

OHIO ACADEMIC STANDARDS ALIGNMENT

HOME BASED ART USA,
CHILDREN’S HISTORICAL PUBLISHERS

LEARNING ACTIVITY BOOK
“AWESOME AMERICANS
CHARLES F. KETTERING”

OHIO ACADEMIC SOCIAL STUDIES STANDARDS and BENCHMARKS

History K-2

Compare daily life in the past and present demonstrating that while basic human needs remain the same, they are met in different ways in different times and places.

People in Society K-2

Recognize that the actions of individuals make a difference, and relate the stories of people from adverse backgrounds who have contributed to the heritage of the United States of America.

Geography K-2

Explain how environmental processes influence human activity and ways humans depend on and adapt to the environment

Economics K-2

Explain how the scarcity of resources requires people to make choices to satisfy their wants

Distinguish between goods and services and explain how people can be both buyers and sellers of goods and services

Citizenship Rights and Responsibilities K-2

Demonstrate personal accountability, including making choices and taking responsibility for personal actions

Social Studies Skills and Methods K-2

Obtain information from oral, visual, print and electronic sources.
Communicate information orally, visually or in writing.

OHIO ACADEMIC STANDARDS and BENCHMARKS

History Grades 3-5

Explain how new developments led to the growth of the United States.

Geography Grades 3-5

Analyze ways that transportation and communication relate to patterns of settlement and economic activity

Economics Grades 3-5

Explain why entrepreneurship, capital goods, technology, specialization and division of labor are important in the production of goods and services.

Citizenship Rights and Responsibilities Grades 3-5

Explain how citizens take part in civic life in order to promote the common good.

Social Studies Skills and Methods Grades 3-5

Obtain information from a variety of primary and secondary sources using the component parts of the source.

OHIO ACADEMIC SOCIAL STUDIES STANDARDS and BENCHMARKS

Geography Grades 6-8

Explain how the environment influences the way people live in different places and the consequences of modifying the environment.

Explain reasons that people, products and ideas move from place to place and the effects of that movement on geographic patterns.

Economics Grades 6-8

Explain how the endowment and development of productive resources affect economic decisions and global interactions.

Social Studies Skills and Methods Grades 6-8

Organize historical information in text or graphic format and analyze the information in order to draw conclusions.

OHIO ACADEMIC ENGLISH / L ARTS STANDARDS and BENCHMARKS

Phonemic Awareness, Word Recognition and Fluency K-3

Demonstrate fluent oral reading, using sight words and decoding skills, varying intonation and timing as appropriate for text.

Acquisition of Vocabulary K-3

Use context clues to determine the meaning of new vocabulary.

Apply structural analysis skills to build and extend vocabulary and to determine word meaning.

Use resources to determine the meanings and pronunciations of unknown words.

Concepts of print, Comprehension Strategies and Self Monitoring Strategies K-3

Draw conclusions from information in text.

Apply reading skills and strategies to summarize and compare and contrast information in text, between text and across subject areas.

Demonstrate comprehension by responding to questions (e.g., literal, informational and evaluative)

Informational, Technical and Persuasive Text K-3

Use text features and structures to organize content, draw conclusions and build text knowledge.

Identify the central ideas and supporting details of informational text.

Use visual aids as sources to gain additional information from text.

OHIO ACADEMIC SOCIAL STUDIES STANDARDS and BENCHMARKS

Acquisition of Vocabulary

Grades 4-7

Use context clues and text structures to determine the meaning of new vocabulary.

Use knowledge of symbols, acronyms, word origins and derivations to determine the meanings of unknown words.

**Concepts of print, Comprehension Strategies
and Self Monitoring Strategies**

Grades 4-7

Determine a purpose for reading and use a range of reading comprehension strategies to better understand text.

Apply effective summarizing and making predictions, and comparisons using information in text, between text and across subject areas.

Make meaning through asking and responding to a variety of questions related to text.

Informational, Technical and Persuasive Text

Grades 4-7

Use text features and graphics to organize, analyze and draw inferences from content and to gain additional information.

Recognize the difference between cause and effect and fact and opinion to analyze text.

OHIO ACADEMIC SCIENCE STANDARDS and BENCHMARKS

Science and Technology

K-2

Explain why people when building or making something, need to determine what it will be made of, how it will affect other people and the environment

Explain that to construct something requires planning, communication, problem solving tools.

Science and Technology

Grades 3-5

Describe how technology affects human life.

Science and Technology

Grades 6-8

Give examples how technological advances, influenced by scientific knowledge, affect the quality of life.

AWESOME AMERICANS
CHARLES F. KETTERING
TEACHERS GUIDE
HOMEBASED ARTS USA
CHILDREN'S PUBLISHING COMPANY

Home Based Arts will emphasize the development of character education traits through the life events of Charles F. Kettering.

Home Based Arts will emphasize how the words and actions of an individual can make a difference and how that individual has made contributions to the heritage of the United States.

Home Based Arts will emphasize using a variety of primary and secondary sources to obtain information.

- Teacher will provide a list of character education words and definitions that will help students **evaluate** and **compare** the impact Charles F. Kettering and his actions had on others throughout his lifetime.
- Teacher will use quotes from *Awesome Americans, Charles F. Kettering*, Learning Activity Book, to help students **discover** who Charles F. Kettering was and the effect he had on peoples lives.
- Teacher will use primary and secondary sources to help students **examine** and **explain** the impact Charles F. Kettering's inventions had on local, state and national economies.

Students will **examine** the definition of character education words to **evaluate** and **compare** the impact of Charles F. Kettering's actions on our lives today.

Students will **read** quotes from *Awesome Americans, Charles F. Kettering* Learning Activity Book to **identify** character education words that **describe** Charles F. Kettering and how they related and or impacted his life and others in the past and today.

CHARACTER EDUCATION VOCABULARY		
CHARACTER TRAIT	DEFINITION	SYNONYM(S)
Accountability/Responsibility	Being responsible for your decisions and actions	Responsible; dependable
Cooperation	Working together for a common goal	Teamwork
Conviction Driven	Daily decisions driven by thought through convictions rather than the heat of the moment.	Passion; confidence; certainty
Courage	To meet a challenge without giving in to fear.	Guts; nerve; daring; bravery
Creativity/ Flexibility	Clever, imaginative and inventive	Adaptable
Dependability	The ability to be counted on and trusted	Loyalty; reliability
Diligent	Consistent attention to quality work; remaining focus on your goal	Focused
Fairness	Equal treatment of behavior and viewpoints of others.	equality
Generosity	Unselfish willingness to give and share your time and talents in your community. Not greedy with money, energy or time.	Selflessness, Giving, Helpfulness, Encourager; charity; kindness
Gratitude	A feeling of thankful appreciation for benefits received.	Thankful; appreciate
Honesty	Truthful, sincere	Truthfulness; openness
Honor	A sense of what is right, just and true	Respect; pay tribute
Humility	Recognizing that any given person is one's intellectual superior in some way and can be learned from. Recognizing the part others have played in one's achievements	Teachable; modest; meekness
Initiative	Thinking and taking action on your own.	Lead; inventiveness
Kindness	Being gentle, willing to help	Friendly, Considerate; thoughtfulness; helpfulness

Learning	Appreciation for the importance of and effort involved in acquiring knowledge.	Wisdom-seeker; education; knowledge
Loyalty	Faithful to a person, an organization or your country.	Faithfulness; devotion; dependability
Motivation	The desire to move toward a goal.	Drive, enthusiasm; purpose
Patience	The power to wait calmly without complaining	Staying power; endurance; persistence
Perseverance	Working hard without giving up. Consistent attention to quality work. Remaining focused on your goal. Sense commitment and duty/	Determination, Dedication
Resilience	The ability to bounce back from failure	Spirited; toughness; flexibility
Respect for Environment	The conservation and care of your surroundings.	
Respect for others	Concern for and motivation to act for the welfare of others.	
Self-confidence	Positive attitude and trust in one's self, self assurance	
Self-control/Virtue	Control of your actions and emotions, the habit of excellence of one's character that defines one's moral responsibility.	Self-will; will power; strength of mind
Self Respect	Pride and belief in one's self and in achievement of one's potential	Self-Esteem, Self Confidence, Self-worth, Self-acceptance, Contentment, Pride
Success	Accomplishing things of importance to you.	Victory; achievement

TAKING A POSITIVE LOOK!

“My definition of an educated man is he fellow who knows the right thing to do at the time it needs to be done.”

Teacher and students will read aloud *Awesome Americans, Charles F. Kettering* Learning Activity Book.

(Visual Option) Teacher will prepare a visual board that shows all the character education words and their definitions associated with the *Awesome Americans, Charles F. Kettering* Learning Activity Book. ***Teacher can make additions to the words list as needed.***

- Teacher and students will pronounce each character education vocabulary word and discuss the meanings for each word.
- Teacher and students will read selected pages of the *Awesome Americans Charles F. Kettering* Learning Activity Book
- Teacher will ask questions to help students select the best word(s) that describe Mr. Kettering’s activities through out his lifetime and how he affected others as portrayed in the learning activity book *Awesome Americans, Charles F. Kettering* Learning Activity Book.
- Teacher will place students in small groups with assigned pages, large sheets of paper, markers and a list of character education words.
- Students will work in cooperative groups: Reader, writer, timer, on task master and all participants will provide input for answers.) to choose the best character ed word to describe how Charles F. Kettering’s lifetime activities affected other people’s lives and give reasons for their choice.
- Small groups will share their answers with the class for their assigned page(s). Large group will discuss any different words they may have chosen and explain why.
- Teacher will grade students with the suggested rubric attachment or their own rubric for Cooperative learning groups and successful choice of character Ed vocabulary words.

Suggested Answer Guide to POSITIVE THINKING!

PAGES	SUGGESTED WORDS		PAGES	SUGGESTED WORDS
2	N/A		17	Loyalty; Responsibility; Diligent, Respect for others; Conviction driven
3	Perseverance; Learning; Responsibility		18	Generosity; Kindness; Cooperation; Loyalty; Respect for others
4	Motivation; Learning		19	Motivation; Initiative; Diligent; Kindness
5	Creativity: Initiative		20	Cooperation; Humility; Fairness; Learning
6	Diligent; Motivation		21	Initiative; Cooperation; Humility
7	Courage; Learning; Perseverance; Patience		22	Self-Respect; Respect for others; Diligent; Passion
8	Learning; Success; Responsibility; Resilience		23	Initiative; Success; Perseverance; Creativity; Cooperation
9	Learning; Initiative; Success		24	Motivation; Initiative; Responsibility; Success
10	Diligent; Perseverance		25	Motivation
12	Success; Creativity		26	Conviction driven; Success
13	Diligent		27	Gratitude; Honesty
14	Cooperation; Respect for Others		28	Respect for others; Kindness; Generosity; Gratitude
15	Conviction driven; Courage; Dependable		29	Gratitude; Honor; Respect for others; Learning
16	Conviction driven; Success; Patience; Creativity; Initiative		30	Honor
			31	Conviction-driven; Success; Self Confident; Diligent; Cooperation; Loyalty; Gratitude
			32	Gratitude; Respect for others; Honor; Generosity; Kindness; Loyalty
			33	Learning; Initiative

NO LIMITATIONS!

“The opportunities of man are limited only by his imagination”

Grades 4 - 8

Teacher and students will read aloud *Awesome Americans, Charles F. Kettering* Learning Activity Book.

- Students will read primary and secondary sources about Charles Kettering and associates to identify the *environmental, economic, and safety impact* of the **electric car ignition (starter); blend of ethyl alcohol and gasoline** AND **Duco car paint to the American and international societies.**
- Teacher and students will read assigned magazines, web sites, biographies, journals, autobiographies, to determine the effect of the **electric car ignition (starter); blend of ethyl alcohol and gasoline** AND **Duco car paint to the American and international societies.**
- for early 1900’s automobiles.
- Teacher will provide primary and secondary sources for students to read as daily assignments with relevant questions to determine the effect **electric car ignition (starter); blend of ethyl alcohol and gasoline** AND **Duco car paint to the American and international societies.**
(See resources in the appendix)

Students will read assigned sources and respond to the following questions:

1. How did the invention of the electric car starter **impact environmental issues in the early 1900’s?** (Also Duco paint for cars and ethyl alcohol and gasoline)
2. How did the electric car starter affect **the economics** locally (Dayton, Ohio), statewide (Ohio), national, (USA) and world wide?
3. Did **society embrace the invention** of the electric starter? (Yes/No) Explain with facts from the assigned reading sources. (e.g., women, clothes styles, education. . .)
4. Opinion – How has the invention of the **electric car ignition (starter); blend of ethyl alcohol and gasoline** AND **Duco car paint to the American and international societies** affected the world today in the 21st Century? Include at least (3) different sources to support your opinion. {(1) Web site and (2) other sources (i.e. magazines, journal, pamphlets)}

OPEN MINDS AND WILLING HANDS

“There will always be a frontier where there is an open mind and a willing hand”

Teacher and students will read aloud *Awesome Americans, Charles F. Kettering* Learning Activity Book.

Charles Kettering THE INVENTOR

The teacher will provide students with assigned readings and a variety of medium about Charles F. Kettering’s inventions, improved products and shared discoveries that influenced the world.

Inventions / Improvements to

- a. a telephone system using coils and a central battery system
- b. cash register
- c. car starters
- d. gasoline
- e. paint for cars
- f. steam engines
- g. air conditioning

(Large Group)

Teacher and students will construct an electric starter to demonstrate how it works.
(Optional: Teacher can buy a starter Kit or make it from everyday materials)

Teacher and students will determine how the electric starter helped make improvements for the

- a. cash register
- b. electric automobile starter

Students will draw conclusions on the effectiveness of the electric starter and how it helped to change America.

Small Groups /Individual

Students will choose (1) other of Charles F. Kettering’s improvements to research and **complete a visual report** that depicts the following information:

- a. Who invented it and when was it invented?
- b. Picture and purpose of invention
- c. The name(s) of people who made improvements
- d. Reason(s) for improvement(s)
- e. Effects of improvement on society; environment, and national and international economics
- f. Include visuals and graphic organizers
- g. Include information that demonstrates how Charles F. Kettering’s improvements have encouraged the discovery and the development of newer theories. (e.g., telephone improvements today have encouraged how we communicate today through the development of. . .) (e.g., car paint discoveries have encouraged. . .)

Students will present their findings to the class for a grade. Their visual will be graded using a teacher rubric.

CHARLES KETTERING
SCIENCE LESSON
CONSTRUCTING AND USING AN ELECTRIC MOTOR

Motor & Generator Kit

This kit contains everything you need to build a working electric generator and motor. While building you will learn how these basic electric components work and practice your mechanical building skills with basic hand tools. The two kits can then be used together to conduct a number of simple experiments. Can be the start of a great science fair project. Manufacturer: MX.
Manufacturer's Part Number: MX-902T

Electric Motor / Generator Set

Explore the wonders of electricity by building a motor/generator that actually powers a light bulb. Kit includes: disc, latch and neodymium magnets, compass, wire, sand paper, spring, paper clips, pre-drilled wood block, iron cores, nuts, nails, screws, bolts, light emitting diode (LED), plastic plates and tubes and experiment and project book. Manufacturer: DOWLING.
Manufacturer's Part Number: 731101

Web Resources

Kettering & Tetraethyl Lead – www.runet.edu/~wkovarik/papers/Kettering.html

This paper discusses the technological and public health context of the 1921 discovery and subsequent development of the anti-knock gasoline additive tetraethyl lead.

New Favorite – www.aacamuseum.org/Pdf

For some women the automobile provided opportunities for work, inventions and independence

Short Stories of Science and. . . – www.daytonhistorybooks.city

by *Charles F. Kettering* Copyright 1942-1945

A collection of 59 talks on science and invention that Kettering gave during intermission of the General Motors Symphony of the Air radio show.

Books Booklets Articles online – www.daytonhistorybooks.city - Education/Inventions/Schools
Men of Science and Invention – Thomas Midgeley

Charles F. Kettering Copyright 1942-1945

A collection of 59 talks on science and invention that Kettering gave during intermission of the General Motors Symphony of the Air radio show.

Lego Shop – Mini trains – www.shop.lego.com/product/?p=4837

Hobby Engineering Products - www.hobbyengineering.com

Motor & Generator Kit
Electric Motor / Generator Set

Website for purchasing working electric generator and motor

This kit contains everything you need to build a working electric generator and motor. While building you will learn how these basic electric components work and practice your mechanical building skills with basic hand tools.

You Tube – John Deere Hand - www.youtube.com/watch?v=jN
Video demonstrating how a hand crank tractor is started

Yesterdays Tractors – Talk to – www.ytmag.com/articles/artnt8

Talk of the Town:
How to Hand Crank a Tractor

This interesting discussion is from the Tractor Talk Discussion Forum. *Remember that safety is your first priority - make sure you know what you are doing before attempting a potentially dangerous activity*

Foothills Antique Tractor – www.utk.edu/~tprather/foothill

Foothills Antique
Tractor and Engine Club

TECH TIPS – HANDS CRANK STARTING

Brass Hand Crank Maxwell or ? 1910 era

<http://forums.aaca.org/ubbthreads.php?ubb=showflat&Number=491841>

Visuals of early hand crank automobile cranks

http://wikicars.org/en/Automobile_self_starter

Automobile self starter – Article about the automobile self starter

<http://mechanicalhistory.com/node/398> - How to CRANK Start a 1918 Automobile Reo

Article on how to start a hand crank automobile

<http://video.google.com/videoplay?docid=-8103685416341987997>

Video Clip

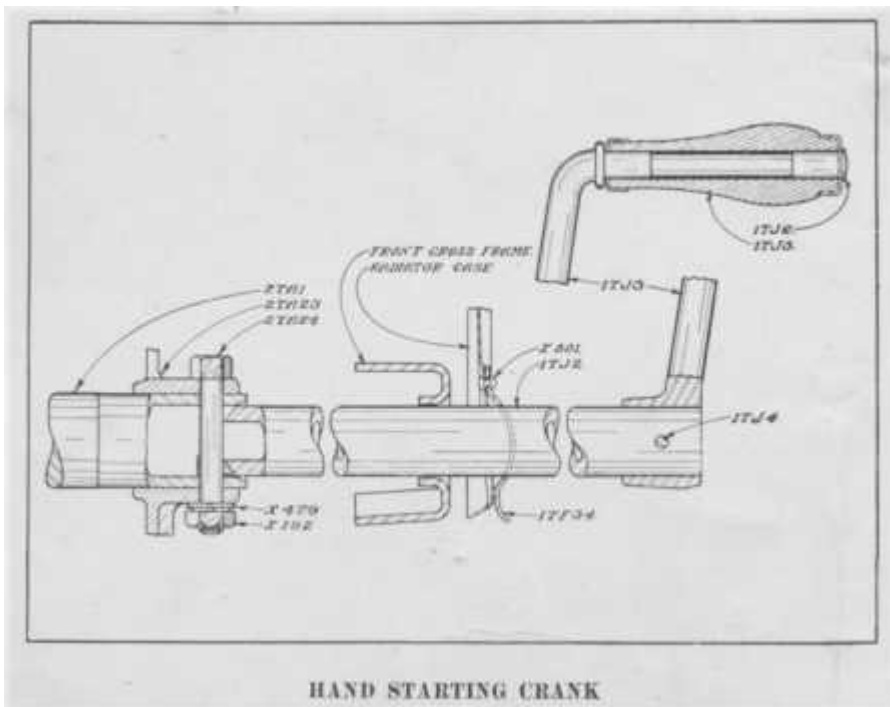
B/W 1900's man crank-starts early car with woman in it / Cloud of smoke as car starts.

http://americanhistory.si.edu/ONTHEMOVE/collection/object_1268.html

America on the Move – A visual and description of an early hand crank car in the early 1900's.

Starting The Motor

Hand Crank. It is advisable to start the motor with the hand crank, provided with tool equipment, when car is just received from the factory or taken from storage. After motor has been started and run a few minutes it will turn over quite freely.



- HAND STARTING CRANK**
- 2 TA 1 Crank shaft.
 - 2 TA 23 Fan drive pulley.
 - 2 TA 24 Bolt for fan drive pulley.
 - 1 TF 34 Cover for starting crank hole.
 - 1 TJ 2 Shaft for hand starting crank.
 - 1 TJ 3 Starting crank forging.
 - 1 TJ 4 Pin for starting crank.
 - 1 TJ 5 Grip for starting crank.
 - 1 TJ 6 Washer for starting crank.
 - X 192 Nut on starting crank cap screw.
 - X 479 Lock washer on starting crank cap screw.
 - X 801 Rivet for starting crank bracket cover.

To Start with Hand Crank.—Before attempting to start Motor see that

- First—The gear shifting lever is in neutral position.
- Second—The clutch pedal is unlatched and the clutch engaged. The brake pedal is pushed forward as far as possible setting brakes on the rear wheel.

- Third--See that spark control lever, which is the short lever located on top of the steering wheel on the right side. is back as far as possible toward the driver and the long Lever on top of the steering column controlling the carburetor, is pushed forward about one inch from its retarded position.
- Fourth—Turn ignition switch to point marked "B" or "M" Fifth—Set the carburetor control on the steering column to the point marked "START." Be sure there is gasoline in the carburetor. Test for this by pressing down on the small pin projecting from the front of the bowl until the carburetor floods. If it fails to flood it shows that the fuel is not being delivered to the carburetor properly and the Motor cannot be expected to start. See instructions on page 56 for filling the vacuum tank. When it is certain the carburetor has a supply of fuel, grasp the handle of starting crank, push in endwise to engage ratchet with crank shaft pin and turn over the motor by giving a quick **upward pull**. **Never push down**, because if for any reason the Motor should kick back, it would endanger the operator.