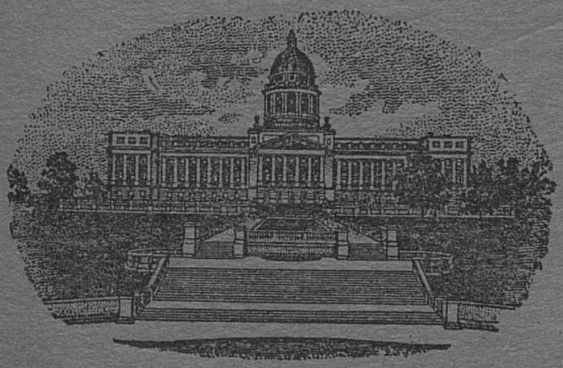
• Commonwealth of Kentucky •

EDUCATIONAL BULLETIN

FIRE PREVENTION MANUAL



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JOHN W. BROOKER

Superintendent of Public Instruction

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Commonwealth of Kentucky

FIRE PREVENTION MANUAL

COURSE OF STUDY FOR

Kentucky Boys and Girls

KEEN JOHNSON ..... *Governor*
JOHN W. BROOKER ..... *State Superintendent Public Instruction*
SHERMAN GOODPASTER ..... *Director of Insurance*
D. P. VANDIVIER ..... *Supervisor Fire Prevention and Rates*

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PREFACE

The State Department of Education is pleased to cooperate with the Division of Fire Prevention and Rates in preparing this Manual. The Department at all times emphasizes safety education.

This Course of Study has been prepared as provided by Sec. 762b-7 (f) and Sec. 762b-18 (b), quoted below:

"Sec. 762b-7 (f). To cause fire prevention to be taught in all public and private schools at least once each week, and fire drills to be held in said schools at least once each month and to require that all doors and exits in school and public buildings open outward and be kept unlocked while such buildings are occupied for school or public purposes.

"Sec. 762b-18 (b). To establish and maintain museums and exhibits of safety and fire prevention, in which shall be exhibited equipment, safeguards and other means and methods for protection against fire loss, and to publish and distribute bulletins on any phase of this general subject."

Acknowledgment is hereby given to Mr. D. P. Vandivier, Supervisor of Fire Prevention and Rates and Mr. Mark Godman, Director of Supervision in the State Department of Education, who have been responsible for the compilation and organization of this bulletin.

The material in this Manual has been carefully selected and logically arranged for teaching. It is the official Course of Study in the subject of Fire Prevention for the schools of this Commonwealth. This office considers it of utmost importance that all teachers and school officials pay continuous and definite attention to the principles of fire prevention and safety outlined herein. Through a conscientious teaching of this material, our boys and girls should learn to prevent fires by forming habits of carefulness. The saving of many lives and thousands of dollars in property value should result.

JOHN W. BROOKER
Superintendent of Public Instruction

FOREWORD

To Executives, Teachers and Pupils
Kentucky Public and Private Schools:

This manual is the first attempt in Kentucky to provide material for the use of our teachers in Fire Prevention instruction. A State law provides that Fire Prevention be taught in the schools, but until now there has been no provision for suitable teaching material. Considerable time has been spent in determining the kind of material used in other states where Fire Prevention instruction is given. As a result of this survey the State of Nebraska was found to have the outstanding Fire Prevention Manual now in use. With the kind permission of the Nebraska State Fire Marshal we have followed very closely the form and content of their manual in the preparation of this material.

Fire Prevention is a very practical problem and well deserves a place in the course of study in every public and private school. There was an unfriendly fire in Kentucky every hour during the year 1939. Fire may break out any hour in the day and usually strikes at the most unexpected time, and often at a place where there are no available means of adequate fire fighting. Lives may be at stake in every fire and untold financial losses are sustained. Probably two-thirds of all these fires could be prevented. If that be true an intelligent study of Fire Prevention methods may save an untold number of lives and much fire waste.

The Department of Fire Prevention and Rates is always ready to aid in the elimination of fire hazards and is glad to help with making inspections and in conducting fire drills.

The State Department of Education is co-operating with the Department of Fire Prevention and Rates and asks for a practical and sensible use of this book.

D. P. VANDIVIER
Supervisor Fire Prevention and Rates
MARK GODMAN
Director Division of Supervision

September

THE CHALLENGE—PREVENTING FIRES

I. Specific Aims to be Developed through This Unit

A. Simple Habits

Reading and reporting fires described in the newspapers.

Being careful and preventing fires.

B. Essential Knowledge

Facts concerning serious fires.

Facts concerning fires caused by carelessness with bonfires.

C. Simple Feelings or Appreciations

An appreciation on the part of pupils of the serious fires caused by carelessness.

II. Teaching Procedures and Content

A. Finding the Starting Point

Pupils comment on the causes of certain fires and how same might have been prevented.

B. Content

1. Facts to be discussed about fire losses in the nation.[1]

For many years past America has burned up an average of over a quarter billion dollars annually. Among the causes listed as preventable are chimney fires, with average annual losses of $25,000,000; fires from hot ashes, coals and open fires, with losses amounting to over $6,000,000; from matches and smoking, with losses of more than $35,000,000; from rubbish and litter, with losses of over $2,000,000; from sparks on roofs, with losses of over $15,000,000; and from stoves, furnaces, boilers and their pipes, with losses of almost $23,000,000.

Under partially preventable causes are listed misuse of electricity, with losses of almost $18,000,000; exposure (including conflagrations), with losses of over $47,000,000; and spontaneous combustion, almost $16,000,000.

These vast sums, representing the average annual fire loss in the United States over a five-year period, would build a fourth of the colleges and universities in the United States, and purchase with cash in full the grounds upon which they are erected. It would be sufficient to maintain and operate the entire Navy Department for one year. Twenty first line battleships, or many times that number of destroyers and submarines, could be built with this amount. It could build, or buy and pay

[1] The National Board of Fire Underwriters, 85 John Street, New York City.

cash in full for 80,000 modern one-family suburban homes, sheltering 480,000 people—a city of residences larger than the four cities of Louisville, Lexington, Paducah and Frankfort.

Causes of fires in Kentucky as reported during April, May and June, 1940 (listed in order of their frequency)

Unknown Causes	268
Matches-Smoking	220
Defective chimneys, flues, etc.	123
Electricity—Except small devices	119
Exposure (communicated)	119
Sparks on roof	95
Hot Ashes and Coals—Open Fires	91
Lightning	66
Miscellaneous—Causes known not classified	62
Petroleum and its Products	49
Stoves, furnaces, boilers and their pipes	49
Gas—Natural and artificial	26
Rubbish and Litter	26
Hot Irons (including electrical devices)	19
Hot Grease, oil tar, wax asphalt, ignition of	17
Open Lights	13
Explosions	12
Spontaneous Combustion	12
Incendiarism	5
Friction, Sparks occasioned by running machine	2
Sparks Arising from Combustion	1
Steam and Hot Water pipes	1
Total number of fires	1,384

LOSS RECORD

COMMONWEALTH OF KENTUCKY

Number of Fire and Lightning Claims Paid by Cause

Years 1936-1937-1938

Cause	Year 1936 Claims	Year 1937 Claims	Year 1938 Claims
Chimneys, Flues, Cupolas and Stacks, Overheated or Defective	986	787	835
Electricity including Hot Irons and Other Electrical Devices	506	500	577
Explosions	59	40	52
Exposure	617	416	450
Fireworks, Fire Crackers, Balloons, etc.	19	19	6
Friction, Sparks Occasioned by Running Machinery	11	16	12
Gas—Natural and Artificial	130	98	114
Hot Ashes and Coals—Open Fires	727	603	573

Hot Grease, Oil, Tar, Wax, Asphalt, Ignition of	68	95	95
Incendiarism	44	36	49
Lightning—Buildings Rodded and Not Rodded	879	624	911
Matches—Smoking	1,239	1,149	1,166
Miscellaneous—Cause Known but Not Classified	51	40	34
Open Lights	306	277	246
Petroleum and Its Products	275	280	273
Rubbish and Litter	26	15	32
Sparks Arising from Combustion	71	41	35
Sparks on Roofs	992	749	573
Spontaneous Combustion	96	85	103
Steam and Hot Water Pipes	1	....	1
Stoves, Furnaces, Boilers and Their Pipes	470	391	386
Unknown	1,348	1,147	1,274
Total	8,921	7,408	7,797

It is always a great treat to go to a wienie roast where we gather a few sticks, roast wienies, toast marshmallows, and boil the coffee over the fire. There are some important facts, however, which we should remember.

There are many things that need to be considered in lighting a fire. Never start a fire if the wind is blowing, for sparks may travel a long way. Do not build a fire if there is any possibility of its spreading to leaves or wood. Do not build a fire too near a tree as its growth may be seriously injured. Do not build too large a fire and do not poke it or stand too close to the blaze.

Many times when people forget to put out fires, forests and property of all kinds are burned. Carelessness is very costly and because of it thousands of people have lost their lives and damage amounting to millions of dollars has been done.

Suggested safety-first rules for bonfires:

1. Do not build a bonfire for fun.
2. If it is necessary to build fires outdoors, see that the ashes are cold before you leave them.
3. Do not set dead trees afire without adequate control.
4. Before lighting an open fire, be sure that it is completely enclosed in a stout wire screen.
5. Do not allow children to play too near the fire.
6. Do not throw large pieces of loose paper upon an open fire.

C. Activities

1. Writing original songs for English assignment

a. Tune—"Are You Sleeping?"[2]

Fire prevention, fire prevention,
For this week, for this week;
Always put out your matches,
Always put out your matches,
Before you leave,
Before you leave.

[2] Joyce Rath, Logan Center School, Cedar County, Nebraska.

b. Tune—"Mulberry Bush"

Keep your matches in tin cans,
In tin cans, in tin cans;
Keep your matches in tin cans,
For your own safety.

Keep your gasoline in red cans,
In red cans, in red cans;
Keep your gasoline in red cans,
If you are wise.

Don't go away with bonfires burning,
Bonfires burning, bonfires burning,
Don't go away with bonfires burning,
Day or night.

c. Tune—"Row, Row. Row Your Boat"[4]

Keep, keep, keep your rules,
Keep them every day;
Fire, fire, fire, fire
Out of your life will stay.

2. Developing Code Puzzles and writing Fire Prevention jingles for English.

PUZZLE FOR CHILDREN[5]

What Would You Do If Your Clothing Caught Fire?

WORK out this code message and you will learn how to save your life—or possibly the life of someone else!

R3F2 TSK3R2S T3WH C5SH PS22D HT1T P24PL2 S4L2 HT23R D21HS. HT23R LC4HT3GN T1CHC2S R3F2 1DN HT2Y N5R. HT2Y S22 HT2 LF1S2M 1DN 3MM2T31D2YL M5JP. HW2N LC4HT3GN T1CHC2S R3F2 RD4P T4 HT2 LF44R 1DN L4RL 3TN4 1 G5R 4R LB1KN2T T4 MS4HT2R HT2 R3F2, P22K3GN HT2 G5R G3TTH 1T45B HT2 C2NK T4 RP4C2TT HT2 CIF2 1DN R13H. M2R2BM2R HT3S R4F R45Y 4NW K1S2 1DN 3T Y1M 2N2V 2B1NL2 Y45 M4S2 Y1D T4 V1S2 HT3 F3L2 4F 1T4NR2H.

CODE: Group the letters in each word into pairs and then reverse the order of the letters in each pair. Next, change the figures into vowels (1-A, 2-E, 3-I, 4-O, 5-U). Thus LC4HT3GN becomes the word "clothing."

3. Solving problems in arithmetic which involve fire losses
   a. How much was the annual property loss caused by preventable fires throughout the Nation for the last several years? How much would the property loss for one day be for this same period? If fires could be prevented what could be purchased for the fire loss for one day?
   b. From the list of Kentucky fires and their causes for the months of April, May, June and July, what would you suggest as the most valuable slogan for Fire Prevention for the year.

---

[3] Helen Thompson, Logan Center School, Cedar County, Nebraska.
[4] Darine Brandow, Logan Center School, Cedar County, Nebraska.
[5] The National Board of Fire Underwriters, 85 John Street, New York.

4. Dramatizing the "Safety First Ladder" in the primary grades.

A. Greater interest in fire prevention.
B. Fewer accidents with fire.
C. Interest in telling about fires and causes of fires as reported in newspapers.
D. Ability to give safety rules for bonfires.

TOLD BY A TONGUE OF FLAME

(A Fire Prevention Fantasy)

Sitting alone last night before the hearth, I had a dream; and a very extraordinary dream it was! I dreamed—yes!—I dreamed that the Fire, crackling there on its two enormous andirons, talked to me!

It was late and, tired of reading, I had laid down my book, tossed on a fresh log and curled up in my chair, prepared to surrender myself to those stray thoughts that sometimes come in the lengthening hours. How long I sat dreaming I don't know, but presently, as though from a very great distance, I heard a voice. It was saying something that sounded like "Thank you," but so faint was it, so whisper-like, that I thought I must have imagined it.

Then it came again; this time a trifle louder. Still believing that I fancied rather than heard a voice, since no one else was in the room, I said nothing. A third time the words came and now they were distinct, unmistakable. They seemed to issue from the depths of the fireplace, but that, I knew, was absurd; no one could possibly be hidden in there, big as it was, for the heat would have been unbearable. However, I could see no harm in replying, so I inquired: "Thank you? Thank you for what?"

"For that juicy log you just gave me. It kept me alive." It was the same voice and I knew then that it must be the Fire speaking!

"You're quite welcome," I replied in as matter-of-fact a tone as I could command; "I'm sure I didn't want you to die."

"Didn't you?" There was a pause. Afterwards the Fire continued: "But sometimes, you know, men do want me to die."

"But that's only when you're doing harm and now you're doing good—much good."

The Fire sighed audibly; then in an outburst of passion: "But I do want to be good always. For numberless centuries, now, I've wished to do only good to men, but, but . . ." The words trailed off and I couldn't catch the rest.

After an interval I asked: "If you want so much to do only good, why don't you? I'm sure the world would be a much safer and happier place to live in."

The Fire's next remark startled me again. "Have you ever heard," it asked, "of a man named Stevenson—Robert Louis Stevenson?"

"The author?" I said.

"Yes," it said, "the author. Well, this man Stevenson, wrote a story called 'Dr. Jekyll and Mr. Hyde,'—remember? It seems they were both the same man, only he had two sides or personalities, one very good, very helpful to mankind, the other very bad, doing nothing but evil."

"Yes," I declared, "everybody knows the story."

"Alas!" cried the Fire, "I'm like the man in that story, and yet it is really not my fault! You"—the fire spluttered and flared up ominously—"you and all your fellow-men, for countless thousands of years, have made me so."

Of course I was taken aback. I couldn't, just then, find words; besides, I reasoned quickly, it was, after all, nothing more than the plain truth that the Fire had hurled at me.

"Please don't be angry," pleaded the Fire, subsiding; "I didn't mean to be rude, only . . . only I feel it so deeply, and I want you and all men to know it. It's hard sometimes for me to bear the blame for all the crimes that you have committed in my name!"

This was a little too much for me, and I protested my innocence; whereupon the Fire went on:

"No, you're not to blame, perhaps; not you personally. I'm speaking of many of your fellows, those alive today and those that lived long generations ago, when the world, though younger, was neither better nor worse . . . Suppose you give me that stout log in the basket over there to keep me going and I'll tell you a little story."

"All right," said I and rose to do as it had bidden. Then I resumed my chair and waited.

"Of course," began the Fire, "I was old long ages before men such as you had come to dwell on the earth. In fact, I played a large part in bringing this very world into being. In the beginning I was nearly all there was.

"Ages dragged by, and I began to die out, slowly, slowly, but certainly, and then the hard rock and earth cooled, and oceans formed out of the dropping steam, and there was air. Life could be supported, finally, and life came—plants and tiny primitive moving things.

"Inside the earth, however, I continued to burn fiercely—and do to this very day—and bursting through a crust of earth, occasionally, I would ignite this plant life, presently grown into vast forests. Sometimes, too, the great incandescent sun would set me going in the dry thickets.

"Yet more ages passed, and one day—I shall never forget it—as I was burning my way through some dense undergrowth, I came full upon a creature who looked not unlike you. He was as much astonished as I, and in fact he took to his heels at once, uttering terrified cries. However, he was inquisitive, and every now and then, as he ran, he glanced over his shoulder to look, wide-eyed at me.

"Soon I saw him slow up, turn, and retrace his steps to an old tree stump that I was licking. For a long time he stood gazing down at me, studying me intently. Suddenly he seized his flint hatchet, chopped out a piece of the trunk and putting it—and me—into a large seashell which he found at his feet, carried me to a kind of hut of reeds and deposited me on the dirt floor where I continued to smoulder dully.

"There were other occupants. One was a woman—as I have come to know—and there were also some little people, children, running about. All were afraid of me at first, and backed away into a far corner. But the man motioned to them to return and, their curiosity overcoming their fear, they began to edge up closer. It was cold outside and when they felt my warmth, they grunted with satisfaction. Presently the man went out

and came back with two or three chunks of wood, which he gave me, at the same time fanning me into flame.

"From that day forth I lived with them constantly, kept them warm and cooked their food. They grew used to me—and then the trouble started. When they first took me to their home, they kept me in the center of the floor, away from the walls of their dwelling, but one day, not realizing what they did, they allowed me to burn over too far, and in a fraction of a second I had started to climb up the sides of the hut. Fortunately, the man and his family rushed outside and saved themselves. Of their home, though, nothing was left; it was dry, and I just couldn't help devouring it to the last reed.

"Naturally, they were alarmed and very much saddened over the loss of their comfortable dwelling; and when they built again, you may be sure, dug a little pit for me in the earth—since, having grown used to me, they couldn't do without me—and there they kept me as long as they lived, while I served them faithfully and gave them no more trouble."

The Fire's voice grew a bit unsteady. So interested was I in its narrative that I had neglected to feed it; so now I heaped on more wood. In a short time the voice regained its strength, and the Fire took up its tale once more:

"Last night," the Fire resumed, "was, if I remember rightly, the millionth anniversary of that happening I have just related; and last night I was burning cheerily on the hearth of a friend of yours, a Mr. O. Howe Careless, and the . . ."

"What!" I broke in, "has Careless been burned out?"

"Yes," replied the Fire wearily, "their beautiful home was burned to the ground. But let me finish. I was, as I said, burning on his hearth, as I am now burning on yours. Mr. and Mrs. Careless, with their two children, sat before me; they were listening, I think, to the radio. Soon the maid called them to dinner, and they left me all alone and quite unguarded.

"Instead of dying out, as I thought I should, a wind came down the chimney behind me, setting me going briskly, and my burning embers began to pop out into the room. At length one, carrying a bit of me, dropped on a soft, fuzzy rug, and I began to burn there, very quietly. Unnoticed, I continued to smoulder until another gust from the chimney fanned me into flame. Hearing me crackle, the family rushed in and tried to kill me, but I was too strong for them and so they called the fire department. By that time, though, I had grown so big that about all the firemen could do—the family having escaped my clutches—was to save some odd pieces of furniture. I consumed, I'm sorry to say, the whole house, except for the foundation and the chimney, which I couldn't get my teeth into, though I licked them black with my tongue."

"Oh, how unfortunate for poor Careless," I exclaimed.

"Unfortunate? What do you mean 'unfortunate?' Wherever I, Fire, am concerned, there is no such thing as fortune, good or bad, no such thing as luck. I do what I must do, what I can't help doing—when men afford me opportunity. A million years ago, by their neglect of me, they gave me no alternative but to turn on them. Last night, in that modern house, it was the same . . . I can't help myself; they leave so many ways of escape open to me.

"Oh! If men would only learn to guard me and to keep me in the place where I belong! A million years of living have taught them much, but still they haven't learned this one simple thing—to handle me with care."

The Fire, I saw, was burning lower and lower on my hearth and seemed on the verge of dying out. It was almost morning and so I decided to let it perish.

"Will it?" I ventured, "will it be so always? Will men never learn to employ you, Fire, as you should be employed, as you were meant to be employed?"

"Ah," sighed the Fire, as it gave one last flicker, "that is a question which only you and your fellows can answer."

October

FOREST FIRES

I. Specific Aims to Be Developed Through This Unit.

A. Simple Habits to Be Acquired

1. Refusing to build an open fire for any purpose near the woods or a field when the woods and the field are dry.
2. Refusing to leave any fire before it is entirely out. Extinguish it with water, sand or soil.
3. Refusing to pass even the smallest fire unnoticed.

B. Essential Knowledge

1. Forest fires cause loss of property, life and the benefits of nature.
2. Each year forest fires in Kentucky burn an average of 500,000 acres of forest land, and do a damage of nearly $1,000,000.
3. Nearly 100% of all forest fires in Kentucky are man-caused and therefore preventable.

C. Attitudes to Be Developed

1. An appreciation of the danger of forest fires to life and property.
2. Forest fire is the enemy of man and nature, and therefore must be prevented

II. Teaching Procedures and Content

A. Content—Why Forest Fires Must Be Stopped.

When Daniel Boone came to Kentucky, virgin forests covered more than 9/10 of all the land in the State. Here grew the finest hardwood timber in the world, and roamed large herds of buffalo, deer, elk and other wild game.

Today 2/5 of the State's area, or 10,500,000 acres, is suited only for growing trees; in eastern Kentucky more than 3/4 of the land area is suited only for trees. Yet this timberland has been so damaged by fire, overgrazing and wasteful logging methods that it produces only a small part of the wood products which it would yield under proper protection and management. Kentucky's past has been greatly influenced by her forests, and much of her present and future progress depends upon them. This is especially so of eastern Kentucky.

The real enemy of our forests is FIRE. In 1939 it burned over 500,000 acres of forests in Kentucky, and did more than $1,000,000 damage.

In the wake of fire stalks death and damage. Sometimes the damage is not easily seen, but it is there just the same. It is quite possible that lack of knowledge of the very real injury which follows fire in the woods

may partly account for so much carelessness with fire. People are usually careful when they realize that a thoughtless act may burn up their property. No person in his right mind will light his pipe in the barn and flip the burning match in the fodder bin or haymow. Why? His hand is stayed by the thought of fire and the damage it will cause. Yet, that same person may without thinking flip another match into dry grass or leaves and start a forest fire that will do damage greater than the value of a thousand barns. What is true of the unthinking smoker is true of the man with the camp fire, the burner of brush, or anyone else who uses fire in or near the forest.

So that you may stop and think and then be careful with fire in the woods, the following summary of the evidence against fire is given to you.

SOIL

Nearly all forest fires burn on the ground. Each fire burns up more or less of the decaying vegetable matter, called "humus", vital to the tree, shrub, and herb life which the soil supports. It destroys a large part of the plant food and there is left only an unbalanced ration. Plant life starves and sickens.

At the same time fire removes the organic matter, which works in the upper layers of the soil and changes it into a sponge-like cover to prevent soil and water from washing away or drying up. Soil texture is ruined.

Loss of soil fertility is the heaviest toll the forest fire takes. Other losses may be replaced in time at reasonable cost, but the plant food in the soil can be built back only by nature, and her work is very slow.

When the protective forest cover is destroyed by fire, rainstorms wash away the valuable top soil, gullies form on steep slopes, silt and debris are washed down to clog the streams and damage fertile farm lands in the valleys.

TIMBER

EACH FOREST FIRE DESTROYS TREES. Even the lightest fire destroys some trees and damages others. The average forest fire kills most of the trees up to one inch in diameter on the area burned. This represents about eight years of patient growth. Many large trees are killed, but the younger the timber the higher the death rate.

The community of trees which we call the forest is like the community of persons which we call the human race. If we kill off the children what is the future of the human race? If we burn up the little trees what is to become of the forest? The answer is simple.

Some day not so far off, we will have a costly task of planting trees on worn-out soil and trying to make them grow. If we banish forest fire Mother Nature will gladly do this for us.

To all of this we must add the damage to big trees that have struggled through scorching flames, with scarred trunks, loss of leaves, injured roots, as well as the loss in slower growth and in merchantable value of the grown-up tree.

WATER

Controlled water supply is a necessity of life.

Tree growth helps to control the flow of water in many ways:

(a) It checks the beating effect of rain on the soil.
(b) It slows up the melting of the snows.
(c) The spongy "humus" soil covering absorbs moisture and holds back the run-off.

The effect of all these things working together might be seen this way:

Take a bare table and tip it up at an angle. Pour a cup of water on the table top. It runs right off. Now put a blanket on the tipped table top and pour another cup. The water soaks in and works its way down. Fire destroys nature's blanket.

WILD LIFE

FOREST FIRES AND WILD LIFE DO NOT GET ALONG TOGETHER. Many furred and feathered creatures perish in each blaze. If the grown-ups get away, the helpless young are caught. The game birds with ground-nesting habits are heavy losers. Food and shelter for animals and birds are both consumed in the forest fire.

After repeated fires—

Game leaves the country.
Fish life is endangered.
Stream shade is removed.
Insect and plant fish food is destroyed by ashes washed down from burned hillsides.
Streams lose their beauty.
Wild flowers are killed.

Hunting in burned woods is poor. Game is scarce; dogs track poorly; charred brush and trees make nasty going; thickets of thorns and briers spring up.

Fire is destructive to game and fish and so ruins the sport of hunting and fishing.

BEAUTY

NO BEAUTY RESULTS FROM A FOREST FIRE. Charred trees, blackened hillsides, fallen timber, all make a sorry sight. The flowering shrubs and herbs of the woods disappear. In the path of the forest fire we have blackened waste, desolation.

In a land like Kentucky, justly noted for its beauty, there is no place for a forest fire.

HOMES AND OTHER BUILDINGS

Every year many homes, schools, churches and other buildings are destroyed in Kentucky by forest fires. Often lives are lost. The most harmless looking blaze can be fanned by a change of wind into a raging fire which might destroy homes or mine buildings.

B. Content—How Forest Fires Can Be Prevented

1. By asking everybody to be careful with fire in the woods.
2. By reporting all fire immediately to the nearest fire warden, and by putting out all small fires.
3. By following these simple rules:
   a. Matches—Be sure your match is out. Break it in two before throwing it away.
   b. Tobacco—Throw pipe ashes and cigar or cigarette stumps into the dust of the road and stamp out any fire. Do not throw them into brush, leaves or needles.
   c. Making Camp—Build only a small camp fire. Build it in the open, not against a tree or log or near brush. Scrape away the trash from around it.
   d. Leaving Camp—Never break camp until the camp fire is out—dead out.
   e. Putting Out a Camp Fire—Stir the coals while soaking them with water; turn small sticks and drench both sides; wet the ground around the fire. If water is not obtainable, stir in earth and tread it down until packed tight over around the fire. Be sure the last spark is dead.
   f. Smoking Out Animals—Never attempt to smoke animals out of holes, or hollow logs or trees.
   g. Brush or Clearing Fires—Never build brush or clearing fires in windy weather or when there is the slightest danger of their escaping from control.
   h. Don't play with matches or fire.

C. Activity—Writing Fire Prevention Jingles Or Verses

The choppers built a fire,*
to warm their dinner's up,
Left the boy to tend it,
and with him left the pup.
Puppy jumped a rabbit,
which coaxed the boy away,
Fire burned the forest,
and chopper's future pay.

D. Activity—Drawing Fire Prevention Posters.

E. Activity—Making Fire Prevention Exhibits
Example—A panel containing cross sections of trees which have been damaged by fire, and cross sections of undamaged trees.

F. Activity—Forest Fire Pageant.

III. Judging Pupil Progress

A. Extreme care in building camp fires and bonfires.
B. Greater care in putting fires out.
C. Greater responsibility in putting out fires.
D. Greater interest in reporting newspaper accounts of forest fires and fires observed in the community.

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* Courtesy American Forestry Association.

IV Teaching Aids

The several agencies responsible for forest fire control in Kentucky have available certain facilities which will be useful in teaching fire prevention. These aids consist of literature, posters, displays, motion pictures, lantern slides, etc. For information concerning them the teacher should apply to one of the following sources:

1. Local warden or ranger.
2. Director, Division of Forestry, Frankfort, Ky.
3. Supervisor, Cumberland National Forest, Winchester, Ky.

NOTE.—Material for this unit prepared by Kentucky Division of Forestry in cooperation with United States Forest Service, Department of Agriculture.

THE DEFEAT OF MAJOR FIRE DESTRUCTION

Prepared by

THE NATIONAL BOARD OF FIRE UNDERWRITERS[1]

CAUTION.—In presenting this playlet, the use of paper or other readily ignitible material for costumes should be avoided.

Scene

The Realm of Safety under the reign of King Carefulness.

All the subjects of the King, representing the various fire hazards, are shown occupying their rightful places in the Realm of Safety.

Principals

CAREFULNESS—A kindly and cautious King who thinks always of the safety and well-being of his subjects.

MAJOR FIRE DESTRUCTION—An outcast and deserter from the army of Good Fire Service. He steals into the Realm of Safety during the brief absence of Carefulness, incites the subjects to rebellion against subjection to Carefulness, and urges them to desert the Realm of Safety and follow him.

THE SUBJECTS OF KING CAREFULNESS—The leading causes of fire:

Kerosene
Cigarette
Match
Rubbish
Electricity
Gas
Bonfire
Chimney
Lightning
Gasoline
Spontaneous Combustion

Rightful Places of Subjects and Properties

KEROSENE AND GASOLINE—Standing outside the door.

MATCH—Standing against the wall with arms folded.

RUBBISH—Seated in metal can at a distance from Match.

[1] The National Board of Fire Underwriters, 85 John Street, New York City.

GAS—Seated with arms and legs crossed.

ELECTRICITY—Standing in corner, electric bulb in hand.

CIGARETTE—Seated on a metal container on table.

CHIMNEY—Standing against the wall with arms folded.

LIGHTNING—Standing outside window with hand on lightning rod.

SPONTANEOUS COMBUSTION—Seated in rags in a metal can at a distance from Rubbish and Match.

BONFIRE—Outside, short distance from door, seated in wire inclinerator.

Special Properties

LIGHTNING—Two or three short, bright strips of flashing metal (with no sharp edges) attached to clothing to reflect the spotlight and represent lightning.

SWORD OF MAJOR FIRE DESTRUCTION—To be made of cardboard, ten inches long and two and one-half inches wide. It should have a blunt rounded point. Color: Bright orange

Costumes

The use of special costumes is optional, but if used they should not be made of paper or other readily ignitible material. Clearly inscribed placards hung about the necks of pupils will answer every purpose.

CURTAIN

Enter King Carefulness. All subjects bow in tribute. King Carefulness takes his throne. Subjects resume their former attitudes.

King Carefulness: Well, well how good it is to be with you, my subjects, and how good it is to have you here in my Realm of Safety. Here, under my dominion, you have the privilege of being of the greatest service to the world—a benefit to humanity! Tell me, are you contented with life in this Realm of Safety?

Chorus of Subjects: Yes, yes, Your Majesty!

Kerosene (from outside the door says quickly): Why shouldn't we be content, Your Majesty? You have prevented us from causing many disasters and from perishing in them by the hands of thoughtless people. Many human lives you have saved, and millions of dollars in property, too!

King Carefulness: My good subjects, I do my best but people will not always heed me. Millions of dollars and many lives have been saved by those who have done my bidding, but last year 10,000 lives and $500,000,000 in property were lost by fire. Most of this loss could have been prevented had people only been careful.

Gasoline: It's all because folks do not keep us in our places. They let us go anywhere. We never know where to go or what to do without them to guide us and keep us in our right places in the Realm of Safety.

Chimney: I'm always in place but if I am not given a good start in life I crumble and decay in time and become dangerous. Sparks and flames sweep through the cracks and breaks in my mortar and fires start back

of the walls of the homes in which I live. Many homes burn down because of this. Build me with a sound flue lining and keep me in good repair, and I will live long, serve well, and be safe in any house. That's how I keep my place in the Realm of Safety.

Rubbish (lazily rising from metal ash can and stretching): Oh, dear, folks never seem to keep me in place. They drag me about and drop me anywhere, any time of the day or night. They treat me like a vagabond. They have no idea how well I can serve when they put me in a safe place like this can, with a cover over me. Then I don't cause anybody trouble. (Rubbish sits down again in can.)

Bonfire: Speaking of not keeping me in place, people start me anywhere—in the field, the back yard, the street, or a roadway camp, then hurry off, neglecting me and leaving me to smolder or burn. When the wind blows, my burning embers fly about, causing great destruction. I should be kept in a wire basket and watched until I burn out or am extinguished.

Cigarette: Match and I are good friends, but we often run into a lot of trouble. We can't help it because people throw us about and expect us to take care of ourselves. Last year we caused the largest number of preventable fires in the whole United States—over $30,000,000, and goodness known how many lives.

Gas: It is expensive when people lift us out of the Realm of Safety. As old as I am and as long as people have known me, I wonder if they will ever learn to use me without danger. I escape through carelessly opened gas jets on stoves and heaters. Children often meddle with gas stoves to see how I work and what I will do. Many have died from suffocation and the fires I cause. One of the worst things people can do is to look for a gas leak with a lighted candle.

Lightning (outside an improvised window): I'm never in place! I'm never safe! People can only safeguard themselves from me for I dash and dive, skip and fly impulsively. It's my nature and I cannot foresee where I shall strike and create havoc. Whatever I strike may break or burn down.

King Carefulness: You should be kept in harness, Lightning. You are as carefree and almost as destructive as that unlawful vagabond, Major Fire Destruction.

Lightning: Yes, Your Majesty, but people should give me a free path to dash into the ground through good lightning rods so that I will not crash into their homes or buildings and burn them. (Whispering loudly and jesting.) See how they have adopted and domesticated my brother, Electricity.) Ha, ha! (Waves toward Electricity.)

Electricity: Don't sneer at me, Lightning. I have become worth while in the world, while you scamper about aimlessly, destroying things, and frightening folks. Modern civilization cannot do without me now. Not only in the homes of the nation do I serve but in the industries I move the great wheels of progress. True, people often neglect me and let me waste my energy carelessly and dangerously but that is not my fault. I cannot know where they want me to go. They must think and learn to use me right; not overtax my lines or misuse me or neglect me, even for a second.

Match: That's right, Electricity, people must think. That's why they have heads but look at me! I have a head but it is not for thinking; still,

people act as if I should do the thinking for them for after I have served them they toss me away carelessly and expect me to take care of myself.

Spontaneous Combustion: I am last to have my say but not least to be considered for I am just as dangerous as any of you who are drawn out of the Realm of Safety by careless hands. In homes where King Carefulness is not welcome I cannot help doing damage by smoldering in places where I am confined. I flare into flames in oily rags, wet hay, and fumes from dangerous cleaning fluids and paints. Why don't people keep me in a proper place—a metal can? It burns me up to be neglected.

King Carefulness (rising): My good servants, you please me well. My Realm of Safety is your proper place and your duty is to serve humanity. Even kings have a duty; my duty is to be with you always, guard you against harm and from doing harm but I must be absent briefly now—just briefly—to rest, after a trying day in the homes of many people. (King Carefulness slowly retires to another room to rest; all the subjects sit down, rest, sprawl about, carelessly.)

Major Fire Destruction (enters stealthily; standing in the doorway he peers all around, and observes that Carefulness is absent. Throwing his dark, ragged cloak over his shoulder he slowly and defiantly stalks to the center of the scene, whispering hoarsely): How I glory in the absence of Carefulness! I'll make all his servants obey me here and now. (Loudly) Hey! All of you! (Stamps his foot.)

The subjects are quickly aroused from slumber. "Major Fire Destruction!" they exclaim in chorus and shrink back, fearful, timid, surprised.

Major Fire Destruction (stands with arms folded, feet apart, looking upon the subjects): Ha! Look at you! Cringing slaves of Carefulness. At what price is your freedom? Look at me, carefree, I do as I please. I have no master! Liberty is mine. I feast on the ruin of people who foolishly take a chance in making me their guest. Come! (Walks to door, beckoning.) Enjoy freedom with me. Rebel against this hard master, Carefulness, be my friends, come! I will tell you what to do in the world of the carefree!

The subjects listen eagerly, and start to leave their places, some responding slowly, others quickly. They begin talking excitedly in a babel of voices. Then Chimney stands up. "I'll come, Major Fire Destruction, I'm tired of being a servant all my life—I want freedom!" (Tears a defect in her side and pushes out a red-sleeved arm, representing a tongue of flame.)

Subjects cheer, excited talk becomes louder as they follow Chimney. Several subjects prance about in glee as they follow to the door. At the threshold Major Fire Destruction halts, draws his cloak about him, peers over his arm, and shrinks back. All are silent. The subjects stand back and watch in consternation as King Carefulness enters and stands before Major Fire Destruction. A moment of tense silence follows.

King Carefulness (addressing Major Fire Destruction): Scoundrel! Rob me of my subjects, will you? Make them tools to destroy the nation and themselves as well? (Clenches fists and advances upon Major Fire Destruction as he slinks back, step by step. Subjects slowly return to their rightful places.) You crave greater power by enslaving my subjects for their ruin, so that you may kill, maim, and injure; rob, plunder, and

destroy by your flaming temper, laying waste the homes of the nation, tearing down industries, taking away people's only means of livelihood, and ruining the progress, happiness, and prosperity of communities! In this Realm of Safety you are in grave danger of losing your life!

Throwing off his cloak, Major Fire Destruction draws his sword from a sheath which had been concealed under the cloak, exclaiming boldly: "And I shall fight to a finish for that!" (Draws back, sword ready to thrust.)

King Carefulness (standing still, arms folded, unaffected): I have no sword or other means of defense save my own strength (extends arm and fist) with which I shall fight for possession of your sword. The victor will claim my realm and subjects.

Major Fire Destruction: Ha! (Lunges toward King Carefulness, who dodges. Brief struggle follows. King Carefulness circles about and, grasping the wrist of Major Fire Destruction, bears down upon it with an apparently merciless grip of his right hand. Major Fire Destruction sinks to the floor in pain, groans, drops sword. King Carefulness pushes him aside and, snatching up the sword, breaks it across his knee in a single snap. Deprived of his only means of defense, Major Fire Destruction moves cautiously and crouchingly toward door, hesitates at threshold, then dashes out. Moment of silence.)

King Carefulness (turns, facing audience, stands silent, alone, in center of stage, head bowed): My subjects, I have erred by being absent from you, even for a moment. I should never have rested—that is not my privilege. I must always be vigilant lest some dangerous influence creep in and make of you slaves and tools to ruin the homes and market places of the world.

The subjects kneel, heads bowed, except Chimney, who hurriedly withdraws his fiery arm, advances before King Carefulness, and kneeling, says: "Your Majesty, let us not forget this dark experience in which we all have erred and may the public strive to keep us in our rightful places in the Realm of Safety with the door of Care tightly closed against the invasion of Major Fire Destruction."

King Carefulness raises his head and registers gratitude. All subjects rise and with right hand uplifted, cheer: "Long Live King Carefulness," as Match escorts him back to his throne. Subjects all return to their rightful places and sing fire prevention song as follows: (Air: Auld Lang Syne.)

Lest we forget the price we pay for fire's dangerous way,
Let's heed the voice of Carefulness and do his will all day.
We'll stop the nation's fire loss,
We'll save the lives of all
Who harken, and obey the rule
Of Fire Prevention's call.

CURTAIN

C. Writing fire prevention jingles for English (see examples)

FIRE PREVENTION WEEK[1]

I saw a man with a cigarette,
He threw it on some straw,
And as some do, he did forget
The very strictest law,
That people are to watch this curse
And always practice Safety First.

A pile of rubbish on the floor,[2]
Was lying just beside the door,
A match was thrown upon the heap
And soon the flames did upward leap
The house was burned down to the ground
So don't leave rubbish piles around.

III. Judging Pupil Progress

A. Consciousness of one's responsibility to report fire hazards and to help prevent fires.

B. Willingness to assume responsibility for the proper care of kerosene in the home.

C. An awareness of the dangers of kerosene.

D. Willingness to warn younger children of the dangers of kerosene.

[1] Ervin Handler, District 42, Seward County, Nebraska.
[2] Jean Fuehring, District 8, Seward County, Nebraska.

November

SCHOOL INSPECTION, HOME INSPECTION, FIRE DRILLS

I. Specific Aims to be Developed Through this Unit

A. Simple Practices and Habits

1. Looking constantly for fire hazards.
2. Dealing carefully with the causes of fire.
3. Participating in fire drills.

B. Essential Knowledge

1. Fire hazards are quite common. Boys and girls should be alert in discovering them.
2. The best all round means of combating fire, in its incipiency, is with the portable fire extinguisher.

C. Simple Feelings and Attitudes to be Developed

1. A consciousness of the individual's responsibility for discovering and eliminating all fire razards.
2. A recognition of the value of fire drills and a willingness to meet one's responsibility of getting out of the building quickly and orderly during a fire drill.

II. Teaching Procedures

A. Surveying the School Plant in Regard to Fires and Fire Prevention[1] (by Teachers and Pupils)

1. Arrangement and construction of building

a. What portion of the building is of fire-resistive construction? Check each of the following features; outside walls, floors, corridor and room partitions, roof covering and roof framing.

b. Is the arrangement of the building such that fire may not readily spread from one floor to another and from one end of the building to another?

c. Is the heating plant in a separate fire-proof room with self-closing doors?

d. Are stairways cut off from the corridors of all floors by self-closing doors?

e. Is all woodwork fully protected from hot air or steam pipes, stoves and burners?

[1] Abstract from circular by Marion Telford—National Safety Council Bulletin.

f. Do all doors open outward?

g. Are all doors opening to the outside equipped with "panic-proof" bolts?

h. Are all "panic-proof" bolts in good condition?

i. Is the building protected in whole or part by automatic sprinklers?

2. Emergency exits

a. Do all emergency exits, as well as doors in regular use, open easily upon pressure from the inside?

b. Are all emergency doors clearly marked?

3. Fire alarms

a. Is there a distinctive fire gong, unlike any used for any other purpose?

b. Is this signal system always in good condition?

c. Can the fire gong be operated from several points in the building, especially the custodian's room, the principal's office and from the corridor on each floor in each wing of the building?

d. Do teachers and pupils know how to turn in an alarm?

4. Fire escapes

a. Are fire escapes provided in accordance with the school code? (Fire escapes on the outside of buildings are made necessary in many schools by the fact that the arrangement of the building and the stairways are such that all of the stairways are likely to be cut off by smoke or fire at one time. It should be kept in mind, however, that fire escapes are a make-shift and at best unsatisfactory. They must be provided in all buildings unless there are at least two stairways, properly enclosed, so that in case one is cut off by fire the other may be used. This is true even in buildings of fire-resistive construction.)

b. Are fire escapes regularly used for dismissal of children from school?

c. Are fire escapes adequate in type, size and number to empty each floor of the building in two minutes or less?

d. Are fire escapes free from all obstructions, including ice and snow?

e. If escapes are of the staircase type, are the steps wide and even, the landing platforms as large as possible, doors opening on the platforms hung so as to swing away from the foot of the staircase leading from higher floors and the escape provided with rails and screened to a height of at least four feet?

f. If escapes are of the chute type, are they inspected periodically and kept in usable condition at all times; are they always free from parked cars or other obstacles that

would block egress, and is the ground at the end of the chute free from stones, nails and broken glass?

g. Are fire escapes arranged so that they may be reached through a doorway and not a window?

5. Fire drills
   a. Are fire drills held in accordance with the law?
   b. Are drills held at irregular intervals and at unusual times such as during assembly periods or during class changes?
   c. Are the same routes always used or are "blocked-exit" drills used? (The later has the distinct advantage of simulating actual fire conditions where an exist may be impassable.)
   d. Is a check made to indicate that everyone is out of the building?

6. Fire apparatus
   a. Is the building adequately equipped with fire extinguishers of the proper types and in accessible locations? (An extinguisher should be available on each floor within less than 100 feet of the door of every classroom. In general, extinguishers should be of the water solution type, e. g., soda acid, foam, loaded stream, or calcium chloride types.)
   b. Are extinguishers provided in auto shops and other places of proper types to deal with the oils, paints and other special hazards found in these locations? (Types of extinguishers for special hazards include the water solution type where appropriate, also the foam, loaded stream, carbon dioxide gas, gas expelled dry chemical and carbon tetrachloride types. The last three types mentioned above are safe to use on electrical apparatus.)
   c. Do principals, teachers and custodians know how to use the extinguishers?
   d. Are fire extinguishers inspected regularly, re-charged annually and the nozzles kept free from corrosion?
   e. Is there a fire hose on each floor long enough to reach any point on the floor?
   f. Are fire hose inspected occasionally?
   g. Are the street connections for the fire hose properly marked and usable?
   h. Is there an adequate water supply for fire fighting purposes?
   i. Are fire blankets provided in chemistry laboratories, foundry shops and cooking kitchens?

7. Fire prevention through good housekeeping
   a. Is waste paper collected daily and removed from building or burned?
   b. Are covered metal cans provided for the storage of necessary waste paper accumulations?

c. Are oily rags and mops kept in covered metal containers?
d. Is the reserve supply of oil properly stored (in a fire-proof closet or outside of the building)?
e. Are all closets and spaces under stairways free from rubbish?
f. Are all flammable laboratory supplies kept in a fire-proof closet?
g. Are nitrocellulose films stored in a fire-proof closet, kept in tin boxes when brought out for use, and projected in accordance with the law?

B. Inspecting the homes

Pupils should be provided with copies of the following inspection blank, or a similar blank. They should report the fire hazards discovered.

HOME INSPECTION BLANK FOR SCHOOL CHILDREN

1. Name .....Town .....Street and No.....
2. Is there any rubbish, such as old papers, broken furniture, etc., in the attic? .....
3. Is there any rubbish or scattered kindling in the basement or cellar? .....
4. Is there any flammable rubbish in the yard?.....
5. Are floors under stoves protected by metal or otherwise?.....
6. Are walls, ceilings and partitions protected from overheating of stoves, furnaces and pipes? .....
7. How do you dispose of your ashes?.....
8. Do you keep your matches away from heat and out of the reach of children? .....
9. What is the material of the house and of the roof? .....
10. Is the foundation enclosed?.....
11. Are the chimneys in good repair? .....
12. When were they last cleaned? .....
13. Do stovepipes pass through attic or closets?.....
14. If there are any unused stovepipe holes, how are they covered?.....
15. Do you ever keep or use gasoline in the house?.....
16. Do you use a gasoline or kerosene stove for any purpose?.....
17. How is your house heated?.....
18. Are any gas connections made with rubber tubing?.....
19. Name all the purposes for which kerosene is used in your home .....
20. Do you use a "dustless" oil mop? If so where do you keep it when not in use? .....

.....

21. Do you use electric pressing irons?.....
22. Name any other fire hazards in or about your home.....
23. Have you any fire extinguishers?.....
24. Where is the fire alarm box nearest your home? .....
25. Do you know how to turn in an alarm? .....

When the fire starts in a school, there is just one thing to be done. The teacher is responsible for getting the children out safely and quickly. In order to accomplish this, it is necessary that each child should know

exactly what to do and then do it as a matter of course and of habit. Fire drills in rural and town schools are just as necessary in the school program as recitations in academic subjects. The teacher should organize fire drills. The drills should be conducted quite often.

Rules of fire drills:

1. Organize a fire drill.
2. Town schools should get advice from fire chiefs and follow it.
3. Install fire extinguishers that teacher and pupils can use.
4. Have all exit doors open out. Never allow exits to be locked while school is in session.
5. Install a gong or signal to be used only for fire drills. Test alarm every day. All teachers should know how to sound alarm.
6. Assign to each class the most convenient exit.
7. Alternate the use of exits so that children will be familiar with all.
8. Have all stairways lead to the street. Stairs should be enclosed and sheathed with metal.
9. Do not let children stop for hats, wraps, books, etc., when there is a fire.
10. Fire drills must be held at least once a month.
11. Teacher should follow pupils in order to be sure that no child has been left behind.
12. It is advisable for boys to lead and for the girls to follow if separate exits are not provided.
13. Children should be taught during the fire drills to overcome obstacles and to be prepared to meet difficult situations in the event of actual fire.
14. The movement of children should be by the shortest route, with no crossing of lines.
15. Classes near stairway shall precede those further away. Lower floor classes shall precede upper floor classes.
16. Pupils shall move in sets of two, three, or four as most convenient.
17. Pupils must be taught to obey orders absolutely during fire drills.
18. All movements of classes shall be by marching, not by running. Teachers must not urge or hurry pupils and should use every effort to prevent excitement.
19. Fire escapes should be used as far as possible as a regular means of exit so that pupils may become accustomed to their location and use. Teachers should be sure that the fire escapes are a safe means of exit during all types of weather.

III. Judging Pupil Progress

A. A consciousness of the responsibility for discovering and eliminating fire hazards.

B. An appreciation of the importance of fire drills and willingness to cooperate in them.

December

MATCHES, HOLIDAY HAZARDS, RURAL SCHOOL-HOUSE FIRES

I. Specific Aims to be Developed Through this Unit

A. Simple Habits to be Acquired

1. Purchasing matches which do not break, do not lose their heads, or do not glow after being blown out. The strike-on-the-box, or safety matches, are to be preferred.
2. Placing all matches in metal or earthenware containers.
3. Extinguishing carefully every match after it is used. Always be sure that every spark of it is out. If indoors, place it where it can do no harm and, if outdoors, break it in two and stick the head end in the ground or step on it.
4. Avoiding the carrying of matches.
5. Keeping matches out of the reach of little children.
6. Inspecting fire hazards around the school buildings.
7. Avoiding the use of lighted candles on Christmas trees.
8. Using an electric flashlight when visiting dark cellars and closets, and avoiding the use of matches and candles.
9. Placing ashes in strong metal cans.
10. Keeping stoves, furnaces, flues, and chimneys clean.

B. Essential Knowledge

1. The match is one of the most valuable and one of the most dangerous articles made by man.
2. Fireworks often causes series fires.
3. Christmas decorations and Christmas candles sometimes cause serious fires.
4. Candles should be barred from the schoolroom, except for laboratory work.
5. Doors of all schoolhouses should open outward.
6. Stoves, furnaces, and pipes should be placed far enough from walls and woodwork to avoid overheating. The stoves and pipes should not be permitted to become red hot.
7. The wooden surfaces nearest stoves and furnaces should be covered with asbestos, sheet iron, or tin. If iron or tin is used, leave an air space behind it.
8. Where stovepipes or heating pipes pass through walls, the pipes should be enclosed in galvanized iron, double-walled ventilated thimbles at least twelve inches wider than the diameter of the pipes.

9. The floor beneath a stove should be protected with sheet metal.
10. The base of a furnace should be surrounded with brick, stone, or concrete. The pipes should be kept free from rust so that all joints and connections may be sound and tight.
11. A guard should be placed about the pipe in the attic so that nothing may be stored against it.
12. Clothing should not be placed too near stove or pipes.

C. Appreciations and Attitudes to be Developed

1. An appreciation of the danger of matches.
2. A willingness to celebrate the Fourth of July without firecrackers, and to observe Christmas without lighted candles.

II. Teaching Procedures and Content

A. Finding a starting point

Pupils should discuss fires caused by carelessness with matches.

B. Content—matches

"No match is safe from the standpoint of the fire hazard. It may stay lighted after it is discarded, or the head may fly off when struck, or ignition may occur by some means other than its normal use. The strike-on-the-box type of match is the safest match, which is less hazardous on account of accidental ignition.

"So many fires started by matches are due to the carelessness of smokers that the Actuarial Bureau of the National Board of Fire Underwriters combined the hazards under the twin designation, 'Matches-smoking,' and today it leads all other causes in its responsibility for fire destruction, with a total annual charge against it approximating the huge sum of $30,000,000."

500,000 Flames a Minute

"The prominent place held by these modern fire-sticks among the originating causes of loss is understandable when the tremendous production of matches is contemplated. Each year, about three hundred billion are consumed in the United States alone, or eight hundred million daily. To put it another way, this means that in terms of averages approximately five hundred thousand flames are started every minute.

"Each of these matches holds the possibility of causing a disastrous fire—even a conflagration of city-wide proportions. Therefore, every time you strike one, be careful what becomes of the burning stick; it may result in the destruction of your home and perhaps end the lives of those in it. Never cast away a matchstick while it is still flaming, or even glowing, because it is only too lkely to ignite any inflammable material at hand.

"The wife of Henry Wadsworth Longfellow, the poet, was burned to death because she carelessly threw a lighted match upon the floor, and similar fatalities have been numerous. Every day children are losing their lives while playing with matches and you will find references to such regrettable occurrences in every fire department report.

"Matches should be kept in metal or earthenware containers, well out of the reach of children. Obviously they should never be allowed to amuse

themselves with these small but dangerous fire makers and, if you find your small sister playing with one, take it away and impress upon her the fact that she is endangering herself, her home, and everything in it. The same corrective measures should be employed with boys, but owing to the nature of their clothing girls are in greater danger of being burned. Babies and small children seem, unfortunately, to have a special curiosity concerning the edibility of matches, which is another good reason why they should be kept out of their hands, even though the modern match is not poisonous.

Rats and Matches

"You sometimes read in newspapers of fire attributed to the nibbling of matches by rats and mice, but this theory cannot be substantiated. Not long ago a fire prevention engineer kept several mice in a state of partial starvation and then turned them loose among a number of scattered matches of various kinds. They refused even to sample the heads, however, and displayed absolutely no interest in them, despite their hunger.

"It has been proved, on the other hand, that the rodents often steal matches and utilize them for nest building in some convenient nook. Sometimes for the sake of warmth they place their nests against a chimney and if the flue is not adequately lined with fireclay, or has walls that are too thin for safety, there may be sufficient heat to ignite the matches in the nest. When this occurs, the location of the fire makes it particularly dangerous and difficult to extinguish."[1]

C. Content—safeguarding the home on holidays

There are certain hazards that should be considered on holidays. It is most alarming to consider that in fourteen years (from 1903 to 1916) there were 1,892 deaths and 42,909 people injured on the Fourth of July, according to the Journal of the American Medical Association. We can celebrate Independence Day without gunpowder.

The celebration of Christmas Day brings dangerous decorations and lighted candles into many homes. Fire once started in a room decorated for Christmas is likely to spread with terrible swiftness. A Christmas tree should not be lighted unless this can be done with electric lights, and even then special care must be taken to see that the wiring, lights, etc., are in good condition. Cotton, wool, and cut-paper decorations are extremely dangerous and should never be used. It is also dangerous to leave the Christmas greens in the house for more than two or three days following Christmas, because when thoroughly dry they are extremely inflammable. From the fire prevention standpoint, cleaning up after Christmas is one of the most important precautions of the entire year.

D. Content—schoolhouse fires

About 11 A.M. on March 17, 1939 while school was in session at the public Grade and High School building at Pipestone, Minnesota, the janitor observed smoke coming from a fresh air grille in the first floor hallway. He went to the penthouse to investigate and found a fire at the head of the stairs adjacent to the large ventilating fan. Returning to the second floor he sounded the fire alarm and directed that the fire department be

[1] National Board of Fire Underwriters, 85 John Street, New York City, "Safeguarding the Nation from Fire."

called. He then returned to the pent house with a 2½-gallon chemical extinguisher, but was unable to cope with the rapidly spreading fire. Failing to subdue the fire, he attempted to reach the control room to shut off the fans, but was unable to do so because of the heat.

The students and teachers left the building in approximately two minutes using three stairways and two fire escapes. Afterward the men teachers and some high school boys were sent back to remove wraps.

A school fire occurred at Camden, South Carolina, several years ago which caused the loss of a number of lives. The fire occurred out in the auditorium of a district school while a play was being presented by the children as a part of the Commencement exercises. Within twenty minutes seventy seven people had perished in the flames. The schoolhouse was a two story frame building with a tin roof and ceiled with wood on the inside. The building was 100 feet long by 34 feet wde, with two classrooms and two cloakrooms on the first floor and the auditorium on the second floor, the latter being used also as a classroom during school hours. In these rooms three teachers taught a rural grade school from first to tenth grade.

The auditorium was filled to capacity by relatives and friends of the children from a large part of the county. There were between two and three hundred present. The stage had been curtained off at each side with burlap to form dressing rooms. An oil lamp was suspended from a hook in the ceiling above stage. During the play someone in the auditorium observed that the wooden ceiling above the lamp had ignited, but before he could reach the stage the hook fell out and the lamp fell to the stage. A panic quickly followed and the crowd rushed for the one small stairway. The cause of this holocaust could be traced, as is so frequently the case, to carelessness. In this case it was an improper method of lighting and what was even worse there was only a single narrow exit of a thoroughly combustible nature for the people to go out.

Be sure that your school has a sufficient number of exits properly located.

One chapter of tragedy was added on Christmas Eve, 1924, to the already long story of schoolhouse tragedies. Thirty-six people lost their lives when flames swept the rural school at Babbs Switch, near Hobart, Oklahoma. Eighteen of the victims were children. The schoolhouse was a one-room building. Its only door opened in instead of out. Over every window, heavy hail-wire screening had been fastened to the outer frame with staples.

A Christmas tree had been installed on the teacher's platform. The committee in charge had decorated the evergreen with tinsel. Cotton from nearby fields was used to represent a covering of the branches with snow. The tree was set in the southeast corner of the room, insecurely fastened to the floor. It had toppled over once while being trimmed. It was again straightened and fastened in the same manner. There were no electric lights at Babbs Switch for illuminating the tree. The community schoolhouse was lighted with kerosene lamps.

It was a cold night. At the time of the fire, 150 people were crowded into the one room, attending a Christmas entertainment. Following the

entertainment, a man dressed to represent Santa Claus entered the building. He distributed candy and the presents which were laid on the floor around the tree and then proceeded to strip the tree of presents that had been placed thereon.

About 9:30 o'clock Santa Claus, in reaching for a present near the top of the tree, pulled down a branch which came in contact with a lighted candle. The branch, decorated with cotton and tinsel, was immediately ignited, when Santa Claus endeavored to reach it but was unable to do so. At this point some persons in the audience jokingly cautioned Santa Claus to look out or he would get burned. Santa Claus then picked up a small toy chair, threw it at the burning branch, and in so doing knocked over a glass bowl kerosene lamp sitting on the table near the tree, which immediately exploded.

Instantly the crowd stampeded for the door. Santa Claus, in the meantime, endeavored to smother the flame with a coat, and not being successful grasped a cotton curtain that had been used as a stage curtain. In his excitement he knocked the tree over, his clothing caught fire, and in an instant he was a mass of flames.

When the blaze reached the ceiling, which had been recently white-painted with white oil paint, the fire flashed over the entire surface.

Some of those who had escaped through the narrow doorway endeavored to re-enter the building with the intention of rescuing relatives or friends, which caused a complete blocking of the only exit. Outsiders endeavored to tear the window screens from their fastenings but could not do so; however the corner of one of the screens was loosened and one small boy was rescued through this opening.

About twelve minutes after the fire started, the building collapsed. Eye witnesses state that two minutes after the tree toppled over, the building was a veritable charnel house. As is usual in such cases, the wildest excitement prevailed and no doubt many were trampled to death before being burned.

Nearly every condition favorable to fire and loss of life was present. The building was a frame tinderbox; lighted candles were placed on a very flammable and insecurely mounted tree; kerosene bowl lights on tables were the only illumination; the building was crowded beyond its capacity; one doorway was blocked up by a coal bin, the other opened inward and was difficult to open, and windows were effectively barred; there was not even a fire pail, and the fire was undoubtedly spread when attacked in its incipiency by wraps and bare hands; those who escaped from the building had to stand by and see the fire burn unhindered, there being no semblance of a water supply or a fire apparatus in the vicinity.

This tragedy should serve as an effective lesson in fire prevention.

Fooling With Fate[2]

The pity is that blindness to fire hazards is not confined to those who won't see; many who approach the subject seriously permit conditions to

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[2] From an address by T. Alfred Fleming, National Board of Fire Underwriters

exist through ignorance that are as bad as those where officials snap their fingers at fate. I've seen it often. I've seen otherwise intelligent officials spend money for iron handrails on stairs—and put wooden steps there for the children to escape by. I've seen them go to the extra expense of installing wired-glass windows to reduce the fire hazard—and then put then put the windows in wooden sashes that absolutely nullified their purpose. I've seen them pay out good money for smokeproof escape towers equipped with panic bolt doors—the acme of perfection—and then fasten the bolts with chains while the school was in session!

I've seen them take a perfectly good domestic-science room in the basement and, with all the wide area available, select a spot directly in front of the only narrow exit for the installation of a stationary ironing board. I've seen them install fire escapes that the children could reach only by climbing four steps up to a window on the inside and three steps down on the outside.

If you think these are merely glaring faults from here and there, let us take something more specific. Here is a survey made of a city containing thirty schools. What did the inspectors find throughout the system as a whole? They found that the housekeeping of the buildings was generally poor and that much combustible junk was stored under stairs, in furnace rooms and other hazardous places; that the fire drills were inadequate; that there were no fire doors in the furnace rooms; that there were many dead-end corridors and halls; that the fire escapes were inferior in design and location; that the ash pits in many buildings were combustible; that open stairways were prevalent; that only nine stairways in the thirty schools were 100 per cent efficient; that there were 214 electrical defects of a hazardous nature—and that 77 per cent of the buildings were not fireproof.

Safety Rules for Holidays at School

1. Avoiding foolish risks.

2. Avoiding the use of paper or cotton on Christmas trees for decorative purposes. One invites fire by doing so. Only metallic tinsel or asbestos material should be used.

3. Fastening the Christmas tree firmly to the floor so that children cannot pull it over.

4. Avoiding the use of mechanical toys that require alcohol, gasoline or other dangerous oil to operate them.

5. Refusing to allow the use of cotton beneath the tree to give the appearance of snow. If the appearance of snow is desired, use mineral wool asbestos. It will not burn and gives a better effect than cotton.

6. Keeping matches in a metal receptacle far out of reach of children.

7. Watching constantly for anything that might cause a fire. Strive by every means possible to do this, and at the same time be prepared for an emergency by having convenient for use either fire extinguishers or buckets filled with water.

8. Cautioning visitors who smoke to avoid throwing lighted cigars, cigarette stubs, or matches about in a careless manner.

E. Activities—Writing Fire Prevention Jingles

THE CONFERENCE OF THE FIRE SPOOKS[3]

A Fire Prevention Playlet for Young Children

This playlet is suitable for use as part of the fire prevention program in grade schools. Usually two performances are given—one at night for parents and other adults, and one in the afternoon for the pupils.

A Fire Prevention Playlet for Young Children

The Conference of the Fire Spooks

CAST

Principal, teacher or any adult.
Frank.
Albert.
10 Ghosts (if this number is not available, some may speak twice).

COSTUMES: The adult and both boys should wear their regular school clothing. The costumes of the "ghosts" may easily be arranged with sheets and safety pins.

Before the curtain rises, the principal or teacher steps out front and says: Two of our boys, Frank and Albert, have been testing their courage as boys will, and each has made a wager that the other will be afraid to go to the (name of local) cemetery at 12 midnight. Accordingly, they have a "date" to meet there tonight. We have arranged to overhear their meeting, as you will see, when the curtain goes up.

Scene I.

(A weird scene is disclosed as the curtain rises—the cemetery at midnight. This appearance may be obtained by means of blue lighting effects, a stone wall painted on boards or on canvas stretched on a frame, a suggestion of grave stones made by pieces of wood painted white, etc. A cautious whistle is heard from one side of the stage and in a few seconds is answered from the other side. Then the two boys enter from opposite sides.)

Frank: (in loud stage whisper) That you, Al?

Albert: (also in whisper) Yes—didn't think you'd make it, Frank.

(The boys meet in center, and continue talking in loud stage whispers)

Frank: Had a hard time getting out, but finally made it after every one went to sleep.

Albert: Me, too. Gee! Bet you were scared!

Frank: Naw—I ain't scared.

(A white figure appears at left side of background. Frank sees it, clutches Albert around the waist, and points fearfully)

G-g-great g-g-gosh! W-w-what's that?

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[3] The National Board of Fire Underwriters, 85 John Street, New York.

Albert: Aw, what's the matter?

(Sees the white figure and grabs Frank)

It's a-a-a g-g-ghost. Quick, hide behind that tree.

(The boys back off stage, right. Then the "spook," followed by nine similar white figures, moves to center. They form a group)

Ghost No. 1: (in deep voice) Brothers, I see that our ranks have been increased by several more since our last meeting. We must do something to protect people against their enemy, fire. But first, let us all report.

Ghost No. 2: I was a happy little girl until I played with some matches one day when my mommy wasn't looking. My dress caught fire and I was so scared that I ran. Now I know I should have rolled up in a rug. I'm going to haunt (fictitious name or the name of a little girl in the school, as desired) because I think she plays with matches, too. Oh-o-o-o-o (wailing tone).

Ghost No. 3: My dress caught fire, too. I was playing in front of our fireplace when a hot spark flew out and landed on my thin dress. A screen in front of the fireplace would have saved my life.

Ghost No. 4: My dad asked me to do a job of painting for him. I thought that was fun, but I didn't know that fires start by themselves in paintstained rags. When I finished the job, I left some paint rags in a pile in the cellar. That night the house burned and I was trapped upstairs. . . . I have been haunting (name as desired), who also is careless. Gee! Was he scared! Oh-o-o-o (wailing tone).

Ghost No. 5: One of my chores was to take ashes out of the furnace. I put hot ashes into a wooden barrel, which later caught fire and the flames spread to the house.

Ghost No. 6: We were warned to have our chimney cleaned because it was in a dangerous condition, but we didn't bother to do it. One cold night a fire started in the chimney and when we woke up the flames had cut off escape.

Ghost No. 7: In my case the laundress forgot to detach an electric pressing iron when she was called away. It finally got so hot that it burned through the ironing board, fell to the floor and set fire to the house.

Ghost No. 8: Carelessness with electricity brought grief to our household, too. Several old wires were criss-crossed on the floor near where I was playing. I stepped on them, causing a short circuit, just as I touched a steam radiator, and the current was grounded through my body.

Ghost No. 9: Our maid was cleaning someclothing with gasoline when the fumes were ignited by the pilot light on the gas stove. In the explosion and fire that followed, she was killed, also, and the house burned.

Ghost No. 10: Our attic was a sight, with papers and broken furniture piled all around. Then someone threw a match away carelessly. . . . . Evidently the fire smoldered some time, but it was blazing up when discovered. I could not escape. I, too, have haunted a careless child (name as desired). Oh-o-o (wailing tone).

Ghost No. 1: What a terrible sight—a burning home! Some of you know what brought about my end. Although I was old enough to know better, some of us boys built a large bonfire. We thought it fun to jump across until I slipped and fell into the flames.

Maybe we can all warn people of the danger of fire by haunting them as some of you have. It's worth trying, but now, comrades, the hour has passed. We must return to the spirit world.

(The "spooks" file out with a chorus of Oh-o-o-o's. Cautiously, both boys re-enter)

Albert: (excitedly) Zowie! Did you see that!

Frank: We heard plenty tonight.

Albert: Yes, but if we say anything we're caught. Anyway, who'd believe us?

Frank: You're right! We've learned many a lesson about fires, though. So let's be careful in our own homes.

Albert: A good idea! Right now I'm for getting home as fast as we can. So long, Frank.

Frank: 'Bye, Al.

(The boys run off opposite sides)

CURTAIN

As soon as the curtain is lowered, the principal or teacher steps out front again and says:

Fortunately, we overheard this conference, also, and we're not afraid to talk about it. We heard something that has an important message for everyone, because none of us wants to have his home burned or his family endangered. As you know, this is Fire Prevention Week, a time when thoughtful people everywhere are considering how they can make their homes safer against attack by fire. There were many helpful suggestions in the meeting to which we listened. We hope you will think about them and be guided by the important lessons pointed out.

Good Night

III. Judging Pupil Progress

A. Ability to tell four safety rules for matches.

B. Ability to give safety rules for holidays at school and improvement of personal safety habits at school.

C. Greater responibility for the safety of others.

January

GASOLINE

I. **Specific Aims to be Developed Through this Unit**

A. Simple Habits to be Acquired

1. Taking no chances with gasoline. It is most dangerous.
2. Keeping gasoline in tightly-covered cans painted red.
3. Keeping the gasoline can covered.

B. Essential Knowledge

1. Gasoline is a most important servant to man and is also one of the most dangerous hazards.
2. Gasoline in quantity should be kept in underground tanks.
3. No one should be allowed to smoke in a garage.
4. No one should be allowed to smoke in an automobile while the gasoline tank is being filled.
5. Water must not be thrown upon a gasoline or a kerosene fire. Use a chemical extinguisher or throw earth or sand upon it to try to smother the flame.
6. Thrift may be practiced by means of our fire prevention activities.

C. Appreciations and Attitudes to be Developed

1. An appreciation of the danger that may result from the careless use of gasoline.

II. **Teaching Procedures and Content**

A. Finding a starting point

1. Reports by pupils of fires and their causes.

B. Content—Gasoline

In Kentucky in 1938, there were 273 fires caused by accidents with gasoline and other petroleum products.

Gasoline is a liquid distilled from petroleum or obtained from natural gas. It is highly volatile, inflammable, and capable of rapid evaporation. It is used as a fuel for heating and cooking and as a source of power in internal-combustion motors, as in automobiles, motor boats, and airplanes.

As long as gasoline is kept under proper control it will drive motor trucks and automobiles. It will work on farms and cities. If it is not under proper control, it will take human life, burn down houses and cause explosions.

What do we mean by the words distilled, volatile, and inflammable?

If gasoline is standing in an open dish, it will dry up after a while, because it slowly changes into an invisible gas. Gasoline as a vapor is

extremely dangerous. When changing into vapor, gasoline expands so that one gallon will produce 8,000 cubic feet of gas, which means that a tank twenty feet square will be required to hold it. When this gas is mixed with air it becomes an explosive much more powerful than dynamite and more easily exploded. It would take eighty-three pounds of dynamite to do as much damage as the vapor from one gallon of gasoline. Why do people handle gasoline so carelessly?

Cleaning clothes and gloves with gasoline is an extremely dangerous practice, and one which has caused a great loss of life and property. The fumes of the gasoline spread out in all directions and, if they come into contact with a spark, an explosion instantly takes place. The inflammability of gasoline fumes is amazing. In one case, these fumes were carried outside a building to a lighted lamp thirty-feet away where they took fire and flashed back to the building which was destroyed. In another instance, the mere opening of a door between the room in which the gasoline was being used to clean gloves and a room in which there was a lighted lamp caused a destructive explosion.

The National Board of Fire Underwriters insists that gasoline must never be allowed to remain in an open vessel or any can or bottle that is not tightly corked.[1] According to this authority, gasoline should never be poured down a sink, because the fumes may pass through the sewer and come up through the sewer pipes in some other house.

Do not use gasoline for cleaning purposes in a room which has a light. In fact, all cleaning by gasoline, dangerous under any conditions, should be done by daylight and outdoors. It is still better to use some cleaning fluid which will not take fire.

Gasoline should be kept in a receptacle painted vermilion red, with the word "Gasoline" printed plainly in large letters.

When an automobile stops at a garage for gasoline, there is often a faint smell of gasoline in the air. This is an indication that there is a slight leakage somewhere. It is very dangerous for anyone to smoke in an automobile which is receiving gasoline.

The larger gasoline cans must always be kept away from the house. The safest place for gasoline in quantity is in an underground tank.

If a gasoline or kerosene fire should start, do not pour water upon it. Water will spread the flames. Earth or said may be thrown upon the fire to smother it. The use of a chemical extinguisher is also recommended. Sometimes a woolen rug or coat thrown on the fire will put it out instantly. It is advisiable to have a chemical extinguisher in every garage.

C. Content—Thrift

Do you realize that $875 worth of property was destroyed each minute somewhere in the United States in the Year 1929? Minute after minute, day after day, on the average, this appalling pace kept up, making a total of approximately $460,000,000 lost in 1929. Eighty per cent of the fires were preventable, and they were due to calelessness.

Not only for fire prevention but, as an activity in thrift, examine your cellar, attic, or closet. Clean out the old rubbish and the old stuff stored

[1] "Safeguarding the Home Against Fire," National Board of Fire Underwriters, 85 John Street, New York City.

away because "maybe some day you will find a use for it." The National Board of Fire Underwriters insists that many fires about the house are born in trash piles. A minute's thought now may save your treasures.

It is particularly fitting that we celebrate January 17th, the anniversary of Benjamin Franklin, the American apostle of thrift, as National Thrift Day. Let us aid in the conservation of human life and property by teaching and practicing fire protection and fire prevention.

D. Activities

1. Working out a fire prevention alphabet of rhymes or completing the following.

A is for alley which should be kept neat,[1]
So fires are not caused by scorching heat.

B is for basement which should be cleaned in daylight
Then you will never sleep restlessly because of fire at night.

C is for the criminal, you know,
If it gets a good start, away it will go.

D is for danger. We all must watch out
And always remember that fire is about.

E is for explosion caused by gas,
It has killed many people in the years gone past.

F is for fire which has caused great loss,
its great damage would make anyone cross.

— — — — — — — — — — — — — — — —

Y is for yard. Keep it tidy and clean,
Then at the head of the safety list your name will be seen.

Z is for zest we all should possess
And this would make great fire losses less.

2. Writing fire prevention jingles for English
The gasoline can must be placed right,[2]
If not, you will have a big fire to fight.

3. Correlating fire prevention lessons

a. English Themes
Common Causes of Fire.
How to Fight a Fire.
Lack of Fire-Fighting Apparatus.

b. Art

Lettering slogans and illustrating the fire prevention rhymes.

[1] Dean Stolz, District 48, Seward County, Nebraska.
[2] Robert Jeary, District 69, Seward County, Nebraska.

III. Judging Pupil Progress

A. Willingness to assume responsibility of keeping gasoline in the home in tightly covered cans painted red.

B. Knowledge of the danger of gasoline.

C. Greater responsibility in warning younger children about the dangers of gasoline.

February

ELECTRICITY, GAS, RADIO HAZARDS

I. Specific Aims to be Developed through this Unit

A. Simple Habits to be Acquired

1. Refusing to touch wires or anything else that may be charged with electricity.
2. Having all wiring done by an expert and careful electrician.
3. Turning off the current of electric devices if leaving for only a moment.
4. Making sure that lamps, stoves, and heaters that burn gas, and all pipes and their connections are well made, tight, and free from leaks.
5. Observing the rules for gas lights.
6. Opening doors and windows immediately when you smell escaping gas, then send at once to the gas company for someone to find the leak.
7. Refusing to look for a leak with a lighted match, lamp, candle, or flame of any kind.
8. Shutting off the gas at the meter if the gas expert is unavailable when you smell escaping gas.
9. Buying good rubber gas tubing. If you cannot connect with solid iron pipes, get a good quality of flexible metal tubing and make sure that it is holding tightly at both ends.

B. Essential Knowledge

1. Electricity is of our most valuable servants but its value and convenience should not lead us to forget that carefulness in its use is always a factor of safety.
2. Defective wiring, overloading of circuits, and carelessness with electric appliances are some of the chief, modern fire hazards.
3. A home fitted with electric lights and appliances may be a safe home if it is the home of careful people.
4. A leaky gas fixture or pipe, or a gas jet left turned on without being lighted is a deadly thing.
5. Carbon Monoxide gas from running cars in closed garages has caused many deaths.

C. Appreciations and Attitudes to be Developed

1. An appreciation of the importance of extreme care with electrical appliances.
2. Alertness to detect escaping gas when gas is used in the home.
3. Open-mindedness in studying the radio hazards.

II. Teaching Procedure and Content

A. Content—Electricity

Electric service is coming to Kentucky farms. Powerful, mysterious—beware of amateur wiring or unlabled materials or fixtures.

Electricity lights our streets and our houses. It runs our cars. It carries our messages and our voices. It furnishes power in thousands of factories. When properly employed, electricity is the safest form of light, heat, and power, but its abuse has made it one of the chief fire hazards in America, with an annual loss approximating fourteen million dollars, according to the National Board of Fire Underwriters. Electricity stands fifth in the list of known causes of fire. Electric wiring and all equipment should be installed in accordance with the provision of the National Electrical Code. A great meany fires occur from defective wiring, bad insulation, and poor switches.

Electric current will travel readily through some substances and these are called "good conductors." Other substances are "non-conductors," since they offer an obstacle to its passage. Some metals are good conductors while rubber and glass are example of non-conductors. The human body is a moderately good conductor. For this reason, it is dangerous for a person to touch trolley wires, electric light wires, or anything else which carries a heavy current. Children should never pick up wires that have fallen to the ground. It is dangerous even to lean against a pole supporting wires or to touch the guy wires of such poles; sometimes these become charged with enough electricity to produce a shock.

Fires due to electric current often break out behind walls or under floors where it is difficult to get at them.

Carlessness in the use of the electric current is the greatest hazard of all. Too often people leave the current of the electric flatiron turned on and a serious fire is caused. The National Board of Fire Underwriters receives reports of thousands of fires every year caused by electric flatirons, curling irons, plate warmers, and other electric devices. One should never leave any kind of an apparatus with the current turned on. It is unsafe to use electric light bulbs for warming beds or for drying clothing. A guest in a hotel recently hung a damp garment over a light bulb in order to dry it. The garment was soon burned to a crisp. If it had not been discovered, a serious fire would have resulted. It is unsafe to use paper or other inflammable shades on electric lights unless they are protected by asbestos or metal.

As a precautionary measure, adults should examine all exposed wiring and extension cords on lamps and appliances for worn insulation. Worn wiring should always be replaced. Extension cords should not be hung over wires or nails which will rub the insulation. If cords must be hung up, it is a good plan to make a loop of strong tape and run the tape over the hooks. Each member of the family should realize the importance of completely disconnecting the cord to appliances such as the electric iron and toaster.

The fuse box should be checked. Proper fuses which are the safety valves of the electric system should be installed. Wires or pennies should never be used. Lamp shades should be held at a safe distance from electric light bulbs. It is dangerous to use several appliances on one socket. An electric circuit is designed to carry only so much load.

Questions for discussion

(1) What is an electrical fuse and why is it used?
(2) Why is it dangerous to attempt to repair blown fuses?
(3) What is the danger of touching electric appliances while standing in water?

B. Content—gas.

Gas is used for lighting, cooking, and heating purposes. Gas stoves range from small gas fixtures to large ranges. It is always important to be sure that they are tight and well made for a hole or crack to small to be noticed will let gas escape. Gas in a room may cause death after it has been breathed for a short time or it may make with the air a mixture so explosive that a spark or a flame will cause a serious disaster.

A leaky gas fixture or pipe or a gas jet left turned on without being lighted is deadly. Many people are either killed or burned or blinded on account of leaky gas fixtures. In communities where gas is burned, safety habits, 5, 6, 7, 8, 9 for gas should be acquired.

Natural gas has no odor—hence escapes unnoticed. It should be artificially malodorized.

Texas School Tragedy—A terrific blast occurred on March 18, 1937, at the New London Texas school, blowing the building to pieces and killing 455 children. This explosion, described as the nation's worst school tragedy, occurred only a few minutes before dismissal time. Experts agreed that the explosion was caused by accumulated gas under the basement floor. One theory was that unburned gas from the near-by oil field had accumulated in the basement crannies and hollow tile and finally gave way to accidental ignition.

Gas Explosion—An ethylene gas explosion at Grainger Bros. on August 12, 1936, caused the death of four persons, injured two, and wrecked a portion of the building. It was reported that one of the persons who died had struck a match after being warned not to do so, thus causing the explosion of gas.

C. Content—Radio Hazards

The radio has introduced a fire hazard. The storage batteries and high voltage dry cells, commonly used, give off sparks hot enough to ignite any inflammable vapor and their connecting wires, if crossed, will generate enough heat to burn nearby combustible material. The use of house lighting circuits for aerials is also hazardous. There is danger of outside aerial and lead-in wires coming in contact with high power eectric service cables.

Receiving sets present a minimum of danger and may be rendered even less dangerous by observing a few reasonable precautions. "Outside antennae, for for instance, should never cross over or under any electric light or power wires carrying more than six hundred volts, or any railway or trolley feeder wires, nor should they be so located that the breakage of either of the antennae or such electric service cables could result in a contact. Inside antennae are considered harmless.

"A lead-in wire should be of copper or other approved metal, such as copper-covered steel, and should enter a building through a non-conbustible, non-absorptive insulating bushing. It should not come within four inches

of electric light and power wires unless separated from them by a continuous and firmly fixed non-conductor which will maintain permanent separation. A lead-in wire should always be provided with an approved protective device or lightning arrester, operating at a potential of five hundred volts or less, properly connected, and located either inside or outside of the building as near as practicable to the point where the wire enters the structure. The arrester should not be placed in the immediate vicinity of easily ignitible material or where it is exposed to inflammable gases or dust.

"The use of an antenna grounding switch is desirable but does not obviate the necessity for an approved protective device, and if a grounding switch is installed it should form a shunt around the arrester when closed.

"It is important that the set be well grounded; the wire used for the purpose may be bare or insulated and of copper or other approved metal. Number 14 B. and S. gage is the minimum size permitted for a copper ground wire and number 17 for copper-clad steel. The ground wire should be run in as straight a line as possible to a good permanent ground, water piping being given the preference for this purpose, although the steel frame of a building or other grounded metal work, artificial grounds such as driven pipes, plates, etc., may be utilized. Gas piping should never be used for grounding. The ground wire should be protected against mechanical injury and an approved clamp used where the wire is connected to piping.

"Wires inside of buildings should be securely fastened in a workmanlike manner and should not come within two inches of any electric light or power wires unless separated therefrom by some continuous and firmly fixed non-conductor making a permanent separation, and this non-conductor should be in addition to the regular insulation on the wire. Porcelain tubing or approved flexible tubing may be used, of course, for encasing wires necessary in order to comply with this rule.

Receiving equipment, known as A. C. sets, use the ordinary house lighting circuit for power. Many of the older sets also have rectifiers and transformers directly connected to the lighting circuit. All these connections should be of quality on a par with that used for house lighting.

"For transmitting stations the regulations are more stringent, since they employ high voltage current in their operations."[3]

"Experience has taught us that with an outdoor antenna, properly placed and connected, it functions somewhat similar to a lightning rod, taking from the air electric currents and passing them into the ground.

"The lightning arrestor placed in the antenna circuit, functions as a safety gate to the system, withholding and passing into the receiver the slight impulses, and discharging into the ground the heavier charges received from the air. When properly placed and constructed, danger from the air is remote.

"With storage batteries and rectifiers being placed in the home, fires can be averted by proper wiring and care as to use. It should be remembered that when using a rectifier to change your battery, you are bringing into the house at least 110-120 volts according to your location and the same precautions should be used as you take with your lighting circuit.

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[3] "Safeguarding the Nation Against Fire," published by the National Board of Fire Underwriters, New York.

"Do not place your antenna in such a position that by the breaking or sagging thereof, it could possibly fall upon any other wires and thereby bring into your home a heavy current. Do not place an outdoor antenna without a good lightning arrestor."[4]

(1) Name two fire hazards created by the popularity of radio.

(2) What is the chief hazard of radio receiving sets?

(3) Name an important point to be observed in setting up outdoor aerials.

(4) How may radio installations be safeguarded?

(5) Where should a radio set be grounded?

D. Activity—Writing Fire Prevention Jingles for English

If you are careless with an electric iron[1]
In a little while you will hear a siren.

A good way to prevent fires[2]
Is by checking your electric wires;
Be sure your connections are right
Before ever turning on a light.

III. Judging Pupil Progress

A. More care in the use of electrical appliances.

B. Greater altrtness in detecting escaping gas when gas is used in the home.

C. Knowledge of the use of the Prone Pressure Method in case of electric shock.

D. More interest in the study of radio hazards.

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[4] "Protection Against Fire—A Fire Prevention Manual for the School Children of Pennsylvania," prepared by Bureau of Fire Protection—Pennsylvania State Police.

[1] John Turek, District 41, Seward County, Nebraska.

[2] Bennie Eicher, District 73, Seward County, Nebraska.

March

FOREST FIRES

I. Specific Aims To Be Developed Through This Unit

A. Simple Habits to be Acquired

1. Reporting all forest fires immediately to the nearest fire warden, lookout watchman, or ranger.
2. Refusing to violate any of the State or Federal forest fire laws.

B. Essential Knowledge

1. There are three organizations responsible for controlling forest fires in Kentucky. The Kentucky Division of Forestry is responsible for fires occurring on State owned or private land; the U.S. Forest Service must protect the Cumberland National Forest from fire; and the National Park Service must control fires in the Mammoth Cave National Park.
2. Well defined State and Federal laws provide strict penalties for starting forest fires, either through carelessness, or intentionally.

C. Attitudes to be Developed

1. An appreciation of the work of forest officers and organizations in preventing fires.
2. Respect for the forest fire laws.

II. Teaching Procedures and Content

A. Content—Short review of October Unit.

B. Content—Typical fire control organizations. Normal fire seasons in Kentucky are October, November, and December in the fall and March, April and May in the spring. Sometimes fires occur throughout the winter months. During the summer and winter months fire control agencies are busy with fire prevention activities such as education, and preparing for the fire seasons by building and repairing lookout towers, telephone lines, roads and trails, and training men.

Lookout towers are needed to detect fires, and the towers must be connected by telephone or radio to the headquarters of wardens or rangers. When a fire is discovered the lookout watchman telephones or radios to the nearest warden, who immediately takes his crew to the fire.

C. Content—Agencies Responsible for Forest Fire Control.

1. Kentucky Division of Forestry.

The Division of Forestry, of the Department of Conservation, Commonwealth of Kentucky, is the state agency responsible for the protection and development of state and private forest land. The Division gives protection from forest fires to approximately 1,000,000 acres of privately owned timberland in twelve southeastern and two western counties. Although protection is being extended to other counties as rapidly as funds permit, almost 7,000,000 acres of private timberland are without any sort of protection.

During fire seasons the Division operates 19 lookout towers. which are connected by telephone lines to the headquarters of six Chief Wardens, and several hundred Deputy Wardens. In 1939 it suppressed 548 fires.

2. Cumberland National Forest.

The Cumberland National Forest is owned by the Federal Government, and administered by the United States Forest Service, Department of Agriculture. Its headquarters are at Winchester, Kentucky.

The Forest boundary embraces all or portions of seventeen eastern counties lying along the Cumberland Plateau, extending from the vicinity of Morehead southwest through Frenchburg, Bowen, McKee, Livingston and Stearns to the Tennessee State line; it includes a gross area of 1,300,000 acres, of which approximately 430,000 acres had been acquired on July 1, 1940. More than 1,000,000 acres inside the exterior boundary are protected from fire.

Twenty-four lookout towers are operated and radio is used to supplement the telephone system. A complex system of measuring fire weather hazards is in use, and enables the fire control organization to anticipate fire danger.

3. Mammoth Cave National Park.

The Mammoth Cave National Park is operated and protected by the National Park Service, United States Department of Interior. It lies in Edmonson, Hart and Barren Counties and contains approximately 40,000 acres. A completely modern fire control organization is maintained to protect forest and fields within the area.

D. Content—Forest Fire Laws.

Synopses of State Laws.

1. $500 to $1,000 fine, and one to two years imprisonment in penitentiary for willfully, intentionaly or maliciously firing the woods.
2. $10 to $100 fine, and 10 days to six months imprisonment for:
   a. Unlawfully setting fire to weeds, fence, grass, straw or other thing capable of spreading fire on land.

b. Negligently setting any woods on fire, whereby damage is done to lands or property of another.

3. $10 to $100 fine, and up to 90 days imprisonment for starting a fire in or near any road or woods and failing to control or totally extinguish it before leaving.
4. $10 to $50 fine, and 10 days to six months imprisonment for destroying, defacing or removing forest fire signs, notices or posters.
5. $5 to $50 fine for refusing or neglecting to assist in extinguishing forest fires, or to allow the use of required equipment or materials.
6. Every owner of timberland in Kentucky is required by law to furnish a forest fire patrol for such lands during the fire seasons, which patrol must meet with the approval of the Kentucky Division of Forestry.

E. Activity—"Show Me Trip" to Fire Lookout Tower.

F. Activity—Classroom trip to county court to see fire law cases prosecuted.

III. Judging Pupil Progress

A. Greater responsibiity in reporting forest fires to proper authorities.

B. Extreme care with matches, and in building camp fires and bonfires.

C. Greater interest in reporting newspaper accounts of prosecutions of forest fire laws, etc.

IV. Teaching Aids

The several agencies responsible for forest fire control in Kentucky have available certain facilities which will be useful teaching fire prevention. These aids consist of literature, posters, displays, motion pictures, lantern slides, etc. For information concerning them the teacher should appy to one of the following sources:

1. Local warden or ranger.
2. Director, Division of Forestry, Frankfort, Ky.
3. Supervisor, Cumberland National Forest, Winchester, Ky.

NOTE.—Material for this unit prepared by Kentucky Division of Forestry in cooperation with United States Forest Service, Department of Agriculture.

What to Do in Case of a Fire

It is most important that one should keep cool. You should not get excited in case of a fire. Act quickly, but know what you are doing. If it is only a little blaze, throw water upon the burning article or try to smother the flames with a heavy woolen rug, or beat them out with a wet broom. If oil is burning, do not pour water on the flame, as this only spreads the fire and makes the fire worse. For an oil fire, use sand or earth or big panfuls of flour. If you cannot put the fire out alone, call for help by shouting "Fire!" and then call the fire department. If you leave the house to call for help be sure to close the door, since the fresh air will make the flames burn faster and spread them more rapidly. If the fire is in one room, try to keep it there by closing the doors and windows. After you have given the alarm, try to save what you can. Ask your father and mother what articles should be saved first in the event of a fire.

If you are awakened in the night by the smell of smoke, do not stop to dress. Wrap yourself in a blanket or quilt and awaken everyone in the house.

If the fire is on the lower floor, do not go upstairs.

"If the halls are filled with smoke, you can pass through them more easily by crawling on your hands and knees, for the smoke and hot air rise toward the ceiling, and the air is cooler and purer near the floor.

"If it is necessary for you to go into a room that is filled with dense smoke, tie a wet towel over your nose and mouth. If you have no time to do this, hold a heavy woolen cloth over the lower part of your face. . . .

"If the lower part of the house is on fire and you cannot go down the stairs, prepare to escape through the window, but do not jump out recklessly. First of all, close the door to keep out the fire and smoke as long as possible. Then drop the mattresses and pillows to the ground so that they will ease your fall. If possible, tie the sheets firmly together to make a rope. Fasten it securely to the bedpost, after you have drawn the bed close to the window, and then, when it is absolutely necessary, let yourself down, hand over hand. This is a dangerous method of escape, and should only be used as a last resort. Try to wait for the firemen to rescue you.

"If you see a fire, no matter how small, give it immediate attention. . . . After the fire is all out, the next care should be to protect the house and its contents from further damage by fire, water, or theft."[3]

D. Content—First Aid

The Prone Pressure Method of Resuscitation[4]

(Follow These Instructions Even if the Patient Appears Dead)

"As soon as possible feel with your fingers in the patient's mouth and throat and remove any foreign body (chewing gum, false teeth, etc.). If the mouth is tight shut, pay no more attention to it until later. Do not stop to loosen the patient's clothing, but immediately begin actual resuscitation. Every moment of delay is serious. Proceed as follows with:

STANDARD TECHNIQUE

(1) Lay the patient on his stomach, one arm extended directly overhead, the other arm bent at elbow and with the face turned outward and resting on hand or forearm, so that the nose and mouth are free for breathing.

(2) Kneel, straddling the patient's thighs, with your knees placed at such a distance from the hip bones as will allow you to place the palms of the hands on the small of the back with fingers resting on the ribs, the little finger just touching the lowest rib, with the thumbs and fingers in a natural position, and the tips of the fingers just out of sight.

(3) With arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the patient. The shoulder

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[3] "Firebrands" by Martin and Davis; Little, Brown & Co. Permission granted.

[4] Published Jointly by American Gas Association, Edison Electric Institute, 420 Lexington Avenue, New York City.

should be directed over the heel of the hand at the end of the forward swing. Do not bend your elbows. This operation should take about two seconds.

(4) Now immediately swing backward so as to completely remove the pressure.

(5) After two seconds, swing forward again. Thus repeat deliberately twelve to fifteen times a minute the double movement of compression and release, a complete respiration in four or five seconds.

(6) Continue artifical respiration without interruption until natural breathing is restored, if necessary, four hours or longer, or until a physician declares the patient is dead.

(7) As soon as the artifical respiration has been started and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest or waist. **Keep the patient warm.** Do not give any liquids whatever by mouth until the patient is fully conscious.

(8) To avoid strain on the heart when the patient revives, he should be kept lying down and not allowed to stand or sit up. If the doctor has not arrived by the time the patient has revived, he should be given some stimulant, such as one teaspoonful of aromatic spirits of ammonia in a small glass of water, or a hot drink of coffee or tea, etc. The patient should be kept warm.

(9) Resuscitation should be carried on at the nearest possible point to where the patient received his injuries. He should not be moved from this point until he is breathing normally of his own volition and then moved only in a lying position. Should it be necessary, due to extreme weather conditions, etc., to move the patient before he is breathing normally, resuscitation should be carried on during the time that he is being moved.

(10) A brief return of natural respiration is not a certain indication for stopping the resuscitation. Not infrequently the patient, after a temporary recovery of respiration, stops breathing again. The patient must be watched, and if natural breathing stops, artificial respiration should be resumed at once.

(11) In carrying out resuscitation it may be necessary to change the operator. This change must be made without losing the rhythm of respiration. By this procedure no confusion results at the time of change of operator and a regular rhythm is kept up.

The above Standard Technique is approved by American Gas Association, American Red Cross, American Telephone & Telegraph Company, Bethlehem Steel Corporation, Edison Electric Institute, National Electric Light Association, National Safety Council, United States Army (Office of the Surgeon General, War Department), U. S. Bureau of Mines, U. S. Bureau of Standards, United States Navy (Bureau of Medicine and Surgery), U. S. Public Health Service.

EXPLANATORY NOTES

General Points to Be Observed in all Cases Requiring Resuscitation

Take Care of the Patient

An unconscious person becomes cold very rapidly, and chilling means a further strain on a vitality already weakened. Experience has shown

that the cold to which the victims of gassing, electric shock, or drowning are often carelessly exposed is probably the most important cause of pneumonia, and this disease is the most dangerous after-effect of all these accidents. As far as possible, keep the patient covered and warm both during and after resuscitation. Use hot pads, hot water bottles, hot bricks, radiant heaters or other similar means, but remember that an unconscious man has no way of telling you when he is being burned.

Do not permit the patient to exert himself. If it should be necessary to move him, keep him lying down.

Medicines and Medical Help

Never give an unconscious man anything to drink. It may choke him. Medical science knows no drug which of itself will start the breathing in a patient whose breathing has ceased.

There is great danger of prematurely ceasing resuscitation. Breathing has been re-established after eight hours of resuscitation in cases of electric shock and of gas asphyxiation. Therefore, the ordinary and general test for death should not be accepted, and any doctor should make several very careful examinations and be sure specific evidence, such as the onset of rigor mortis, is present before the patient is pronounced dead and resuscitation is stopped.

Gas Poisoning and the Inhalation Treatment

What Carbon Monoxide Does

The reason that automobile exhaust gas, the gases from coal heating furnaces, the smoke from fires, producer gas, coke oven gas, blast furnace gas, carburetted water gas, coal gas and other manufactured gases are poisonous if actually breathed is that they all contain carbon monoxide.

When carbon monoxide is breathed it combines with the blood. The more carbon monoxide there is in the blood, the less oxygen the blood will hold.

The gas victim becomes asphyxiated just as if he were being gradually choked to death. As low as one-tenth of 1 per cent of carbon monoxide, or even less, in the air will kill a man in time; 1 per cent will kill in a few minutes.

If the patient does not die in the gas but is removed to fresh air, the carbon monoxide leaves the blood in a few hours. The quicker it is breathed out of the blood, the better are the chances of recovery. If the asphyxiation has not been too long or severe, and the first aid treatment has been prompt and correct, the patient will recover completely.

Protect Yourself

Do not breathe gas yourself even for a short time. If it does not overcome you, it will cut down your strength. If you have to go into gas to get a man out, remember that nobody is immune. Protect yourself.

A hankerchief tied about the nose and mouth is not a gas mask; many have died in the belief that it is. It does not stop carbon monoxide; it simply filters off the irritating fumes in smoke, but carbon monoxide

itself does not irritate the throat and has no smell. It gives no warning. It often paralyzes the legs first, and so suddenly that the man even though conscious may fall down, and cannot walk or crawl.

If you must go into gas or smoke, wear a mask equipped with an air hose, or an oxygen breathing apparatus.

Get the Man Out of Gas

When a man is overcome by gas, the first thing to do is to get him into fresh air quickly. Fresh air does not mean out of doors in cold weather. Many men have walked from a warm room containing gas to collapse in the cold outside air. Take the patient to a room free from gas and comfortably warm. Be quick, but do not be unnecessarily rough. Remember you are dealing with a human being.

If the patient is not breathing or is breathing weakly, start artificial respiration at once and have someone else telephone the utility company for an inhalator to be used in conjunction with artificial respiration.

The Use of Inhalation to Drive Carbon Monoxide Out of the Blood

In gas poisoning oxygen used properly helps to drive the carbon monoxide from the blood. Sometimes the patients do not breathe well after they are brought out of the gas. In fact, some stop breathing entirely. Even those who breathe normally often cannot get the gas out of their blood fast enough to prevent their being very sick or even dying afterwards. Pure oxygen does not stimulate the breathing. For this reason it is recommended that a mixture of about 5 per cent of carbon dioxide and 95 per cent oxygen be used. The carbon dioxide content causes the patient to breathe much more deeply, and thus allows the oxygen to drive the carbon monoxide out of the blood very rapidly. The carbon dioxide also keeps the breathing from stopping. It starts breathing more quickly in those on whom it may be necessary to do artificial respiration. It is useless to try to give an inhalation with a tank and funnel or any such make-shift. An approved inhalator, with its oxygen-carbon dioxide tank and close fitting mask must be used.

It should be distinctly understood that the inhalator is an aid to resuscitation and does not take place of the Prone Pressure Method. The two may be used simultaneously until the patient breathes without assistance after which the inhalation may be continued if necessary.

General Directions for Giving the Inhalation Treatment

Without interrupting the rhythm of respiration, an assistant should put the mask over the patient's nose and mouth. The lower part should go well down on the chin. Press down firmly over the nose. Try to prevent leaks.

As soon as the mask is properly applied, adjust the apparatus to give the patient an ample supply of the oxygen-carbon dioxide mixture. In any case continue the inhalation for at least twenty minutes. In severe cases the inhalation should be prolonged. In using the inhalation treatment, the patient should be kept in the prone position, and when treat-

ment is prolonged a better chance for recovery is given if the head is six or eight inches lower than the feet. This position promotes the flow of blood to the heart.

Electric Shock

Breaking the Contact

The victim must be freed from contact with the live conductor as promptly as possible. Use a dry stick, dry rope, dry coat or other non-conductor. Use of your own hands without protection is dangerous and may add another victim to the accident.

The Action of the Electric Current

In electric shock the current may pass through the breathing center at the base of the brain and cause this center to stop sending out the nervous impulses which act upon the muscles responsible for breathing. As a consequence, breathing stops abruptly. If the shock has not been severe, after a time the breathing center recovers and resumes the vitally necessary duty of sending impulses to the muscles of breathing. In such cases the immediate use of the prone pressure method substitutes this artificial breathing for the natural respiration of the patient. As has been pointed out, the current may so paralyze the breathing center as to require eight hours for recovery, and the prone method must be used unceasingly through this entire time.

Victims of electric shock of this sort are unconscious, but in them the heart and blood circulation continue. Their treatment demands artificial respiration with the greatest possible promptness. The method for giving this and the general points for the care of such patients have been given.

In some cases the electric current affects the heart. Under these circumstances the heart suddenly ceases to pump blood. Many cases of electric shock escape this heart effect, and even an experienced examiner requires time to assure himself it has occurred. Consequently it is the duty of those first reaching the shocked person to give artificial respiration by the prone method at once and to continue until natural breathing is restored or until the onset of rigor mortis.

Drowning

In a case of drowning favorable for resuscitation, breathing has ceased, but the heart beat and the circulation of the blood continue.

Start artificial respiration at once. The pressure you must exert is the best means of forcing water out of the lungs and breathing passages. If, during artificial respiration, the body can be placed on a door or other flat surface, so that the head and chest are six to eight inches lower than the feet, drainage of water from the air passages will be assisted and the circulation of the blood improved.

Pay particular attention to maintaining warmth. The wet body chills rapidly.

FIRST AID, TREATMENT OF BURNS

"When the flesh is burned or scalded, the first object of treatment is to relieve the pain.

"This is best accomplished by excluding all air from contact with the injured surface, either by dredging the part thickly with flour, if the skin is not broken, or by applying bandages. The best bandages are made of lint, cotton, or soft cloths moistened with water, or, better still, with water to which a little baking-soda has been added.

"Be especially careful to remove all clothing covering a burn with the utmost care. Never try to pull it off. Cut it away, a tiny piece at a time if necessary, so that the skin may not be broken and thus cause a more serious wound. Never hold a burn in front of the fire, as this only makes matters worse. As soon as the clothing has been removed apply the bandages, and if the burn is at all serious send for a physician.

"If the person receives serious burns, he may become faint or lose consciousness from the effect of the shock to the nervous system. If this occurs, lay him flat on the floor or couch; preserve all body heat by covering him with warm clothing; apply cool applications to his head and heat to his feet."[4]

III. Judging Pupil Progress

A. Greater appreciation of the efforts of firemen and of their willingness to sacrifice in order to protect lives and property from fire.

B. Greater confidence in one's self in time of emergency.

C. Ability to follow instructions, or to give instructions, regarding the Prone Pressure Method of resuscitation.

D. Knowledge of the danger of carbon monoxide gas.

[4] "Firebrands" by Martin and Davis; Little, Brown & Co. Permission granted.

April

CLEAN-UP MONTH

I. Specific Aims to be Developed Through This Unit

A. Simple Habits to be Acquired

1. Keeping things tidy and not allowing rubbish to accumulate anywhere in the house or near it.
2. Keeping oily rags in a metal box or a can with a cover. If you learn that anyone is keeping oily rags outside of metal containers, attention should be called to this hazard.
3. Burying leaves and not burning them. Do not pile dead leaves against anything that will burn. They sometimes ignite.

B. Essential Knowledge

1. Spontaneous combustion is a fire that starts itself. It has been discovered that cotton waste, oily rags, moist hay, and certain other things, if left to themselves, grow hotter and hotter and finally burst into flame.

C. Attitudes to be Developed

1. An appreciation of the danger of rubbish collecting in houses.
2. An appreciation of the need of cleanliness and tidiness.

II. Teaching Procedures and Content

A. Repeat the inspections suggested in the October lesson.

B. Inspecting the school.

SUGGESTED FORM OF SCHOOL INSPECTION BLANK[1]

Name of school.....

Student inspector .....Date.....

Class or year .....Grade.....

(1) Type of building construction.....Number of stories.....

Number of rooms.....Roof material.....

Date school built.....Number of additions.....

(2) Are stairways enclosed?.....Can they be reached easily?.....

(3) Are fire escapes obstructed or out of order?.....Are they used in fire drill?.....

(4) Are all exits clear?.....

[1] National Board of Fire Underwriters.

(5) Do doors to the outside open out as required by Kentucky law?.....

(6) Are doors equipped with panic locks?.....

(7) Are aisles obstructed?.....

(8) Can water pails, standpipes, hose, and fire extinguishers be reached easily?.....Are they in good condition?.....

(9) Is the fire alarm system operative?.....

(10) When was the last fire drill?.....

(11) How often are fire drills held?.....

(12) How long did it take to vacate the school?.....

(13) Where is the nearest fire alarm box?.....

(14) If your school teaches home economics, is fire prevention a part of the course?.....

(15) Are there accumulations of dirt or rubbish on the premises?.....

(16) Is the basement clean?.....Is the attic clean?.....

(17) Is there unnecessary combustible material in the yard or court?.....

(18) Are there any temporary buildings or other exposures in the yard?.....

(19) Is there any oily waste or other greasy material outside of ap proved waste cans?.....

(20) Are waste receptacles empties daily?.....

(21) Does heating equipment appear to be in good condition?.....

(22) What disposition is made of ashes?.....

(23) Do chimneys, flues, and boiler pipes seem in good condition?..... Are they cleaned regularly?.....

(24) Is there any combustible material near steam pipes, boilers, flues, or furnace?.....

(25) Is fuel supply safely stored?.....

(26) Are there any open flame lights near combustible material?.....

(27) Are there any broken electric fixtures or loosened wires?.....

(28) Are electric cords looped over nails or in contact with any other metallic objects or surfaces?.....

(29) In manual training and laboratory classes, are there strict fire prevention requirements?.....

Remarks and Recommendations:.....

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Note: This blank is intended for the education of students and is not suitable for complete inspection of the school building. It is important, however, that actual hazardous conditions found by the students be remedied.

C. Content—Fires caused by Spontaneous Combustion

(1) Fires caused by spontaneous combustion alone cost more than twenty million dollars a year in the United States.

(2) A new house was completed last year. A workman had wiped the woodwork with oily cloths, and had left the cloths in the hall. At 3 o'clock the next morning that beautiful new home was ablaze.

(3) Reports by pupils on fires caused by spontaneous combustion.

D. Clean-Up Day Activity

1. Plan for a Clean-Up Day.
2. Make posters advertising Clean-Up Day.
3. Have pupils list tasks for Clean-Up Day.
4. Divide the school into committees.
5. Assign certain tasks in the building to certain committees.
6. Assign certain tasks on the school ground to certain other committees.
7. Close Clean-Up Day with a wienie roast

E. Activity—Writing Fire Prevention Songs

Tune—"My Bonnie"[1]

There was a careless woman
Who left oiled rags around
One day they caught on fire
And burned her house to the ground
Carelessness, Carelessness,
We must fight it every day.
Carelessness, Carelessness,
We must fight it every day.

Tune—"Comin' Through the Rye"

If a body start a bonfire,
He must put it out;
If a body neglect a fire,
There's grief beyond a doubt.

Chorus.

Everybody knows that bonfires
Can't be built for fun;
So keep the children from the blaze,
Pledge safety, every one!

SAFETY FIRST SONG

(Tune—"Mulberry Bush")

This is the way we march for fire drill,
March for fire drill, march for fire drill,
This is the way we march for fire drill,
And work for safety first.

We're the group who don't play with matches,
Don't play with matches, don't play with matches,
We're the group who don't play with matches,
We work for safety first

[1] Donald Heese, Logan Center School, Cedar County, Nebraska.

This is the way we'd smother out fire,
Smother out fire, smother out fire,
This is the way we'd smother out fire,
And work for safety first.

We are the boys who don't shoot firecrackers,
Don't shoot firecrackers, don't shoot firecrackers,
We are the boys who don't shoot firecrackers,
We work for safety first.

We are the guards who stay away from bonfires,
Stay away from bonfires, stay away from bonfires,
We are the guards who stay away from bonfires,
We work for safety first.

This is the way we put out matches,
Put out matches, put out matches,
This is the way we put out matches,
And work for safety first.

For upper grade children.

This is the way we march for fire drill
March for fire drill, march for fire drill,
This is the way we march for fire drill,
And work for safety first.

We are girls who don't use kerosene,
Don't use kerosene, don't use kerosene,
We are girls who don't use kerosene,
When we are starting a fire.

We are the boys who don't handle firearms,
Don't handle firearms, don't handle firearms,
We are the boys who don't handle firearms,
We work for safety first.

(Additional stanzas to be added by teacher and children.)

NOTE.—The teacher may have the children dramatize this song while they are singing it. For example, in the stanza "This is the way we smother out fire" the pupils may play that they are smothering out fire with woolen rugs or the children may sing the stanza while one of the boys wraps himself in a rug or coat, lies down, and rolls over and over on the floor.

III. Judging Pupil Progress

A. Greater care of matches.
B. Greater interest in the condition of flues.
C. Greater care in preventing the accumulation of rubbish and ashes.
D. Participation in the activities of Clean-Up Day.

May

PREVENTING FIRES ON THE FARM

PROGRAM DISCUSSION MATERIAL FOR COMMUNITY MEETINGS

Introduction

Nearly one hundred farm buildings in the United States and Canada burn each day. Approximately thirty-five thousand farm buildings burn each year. Farm buildings are usually not protected by fire departments and water systems. For this reason, they often burn to the ground. Approximately three thousand five hundred people are burned to death in rural fires each year. Nearly one-third of the national fire loss occurs on farms and in rural communities.

The fire loss on the farm is a challenge to all progressive communities. Just as vaccination and certain preventive methods have reduced illness, so fire prevention should become a goal to be attained at an early date.

"One source not generally recognized is the decaying or spontaneous ignition of hay, straw and fodder. In fresh products, grass, hay, clover, maize, leaves, millet leaves, turnip tops, foliage, etc., the vegetable cell retains its vitality for some time after cutting; when piled up in stacks, mows or silos in a manner to retain moisture, respiration continues and is accomplished by the generation of heat. All agricultural products contain seeds, the latter in germinating also develop heat and the combined heat continues until the increased temperature develops into fire, resulting in the destruction of buildings."[1]

Some communities have organized fire protection. By means of good roads, telephone service, and fire-fighting machines, fire control in rural districts is possible. Every farm should have a reserve emergency water supply. Every community should plan for a regular neighborhood survey of farm fire risks. The rural community should work to eliminate fire.

Warnings are of little avail in making children careful. Constant training and encouragement are necessary in order to establish in them the habits that will safeguard them from accidents. If we are going to safeguard the children, we must first look to ourselves and make sure that our habits bear inspection, for safety is largely a matter of imitation and perhaps in no other field is imitation stronger. If you start the fire with kerosene, you may be sure that your daughter is going to do the same thing when she gets the chance. If you are careless about matches, how can you expect the children to be careful? The responsibility of fathers and mothers for their children's safety is twofold, namely:

1. Making the conditions around them as safe as possible by the removal and correction of hazards.

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[1] Fire Prevention Manual, Pennsylvania.

2. Training the children in safety habits and principles.

Communities which have no organized fire protection should investigate the work which such rural fire companies are doing. If we eliminate all fires which are caused by carelessness and thoughtlessness, we will have accomplished a great deal toward fire prevention.

Topics for Discussion

1. Lack of Fire-Fighting Apparatus.
2. Fire Hazards Leading to Conflagrations.
3. Electrical Hazards.
4. Fire Protection for the Home Itself.
5. Fire Protection for the Rural Community.

Suggested Questions and Answers to be Discussed by Patrons

(Write questions on paper and pass around to patrons to be used as a basis for informal discussion.)

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1. What are the causes of the majority of farm fires? Are these largerly preventable?

The majority of farm fires are due to the following causes—all largely preventable: lightning, defective chimneys and heating apparatus, matches and smoking, combustible roofs, spontaneous ignition, gasoline, kerosene, and electricity.

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2. How can we prevent fires from chimneys and defective heating apparatus?

We should rebuild all defective chimneys and see that all heating apparatus is properly installed. Chimneys, flues, stoves, etc., should be kept clean. Defects in chimneys and heating apparatus cause most of the fires in rural homes but are easily prevented. The chimney should be constructed from the ground up, not depending for its support upon any wooden construction and not to be used to support any part of the house itself. The chimney should be substantially constructed with walls preferably eight inches thick. Frequent cleaning will offset some of the hazard of a chimney with walls too thin, where it is not feasible to rebuild it. Stoves should be placed on substantial bases, well away from floors, woodwork, and walls. Smoke pipes should be short and should be a foot or more away from combustible materials. Ashes should be placed in metal cans and not in wooden boxes or against woodwork.

3. How can we prevent fires from matches and smoking?

We should keep farm premises clean and tidy and we should build with incombustible materials as far as possible. No smoking should be allowed in barns.

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4. How may we prevent farm fires from lightning?

We should provide all buildings with proper lightning protection equipment. It is important that lightning rods be properly installed and well maintained. A substantial metal roof with all parts thereof

in good electrical contact can, according to available evidence, be utilized as a part of the lightning protection system for a building and thus, in part, be made to serve a double purpose. The cost of grounding the roof and making other necessary electrical connections is relatively small.

Livestock should be protected from lightning by grounding at reasonable intervals all wire fences enclosing pastures or yards.

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5. How can we prevent fires from combustible roofs?

There are many fires involving the entire destruction of farm buildings caused by sparks on wooden shingle roofs from chimneys, bonfires, locomotives, and forest or other fires. Wooden shingles ignite very easily. We should use fire-resistive roofing.

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6. How may we prevent fire from spontaneous ignition?

We should thoroughly cure hay, pea vines, and other roughage before stacking in barns. Where slightly damp hay is stored, a sprinkling of salt is useful to retard fermentation. We should use from three to ten pounds of salt per ton of hay, according to its dampness. Non-cured hay continues to live for some time after it is cut and heats when stacked in large piles.

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7. How may we prevent fires from gasoline and kerosene?

We should provide proper facilities for the storage and handling of gasoline and kerosene. The safest way to store gasoline is in underground tanks. If gasoline cannot be stored underground, it should be used from small tanks in the open or in a special building at least fifty feet from other buildings. Gasoline is dangerous for home dry cleaning and kerosene should not be used for starting fires.

8. How may we prevent fires from electricity?

We should make sure that all electric wiring and devices are properly installed. Electric lights reduce the fire hazard if the wiring is done according to the best practice as indicated by the National Electrical Code and if appliances are used properly. We should watch for worn insulation.

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9. Suggest fire protection for the farm itself.

We should provide first aid fire appliances such as chemical extinguishers, pump tanks, and water pails. We should provide, where possible, a system of running water under pressure. Even garden hose provides valuable protection for the home so equipped. Especial attention should be given to keeping extinguishers charged and other fire equipment in good working order.

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10. What plans may be suggested for fire protection for the rural community?

(1) Purchase adequate motor fire apparatus and accessory equipment. With the development of good roads and motor fire apparatus, a rural fire department may be realized. Funds have been raised by subscription, taxes, or entertainments.

(2) Organize and train a volunteer fire department.

(3) Study the community with respect to available water supplies from ponds, streams, and the like. Provide suction pipe lines and hydrants wherever necessary to insure quick action in getting water to fight a bad fire. With chemical and water tanks, a pump and hose, a piece of fire apparatus can be quite effective even when there is no other water supply available. Where there are streams or ponds, these may be drawn on for water. Even a well will provide water for a short time and may be the means of preventing a serious fire. The water or chemical tanks on the apparatus provide a means for making an immediate attack on a fire as soon as the apparatus reaches it and, in many cases, before this primary supply is used up the pump can be connected to some available water supply.

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11. Read the list of causes of fires in 1937 as given in the September lesson in this bulletin.

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12. Give a report of a serious fire. Could it have been prevented? How?

13. Discuss fire hazards in your local community.

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14. Suggest ways and means of elimination of fire hazards in your local community and plans for fire prevention.

NOTE.—Reference consulted for this discussion is "Preventing Farm Fires" by National Fire Protection Association.

MOTION PICTURES ON FIRE PREVENTION

A list of motion pictures on "Fire Prevention and Protection in the United States" has been prepared by Committee on Visual Education, National Fire Protection Association, International, 60 Batterymarch Street, Boston, Massachusetts. Write for a revised list.

For fire films, write to Visual Education Committee of the National Fire Protection Association—Richard E. Vernor, Chairman, Box 1089, Chicago, Illinois. (Room 900, 222 West Adams Street.) Two of the films available from this company are: "A Modern Zeus"—12 inches and available on both 16mm. and 35mm. stock. Has to do with lightning and issued by the General Electric Co., Schenectady, N. Y. (1 River Road), and 1938 edition of "Fires in Review"—1 reel 35mm. sound (same description as No. 10).

Films are also available from United States Department of Agriculture. These films are on 35mm. safety stock, and are controlled by the Office of Motion Pictures, United States Department of Agriculture, Washington, D. C. One of the films available from this company is "Dangerous Dust"—1 reel 35mm. sound; sponsored by the Bureau of Chemistry, U. S. Department of Agriculture.

Extract—"You will note that our films are issued chiefly for use among the extension and field workers of this Department, and the

cooperating state institutions. However, when available, they may be loaned to other institutions and organizations, such as community clubs, schools, churches, etc.

"In requesting loan of films, definite dates and periods of loan should be stated, and applications should be placed from three to four weeks in advance of proposed exhibition. It is advisable to give a list of several alternative subjects in order of their preference so that substitutions may be made if necessary.

"There is no charge for the use of our films except the cost of transportation, which borrowers are required to pay both ways."

Other distributing agencies are: National Board of Fire Underwriters, 85 John Street, New York, New York, and Underwriters' Laboratories, Inc., 207 East Ohio Street, Chicago, Illinois.