

4-H HANDS-ON CURRICULUM CATALOG 2016-2017

K-STATE RESEARCH AND EXTENSION SEDGWICK COUNTY

7001 W 21ST ST. N.

WICHITA, KS, 67205-1759

316.660.0112

Fax 316.722.1432

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www.sedgwick.ksu.edu

Dear Sedgwick County Educator,

4-H has helped local children learn and grow with research-based, hands-on activities since 1914. 4-H lessons are designed to build students' academic and personal skills with real-world activities that meet Kansas Curricular Standards.

You will notice that there are four different delivery methods listed in this catalog:

Electronic programs are e-mailed directly to you.

Lending Library must be picked up at the Extension Education Center to use for three weeks. These programs must be reserved in advance.

Classroom programs are presented in your classroom by Extension staff or volunteers. These programs must be scheduled in advance.

Off-Site programs are held at various locations in the community. You and your class will arrange your own transportation to the site where the activity is held. Advance reservations are required.

An order form can be found online at: http://tinyurl.com/ju24yut
Please complete all sections of the order form. Programs are scheduled first come, first serve after your completed order form has been received.

We are also very willing to search through Extension 4-H resources that are available from Kansas and other states if you need resources for a special class topic. We'll be glad to help, so please don't hesitate to ask.

We wish you the best for the 2016-2017 school year. Sincerely,

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Lending Library

ACRES OF ADVENTURES

Grades 3-5

80 hands-on science lessons, 30-45 minutes each.

These student and teacher friendly lessons are especially formatted for school and after-school groups. They use easily available supplies to teach about agriculture, food, horticulture, physics, history and entomology.

- Kansas Science Standards: Forces and Interactions (3), Life Cycles and Traits (3), Energy (4), Structure, Function and Information Processing (4), Matter and Energy in Organisms and Ecosystems (5), Engineering Design (5)
- Kansas Social Studies Standard: Economics-Choices Have Consequences (3-5)
- Kansas Math Standards: Numbers and Algebraic Thinking (3), Numbers and Operations-Fractions (4-5), Measurement and Data (3-5)

Teacher Provides:

- ► Handouts in quantity
- ► Hands –on learning activity supplies

Program Includes:

► Book 1: All About Ag, Fast Food, Plant Detectives, Mysteries

► Book 2: Ag Gone Wild, Farm Physics, Frontier Living, Insect Invasion



4-H CLOVERBUDS

Grades K-2

47 lesson plans, 5 to 7 activities per lesson (5 -15 minutes each)

A variety of activities are used to introduce young students to topics in science, math, arts, citizenship, community, personal care, healthy living, environmental stewardship and family living. Each activity is designed to encourage the development of personal and interpersonal

skills while learning and having fun.

- Kansas Science Standards: Weather and Climate (K), Waves- Light and Sound (1), Interdependent Relationships in Ecosystems (2), Structure and Properties of Matter (2)
- Kansas Social Studies Standards: Civics and Government (K-2)
- Kansas Language Standard: Speaking and Listening (K-2)
- Kansas Math Standards: Measurement and Data (K-2)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for activities

Program Includes:

▶ Curriculum notebook

EXPLORING THE TREASURES OF 4-H

Grades 2-4

48 lesson plans

A variety of activities are used to introduce students to topics in science and technology, plants and animals, leadership and personal development, environmental stewardship, consumer and family science, communication, arts and citizenship. Each 2-page

lesson plan includes complete, easy-to-follow instructions; background information; material list; success indicators; curricular correlations and additional challenges.

- Kansas Science Standard: Interdependent Relationships in Ecosystems (2-3)
- Kansas Social Studies Standard: Civics and Government (2-4)
- Kansas Language Standard: Speaking and Listening (2-4)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for activities

Program Includes:

► Curriculum notebook



FUNTIVITIES

Grades 3-5

Hands-on activities in science and mathematics include chemistry, physics, math applications, electricity, magnetism, logic and problem solving and more.

- Kansas Science Standard: Forces and Interactions (3), Energy (4), Structure and Properties of Matter (5), Engineering Design (5)
- Kansas Mathematics Standards: Operations and Algebraic Thinking (3-5), Measurement and Data (3-5)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for student activities

- ► Teacher's lesson plan handbooks
- Student activity books

FINANCIAL CHAMPIONS





A hands-on personal financial literacy curriculum with activities in handling money and credit, weighing options and making decisions, and evaluating advertisements. The curriculum includes a "Helper's Guide" with group activities, and two "Youth Guides" of individual activities.

• Kansas Mathematics Standards: Expressions and Equations (6-7)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for student activities

Program Includes:

- ► Teachers/Helpers curriculum book
- ► Student individual activity books

KANSAS - THE 34TH STATE

Grades K to 3

This resource notebook includes Kansas emblems, history, maps, tourism information, elected officials and two early elementary activity books to use for your Kansas Day celebration.

• Kansas Social Studies Standard: History (K-3), Civics and Government (K-3), Geography (K-3)



Teacher Provides:

► Handouts in quantity

- ► Copy-ready student activity sheets
- ► Travel and tourism brochures
- ► Other background information about Kansas



HEALTH

Grades 4-5

A hands-on personal health curriculum with activities that help children learn first aid, exercise and fitness techniques, and record-keeping skills. The curriculum includes a "Helper's Guide" with group activities, and two "Youth Guides" of individual activities.

• Kansas Mathematics Standards: Operations and Algebraic Thinking (4-5), Measurement and Data (4)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for student activities

Program Includes:

- ► Teachers/Helpers curriculum book
- ► Student individual activity books

READING MAKES CENTS

Grades 3-5 53 lessons, 30-45 minutes each

Students learn about money concepts through selected children's literature readings and hands-on learning activities. Take-home evaluations and family activity pages in English and Spanish are included. This curriculum is especially designed for school and after-school settings.



- Kansas Math Standards: Measurement and Data (4-5)
- Kansas Social Studies Standards: History (3-4), Economics (3-5)
- Kansas Reading Standard: Reading (3-5), Speaking and Listening (3-5)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for learning activities
- ► Access to literature selections

- ► Curriculum notebook
- ► Lessons include money history, managing, earning, spending, saving, investing, sharing, borrowing, and lending



SCIENCE DISCOVERY

Grades 3-5 100 hands-on learning activities, each complete in 45-60 minutes.

Topics include rocks and minerals, water quality,

recycling, weather, oceanography and astronomy.

- Kansas Science Standards: Weather and Climate (3), Structure, Function and Information Processing (4), Earth's Systems (4-5), Engineering Design (5)
- Kansas Math Standards: Measurement and Date (3-5)

Teacher Provides:

- ► Activity Supplies
- ► Copies of handouts in quantity

Program Includes:

- ▶ Book 1 (grades 3-5): whales, rocks and minerals, water quality, trees and recycling
- ▶ Book 2 (grades 4-6): weather, spiders, oceanography, trees and astronomy

JUNIOR MASTER GARDENER (JMG)

Grades 3-5 200 hands-on learning activities

This curriculum from Texas A & M covers the topics of plant growth and development, soils and water, ecology and environmental horticulture, insects and diseases, landscape horticulture, fruits and nuts, vegetables and herbs, life skills and career exploration. Most of the activities can easily be completed indoors in a classroom setting.



- Kansas Science Standards: Inheritance and Variation of Traits (3); Interdependent Relationships in Ecosystems (3); Structure, Function & Information Processing (4); Matter and Energy in Organisms and Ecosystems (5)
- Kansas Math Standards: Measurement and Data (3-5)

Teacher Provides:

- ► Activity Supplies
- ► Copies of handouts in quantity

- ► JMG Teacher/Leader Guide (group activities)
- ► JMG Youth Guide (individual activities)



CONSUMER SAVVY

Grades 4-5

A hands-on consumer skills curriculum with activities that help children how to evaluate, plan, compare and shop for their needs and wants. The curriculum includes a "Helper's Guide" with group activities, and two "Youth Guides" of individual activities.

• Kansas Mathematics Standards: Operations and Algebraic Thinking (4-5), Measurement and Data (4)

Teacher Provides:

- ► Handouts in quantity
- ► Materials and supplies for student activities

Program Includes:

- ► Teachers/Helpers curriculum book
- ► Student individual activity books

Classroom Programs



FRACTION POWER

Layered Cookie Mix

Available to groups of 50 students or two or more combined classrooms ONLY.

45-60 minutes, one lesson Grades 2 and 3

Each child makes a layered dry chocolate chip cookie mix while learning and using mathematical fraction skills. One adult helper for every 4-8 students is REQUIRED.

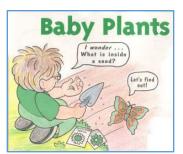
• Kansas Mathematics Standard: Numbers and Operations–Fractions (2-3), Geometry (2)

Teacher Provides:

- ► Table coverings
- ▶ Divides class into teams of 4 students
- ► Copies in quantity
- ► One adult volunteer for each 4-8 students is REQUIRED
- ► White board or large poster paper and markers.
- ► Microphone/sound system in REQUIRED

Program Provides:

- ► Cookie mix ingredients (\$1.50 per student)
- ► Classroom cookie mix assembly instructions
- ► At-home cookie recipe master
- ► Partial scholarships are available to Title I schools



MYSTERY WITHIN SEEDS

Please allow at least 4 weeks advance notice to schedule this class

Grades K-1 (limit 30 students) 45 minutes

Students learn about different kinds of seeds and their growth and examine the contents of a seed. Students discuss what plants need

to grow, then place seeds in a cup to take with them to watch the seeds sprout. This lesson is presented by Sedgwick County Master Gardener volunteers.

• Kansas Science Standard: Interdependent Relationships in Ecosystems (K), Structure, Function and Information Processing (1-2)

Teacher Provides:

▶ 4 tables for student groups

Master Gardeners Provide:

► Materials for learning activity



LIFE CYCLE MIRACLE

Painted Lady butterfly hatching project

Order Deadline: Friday, March 10, 2017

Butterfly Larvae Pick-Up Date: April 5, 2017

Grade K-4

Watch Painted Lady caterpillars grow, form chrysalides and hatch into butterflies. Learn about the anatomy, life cycle and the role of a butterfly in its environment. Compare the similarities and differences between a butterfly and a moth. The butterfly life cycle takes three to four weeks to complete.

• Kansas Science Standard: Interdependent Relationships in Ecosystems (K, 2, 3); Structure, Function and Information Processing (1, 4); Life Cycles and Traits (3)

Teacher Provides:

- ► Pick up butterfly larvae at Sedgwick County Extension Office, 7001 W. 21st St on April 5, 2017.
- ► Continuous care and supervision of larvae, chrysalides and butterflies until released outside
- ► Butterfly cage (plans available) and other supplies (butterfly food, etc.)

- ► Lesson plans and resource information
- ▶ Butterfly larva cups (3 to 5 larvae) with larvae food are available for purchase @ \$23 each
- ▶ Please send payment with your 4-H school enrichment order form.
- ► Partial scholarships available to Title I schools.

WHEAT SCIENCE

All orders must be received by November 4, 2016

Available to combined groups of 50 to 150 students or two or more classrooms ONLY.

Grades 3 to 5

One lesson, 90 minutes long

One adult helper for every 4-8 students is REQUIRED.

Teacher is responsible for rising time and baking after lesson is completed. (About 70 minutes)

Each child makes a loaf of bread in the classroom while learning about Kansas wheat, yeast growth, nutrition and history of bread. Additional curriculum book activities include math and science applications.

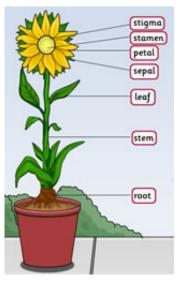
• Kansas Social Studies Standards: History

Teacher Provides:

- ► TV and DVD Player
- ► Microphone/sound system is <u>REQUIRED</u>
- ▶ Oven
- ► One adult volunteer for every 4-8 children is REQUIRED

Program Includes:

- ► "Bread in a Bag" supplies \$1.50 per student
- ► Modern Marvels "Bread" DVD presentation
- ▶ Baggie of wheat from the farm
- ► Partial scholarships are available to Title I schools



PLANTSCAPES

Please allow at least 4 weeks advance notice to schedule this class

Grades 2-4 (limit 30 students) 45 minutes

Sedgwick County Master Gardener volunteers discuss basic plant parts and their functions, the life cycle of the plant, and the needs of a plant. Students make a biodegradable pot from newspaper, fill it with soil, and plant seeds. The lesson includes vocabulary development.

• Kansas Language Arts: Vocabulary Acquisition and Use



• Kansas Science Standard: Interdependent Relationships in Ecosystems (2-3); Structure, Function and Information Processing (4)

Teacher Provides:

Master Gardeners Provide:

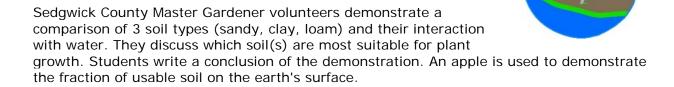
► 4 tables for student groups

► Materials for learning activity

SOIL and WATER

Please allow at least 4 weeks advance notice to schedule this class

Grades 3-5 (limit 30 students) 45 minutes



- Kansas Language Arts: Text Types and Purposes, Vocabulary Acquisition and Use (3-5)
- Kansas Science Standard: Earth's Systems (4,5)
- Kansas Social Studies Standard: Geography (3-5)
- Kansas Math Standard: Numbers and Operations Fractions (3-5)

Teacher Provides:

Master Gardeners Provide:

► 4 tables for student groups

► Activity materials

Electronic Lesson Plans

These programs will be emailed directly to you. Please make sure your email address is correct on the registration form.

3R'S - REDUCE, REUSE, RECYCLE

Grades K-3 or Grades 4-8

5 lessons in each graded curriculum booklet

Environmental stewardship requires thoughtful management of waste products. This curriculum shows how to reduce trash by reusing and recycling.



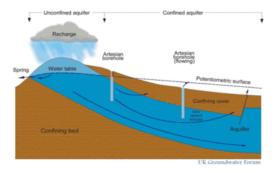
• Kansas Science Standard: Interdependent Relationships in Ecosystems (K, 3, 6-8), Energy-Natural Resources (4), Earth's Systems (5), Matter & Energy in Organizations & Ecosystems (6-8), Human Impacts (6-8)

Teacher Provides:

- ► Handouts in quantity
- ► Activity supplies

Program Includes:

- ► Teacher's lesson plan booklet
- ► Copy-ready student worksheets



AQUIFERS AND NON-POINT SOURCE POLLUTION

Grades 3 to 5

Each activity takes about 45 minutes, several activities are included

Not all pollution comes from factories or businesses; much of it is *non-point source* that is caused by normal household activities. This lesson explores the importance of water in underground aquifers and the challenge of keeping our drinking water pollution-free. It focuses on where drinking water comes from, and how pollution in the environment threatens its safety.

• Kansas Science Standard: Interdependent Relationships in Ecosystems (3), Energy (4), Earth's Systems (5)

Teacher Provides:

- ► Supplies for hands-on learning activities
- ► Handouts in quantity

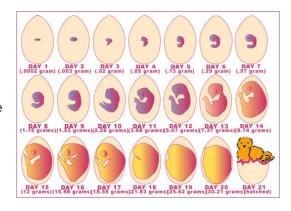
Program Includes:

► Electronic copy of curriculum

CHICK EMBRYOLOGY

Grades 3-4

Egg hatching provides a rare opportunity to study the stages of embryonic growth during the 21 days of incubation. This lesson helps guide classrooms through the process of controlling several environmental variables during the incubation process, plus additional activities related to the care of fertile eggs and young chicks.



• Kansas Science Standard: Life Cycles and Traits (3), Structure, Function and Information Processing (4)

- **►** Incubator
- ► Fertile Eggs
- ► Supervision for 21 day incubation period
- ► Care and supplies for newly hatched chicks
- ▶ New home for chicks once they become too large to stay in the classroom

Program Provides:

- ► Hatching information and directions
- ▶ Directions for construction of incubator, candling stand and brooder house
- ► Egg and chick safety information



E.A.R.T.H.

(Earth Awareness Researchers for Tomorrow's Habitat)

Grades 5 to 8

Most lessons requires 45 to 60 minutes

E.A.R.T.H. is an award-winning upper elementary and middle school hands-on, environmental education curriculum that contains 30 lessons on the topics of air, water, soil, living resources, and impacts. E.A.R.T.H. can be used to supplement many earth science, biology and/or environmental quality and conservation lessons.

Kansas Science Standards: Earth's Systems (5), Matter and Energy in Organisms and Ecosystems (6-8), Interdependent Relationships in Ecosystems (6-8), Human Impacts (6-8)

Teacher Provides:

- ► Activity Supplies
- ► Handouts in quantity

Program Includes:

▶ Teacher's curriculum book



FRACTION POWER

Layered Cookie Mix

For groups of less than 50 students or less than two classrooms

(Larger groups please see classroom programs)

Grades 2 and 3

Each child makes a layered dry chocolate chip cookie mix while learning and using mathematical fraction and fraction equivalency skills.

• Kansas Mathematics Standard: Numbers and Operations-Fractions (3); Geometry (2)

- ► Cookie Mix Ingredients and containers
- ► Measuring cups and spoons
- ► Copies in quantity

Program Provides:

- ► Teacher's lesson plan booklet
- ► Copy ready student worksheets



GEOLOGY ROCKS!

Grades 4 to 6

This unit includes 10 activities; most can be completed in 45 to 60 minutes

Many people do not realize how much geology impacts their daily life. Not only are rocks used in all sorts of everyday products (toothpaste, chewing gum, jewelry, building materials, etc.) but a knowledge of geologic features is essential for human safety. Geology helps builders locate roads, bridges, buildings and recreation areas in places where they are less likely to be damaged by floods, landslides, earthquakes or volcanoes.

• Kansas Science Standard: Earth's Systems (4-6), History of Earth (6)

Teacher Provides:

- ► Supplies for hands-on learning activities
- ► Handouts in quantity

Program Includes:

► Electronic copy of curriculum



HISTORICAL HANDICRAFTS

Grades 3 to 8

This unit allows children to experience the excitement of preparing for an historical Kansas county fair.

It was originally written as an accompaniment to Old Cowtown Museum's "Old Sedgwick County Fair" as an aid to help students prepare to enter the fair judging contest. However, it can be successfully used as a hands-on classroom Kansas history lesson that is interesting and engaging for students.

• Kansas Social Studies Standard: History (3-4), Kansas History (7), US History (8)

- ► Supplies for hands-on learning activities
- ► Handouts in quantity

Program Includes:

► Electronic copy of curriculum



HOUSEHOLD HAZARDOUS WASTE

Grades K-3 or Grades 4-8

6 lessons in each graded curriculum booklet

Ordinary household substances can be hazardous. This curriculum teaches children how to identify and use toxic products safely and how to substitute non-toxic alternatives.

• Kansas Science Standard: Interdependent Relationships in Ecosystems (K, 3, 6-8), Energy-Natural Resources (4), Earth's Systems (5), Matter & Energy in Organizations & Ecosystems (6-8), Human Impacts (6-8)

Teacher Provides:

- ► Handouts in quantity
- ► Some household containers and utensils

Program Includes:

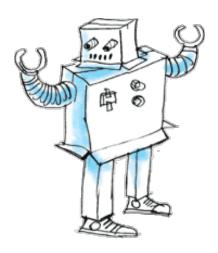
- ► Teacher's lesson plan booklet
- ► Copy ready student worksheets

INVENTIONS

Grades 4 to 8

New inventions are often sparked by the possibilities created by current technology. Most inventors use a special procedure that makes it easy to identify a problem, list many possible solutions and construct an object that will fulfill people's needs.

This unit, which was adapted from a lesson created by the U.S. Patent Office, will guide you and your students through the process of creating your own invention. It will also take a look back in history to see how past inventions were created, and how they still affect our lives today.

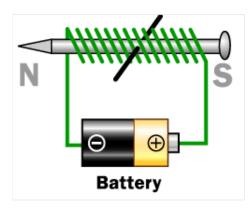


- Kansas Science Standard: Forces and Interaction (3, 6-8), Energy (4, 6-8), Engineering Design (5-8), Human Impacts (6-8)
- Kansas Social Studies Standard: History (3-4), Human Impact on the Earth and Physical Systems (7)

- ► Supplies for hands-on learning activities
- ► Handouts in quantity

Program Includes:

► Electronic copy of curriculum



MAGNETISM

Grades 3 to 8

Magnets are useful things that we don't often think about, yet the forces involved are complex and fascinating. This lesson explores the importance of magnets and electromagnets in daily life and includes several experiments that illustrate how they work.

• Kansas Science Standard: Forces and Interactions (3, 6-8), Engineering Design (5-8)

Teacher Provides:

- ► Supplies for hands-on learning activities
- ► Handouts in quantity

Program Includes:

► Electronic copy of curriculum

WHEAT SCIENCE

All Wheat Science kit orders must be received by November 4, 2016 Wheat Science kits will be ready for pick-up after December 5, 2016

Grade 3 to 5

This lesson is for combined groups <u>with less than</u> 50 students or less than 2 classrooms



(For groups of more than 50 students or two classrooms please see "Classroom Programs")

Includes one instructional unit with several wheat-related activities, including bread baking. The classroom bread baking activity takes about 1 1/4 hours, rising and baking time require an addition 70 minutes.

Students explore the importance of Kansas wheat, principles of baking, yeast development, and good nutrition. Science and math experiments with wheat and yeast allow students to discover real-life applications for skills learned in the classroom.

- Kansas Social Studies Standard: History (3-4)
- Kansas Mathematics Standards: Operations and Algebraic Thinking (3-4), Measurement and Data (3-4)

Teacher Provides:

- ► TV and DVD Player
- ▶ Oven
- ► One adult volunteer for every 4-8 children
- ► Activity supplies
- ► Copies of activity pages as needed

- ► Emailed "Wheat Science" instructional unit
- ► "Bread in a Bag" kits available for purchase with advance reservation by November 4 (\$6.00/kit)
- ▶ Kits must be picked up at Sedgwick County Extension Office. Each kit serves 4 students
- ► Modern Marvels "Bread" DVD available to borrow
- ▶ Bag of wheat kernels from the farm if desired
- ▶ Partial scholarships are available to Title 1 schools if bread kits are purchased

Off-Site Programs

AGRICULTURE MAGIC DAY with SEDGWICK COUNTY FARM BUREAU

This program MUST be reserved with Sedgwick County Farm Bureau, 316-773-9851.

(Limited Enrollment, Registrations Required)

Grade 4 ONLY, One 3 hour session



- Kansas Social Studies Standard: Economics (4)
- Kansas Science Standard: Structure, Function and Information Processing (4)

Special Information:

Agriculture Magic Day with Sedgwick County Farm Bureau will be held on <u>September 20</u>, <u>2016 at the Sedgwick County Extension Education Center</u>, 7001 W. 21st St. N. Sessions will begin at 9:15 a.m.

RESERVATIONS ARE REQUIRED—please call Farm Bureau at 773-9851 to schedule your class time. A curriculum resource packet will be provided to participating teachers at the event. Teachers should arrange their own transportation to Sedgwick County Extension Education Center.

Many of the activities will be held outdoors, so your students should dress appropriately. The event will be held rain or shine. We recommend one adult for every eight children.

Teacher Provides:

- ► Transportation to Sedgwick County Extension Office, 7001 W 21st St N
- ▶ Adult chaperones (1 adult for every 8 children is recommended)
- ▶ Advance reservations with Sedgwick County Farm Bureau, 316-773-9851

Program Provides:

- ► Resource information packet for teachers
- ▶ 10 activity stations and a magic show
- ▶ A full morning of fun for students and chaperones