

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

Veterinary Science-Science Fun

If you take a horse as your veterinary science animal, you must also take a horse project.

VET 1 FROM AIREDALES TO ZEBRAS 244

Guidelines: For beginners, grades 3-5. Project may be taken for three years. Do 1/3 of book, if doing it in 3 years. See page 3. Set Project Goals and record Project Highlights. Do a minimum of seven activities each year in "Whaddya Know?" Complete survey before and after you do the activities in this Citizenship Activity, and one community service **each** year.

Judging Requirements: Project will be judged at county judging. Bring your completed project book and a display of knowledge gained.

Fair Exhibit: Educational display

VET 2 ALL SYSTEMS GO 245

Guidelines: Intermediate Level. Grades 6-8. Project may be taken for three years. Do 1/3 of book, if doing it in 3 years. See page 3. Set Project Goals and record Project Highlights. Do a minimum of seven activities each year. Complete the questions in the "Take the Pulse" part of each activity. Participate in one Leadership Activity, one Citizenship Activity, and one community service **each** year.

Judging Requirements: Project will be judged at county judging. Bring your completed project book and a display of knowledge gained.

Fair Exhibit: Educational display.

VET 3 ON THE CUTTING EDGE 246

Guidelines: Advanced Level. Grades 9-12. Project may be taken for three years. Do 1/3 of book, if doing it in 3 years. See page 3. Set Project Goals and record Project Highlights. Do a minimum of seven activities **each** year. Complete the questions in the "Take the Pulse" for each activity. Participate in one Leadership Activity, one Citizenship Activity, and one community service **each** year.

Judging Requirements: Project will be judged at county judging. Bring your completed project book and a display of knowledge gained.

Fair Exhibit: Educational display.

SCIENCE FUN WITH DAIRY FOODS 490

Guidelines: Kitchens becomes laboratories as youth observe and experiment with dairy products. As members of the Dairy Police Task Force, they learn the science behind butter, Cheese and curds while solving the mystery of the missing milk. This project does not require any food preparation requirements from Sect. 25, page 1, nor does it require a food portfolio as in the food/nutrition projects. Project helper suggested.

Judging Requirements: Bring your completed project book. Complete all 6 activities on page 4, take part in at least 2 Super Sleuth Learning Experience, become involved in at least 2 Leadership/Citizenship Activities, and complete a project review summary, and participate in a project interview judging.

Fair Exhibit: Display of knowledge gained.

SCIENCE FUN WITH KITCHEN CHEMISTRY 493

Guidelines: In this beginning-level project, Science Fun Series helps 4-H members repel an alien invasion-yes, aliens! - with simple chemistry experiments that use materials readily available in most kitchens. It's an introduction to chemistry and is most appropriate for youth with no experience in this area. Learn about what matter is and how it changes form; explore different properties of matter; find out about acids and bases; and discover how everyday items and kitchen ingredients can be used in cool tests.

Judging Requirements: Bring your completed project book to judging. Complete all 11 experiments. Take part in at least two learning experiences. Become involved in at least 2 leadership/citizenship activities. Complete a project review summary. Private Proton Challenges are optional

Fair Exhibit: Display of knowledge gained.

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

Science Fun-Polar Science-Aerospace

SCIENCE FUN W/PHYSICS 500

Guidelines: This project is designed for 4-H members with beginning-level skills with science experiments. This project in the format of magical science experiments. As a junior researcher, it is your job to test each experiment in this project exploring Newton's magic. Use your observation skills, knowledge and logic as you explore each level of this guide. Project does it require a food portfolio as in the food/nutrition projects. Project helper suggested.

Judging Requirements: Bring your completed project book. Complete all 12 experiments, take part in at least 2 learning experiences, become involved in at least 2 leadership/citizenship activities and complete a project review.

Fair Exhibit: Display of knowledge gained.

EXPLORE THE POLES 613

Guidelines: This project is intended for Intermediate 4-H members (ages 11-14). Where do penguins live? Is the Arctic really ALL ice? Take a close look at the Arctic and Antarctica by learning more about their geography, glaciers, and sea ice, and plants and animals. Have fun with hands-on activities, learn about related careers, and take an active role in protecting these beautiful and unique environments.

Judging Requirements: Bring your completed project book, including all learning activities, leadership/citizenship activities, and a project review.

Fair Exhibit: Display of knowledge gained.

Aerospace projects report for judging at the Fulton County Fairgrounds Junior Fair Building to blast off your rocket, to demonstrate your robot, and to be judged. **Bring appropriate safety attire and your own launch equipment!**

ROCKETS AWAY 613

Guidelines: 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**. Bottle rocket launchers are available to check out from the Extension Office.

Judging Requirements: Complete Member Project Guide in project book and bring completed book, rocket (water rocket must be launched at judging), and 16" x 20" (or larger) poster on basic MODEL rocket principles.

Fair Exhibit: Poster (rocket is optional).

SCIENCE OF FLIGHT 502

Guidelines: Beginners. For youth ages 9-14. Designed as a one-year project.

Judging Requirements: Complete Member's Project Guide. Bring completed member project book, the built glider, flyer, or model, and be prepared to demonstrate one of the seven Project Activities for the judge. See page 2 in the project book.

Fair Exhibit: Glider, flyer or model, member Project Guide and poster display.

ROCKETS AWAY (ESTES TYPE) 503

Guidelines: A beginning level project designed for members in grades 5-8. Younger members may take this project only under the direct supervision of an adult. Explore each of the three Project Interest Areas. Complete all activities within each Project Interest Area, do three Project Interest Areas, two Leadership and two Citizenship/Organized activities. Members are required to build and launch an "Estes-type" rocket from scratch or kit. At least four launches must be recorded in the Flight Data Section.

Judging Requirements: Completed project book, knowledge of terms, launch rocket at judging (bring your own launch pad and rocket).

Fair Exhibit: Poster or display rocket and project book.

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

Robotics-Electricity

Fulton County has a designated advisor who will assist any youth with robotics projects. We also have one robotics kit available for loan through this advisor. Please contact the Fulton County OSU Extension Office for further information 419-337-9210.

An advisor supplement for Robotics is also available. Robotics Coach is designed to provide helpers with additional groups activities related to the life skills and robotics skills introduced in the youth guides. This supplement is available at www.4-H mall.org.

ROBOTICS 1W/LEGO EV3 507

Guidelines: This project is for all age levels. It is designed to be completed as an individual project, although many 4-H members complete their individual projects while working together in a small group. No previous knowledge or robotics is required, but younger members must have a knowledgeable adult helper. Designed as a 1 year project. Build one robot using a LEGO MINDSTORMS robotics kit and learn how to program a LEGO robot to interact with its environment. All activities are based on the LEGO EV# system.

Judging Requirements: Bring completed project book and display of knowledge gained to judging in July. Complete all 12 activities and ALL of the Talking It Over questions. Complete at least two learning experiences. Become involved in at least two leadership/citizenship activities. Complete a project review. Be prepared to make the robot work as learned through the project.

Fair Display: Display of knowledge gained. Do not display the robot.

ROBOTICS 2: EV3N More 508

Guidelines: Advanced project designed for members of all ages who have advanced-level robotics skills and who have completed Robotics 1 with EV3. All activities are based on the LEGO EV3 system. . This guides youth through new robot configurations and programming challenges with activities in the book and instructional videos online at Ohio4h.org/robotics. The LEGO EV3 robot constructed for Robotics 1 with EV3 is required; no new LEGO purchase is needed. A computer for running the programming software and Internet access for watching the videos are required.

Judging Requirements: Bring completed project book and display of knowledge gained to judging in July. Complete all 7 activities and ALL of the Talking It Over questions. Complete at least two learning experiences. Become involved in at least two leadership/citizenship activities. Complete a project review. Be prepared to make the robot work as learned through the project.

Fair Display: Display of knowledge gained. Do not display the robot.

MAGIC OF ELECTRICITY 527

Guidelines: Beginner Level. Suggested Grades 4-5. Project can be taken 1-3 years. **Choose an electric project helper.** Complete at least 7 activities per year (3 main activities and 4 Brain Boosters). Complete at least 2 leadership experiences. Complete the Planning Guide.

Judging Requirements: Bring completed project book to judging and an activity you completed to demonstrate how it works.

Fair Exhibit: Working electrical activity display.

INVESTIGATING ELECTRICITY 528

Guidelines: Intermediate Level. Suggested Grades 6-7. Project can be taken 1-3 years. **Choose an electric project helper.** Complete at least 7 activities per year (3 Required Activities and 4 Brain Boosters). Complete at least 2 leadership experiences and the Planning Guide.

Judging Requirements: Bring completed project book to judging and an activity you completed to demonstrate how it works.

Fair Exhibit: Working electrical activity display.

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

Electricity-Knots-Small Engines

WIRED FOR POWER 529

Guidelines: Intermediate Level. Suggested Grades 8-9. Project can be taken 1-3 years. **Choose an electric project helper**, Complete at least 7 activities per year (3 Required Activities and 4 Brain Boosters). Complete at least 2 leadership experiences and the Planning Guide.

Judging Requirements: Bring completed project book to judging and an activity you completed to demonstrate how it works.

Fair Exhibit: Working electrical activity display.

ENTERING ELECTRONICS 530

Guidelines: Advanced Level. Suggested Grades 10-12. Project can be taken 1-3 years. **Choose an electric project helper**. Complete at least 7 activities per year (3 Required Activities and 4 Brain Boosters). Complete at least 2 leadership experiences and the Planning Guide.

Judging Requirements: Bring completed project book to judging and an activity you completed to demonstrate how it works.

Fair Exhibit: Working electrical activity display.

SCIENCE FUN WITH ELECTRICITY 531

Guidelines: This is a beginning level project for members in 5th grade or older. There are extra supplies to purchase with this project. See p. 3. Learn the scientific history concerning the discovery and application of electric energy through the 1800's. Do the experiments in chronological order as in their place in history. Complete all interest areas. Complete all experiments and journals in each interest area. Complete two project activities and at least two leadership/citizenship activities. Complete a one page project summary about what you learned while completing the project.

Judging Requirements: Bring completed project book and: one of the experiments you completed while completing the book or a poster display demonstrating something you learned.

Fair Exhibit: Poster or display of something you learned about electricity.

NOT JUST KNOTS 540

Guidelines: For youth of all ages. Learn to make fourteen different simple knots, bends, and hitches.

Judging Requirements: Bring completed project book to judging. Show what you have learned with a "capstone project" of your choosing. Directions for sample capstone projects are available at ohio4h.org/knots. Do at least 2 project Learning Experiences and 2 Citizenship/Leadership activities.

Fair Exhibit: Display of knowledge gained

CRANK IT UP 541

Guidelines: For youth in Grades 3-5. Complete at least seven activities the first year. This can be a two-year project. **Youth must have an adult helper**. Participate in two Leadership or Citizenship Activities each year

Judging Requirements: Bring a portfolio of ideas and notes, drawings, pictures and things created and your completed project book.

Fair Exhibit: Portfolio or display and project book.

WARM IT UP 542

Guidelines: For youth in Grades 6-8. Complete at least seven activities the first year. Project can be taken two years. **Youth must have an adult helper**. Participate in two Leadership or Citizenship activities each year.

Judging Requirements: Bring an expanded portfolio of ideas and notes, drawings, pictures, and things created and your completed project book.

Fair Exhibit: Portfolio or display and project book.

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

Small Engines-Solar-Tractor

TUNE IT UP 543

Guidelines: For youth in Grades 9-12. Complete at least seven activities the first year. This can be a two-year project. **Youth must have an adult helper.** Participate in two Leadership or Citizenship activities each year.

Judging Requirements: Bring an expanded portfolio of ideas and notes, drawings, pictures and things created and your completed project book.

Fair Exhibit: Portfolio or display and project book.

YOUNG ENGINEERS IN SOLAR ENERGY 550

Guidelines: This intermediate project jumpstarts careers in engineering with a hands on introduction to the sun as an energy source. Learn about nature of light, Earth's relationship to the sun, and the technology to harness the sun's energy. Make at least one simple make-at-home scientific instrument. Complete all 9 activities, all Talking It Over questions, at least 2 learning experiences, at least 2 leadership/citizenship activities, and a project review.

Judging Requirements: Completed project book and display of knowledge (including, but not limited to at least one make-at-home scientific instrument).

Fair Exhibit: Display of knowledge and/or one or more make-at-home instrument(s).

TRACTOR 1: STARTING UP 551

Guidelines: This is a beginner project. Read and complete all activities in project book. Write a one page report telling what was done and learned through this project.

Judging Requirements: Complete project book, educational display/exhibit

Fair Exhibit: An educational display/exhibit.

TRACTOR 2: GEARING UP FOR SAFETY 552

Guidelines: This is an intermediate project. Read and complete all activities in project book. Write a one page report telling what was done and learned through this project.

Judging Requirements: Completed project book, educational display/exhibit, an interview on the knowledge and skills learned.

Fair Exhibit: An educational display/exhibit.

TRACTOR 3: MOVING OUT 553

Guidelines: This is also an intermediate project. Read and complete all activities in project book. Write a one page report telling what was done and learned through this project.

Judging Requirements: Completed project book, educational display/exhibit, an interview on the knowledge and skills learned.

Exhibit: An educational display/exhibit.

TRACTOR 4: LEARNING MORE 554

Guidelines: This is an advanced project. Read and complete all activities in project book. Write a one page report telling what was done and learned through this project.

Judging Requirements: Completed project book, educational display/exhibit, an interview on the knowledge and skills learned.

Fair Exhibit: An educational display/exhibit.

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

ATV-Woodworking

ATV SAFETY 555

Guidelines: The 4-H member is encouraged to take the ATV Safety Certification Course organized by the OSU Extension Office. Date not scheduled as of print date of handbook.

Note: This project is not state fair eligible.

Judging Requirements: Complete ALL activities in project book. Bring ATV & book to judging at the fairgrounds in July for Project Judging. Must have an adult project helper. Complete project guidelines on page 5, #1-4. Complete all 9 safety activities, practice pages and ride record. Do at least 2 citizenship/leadership activities. ATV certification will count as 1 learning experience. Write a 1 page summary/review.

Fair Exhibit: Completed project book.

Projects must be DRY when brought to judging. If selected to be a Woodworking Fulton County Ohio State Fair Representative, please wear eye protection and appropriate attire to Woodworking Day. Youth will complete a project on-site at the Ohio State Fair.

MEASURING UP - LEVEL 1 556

Guidelines: Beginner Level. Grades 3-4. For youth with little or no prior woodworking experience, but may have used a hammer or handsaw. **Choose a woodworking project helper.** Complete at least 7 activities, at least 2 leadership experiences, and the Planning Guide on pages 3-4. Project can be taken up to three years.

Judging Requirements: Bring your completed project book. Be able to identify the tools on page six. Bring at least 1 wood project that you made from the book and any other wood projects you would like to have evaluated. Be prepared to identify the skills you learned and used in making the projects.

Fair Exhibit: Book and wood project or display of knowledge and skills gained.

MAKING THE CUT- LEVEL 2 557

Guidelines: Intermediate Level. Grades 4-6. For youth who have used a hand saw, hand or cordless drill, and other basic hand tools. Project can be taken 1-3 years. **Choose a woodworking project helper.** Complete at least 7 activities, at least 4 woodworking leadership experiences, and the Planning Guide on pages 3-4.

Judging Requirements: Bring your completed project book. Be able to explain the safety rules for power tools and wood finishes. Bring at least 1 wood project that you made from the book and any other wood projects you would like to have evaluated. Be prepared to identify the skills you learned and used in making the projects.

Fair Exhibit: Book and wood project or display of knowledge and skills gained.

NAILING IT TOGETHER LEVEL 3 558

Guidelines: Intermediate-Advanced Level. Grades 6-8. For youth who have used a few basic power tools. Project can be taken 1-3 years. **Choose a woodworking project helper.** Complete at least 7 activities, at least 4 woodworking leadership experiences, and the Planning Guide on pages 3-4. Project can be taken up to three years.

Judging Requirements: Bring your completed project book. Bring at least 1 wood project that you made from the book and any other wood projects you would like to have evaluated. Be prepared to identify the skills you learned and used in making the projects.

Fair Exhibit: Book and wood project or display of knowledge and skills gained.

FINISHING UP LEVEL 4 559

Guidelines: Advanced Level. Grades 9-12. For youth who are confident using power tools. Project can be taken 1-3 years. **Choose a woodworking project helper.** Complete at least 7 activities, at least 4 woodworking leadership experiences, and the Planning Guide on pages 3-4. Project can be taken up to three years.

Judging Requirements: Bring your completed project book. Bring at least 1 wood project that you made from the book and any other wood projects you would like to have evaluated. Be prepared to identify the skills you learned and used in making the projects.

Fair Exhibit: Book and wood project or display of knowledge and skills gained.

SECTION 19: PROJECT REQUIREMENTS

STEM: Science, Technology, Engineering & Math

Welding

ARCS AND SPARKS 573

Guidelines: Intermediate level, ages 11-13. Explore the recommended Interest Areas, building skills, and developing knowledge questions for your year in the project. Complete two organized project activities and two leadership/citizenship activities. Build at least two weldments/items following the instructions in the project book; write a one-page report of what you did and learned in this project. Repeat members must complete one added activity in Interest Areas 1-3 and build two added weldments/items. **This project is stick welding only. Wire welding may only be taken as a Self Determined project.**

Judging Requirements: Bring one welded item from book and your completed project book. You may bring a larger item (with more welds), but you **MUST** bring what you made from book. Wear appropriate attire. You may bring other welding equipment/supplies.

Fair Exhibit: Poster or display welded item and project book.