from you. Finally, show what you have learned with a capstone project in any creative format you choose. 2014. **A**, 

373 My Hands to Larger Service: Teen Leaders Building Our Communities

Teen leaders in 4-H have been leading community service projects for years. Here's a project book that supports their efforts. No matter what the specifics of your particular project are, this book takes you through the nature of service, making plans, recruiting a "crew," getting it done, and evaluating your accomplishments. Yes, you DO make a difference! 2014. **A**, 


374 Teens on Board



Learn to arrange more productive meetings and to participate in them more effectively. Great for teens with some leadership experience who are interested in learning more about the purpose and functions of boards, or who are serving on a board for the first time. 2014. **I**, 

375 Leadership Road Trip: Where Are You Going?




Are you interested in learning about what it takes to become a good leader? Begin your leadership adventure by answering questions about yourself and the people close to you, by setting goals, by practicing communication, and by making a commitment to lead. Intended for youth old enough to explore the nature of leadership. 2013. **I**, 

Optional Substitute for Leadership Road Trip (375i)


This project is also available as an iBook. For \$5.99, you can keep your project records on your iPad. See ohio4h.org/publications. 2016.

376 Pantry Panic



This advanced-level project is for community-minded youth who want to take a step back and look at food in a broader context. "Food insecurity" is an issue affecting much of the world's population and many people right here in our own communities. Learn about hunger in your community, and develop the skill and imagination to prepare healthful meals from ingredients you have on hand or might receive from a food pantry. Consider it a challenge! 2014. **A**, 

378M Leadership Master

This project is for teens who want leadership experiences different from the opportunities provided through other 4-H leadership projects. 4-H teens who complete this project should have enough previous leadership experience to be able to plan and complete this advanced-level project on their own with minimal supervision or assistance. Available online at ohio4h.org/publications. 2012. **A**, 

Money Management

445 Becoming Money Wise

Designed for youth ages 10 to 13. Monitor your cash flow and see where your money goes by developing a budget and good records to become a responsible consumer. Designed as a beginning-level book. May be taken one or two years. 1995. **B**

448 Teens On the Road to Financial Success

Teens ages 14 to 19 have the opportunity to organize their financial lives by analyzing spending, obtaining and managing banking services, making consumer decisions, and exploring financial careers. This project is designed to be taken for one or two years. 2000. **A**

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

Helper Supplement for Money Management
 Are you a group leader looking for individual or club activities to teach money management? The **High School Financial Planning Program** includes leader-directed activities, youth workbooks, and complete background information for the following topics: Money Management, Borrowing, Earning Power, Investing, Financial Services, and Insurance. Available for download or order, both free, at hsfpp.org.

Natural Resources

Gardening and Plant Science

670 Canning and Freezing



Explore water bath canning and freezing home preservation methods with this interesting and informative project.

(Pressure canning is not included.) Learn how pH determines which canning method to use, become familiar with canning equipment, learn when fruits and vegetables are in season, and preserve produce using the freezing method. The last activity is an easy, step-by-step guide to water bath canning your own applesauce! Members must have access to a current, reliable home food preservation guidebook. 2012..... I,

671 How Does Your Garden Grow?

Youth are required to complete five activities that guide decision making and preparation of a flower garden, either in the ground or in containers. In the second year, youth should use a new project book to document decisions for a new and different flower garden. 2010. B,

691 Grow Your Own Vegetables



Find vegetables you like to eat and can grow with activities that take you from planning and designing to growing and harvesting. Whether you grow your own in a garden or in containers, you can end the season with delicious and nutritious food for your family's table.

2016 B,

692 Growing with the Seasons



Take your garden to the next level with easy-to-implement intensive gardening methods that use available space and the entire gardening season. Having a garden is special. Being able to save and share its bounty is good too! Completing the *Grow Your Own Vegetables* project first is highly recommended. 2019. (\$10) . . I,

The Natural World

611 Explore the Outdoors



This project opens your eyes to the great outdoors, so get your backpack and field guides ready. The first activity shows how to prepare for an outdoor adventure so you can explore the woodlands, fields, wetlands, and the geology of Ohio. Once you see nature with new appreciation, you'll want to learn more! Intended for youth of all ages interested in Ohio's wildlife and ecosystems. 2016. B,

612 Geology: Can You Dig It?



Discover our planet's past with clues in rocks, minerals, and fossils that you collect. Learn where to find these items, how to identify them, and how they formed. Showcase all your findings in a display of your design. 2019..... B,

617 Exploring Ponds



Members who are experienced in exploring the outdoors can learn all about ponds with this in-depth project. First, look at the "big picture" starting with Earth's water cycle and water conservation, then zoom in and learn about your pond's health and its ability to support many organisms in and around it. 2016. A,

620 Why Trees Matter



Members develop their interest in trees and our natural resources with cool experiments. Each activity highlights how trees function individually and how they play a role in our everyday lives. 2013. B,

621 Ohio Birds

Observe and identify birds with bird feeders in your yard and on field trips to see the many benefits our feathered friends provide. This project book is intended to be used for two years. 2013..... X,

622 Trapping Muskrats in Ohio

In this project, learn about the biology and behavior of muskrats, and how to ethically and humanely trap muskrats. 1997..... I,

623 Outdoor Adventurer: Beginning Fishing



Here's a great reason to get outside. Learn some fish basics and how to catch them. Then concentrate on filling the log book with all your fishing trips. 2018. . . . B,

State Fair eligible; Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level



624 Outdoor Adventurer: Intermediate Fishing

Learn more about the outdoor sport you love with activities that explore how to find fish and how to get them to bite. Includes cleaning. Completing the *Outdoor Adventurer: Beginning Fishing* project first is highly recommended. 2019. I, ♀

641 Beekeeping Project and Record Book

Beekeeping offers learning and fun for members of all ages. The beekeeping project and record book covers project requirements, colony care and management, and basic beekeeping records. 4-H members should complete this required project book every year a beekeeping project is taken. Requires additional resources. 2010. X, ♀

ohio4h.org/insects

644 Insect Adventures 1

Insects are always fun, but they are not always this fun! This project guides you through “entomology” basics like insect types and parts, how to catch insects, and why they are so important to us. Make your own collection of 30 insects! 📖 2018. B, ♀

645 Insect Adventures 2



Dig a little deeper into the world of insects by learning to love a caterpillar, recognizing relatives of insects, building a new trap, and identifying friendly predators. There’s more too! Your collection at this level is 40 insect specimens. 📖 2018. I, ♀

646 Insect Adventures 3



These activities take you to expert level as you dissect a grasshopper (yes, you read that right), explore insect history, investigate trapping, and welcome “beneficials.”

Anyone want a room in the bee hotel? Finish with your own collection of 50 insect specimens. 📖 2019. A, ♀

Required Supplement for Insect Projects

644R Insect Collection Guide



This how-to resource guides you through collecting insects, what to pin and what to point, spreading butterflies, and displays. 2020. (\$TBD) Available December 2019.

Shooting Sports

630 Safe Use of Guns



This project sets the tone for a safety-first attitude around guns. Take the safety pledge, then learn about pistols, rifles, and shotguns by getting to know their parts and

how to handle them. Actually shooting a firearm is not a requirement in this project. This is a beginning-level, *one-time* project for members who have an adult to supervise their shooting. 2018. B, ♀

631 Basic Archery

Aim your energy toward a sport that develops knowledge and skills in basic archery safety. This is a beginning-level, *one-time* project for members who have an adult in the home or neighborhood who can supervise their shooting. 1995. B, ♀

Ohio 4-H offers exciting opportunities in rifle, archery, shotgun, pistol, hunting and wildlife, muzzleloader, and living history through the Ohio 4-H Shooting Sports Program. For more information, go to page 31 and ohio4h.org/shootingsports.

Science, Technology, Engineering, and Math (STEM)

Aerospace Science

501 Rockets Away (2-liter Bottle Rockets)

Study the science of rocketry through a variety of hands-on experiments for all ages. Members conclude this project by building and launching 2-liter bottle water rockets. A bottle rocket launcher may be available from your county Extension office. Visit our website at ohio4h.org/rocketsaway. Note: Members wishing to launch solid-fuel model rockets should take 503. 2006. B, ♀

502 Science Fun with Flight

Experiment with the forces of flight by building and flying a model airplane or glider to soar above the earth. This project does not include radio-controlled airplanes or helicopters. 2006. B, ♀


503 Rockets Away (Solid-Fuel Model Rockets)

Study the science of rocketry through a variety of hands-on experiments for all ages. Members conclude this project by launching a solid-fuel model rocket built from a kit only; no scratch building. Note: Members wishing to build and launch 2-liter bottle rockets should take 501. 2006. B, ♀

503M Solid-Fuel Rocketry Master

This project is for members who have completed 503 *Rockets Away!*—*Solid-Fuel Model Rockets* and who want to continue to develop specialized skills like scratch building. Members of any age may complete this project, but they should have significant experience in rocketry (comparable to what is

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

required for other advanced-level 4-H projects) and be able to plan and complete the project on their own with minimal supervision or assistance. Available online at ohio4h.org/publications. 2013. **A**, 

Optional Supplement for Rockets Away!

Extension educators have found helpful sources for launchers at ohio4h.org/rocketsaway. Your local Extension office may also have some to lend.

All-Terrain Vehicles (ATV)

555 ATV Safety



This project book, designed for use by individual members, is appropriate for all age levels. Lessons rely in large part on information from the ATV Safety Institute and are designed to put safety first. Covers getting familiar with your ATV, protective gear, riding techniques, safe strategies and safe practices, and respecting the environment. Includes practice records. Supervision by a certified ATV instructor and enrollment in an ASI RiderCourse is recommended but not required. 2011. **X**

Optional Supplement for All-Terrain Vehicles ATV Safety, Leader's Guide directs leaders on how to implement service learning projects, involve parents in supervision/education of young riders, and much more. Available online at ohio4h.org/publications. 2011.

Bicycle

517 Bicycling for Fun, Level 1

Beginning riders learn the essentials for getting started safely and successfully! Activities cover cycling gear, bicycle parts, selection, fit, rules of the road, and more. Complete at least seven activities each year. Can be repeated once. 2006. **B**

518 Wheels in Motion, Level 2

Youth learn advanced skills as they explore their surroundings. Activities cover buying, maintenance, repair, road skills, and cycling for life. Complete at least seven activities each year. Can be repeated once. 2006. **I**


Helper Supplement for Bicycle

The **Bicycle Helper's Guide** is for helpers who are working with the Bicycle Adventures series (517–518 above). It has activities and ideas related to basic bicycle handling, traffic skills, and bicycle events for the entire group. Available from National 4-H at shop4-h.org.

Chemistry


493 Science Fun with Kitchen Chemistry




Join the Terrestrial Alien Defense Academy and figure out how to outsmart the aliens by doing experiments in your kitchen. Learn about what matter is and how it changes form; explore the different properties of matter; find out about acids and bases; and discover how everyday items and kitchen ingredients can be used in cool tests! 2014. **B**, 

Electricity


527 Magic of Electricity, Level 1

Youth explore why certain things insulate from electricity better than others and the effect that magnetism has on various substances. Youth learn how to build a flashlight, a compass, an electromagnet, and an electric motor. 2002. **B**, 


528 Investigating Electricity, Level 2

Youth build circuits and test voltages, and build a rocket launcher and a burglar alarm as they practice decision making and communication. This unit is designed for youth who understand magnetism, electron flow, and circuit design. 2002. **I**, 


529 Wired for Power, Level 3

Youth build on skills learned in levels 1 and 2 plus learn measuring electrical usage, replacing electrical switches, and determining electrical loads. Youth also evaluate different bulbs and test for electrical power. 2003. **I**, 

530 Entering Electronics, Level 4

This unit introduces the basics of solid-state electronics and provides hands-on activities for practical experience in understanding modern day electronic equipment. This project can be taken after youth successfully completes 528 *Investigating Electricity* and has solid soldering skills and circuitry knowledge. 2003. **A**, 

531 Science Fun with Electricity

This beginning electricity project book includes 11 kid-friendly and time-tested experiments about static electricity, currents, electromagnetism, electric motors, and electric light. Each experiment has a brief introduction, a supply list, and step-by-step instructions that bring an electrical concept to life. Requires additional supplies. 2009. **B**, 

 State Fair eligible;  Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level

Helper Supplement for Electricity

The **Electric Group Helper's Guide** is for helpers working with the Electricity Excitement series (527–530 above). It has activities and ideas to make your group meetings more fun and educational. Available from National 4-H at shop4-H.org.

Electric Radio-Controlled Vehicles

504 Electric Radio-Controlled Vehicles

Be your own pit crew and driver by researching, purchasing, assembling, and modifying an electric radio-controlled vehicle. This introductory project is designed for members 11 years old and above with some experience in toy grade radio-controlled vehicles, but who are interested in moving up to hobby grade. Most members need the direction of a knowledgeable adult. Not for use with ready-to-run cars, or with boats, aircraft, or gas-powered vehicles. Requires youth to buy a kit to build a car. The price of a kit and related materials starts at \$500. 2011. I

Energy

550 Young Engineers in Solar Energy



Jump-start your career in engineering with this hands-on introduction to the sun as an energy source. Nine activities lead you through the nature of light, Earth's relationship to the Sun, and the technology that allows us to use its energy. Directions for simple make-at-home scientific instruments included! 2018. I, ♀

Food Science

490 Science Fun with Dairy Foods: The Case of the Missing Milk



Your kitchen becomes a laboratory as you observe and experiment with dairy products. As a member of the Dairy Police Task Force, discover the science behind butter, cheese, and curds while solving the mystery of The Missing Milk. After completing this project you are encouraged to explore other Science and Food and Nutrition project books. 2012. B, ♀

Knots

ohio4h.org/knots

540 Not Just Knots



Learn to make 14 different simple knots, bends, and hitches. Remember what they say—practice, practice, practice! Then show what you have learned with a capstone project of your choosing. Sample capstone projects are available at ohio4h.org/knots. 2016. X, ♀

Physics

500 Science Fun with Physics



Let your inner scientist uncover the mysteries of physics at play in daily life. The amazing magician Franco Newtoni is your guide as you try each experiment. You'll see the forces of nature, energy, and the power of physics at work—or is it magic? This STEM project will satisfy your curiosity on many topics! 2015. B, ♀

Robotics

ohio4h.org/robotics

507 Robotics 1 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 the EV3 Core Set available from LEGO® Education for about \$400. Other EV3 kits may not be the same! (Go to ohio4h.org/robotics for details.) A computer for running the programming software and internet access for watching videos are required. 2015. I, ♀

508 Robotics 2: EV3N More



This second book in the Ohio 4-H robotics series includes new robot configurations and programming challenges in the book and fresh instructional videos online. The LEGO® EV3 robot from Robotics 1 with EV3 is required (no new LEGO® purchase is necessary). A computer for running the programming software and internet access for watching videos are required. 2016. A, ♀

512M Robotics Master

Want to continue with robotics after completing the existing Ohio 4-H robotics projects? Want to explore robotics with a different platform (other than LEGO® Mindstorms EV3)? Members of any age may complete this project, but should have previous robotics experience (comparable to what is required for other advanced-level 4-H projects), and be able to plan and complete the project on their own with minimal supervision. Available online at ohio4h.org/publications. 2013. A, ♀

Small Engines

541 Crank It Up, Level 1

Youth focus on basic small engine knowledge, study external engine parts, discover tools of the trade, and learn the concepts behind what makes small engines work. They explore the uses of small engines and safety issues. 2005. B, ♀

When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

542 Warm It Up, Level 2

Youth explore internal parts of engines, learn about engine sizes, compression ratios, seasoning their engines and safety issues. Youth also learn about occupational possibilities and about starting their own business. 2005. I,

543 Tune It Up, Level 3

Youth tear down and rebuild an engine, use diagnostic tools, research rules and regulations about using small engine machines, and select replacement engines. 2005. A,

Helper Supplement for Small Engines

The **Small Engines Helper's Guide** is for helpers working with the Small Engines series (541–543 above). It has activities and ideas to make your group meetings more fun and educational. Available from National 4-H at shop4-H.org.

Tractor and Machinery Operation

Tractor Series

Ohio 4-H members can use the series of four 4-H Tractor project manuals published by Purdue University, West Lafayette, IN. These manuals are interesting to most 4-H members because they cover more than just safety. Available through Purdue University for \$5.50 each, plus shipping.

Ordering Information

Online: mdc.itap.purdue.edu. In the Search box, type "tractor." The tractor manuals are included in the results, identified as Level A, B, C, or D.

551 Starting Up: Getting to Know Your Tractor, Level A

Designed for youth with little or no prior agricultural tractor and equipment experience. Youth learn parts of a tractor, tractor maintenance, different fuels, engine cooling systems, safety with augers, and more. (Indiana Code: 4-H-961) 2005. B,

552 Tractor Operations: Gearing Up for Safety, Level B

Designed for youth with some agricultural tractor and equipment experience. Includes farm and tractor safety, tractor maintenance, mechanics of the engine, accessory equipment, and functions of different operational systems. (Indiana Code: 4-H-962) 2005. I,

553 Moving Out: Learning About Your Tractor and Farm Machinery, Level C

Designed for youth with some agricultural tractor and equipment experience. Teaches safety, maintenance, different types of oil systems, fuel safety, and PTOs. (Indiana Code: 4-H-963) 2005. I,

554 Learning More: Learning About Agricultural Tractors and Equipment, Level D

Contains more opportunities to learn about mechanics, operational systems, safety, maintenance, and farm equipment. (Indiana Code: 4-H-964) 2005. A,

National Safe Tractor and Machinery Operation Program (NSTMOP), Student Manual

Take safety seriously! Use this manual as the basis for a self-determined project or enroll in an actual course. (Consult your county office to determine availability. Not all counties have certified instructors.) Over 200 pages include color task sheets for 70-plus topics that help the young driver learn how to safely operate agricultural equipment. Each lesson includes safety activities that make learning fun and exciting. Youth 14 to 15 years old can receive their tractor certification cards by completing this course. This publication also serves as the helper's guide. Available for download at articles.extension.org, search for "NSTMOP Student." 2017. A,

Welding

573 Arcs and Sparks—Shielded Metal Arc Welding

Recommended for use by 4-H members who want to build, modify, or repair steel-based projects. Learn about safety, selection of equipment and materials, and fabricating techniques with shielded metal arc welding. Basic welding abilities are developed while constructing several useful projects. 2000. I,


Woodworking

556 Measuring Up, Level 1


Get started in woodworking by selecting a project helper and setting up a safe place to work. Covers ear and eye protection and these tools: a ruler or tape measure, a square, saws, an electric drill, clamps, a screwdriver, a hammer, and sand paper. Build and finish a project of your choice. 2003. B,

State Fair eligible; Requires additional resources; X = all levels, B = beginning level, I = intermediate level, A = advanced level


557 Making the Cut, Level 2

Select a wood project that shows off your new skills with a T-level, a miter box, a wood chisel, a hand jig saw, a scroll saw, a staple gun, and a power sander. Learn more about the different species of wood. 2002. I, 


558 Nailing it Together, Level 3

Youth practice measuring angles, cutting dado and rabbet joints; using a circular saw, a table saw, and a radial arm saw; smoothing lumber with a hand planer; and sanding and staining wood. 2002. I, 

559 Finishing Up, Level 4

Challenge yourself to learn hand-cut dovetail, mortise, and tenon joints. Use a power router, various planers, and a power jointer to create a project of your choice. Learn about veneer, common adhesives, stripping, and repairing. 2002. A, 

560M Woodworking Master


The Woodworking Master project is for members who want to continue with woodworking after completing the Ohio 4-H woodworking projects (556 *Measuring Up*, 557 *Making the Cut*, 558 *Nailing It Together*, and 559 *Finishing Up*). Members of any age may complete this project, but must have completed the existing projects, must have woodworking experience comparable to what is required for other advanced-level 4-H projects, and must be able to plan and complete the project on their own with minimal supervision or assistance. Available online at ohio4h.org/publications. 2013. A, 

Helper Supplement for Woodworking

The *Woodworking Helper's Guide* is for helpers working with the Woodworking series (556-559 above). It has activities and ideas to make your group meetings more fun and educational. Available from National 4-H at shop4-H.org.

Self-Determined

365 Self-Determined Project Guide

Each year 4-H members use the *Self-Determined Project Guide* to explore a topic unavailable as a statewide project. Print and complete one *Self-Determined Project Guide* for each self-determined project you take. X, 

Idea Starters

“Idea Starters” may be just the thing to get your self-determined project started. You may choose to do a little or a lot depending on your level of interest. You


can download and print the guide or fill it out online and then print it at ohio4h.org/selfdetermined.

- 365.01 **Astronomy**
- 365.02 **Model Railroading**
- 365.03 **Weather**
- 365.04 **Clowning**
- 365.06 **American Sign Language**
- 365.07 **Computers**
- 365.08 **Discovering Genetics**
- 365.09 **Canoeing**
- 365.10 **Local Food: Does It Matter What You Eat?**
- 365.11 **Camp Counseling***
- 365.12 **Miniature Gardens**
- 365.13 **Reptiles and Amphibians**
- 365.14 **Climate Change**
- 365.15 **Music**
- 365.16 **Viruses, Bacteria, and Fungi, Oh My!**
- 365.17 **Babysitting**
- 365.18 **Ways of Knowing Water**
- 365.19 **The Work World Is Calling . . . Are You Ready?**
- 365.20 **Paper Craft**
- 365.21 **Skateboarding**
- 365.22 **Pigeons**
- 365.23 **Native American Artifacts: Arrowheads**
- 365.24 **Shale Gas Extraction**
- 365.25 **Flower Gardening**
- 365.26 **Hedgehogs**
- 365.27 **Ferrets**
- 365.28 **Chinchillas**
- 365.29 **Water Quality: Field to Faucet**
- 365.30 **String Art***
- 365.31 **Crop Production**

*New or revised in 2020.

Workforce Preparation

382 Am I Ready for Work?

This project is for 4-H members who are preparing for their first paid jobs. Activities cover everything from making a good first impression to managing money, including applying, getting references, creating a resume, and interviewing. Even social media posts can affect one's job prospects! 2015. I, 



When participating in a county or state fair event, be sure to review the related age requirements and guidelines.

Group Programs

These projects, offered through group programs, contain ready-made lesson plans for project advisors. They may or may not be offered in your county.

Animal Sciences

Companion Animals and Rabbits

4hpetpals.osu.edu

230GPM 4-H PetPALS Leader's Guide

4-H PetPALS is an intergenerational program that links youth and their pets with senior adults. Specially-trained master 4-H volunteer leaders teach youth the skills they need to interact with residents in health care facilities such as assisted living and nursing home facilities. By applying the power of the human-animal bond, 4-H members learn to select, socialize, and train their pets. Youth apply the lessons in this 214-page, experientially-based curriculum to develop their leadership and citizenship skills. 4-H PetPALS allows young people to be models for residents in health care facilities and the community at large as they demonstrate the significance of human-animal interactions and the importance of intergenerational relationships. Check with your county Extension office for more details. 2003. (\$29) X, ♀

230 4-H PetPALS Project and Record Book

This project and record book helps 4-H members set goals for the year and keep records of their

4-H PetPALS activities and accomplishments. Youth must belong to a 4-H club or group with a master 4-H PetPALS volunteer leader. PetPALS is the only statewide 4-H pet therapy program approved by American Kennel Club (AKC), and youth who take this project are eligible to earn an AKC therapy dog title. This project can be repeated as long as youth re-enroll in an established 4-H PetPALS club, or a club or group with a master 4-H PetPALS leader, and activities are completed under the supervision of an adult (4-H PetPALS leader, project helper, health care facility staff, parent, etc.) Completion of a new project book is required each year. 2013. X, ♀

4-H Cloverbuds

ohio4h.org/cloverbuds

710GPM The Big Book of 4-H Cloverbud Activities



This revised classic includes updated versions of hundreds of activities for 4-H Cloverbuds in these topic areas: science and technology, community/expressive arts, healthy lifestyle, environmental/earth science, personal development, citizenship/civic education, consumerism and family science, and plants and animals. Redesigned in an easier-to-manage, spiral-bound book. 2016. (\$13.25)

711GPM Bioenergy Education

This web-based resource helps develop an awareness and appreciation for a sustainable energy future. Targeting 4-H Cloverbuds (K-2) and youth through 5th grade, it covers three areas: (1) bioenergy sources, (2) bioenergy conversion, and (3) bioproducts, each with about nine educational activities. Available for free online at ohio4h.org/cloverbudresources. 2013.

712GPM Connect to College

This 4-H Cloverbud curriculum piece raises awareness of college through a series of engaging group activities. Includes 12 activities, supporting materials, and *On Campus with Cornelius*, an original, full-color storybook about an adventurous hedgehog who visits a college. (The activities and supporting materials, but not the storybook, are also available online at ohio4h.org/cloverbudresources). 2012. (\$14)



Are You a 4-H Alum?

Tell us your story! Did 4-H make a difference in your life? Do you get together with other 4-H alumni for an annual reunion or to collaborate on local projects? Share with us your experiences and how they have shaped your life by taking our Alumni Survey!

ohio4h.org/about/alumni-and-friends

Optional Supplements for Ohio 4-H Cloverbuds

713R Choose and Tell Cards

Winner of 2013 National 4-H Communicator Award! Use this colorful deck of 4-by-6-inch cards to introduce your Cloverbuds to public speaking and communication skills. Forty-nine easy and engaging activities allow young learners to have fun, gain confidence, and develop important leadership skills. Activities are divided into four levels—from easy to difficult—and are color coded, so that selecting and sorting cards is easy. Includes box for storage. Additional supplies/materials required. 2019. (\$22.75)

714R Clover Cubes



Clover Cubes combine creativity, cooperation, interaction, and fun into a great 4-H Cloverbud activity. Each Clover Cube has six discussion prompts that help children explore a particular topic and share answers with friends. Twelve cubes are included: All About Me, Animal Awareness, Art Adventures, Engineering Excellence, Fitness Fun, Food Favorites, 4-H FUN-damentals, Make Your Own, Math Mania, Technology Talk, and Words That Start With. Cubes are easily assembled from brightly colored, punch-out shapes on heavy-duty card stock. 2016. (\$13.50)

715I My 4-H Cloverbud Year

715S My 4-H Cloverbud Year (set of 10)



This fun book is a great way for Cloverbuds to learn the basics of 4-H and keep track of their activities and events. Completion of this book is optional, and can be done with or without the help of an adult leader. It can be repeated each year a child is a Cloverbud member, and is especially appropriate for older Cloverbud members as they prepare to transition to regular membership. 2017. (\$28 for set of 10, \$6 for single copies).

Helper Supplement for Cloverbuds

711AG 4-H Cloverbud Volunteer Guidebook

This concise reference piece is for current, new, and prospective 4-H Cloverbud helpers. The guidebook explores the goals and strategies for successfully implementing the 4-H Cloverbud program. It also suggests methods for guiding the healthy development and life-skills enhancement of our youngest 4-H members. 2019. (\$7).

The Ohio 4-H Cloverbuds website offers useful resources for helpers, including curriculum, a training video, and activity kits. Learn more at ohio4h.org/volunteers/cloverbud-leaders.

Natural Resources

Junior Master Gardener: Growing Good Kids

jmgkids.us

Ohio 4-H is happy to promote these two introductory titles from the internationally recognized Junior Master Gardener (JMG) series from Texas A&M Extension. JMG engages youth in novel, hands-on learning experiences that promote a love of gardening, develop an appreciation for the environment, and cultivate the mind. JMG encourages service learning and leadership development and rewards youth with certification.

672GPM Junior Master Gardener Level 1 Teacher/Leader Guide

This rich resource is for 4-H club advisors and others interested in guiding youth as they discover gardening. Covers plant growth and development, soils and water, ecology and environmental horticulture, insects and diseases, landscape horticulture, fruits and vegetables, life skills, and careers. Check with your local Extension office to see if there is a Master Gardener Volunteer to assist you. Enough activities for years of club meetings plus access to valuable online resources like certificates, etc. Intended for youth in grades 3 through 5. 324 pages. (\$56 plus shipping). 2016. **B**

672 Junior Master Gardener Level 1 Handbook

This handbook, which corresponds to the teacher/leader guide above, covers the same topics and includes opportunities for leadership and recognition. Intended for youth in grades 3 through 5. 186 pages. (\$15 plus shipping). **B**

Ordering Information

Online: jmgkids.us. Visa and Mastercard accepted.

Shooting Sports

ohio4hshootingports.org

This leader-directed program is taught only by certified volunteers to 4-H members ages 9 and above. Members must be 9 as of January 1 of the current year. Teach young people the safe and responsible use of archery equipment and the fundamentals of firing air guns, .22 caliber and muzzleloading rifles, pistols, and shotguns, and the basic principles of hunting. Living History enables youth to explore historic lifestyles and heritage crafts in any decade from ancient times to the space age. Project literature is available only to approved volunteers who have completed a 4-H Shooting

Sports Training Workshop. Check with your county Extension office for more details.

Record books help 4-H members set goals for the year and keep an accurate record of their work and accomplishments. For 4-H members age 9 and above.

- 750 Rifle Member Record Book.*** 2020. X, ♀
- 751 Archery Member Record Book.*** 2020. X, ♀
- 752 Shotgun Member Record Book.** 2007. X, ♀
- 753 Pistol Member Record Book.*** 2020. X, ♀
- 754 Hunting and Wildlife Member Record Book.** 2000. X, ♀
- 755 Muzzleloader Member Record Book.** Ohio 4-H strongly recommends youth complete a rifle, pistol, or shotgun project before taking muzzleloader. 2013. I, A, ♀
- 756 Living History Member Record Book.** 2011. X, ♀
- 757 Crossbow Member Record Book.** 📖 2019. X, ♀
- 758 Western Heritage Project Youth Activity Guide Levels 1–3.** 📖

Learn about the history of 19th century firearms, frontier clothing, and the true lifestyles of those who lived in the Old West. Firearm safety and responsible behavior is stressed throughout. Available from Montana State University for \$8.50 plus shipping. Price is subject to change. See next column for ordering information.

* In addition to record-keeping pages, these revised member record books (rifle, archery, and pistol) require a commitment to safety and completion of activities about setting goals, parts and equipment, range rules, and more. 2020. Available December 2019.

Awards and Scholarships



Ohio 4-H awards and scholarships recognize and reward individual excellence among 4-H youth who display exemplary leadership, community service, and personal development.

To apply online or to learn more, visit ohio4h.org/awards.

Visit cfaes.osu.edu/scholarships for a listing of scholarships available through the College of Food, Agricultural, and Environmental Sciences at The Ohio State University.

Ordering Information

Online: store.msuextension.org. In the search box, type “Western heritage.” The youth activity guide is included in the results, identified as item 5332.

Optional Supplement for Western Heritage

The **Western Heritage Project: Firearms, Gunleather, and Attire of the Frontier West 1860-1900** resource manual is for anyone interested in frontier authenticity, from teachers and history buffs to reenactors and cowboy shooters. With 156 color pages, this resource includes never-before published photographs that show examples of the firearms, gun leather, cowboy gear, and clothing used by settlers of the West. Available from Montana State University at store.msuextension.org. Search for “Western heritage.” The Western Heritage Project is included in the results, identified as item 5323. Price ranges from \$25.50 for spiral bound or softcover to \$45.50 for hardcover, plus shipping. Prices are subject to change.

Ohio 4-H offers beginning-level shooting sports projects that serve as introductions to gun safety and archery. For more information, please go to page 25.

School Enrichment

Gardening and Plant Science

496AG Growing Together

This guidebook is designed for teaching garden-based science to kids. Master gardener and 4-H volunteers, parents, and teachers find fun, interactive activities to include in their indoor or outdoor horticulture education efforts. Examples of subjects included in the 10 units are pollination, soils, insects, trees, and decomposition. Individual members do NOT need a separate project book. 2001. (\$6)

Money Management

realmoneyrealworld.osu.edu

441GPM Real Money, Real World

Real Money, Real World is an active, hands-on simulation that gives young people the opportunity to make lifestyle and budget choices similar to those they need to make as adults. It is a partnership between the county Extension office, the school, and the business community. How does the program work? Prior to the simulation, teachers prepare students by going through four simple lessons about occupation and income, deductions, checking and savings accounts, and choices.

Please contact your local Extension office for information about delivering the program in your county.

Optional Supplement for Real Money, Real World



441R Agricultural Career Cards

For use with Real Money, Real World, these cards describe 50 jobs in 9 sectors. Everything from agronomy and business to food science and wildlife is represented. 2013. (\$TBD) Available December 2019.

Science Alive

ohio4h.org/sciencealive

This school-enrichment curriculum challenges youth to develop science, technology, engineering, and math (STEM) skills as they complete hands-on activities suitable for youth in grades 3 through 6.

167GPM ChickQuest Teacher Guide: A Classroom Journey Through the Life Cycle of Chickens



What can we learn from a chick? This school enrichment program challenges youth to use science, technology, engineering, and math skills to investigate the life cycle of an embryonic chicken egg. From monitoring living eggs to observing fluffy chicks, these lively activities pique curiosity, encourage collaboration and communication, and provide young scientists with unforgettable experiences. Full-color poster of a chicken life cycle is included. A *ChickQuest Logbook* (167R) is required for each student. 2016. (\$19)

Required Supplements for ChickQuest

167P ChickQuest 21-Day Calendar Poster

This 36 x 24 inch color, write-on poster covers each day of chick embryo development with detailed pictures and space for recording data. Included for no charge when you buy 167RS *ChickQuest Logbook* (set of 25). 2015. (\$6)

167RI ChickQuest Logbook

167RS ChickQuest Logbook (set of 25)



This 21-day classroom adventure starts with eggs and ends with chicks. Students are the scientists who help make it happen! This personal *ChickQuest Logbook* is used to record data and observations. Sold individually or in classroom sets of 25 with one full-color, write-on poster of 21-day chick embryo development. For use with 167GPM *ChickQuest Teacher Guide: A Classroom Journey Through the Life Cycle of Chickens*. 2016. (\$48 for set, \$6 for single copies).

501GPM Rockets Away! Exploring the Science of Forces and Motion (Teacher Guide)

Recommended for teachers and other group leaders, this popular favorite is more effective than ever at teaching the concepts of forces and motion via rocketry. The project's exciting conclusion is building and launching 2-liter bottle water rockets. A *Rockets Away Logbook* is required for each student. A bottle-rocket launcher may be available from your county Extension office. (Go to ohio4h.org/rocketsaway for information on how to purchase your own.) 2013. (\$13.50)

Required Supplement for Rockets Away

501RI Rockets Away! Logbook 501RS Rockets Away! Logbook (set of 25)

These 10 lessons, described in detail in the *Rockets Away Teacher Guide* above, are a student's gateway to the practical knowledge behind Newton's Laws of Motion. Educational research shows that the practice of recording one's own data and observations helps students internalize concepts. Sold individually or in classroom packs of 25. For use with 501GPM *Rockets Away Teacher Guide*. 2013. (\$48 for set, \$6 for single copies).

Totally Thrilling Science (set of 25)

These ten 10-minute hands-on science activities guarantee fun at club meetings and other gatherings. Presented in a vintage comic book format, the activities are engaging, easy to implement, and appropriate for all ages. Teen leaders and non-science adults can lead them! Materials are likely to be on hand or readily available at grocery stores or other retail locations. Support materials and additional activities are available at ohio4h.org/10-minute-science. Take the starch out of club meetings by adding fun activities to your agenda!

Project Guide

Project Skill Level—Unless otherwise noted in the project description, skill levels for projects are defined as follows:

All Levels (X)—A project appropriate for all skill and age levels. **Beginning (B)**—A beginning-level project for members with little or no experience in a project area, or 8 to 10 year olds. **Intermediate (I)**—An intermediate-level project for members with some experience in a project area, or 11 to 13 year olds. **Advanced (A)**—An advanced-level project for members with a lot of experience in a project area, or 14 or older.

County fairs and the state fair often have age requirements that are different than those for project enrollment. When participating in a fair event, be sure to review the related guidelines.

Please note: Ohio State Fair eligibility, as indicated by a green ribbon (🏆), is current at time of printing but is subject to change. Eligibility for the coming year is usually available in February at ohio4h.org/ohiostatefair.

Code	Title	Skill Level	State Fair	Supplement	Page #
About 4-H					
91	Discovering 4-H	B			10
92	4-H Around the Globe	I	🏆		10
Animal Sciences					
Beef					
117	Beef Project and Record Book				10
	117B Beef Breeding	X	🏆	📖	10
	117BF Beef Feeder	X	🏆	📖	10
	117DF Dairy Beef Feeder	X	🏆	📖	10
	117M Market Beef	X	🏆	📖	10
Companion Animals and Rabbits					
200	All About Dogs	B	🏆		11
201	Dog Project and Record Book				11
	201D You and Your Dog	X	🏆	📖	11
	201O Obedience	X	🏆	📖	11
	201S Showmanship	X	🏆	📖	11
	201P Performance	X	🏆	📖	11
	201W Working Dogs	X	🏆	📖	11

Code	Title	Skill Level	State Fair	Supplement	Page #
202	Dog Achievement Program	X		📖	11
215	Cavy Project and Record Book	X	🏆	📖	11
216	Purr-fect Pals, Level 1	B	🏆		11
217	Climbing Up, Level 2	I	🏆		11
218	Leaping Forward, Level 3	A	🏆		12
220	Pocket Pets Project and Record Book	X	🏆	📖	12
225	Breeding Rabbit Project and Record Book	X	🏆	📖	12
226	Market Rabbit Project and Record Book	X	🏆	📖	12
227	Pet Rabbit Project and Record Book	X	🏆	📖	12
Dairy Cattle					
122	Dairy Heifer Project and Record Book	X	🏆	📖	12
126	Dairy Cow Project and Record Book	X	🏆	📖	12
Goats					
135	Goat Project and Record Book				13
	135BD Breeding—Dairy Goats	X	🏆	📖	13
	135BM Breeding—Meat Goats	X	🏆	📖	13
	135F Fiber Goats	X		📖	13
	135H Harness Goats	X		📖	13
	135M Market—Dairy, Meat, or Cross Goats	X	🏆	📖	13
	135P Pack Goats	X		📖	13
	135PY Pygmy Goats	X		📖	13
	135C Companion—Pet Goats	X		📖	13
Horses					
173	Horseless Horse	B			13
174	Beginning Horse Management	B			13
175	Light Horse Selection	I		📖	13
177	Horse Training: How to Talk to Your Horse	I		📖	13
180	Learning to Jump	I		📖	13
181	Draft Horse	I		📖	14
182	Small Equine	I		📖	14
184	Standardbred Horses	I		📖	14

Code	Title	Skill Level	State Fair	Supplement	Page #
185	Equine Reproduction and Genetics	A			14
188	Trail Riding	I			14
189	Dressage	I			14
762	Horse Nutrition	A			14
Llamas and Alpacas					
132	Llama and Alpaca Project and Record Book	X			14
Poultry					
150	Poultry Project and Record Book				14
	150CE Chicken, Exhibition	X			14
	150CM Chicken, Market	X			14
	150CEP Chicken, Egg Production: Hens and Pullets	X			14
	150DE Duck, Exhibition	X			14
	150DM Duck, Market	X			15
	150GE Goose, Exhibition	X			15
	150GM Goose, Market	X			15
	150TE Turkey, Exhibition	X			15
	150TM Turkey, Market	X			15
	150H Helmeted Guinea Fowl	X			15
Sheep					
198	Market Lamb Project and Record Book	X			15
199	Sheep Breeding Project and Record Book	X			15
Swine					
139	Market Hog Project and Record Book	X			15
140	Swine Breeding Project and Record Book	X			15
Veterinary Science					
244	From Airedales to Zebras, Level 1	B			16
245	All Systems Go! Level 2	I			16
246	On the Cutting Edge, Level 3	A			16
Clothing and Textile Science					
406	Clothes for High School and College	A			17
407	Accessories for Teens	B			16
408	Creative Costumes	A			17

Code	Title	Skill Level	State Fair	Supplement	Page #
409	Sew Fun	B			16
410	Designed by Me	B			16
411	em•bel•lish: A 4-H Guide to Wearable Art	I			17
412	Sew for Others	I			17
413	Sundresses and Jumpers	B			16
415	Ready, Set, Sew Active	I			17
417	Dress-Up Outfit	A			17
418	Loungewear	X			17
419	Terrific Tops	B			16
420	Outerwear for Anywhere	A			18
424	Clothing for Middle School	I			17
425	Look Great for Less	A			18
426	Clothing for Your Career	A			18
430	Shopping Savvy	I			17
432M	Sewing and Textiles (non-Clothing) Master	A			18
Communication					
377	Finding Your Voice: Public Speaking Made Easy	B			18
Creative and Leisure Arts					
Cake Decorating					
492	Cake Decorating Project and Record Book	X			18
Collecting					
496	My Favorite Things	B			18
Fine Arts					
498	Quilting the Best Better	I			19
499	You Can Quilt!	I			19
592	Get Started in Art	X			19
593	Seeing Through Graphic Design	I			19
Genealogy					
442	Family History Treasure Hunt	X			19
Photography					
584	Focus on Photography, Level 1	B			19
585	Controlling the Image, Level 2	I			19
586	Mastering Photography, Level 3	A			19
589M	Photography Master	A			19

Code	Title	Skill Level	State Fair	Supplement	Page #
Scrapbooking					
497	Scrapbooking: A 4-H Guide to Preserving Memories	B	🟢		19
Writing					
588	The Writer in You	I			20
Food and Nutrition					
459	Let's Start Cooking	B	🟢		20
461	Let's Bake Quick Breads	I	🟢		20
462	Yeast Breads on the Rise	A	🟢		21
463	Sports Nutrition: Ready, Set, Go!	I	🟢		20
467	You're the Chef	A	🟢		21
469	Global Gourmet	A	🟢		21
472	Grill Master	I	🟢		20
474	Beyond the Grill	A	🟢		21
475	Star Spangled Foods	I	🟢		21
476	Pathways to Culinary Success	A	🟢		21
477	Party Planner: A 4-H Guide to Quantity Cooking	I	🟢		21
481	Everyday Food and Fitness	B	🟢		20
484	Snack Attack!	B	🟢		20
485	Racing the Clock to Awesome Meals	I	🟢		21
486	Dashboard Dining: A 4-H Guide to Healthful Fast Food Choices	I	🟢		21
487	Take a Break for Breakfast	B	🟢		20
Healthy Living					
300	You're the Athlete	I	🟢		21
351	Staying Healthy	B	🟢		21
352	Keeping Fit	I	🟢		21

Code	Title	Skill Level	State Fair	Supplement	Page #
353	First Aid in Action	B	🟢		22
357	Alcohol and Drug Abuse	A	🟢		22
358	The Truth About Tobacco	A	🟢		22
359	Your Thoughts Matter	A	🟢		22

Home Living

405	The Laundry Project	B	🟢		22
491	It's My Home	B	🟢		22
494	Makeover My Space	I	🟢		22
495	Your First Home Away From Home	A	🟢		22

Leadership and Citizenship

370	One on One	A	🟢		22
371	Club Leadership 1	I	🟢		23
372	Diversity: The Source of Our Strength	A	🟢		23
373	My Hands to Larger Service: Teen Leaders Building Our Communities	A	🟢		23
374	Teens on Board	I	🟢		23
375	Leadership Road Trip: Where Are You Going?	I	🟢		23
375i	Leadership Road Trip iBook	I	🟢		23
376	Pantry Panic	A	🟢		23
378M	Leadership Master	A	🟢		23
383	Club Leadership 2	A	🟢		23

Money Management

445	Becoming Money Wise	B			23
448	Teens On the Road to Financial Success	A			23

Natural Resources

Gardening and Plant Science

670	Canning and Freezing	I	🟢		24
671	How Does Your Garden Grow?	B	🟢		24
691	Grow Your Own Vegetables	B	🟢		24
692	Growing with the Seasons	I	🟢		24

The Natural World

611	Explore the Outdoors	B	🟢		24
612	Geology: Can You Dig It?	B	🟢		24
617	Exploring Ponds	A	🟢		24
620	Why Trees Matter	B	🟢		24
621	Ohio Birds	X	🟢		24
622	Trapping Muskrats in Ohio	I	🟢		24

Don't Forget to Say Thanks!

Take the time to express your gratitude towards the sponsors and donors of awards you receive.



Code	Title	Skill Level	State Fair	Supplement	Page #
623	Outdoor Adventurer: Beginning Fishing	B			24
624	Outdoor Adventurer: Intermediate Fishing	I			25
641	Beekeeping Project and Record Book	X			25
644	Insect Adventures 1	B			25
645	Insect Adventures 2	I			25
646	Insect Adventures 3	A			25
Shooting Sports					
630	Safe Use of Guns	B			25
631	Basic Archery	B			25
Science, Technology, Engineering, and Math					
Aerospace Science					
501	Rockets Away (2-liter Bottle Rockets)	B			25
502	Science Fun with Flight	B			25
503	Rockets Away (Solid-Fuel Model Rockets)	B			25
503M	Solid-Fuel Rocketry Master	A			25
All-Terrain Vehicles (ATV)					
555	ATV Safety	A			26
Bicycle					
517	Bicycling for Fun, Level 1	B			26
518	Wheels in Motion, Level 2	I			26
Chemistry					
493	Science Fun with Kitchen Chemistry	B			26
Electric Radio-Controlled Vehicles					
504	Electric Radio-Controlled Vehicles	I			27
Electricity					
527	Magic of Electricity, Level 1	B			26
528	Investigating Electricity, Level 2	I			26
529	Wired for Power, Level 3	I			26
530	Entering Electronics, Level 4	A			26
531	Science Fun with Electricity	B			26
Energy					
550	Young Engineers in Solar Energy	I			27

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Food Science					
490	Science Fun with Dairy Foods: The Case of the Missing Milk	B			27
Knots					
540	Not Just Knots	X			27
Physics					
500	Science Fun with Physics	B			27
Robotics					
507	Robotics 1 with EV3	I			27
508	Robotics 2: EV3N More	A			27
512M	Robotics Master	A			27
Small Engines					
541	Crank It Up, Level 1	B			27
542	Warm It Up, Level 2	I			28
543	Tune It Up, Level 3	A			28
Tractor and Machinery Operation					
551	Starting Up: Getting to Know Your Tractor, Level A	B			28
552	Tractor Operations: Gearing Up for Safety, Level B	I			28
553	Moving Out: Learning About Your Tractor and Farm Machinery, Level C	I			28
554	Learning More: Learning About Agricultural Tractors and Equipment, Level D	A			28
	National Safe Tractor and Machinery Operation Program, Student Manual	A			28
Welding					
573	Arcs and Sparks—Shielded Metal Arc Welding	I			28
Woodworking					
556	Measuring Up, Level 1	B			28
557	Making the Cut, Level 2	I			29
558	Nailing It Together, Level 3	I			29
559	Finishing Up, Level 4	A			29
560M	Woodworking Master	A			29

Your reviews help others. Rate and review the projects you take at ohio4h.org/projectcentral.

Code	Title	Skill Level	State Fair	Supplement	Page #
Self-Determined					
365	Self-Determined	X	🟢		29
365.01	Astronomy	X	🟢		29
365.02	Model Railroading	X	🟢		29
365.03	Weather	X	🟢		29
365.04	Clowning	X	🟢		29
365.06	American Sign Language	X	🟢		29
365.07	Computers	X	🟢		29
365.08	Discovering Genetics	X	🟢		29
365.09	Canoeing	X	🟢		29
365.10	Local Food	X	🟢		29
365.11	Camp Counseling	X	🟢		29
365.12	Miniature Gardens	X	🟢		29
365.13	Reptiles and Amphibians	X	🟢		29
365.14	Climate Change	X	🟢		29
365.15	Music	X	🟢		29
365.16	Viruses, Bacteria, and Fungi, Oh My!	X	🟢		29
365.17	Babysitting	X	🟢		29
365.18	Ways of Knowing Water	X	🟢		29
365.19	The Work World Is Calling	X	🟢		29
365.20	Paper Craft	X	🟢		29
365.21	Skateboarding	X	🟢		29
365.22	Pigeons	X	🟢		29
365.23	Native American Artifacts	X	🟢		29
365.24	Shale Gas Extraction	X	🟢		29
365.25	Flower Gardening	X	🟢		29
365.26	Hedgehogs	X	🟢		29
365.27	Ferrets	X	🟢		29
365.28	Chinchillas	X	🟢		29
365.29	Water Quality: Field to Faucet	X	🟢		29
365.30	String Art	X	🟢		29
365.31	Crop Production	X	🟢		29
Workforce Preparation					
382	Am I Ready for Work?	I	🟢		29

Code	Title	Skill Level	State Fair	Supplement	Page #
Group Projects					
These projects are offered through a variety of group programs that may or may not be offered in your county.					
Animal Sciences					
Companion Animals and Rabbits					
230	4-H PetPALS Project and Record Book	X	🟢		30
Cloverbuds					
710GPM	Big Book of 4-H Cloverbud Activities				30
711GPM	Bioenergy Education				30
712GPM	Connect to College				30
Natural Resources					
Junior Master Gardener: Growing Good Kids					
672GPM	Junior Master Gardener Level 1 Teacher/Leader Guide	B			31
672	Junior Master Gardener Level 1 Handbook	B			31
Shooting Sports					
750	Rifle Member Record Book	X	🟢		32
751	Archery Member Record Book	X	🟢		32
752	Shotgun Member Record Book	X	🟢		32
753	Pistol Member Record Book	X	🟢		32
754	Hunting and Wildlife Member Record Book	X	🟢		32
755	Muzzleloader Member Record Book	X	🟢		32
756	Living History Member Record Book	X	🟢		32
757	Crossbow Member Record Book	X	🟢	📖	32
758	Western Heritage Project: Youth Activity Guide	X	🟢	📖	32

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