

● Commonwealth of Kentucky ●

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FIRE PREVENTION MANUAL



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BOSWELL B. HODGKIN

Superintendent of Public Instruction

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W. L. MA

Commonwealth of Kentucky

**FIRE PREVENTION
MANUAL**

Course of Study for Kentucky
Boys and Girls

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EARLE C. CLEMENTS.....*Governor*

BOSWELL B. HODGKIN.....*State Superintendent Public Instruction*

W. L. MARTIN.....*State Fire Marshal*

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INTRODUCTION

Fire prevention is more and more becoming an important consideration in safety of children.

The State Department of Education is insisting insofar as it is possible that school buildings be constructed which are resistant to destruction by fire. It is a rare instance when it is found necessary to approve a building with more than one story that is not of a fire-resistive construction in walls, floors, stairways and ceilings. Every effort is being made to construct buildings of fire-resistant material. Even though this precaution is taken in erecting the building, equipment and furnishings must be such that buildings will frequently be destroyed by fire.

The State Department of Education recognizes with pleasure the program of fire prevention being put into effect by the State Fire Marshal and his co-workers. It is glad to cooperate in this program and to emphasize at all times safety education.

Section 227.030, paragraph 6, KRS, provides that fire prevention be taught in all public and private schools at least once each week and that fire drills be held in said schools at least once each month and that all doors and exits in schools and public places open outward and be kept unlocked while the places are occupied for school or public purposes.

The material contained in this bulletin has been arranged for use in instructing sixth grade pupils in fire prevention.

This department considers it of utmost importance that all teachers and school officials give definite instruction in the principles of fire prevention and safety as outlined in this publication. It is believed that through the teaching of this material our boys and girls will prevent fires, form habits of carefulness and thereby conserve both material and human resources of their respective communities.

BOSWELL B. HODGKIN
Superintendent Public Instruction

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FOREWORD

The purpose of this publication is to educate the children of Kentucky in Fire Safety.

Our children will inherit the assets of the richest nation in the world. Fire can rob them of vast natural resources, destroy homes, retard business enterprise, and take an ever increasing toll of lives.

Our children must be made aware of fire hazards and should develop habits and skills of safe action in the presence of destructive fires. Such training will develop character traits which will result in proper attitudes toward law enforcement and better citizenship.

This book contains the story of fire—both as friend and enemy of mankind. Interest is sustained by stories and legends, with pupil activity for each lesson. It has been carefully arranged and edited by the Fire Education Program Director of the State Fire Marshal's Office.

The suggestions of principal, teachers and pupils toward improving it will be welcomed, since the Department of Education plans to distribute it later as a free textbook. We recommend that each pupil should keep a fire prevention work book for lesson comments, newspaper clippings and pictures about fires.

Material from all available sources was studied in preparing this manual. Fire Marshals from other states, Fire Chiefs in many large cities and prominent educators rendered valuable assistance. We also wish to express appreciation to the National Board of Fire Underwriters, 85 John Street, New York, New York; the Western Actuarial Bureau, Box 1089, Chicago, Illinois; and the National Fire Protection Association, 60 Batterymarch Street, Boston, Massachusetts. These organizations will furnish teachers with additional material upon request.

W. L. MARTIN
State Fire Marshal

SUSAN B. RUTHERFORD
Fire Education Program Director

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WHAT IS FIRE?

Fire is a combination of three things: FUEL, HEAT, and OXYGEN.

1. FUEL is anything which will burn and anything which will burn is said to be "combustible". Some fuels are more readily combustible than others. For example, soft coal burns more easily than hard coal; bits of wood or kindling will ignite more quickly than a log; gasoline, ether, and similar liquids are termed "highly volatile combustible" because they are always giving off gases which ignite so quickly they usually explode.

2. OXYGEN is one of the gases in air. People cannot live without oxygen. Fire cannot burn without oxygen.

3. HEAT unites fuel and oxygen to make fire. However no two of these three elements can make fire without the third element. There are many ways of producing heat but striking a match is the quickest means in common use.

Fire prevention means to prevent FUEL, OXYGEN, and HEAT from getting together in dangerous places. Keep a place clean of trash, rubbish and junk; handle oils, gases and "highly combustible" liquids with care; be cautious with matches or anything which produces heat and you will prevent fires.

LEGENDS ABOUT FIRE

We know what fire is, but ages and ages ago man did not understand it at all. Many interesting old stories have been told about fire. One of the best is a Greek legend about how man received fire and learned its uses. This story tells that giants once lived upon the earth. One of these giants, named Prometheus, became interested in the creation of men and felt sorry for them because they were weak and cold and helpless. Therefore, he decided to steal fire from the gods and bring it to earth that it might warm and comfort mankind.

Prometheus went to the very eastward edge of the earth and waited until Apollo, the Sun-God, was ready to drive his great horses and flaming chariot that pulled the sun across the sky. Into the flaming rays of the sun Prometheus thrust the tip of a reed he had brought with him. It caught fire and Prometheus carefully guarded the flame as he hurried back over mountains, streams and

forests, bringing fire to man. And he taught man how to use the fire for warmth and for cooking, to make camp fires and frighten wild animals away and to forge weapons with it.

The gods were very angry with Prometheus for doing this so they bound him to a great rock where an eagle tormented him every day. The mighty Hercules finally had pity on the young giant and released him.

There has always been fire upon this earth. Two sources are well known: fire from lightning and fire from volcanoes. No one actually knows when or how man first learned that fire could be used to serve and comfort him. Perhaps he learned to cook meat when he found the body of an animal burned in a forest fire and tasted the warm meat. Perhaps he took a flaming torch into a cave to frighten out a wild animal and found that the torch warmed the cave and made it comfortable and a nice place to live. One thing we can be sure of, man learned from first contact with fire that it was a dangerous thing which could injure him, destroy his possessions and sources of food, and must be handled with care. Man feared fire and out of this fear began the first plans for fire prevention.

Fire prevention plans grew as people began living in groups or communities. They settled near rivers and streams for water protection. Their fireplaces were built of stone and their early dwellings had holes in the roofs. No doubt, every time fire swept through a forest, burned tents and primitive homes or injured a person, these people gathered to discuss it and wonder what they could do to protect themselves from the evil fire could bring them.

Think from that distant day, through the years to this modern age. Now man can measure the stars and fly through the air; can travel beneath the sea and know all the tides and wonders of the ocean; in all the arts and sciences he can claim that this is the most advanced stage of life since time began. Man now understands the sources of fire and everything about its control. He uses it constantly in many forms.

WHY is fire today a greater danger than ever before?

WHY are the fire losses greater today than ever before?

Many answers may be given, but the key to the whole problem is found in one word. That word is CARELESSNESS.

CARELESSNESS

It has been said that there are three causes of fire—men, women and children. We will have destructive fires as long as people

smoke, use electricity and work with combustibles without extreme care. No one seems to consider fire a personal concern. Few people plan how to act in case of fire or even know how to call the fire department.

We like to feel that the United States is the greatest country under the sun but in the matter of fire losses we have the most shameful record of any nation. Before the war, our annual fire loss was four times as bad as that of France and thirteen times as bad as that of Italy. It is always greater than that of any other country. CARELESSNESS is our great national sin. The most serious cause of fire would be removed if careless people would become careful people. Carelessness burns our forests, destroys our homes and industries, kills and injures men, women and children.

WHO AM I?

I am more powerful than the combined armies of the world.

I am more deadly than bullets, and I have wrecked more homes than the mightiest of siege guns.

I steal in the United States alone more than three hundred million dollars each year.

I spare no one and find my victims among the rich and poor alike; the young and the old; the strong and the weak; widows and orphans know me.

I massacre thousands upon thousands of wage earners each year.

I lurk in unseen places and do most of my work silently. You are warned against me but you heed not.

I am relentless. I am everywhere; in your home, on the street, in the factory, at railroad crossings and on the sea.

I bring sickness, degradation and death, and yet few seek to avoid me.

I destroy, crush and maim; I give nothing but take all.

I am your worst enemy.

I am CARELESSNESS.

Roy K. Moulton

Grand Rapids, Michigan, News

ACTIVITY; Playlet "The Conference of the Fire Spooks."
12 characters.

Easy to present, fine lesson in fire prevention. It should be given for several grades, in auditorium or class room, and one night for parents. Order from The National Board of Fire Underwriters, 85 John Street, New York 7, New York.

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MATCHES — SMOKING

The match is perhaps the most valuable and most dangerous article made by man. It has been in use for a little more than one hundred years but we cannot imagine how we could get along without it.

The action of rapidly rubbing two materials together, causes heat, and is called "friction". Thousands of years ago, man learned to strike fire by rubbing sticks together. The Eskimos made the "bow drill" which hastened this process and the Indians of our own country used "bow drills". The early colonists of America struck flint to steel to make sparks and today in museums you may see some old "tinder boxes" in which a piece of steel, flint and charred cloth were kept. The charred cloth was usually of linen which had been heated until it was brown and would more easily flame when the spark touched it. This process was not an easy one and often the pioneers would borrow live coals from each other rather than take the time for striking fire. Try any one of these primitive methods of making fire and matches will be appreciated as never before.

In the year 1827, an English druggist made the first practical friction matches. A folded piece of glass paper (much like sandpaper) went with every box and in order to ignite the match, one had to draw it in one hand quickly through the folds of the paper tightly pressed together with the other hand. Another kind of match came later, with a tiny thin glass bulb at one end. This had to be pressed to produce fire. There were many kinds of matches and at one time those most quickly lighted had such a terrible smell that storekeepers would not handle them and children sold them on the streets. Gradually, methods of manufacture became better and cheaper until today matches are found in every home and in millions of pockets.

A poorly made match is dangerous and, therefore, we should know what a match is as well as how to use it.

What is a match? Just a tiny stick of wood, smaller than your finger, coated at one end with a substance which forms a little bulb or head, and representing a blessing or a deadly peril according to the way in which it is used. It contains certain chemicals which take fire easily when heated. It also contains bits of ground flint in order to create heat by friction when the match is struck.

Even careful persons may meet with accidents through the use of bad matches. Sometimes when struck the blazing head will fly

off, or the stick will break and fall, or the match will continue to glow after the flame has been blown out. These are signs that the match is poorly made, for such things never happen with good matches. Carefulness should begin with buying matches. Whenever a brand proves faulty report it to the store where it was bought. If manufacturers find no one is buying dangerous brands, they will stop making them.

Book matches are of recent popularity and have certain faults that put them in the danger class. They are distributed free for advertising purposes and, therefore, there is little care taken of them. They are left on tables, chairs, and every place imaginable. When a match is withdrawn for striking, the flap should be closed before the match is struck. The match stems are of paper and nearly always continue to burn when dropped.

More matches are sold in the United States than in all the rest of the world. More than 850,000,000 are used in the United States each day. Such a figure is difficult to imagine. If a factory made just one match for every minute, night and day, it would take more than sixteen hundred years for it to produce as many matches as this country uses in one single day. This means that nearly six hundred thousand flames are struck every minute. There is not one of these flames that would not start a destructive fire if it had a chance. Each match must be treated as a source of great damage. It has within it the power to destroy your home, your loved ones and your life.

Nearly all fires can be traced in some way back to matches. If fire from a chimney sets fire to a roof, for example, the fire in the stove or grate from which the sparks came was lighted with a match. But, when we speak of danger from matches, we do not mean indirect danger. Many lives and millions of dollars in property are lost every year because of carelessness in the *direct* use of matches. Probably, the greatest single source is damage caused by careless smokers.

Smokers may throw away a match while it is still burning; knock ashes from a pipe without heeding sparks; throw away a glowing cigar or cigarette stub without watching where it falls. Careless smokers risk their lives by smoking in bed.

The United States raises, every year, more than a million and a half pounds of tobacco and large quantities are imported from other countries. To light that amount of tobacco, it has been estimated that six thousand matches are struck every second. Six thousand matches struck by smokers every second! Small wonder that New York City has made it a serious offense to throw away a lighted cigar

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or cigarette in any structure, building, car or other vehicle for the common carriage of passengers. Under this law, there were, in one year, 1,377 convictions and punishments.

“NO SMOKING” signs are put up in many places, not because people object to the odor of tobacco, but because the careless smoker is such a threat to life and property that it is safer to prohibit all smoking. Many states have a fire prevention law which simply states: “There shall be no smoking in factories.”

Children, of course, should never smoke under any circumstances. It checks their growth, weakens their nerves and digestion, and the action of their hearts. Teachers and police court judges well know that young cigarette smokers are apt to be backward mentally, morally and physically. Most boy criminals are found to be cigarette smokers. The only interest children should have in tobacco is to see that their elders use it safely. Any boy or girl who keeps a sharp eye on all smokers and who stamps out all burning matches and cigar or cigarette stubs is rendering public service.

1. Buy the best matches which do not break or lose their heads when struck, or glow after being blown out.
2. Replace matches with lighters wherever possible.
3. Never dispose of a match thoughtlessly. If indoors, place it where it will do no harm; if outdoors, break it in two or step on it.
4. If matches are spilled, pick up every one.
5. Keep matches in covered boxes or jars, away from the heat of stoves.
6. Keep matches out of reach of little children.
7. Strike matches away from you. If striking on a box, first close the box.
8. Watch the careless smoker; notice where he throws matches, cigars or cigarettes when he is through with them; stamp out any sparks you may see.
9. Don't allow smoking in a garage or in a car when the tank is being filled with gasoline.
10. Report all violations of “NO SMOKING” rules and warn people of the danger.
11. See that every smoker has an ash tray handy.

ACTIVITY

Select pupils to interview the mayor, a club woman, a minister, a doctor. Other pupils interview their parents and report the results of interviews in class session. Suggested questions: Have you had a personal experience with fire? What fires have you seen? Do you know the phone number of the Fire Department? What do you think causes the greatest number of fires?

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FOREST FIRES

In the early days forests covered nearly all the land in Kentucky. No finer hardwood timber grew in this Northern Hemisphere. The majority of the trees were oak, beech, chestnut, maple, hickory, and tulip, or poplar.

THE PIONEER AND THE FOREST

The first task of the pioneer farmer was to cut down trees and make a "clearing" large enough to plow, plant his crops and build his log house. He kept planting this same land until the soil lost its fertility; then he would either clear new ground or move farther west. Gradually the area of worn out fields increased while the forests decreased.

The rich soil of the bottom land, which was cleared first, was where the finest trees grew. Since there was no market for these trees, burning was the easiest method to get them out of the way. Sometimes the settlers would help one another by holding "logrollings", at which the trees were felled and burned.

Since there was little or no good pasture, livestock foraged in the woods. Woods were often burned during the winter months in the belief that the burning improved and increased the grass in early spring. "Wood burning" was also practiced to destroy snakes and insects. This not only injured the trees but destroyed the soil which supported them.

THE NEED FOR LUMBER

As the young Commonwealth of Kentucky grew, markets developed for the fine timber. Loggers came into the forests. They first cut the trees along streams which were large enough to float the logs. Sawmills were set up along the banks of these streams. Logs cut in the hills or on small creeks were hauled by wagon or tram cars to the nearest floating stream.

THE FIRST FIRE LAWS

Early in the nineteenth century Kentuckians began to feel concern about forest fires. In 1833 a law was passed which applied only to Harlan County. The law stated that anyone who set fire to the woods would be fined \$20 if a free person, and would receive a whipping, not to exceed 39 lashes, if a slave. Later similar laws were written for

other heavily forested counties. The lawmakers were more concerned about the damage fire would do to buildings, fences and farms, than the destruction of timber.

FIRES CONTINUE

We now have many laws concerning fire prevention, but forest fires continue. Two hundred and fifty acres of forests and brushy fields burn in Kentucky each year. In dry years this may be doubled. Naturally, most of the danger from forest fires occurs in the fall of the year. An added danger appears when the hunting season opens. Many times, when there has been little rainfall, the Department of Conservation has threatened to stop hunters because they are careless with matches, smoking and campfires. This seems strange, because those who enjoy hunting should want to keep the forests and wooded places safe for wildlife.

WHAT FIRE DOES IN A FOREST

1. Each forest fire destroys trees. Even the lightest fire destroys some trees and damages others. The average fire kills most of the trees up to one inch in diameter, on the area burned. This represents about eight years of growth. A community of trees 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 kill the little trees, what is to become of the forest? To all of this we must add the damage to big trees that survive scorching flames; their scarred trunks, loss of leaves, and injured roots result in slower growth and loss of value. The decay which is so prevalent today in hardwood stands is largely the result of fire. The average fire-wounded, usable tree has lost 15 percent of its value through decay.

2. 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 nature's process is very slow.

3. Fires destroy leaf and other litter on the forest floor, thus exposing the soil. Rainstorms wear away the naked soil and wash silt and debris downhill to clog the streams and damage fertile farmlands in the valleys. Water runs swiftly to the valleys to increase flood danger.

4. Forest fires are harmful to wildlife. Many furred and feathered creatures perish in each blaze. Even if the adults escape, the helpless young are often killed. Game birds with ground-nesting habits are heavy losers. Food and shelter for animals and birds are consumed in the flames. Fish life is harmed when stream

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shade is removed, and insect and plant food is destroyed by silt and lye from wood ashes washed down from burned hillsides.

5. Fires frequently destroy felled timber and other forest products, buildings, crops, fences and even homes.

6. Fires are sometimes responsible for the loss of human lives.

7. Fires reduce woods employment, thus decreasing the incomes of people who depend upon such work.

8. Fires destroy beauty. Charred trees, blackened hillsides, and fallen timber all make an ugly picture. Flowering shrubs and herbs of the woods disappear. Springs dry up. Blackened, ugly waste follows forest fires.

What causes forest fires in Kentucky? How do they start? Most of them are started by our own people through carelessness or through incendiarism.

“Incendiarism” means: Fires started willfully or maliciously. Some are set for revenge on a neighbor or for similar reasons, but most incendiary fires result from sincere but ignorant beliefs that fires are beneficial in improving the growth of grasses.

The following scale shows the average percentage of forest fires in Kentucky from various causes:

Percentage of Forest Fires in Kentucky from Various Causes

Cause of Fire	Percent of Total
Incendiarism	30
Debris Burning	29
Smoking	22
Campfires	9
Lumbering	2
Railroad	2
Miscellaneous	6
Total	100

Some fires start through carelessness or negligence in burning trash, brush, tobacco beds, and “new ground” clearings, or from hunters’ attempts to smoke animals out of holes or hollow logs. Smoking fires result when burning matches or tobacco are carelessly thrown away. Campfires get out of control when built too large or in dangerous places, or when left without some one to watch them. Sparks from locomotives, hot ashes from fireboxes, or carelessness of section crews start most railroad fires. Miscellaneous fires include those starting from burning buildings, explosions, moonshine stills, children playing with matches, and other causes.

KEEP KENTUCKY GREEN

Since most forest fires are man-caused, and can be prevented, every person has a definite responsibility to prevent them.

One of the best methods of prevention is strict enforcement of the State and Federal forest fire laws. Every citizen should know the fire laws and obey them carefully. Fires started through carelessness can be just as bad as those started willfully or maliciously, and they are just as costly to put out. Therefore, the laws provide penalties for carelessly starting fires or allowing them to get beyond control.

If everyone observed, to the letter, the safety rules for preventing forest fires, there would be few fires in Kentucky. It is the duty of every person to learn and observe these rules.

Burners of trash, brush, tobacco beds, sedge grass, or "new ground":

1. *Never* burn without first notifying and seeking the advice of the forest warden.
2. *Never* burn during windy or dry weather.
3. *Never* burn after five o'clock in the afternoon.
4. *Never* leave the fire untended until the last spark is out—DEAD OUT. Carefully inspect the burned area next day.
5. Rake or plow a wide path or fire line, free from grass, leaves, logs and sticks, entirely around the area to be burned.
6. Have plenty of water, tools and help on hand to control the fire promptly if it should escape.

Hunters:

7. *Never* smoke animals out of holes or hollow logs or trees.

Smokers:

8. *Be sure* that your match is out and cold. Break it in two before you throw it away.
9. *Be sure* that pipe ashes and cigar or cigarette stubs are dead out before throwing them away.
10. Don't throw smoking material out of a car, or into brush, leaves, needles, or grass. Use the ash tray, or stamp the fire out on a rock or bare earth.
11. *Never* smoke while walking in the woods or dry grass.

Campers and Picnickers:

12. *In building a campfire*, select a spot near water or where there is plenty of loose mineral earth. Scrape away all inflammable material from a spot five feet in diameter, dig a hole in the center, and keep the fire small.

13. *Never* build a fire against a tree or log, or near brush.
14. *Never* leave a fire untended until it is dead out.
15. *To extinguish a campfire*, stir the coals with a stick while soaking them with water; turn large embers or sticks and drench both sides. Wet the ground around the fire and be sure the last spark is extinguished. If water is not available, the fire should be permitted to burn out, and then thoroughly mixed and finally covered with soil, free from all sticks or leaves.

Children :

16. *Don't* play with matches or fire.

ACTIVITY

The Division of Forestry, State Office Building, Frankfort, Kentucky, has sound motion picture equipment and films, and will present forestry shows upon request when travel expenses are not prohibitive. It has some films which may be borrowed by schools having projection equipment. It also has colored slides and a lantern projector which may be borrowed by teachers upon request.

Schools which have motion picture equipment may borrow films from the following agencies: Department of Visual Aids, University of Kentucky, Lexington, Ky.; U. S. Forest Service, Bankers Securities Building, Philadelphia 7, Pennsylvania; American Forest Products Industries, Inc.; 1319 Eighteenth Street, N. W.—Washington, D. C.

The National Board of Fire Underwriters, 85 John Street, New York 7, New York, has a fine film library, covering every phase of fire prevention.

Rural schools, or schools without projection equipment, should make a picnic, field trip or woods outing, an occasion for a lesson in campfire building. Have pupils write a description of a woodland or forest fire, giving their own idea of how it started and the loss it caused.

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SCHOOL SAFETY

Pupils, the school building belongs to you. It was built because you had to be educated. The books were selected just for you; the teachers paid to teach you; the desks, lights, heat and everything about the school was meant for your comfort, safety and health. Other people have done all this for you. Now, your part is to help keep your school property clean and safe. Preventing fires means saving property, saving life and preventing suffering.

THE BUILDING

The Commonwealth of Kentucky has this law upon its statutes:

"The Board of Education shall cause every building to be carefully examined annually by a competent insurance inspector. The inspector shall make a written report of the result of his inspection with recommendations."

This is a good law, but for the greatest safety, every individual connected with a school should learn all he can about the building from basement to roof.

The principal, not the janitor, should be held responsible for the condition of the building. Before school assembles in the morning, the principal should see that every door is unlocked and every stairway and exit clear of any obstruction. Many hazards are easy to see and if you notice any, be sure to report them to the principal.

Ask to have a local fireman inspect your building. This is not required by law but any fireman will be glad to do it and tell you how to keep the building safe. He could tell of his own fire experiences and what he has found that causes many fires, show pupils how fire extinguishers work, and answer questions you may ask.

SCHOOL FIRE PRECAUTIONS

1. Stoves, furnaces and heating apparatus of all sorts are of great importance in fire prevention because they are containers of fire itself in some form. These heating appliances should be installed and inspected by experts who understand how to place them and how to protect pipes which conduct heat. Extra fuel supplies should be kept in special containers at a safe distance from heat. A pupil can see if trash or rubbish is near stoves or furnaces and report the danger to the principal. Hot ashes should be put in metal containers.

2. Oily rags, oil paints or any material easily burned should be kept in metal containers. Oily mops should never be left in closed closets or poorly ventilated places. Spontaneous heating starts with a slow chemical action until finally they will actually flame all by themselves. Many school buildings have been burned by such carelessness.
3. Flames will feed on old rubbish. Get rid of old books, papers, desks, lumber or any unnecessary things stored for possible use in the future. Fire may clean them out for you.
4. Rubbish, trash, papers or anything to be burned should be put into an incinerator which is perfectly safe. Trash should not be burned when little children are anywhere near it.
5. Oil should never be used in any form on the floor of a school building.
6. Closets under stairways should be kept clean of anything which might be a fire hazard.
7. Electric lights, clocks, bells and their wiring connections should be in perfect working order and often checked by experts.
8. Have a class discussion of other fire hazards in your school. These might include the number of exits, the location of your building in relation to other buildings where fire might start, matches and smoking, distance from the fire department and route the fire engine should take if called to your school.

THE FIRE DRILL

The fire drill is of utmost importance. This is shown in a very dramatic, true story which was published in *The National Parent Teacher Magazine*.

“In April, 1947, an explosion in Texas City, Texas, killed more people than died in the San Francisco earthquake and caused property damage second only to that historic disaster.

“In this frightful ordeal one bright spot stands out: *a perfect fire drill.*

“About 900 children, from six to thirteen, were in the Danforth Elementary School that morning when the merchant ship blew up at its dock. Splintered window glass swept every classroom; blackboards and plaster dust reduced visibility to almost zero.

“In a flash almost all of the children were bleeding from cuts. For weeks visitors could read the rest of the story in long lines of bloodstains on the floors. On the second story the bloodstains extended

along the hall, then down half a flight of stairs to a landing. There they made a sweeping curve and went back along the hall to the opposite exit.

“The second floor children had marched along the hall and down the stairs toward their accustomed exit. As the leaders rounded the first landing they found the entire school wall lying across the steps, blocking their path. When the leader of that line saw the obstruction he raised both arms over his head in a standard signal. From frequent drills every child knew that this meant ‘Turn back and go to the secondary exit’. Which is exactly what they did. The Principal said later, ‘We were so stunned by the initial shock, that none of us can give a clear account of what happened. We simply did what we had been trained to do in *repeated drills*.’

“This exodus was in striking contrast to the panics which have brought death in similar crises. In one Georgia school two children died and thirty-eight were injured in frantic dives from second floor windows. In South Carolina seventy-seven died in a mob scene on a single stairway. In Oklahoma thirty-six died in a one-room school when everybody tried to rush out the one door.”

Work with your teacher in planning a fire drill and if the drill is not held at least once each month, ask your parents to report the neglect. Five or more fires occur in schools throughout the United States every day. Each school must work out its own special problems but some basic rules apply to all. In a large school it is a good idea to appoint a “School Fire Marshal” from the senior class and an “Assistant Fire Marshal” from the junior class. Each grade should have a room leader or monitor, to act as special assistant to the teacher when the fire alarm sounds.

1. In case of fire, the children must all be out of the building before an effort is made to save the building. No hose or fire fighting equipment should be brought into the building until every pupil is safely out of the way. Saving life is the most important thing.
2. Every building of two or more stories in height should have a fire gong or signal plainly marked “For Fire Only”. There should be no particular number of taps or rings for the fire drill as a stranger rushing in to turn on the alarm would not know the signal. In the excitement of a real fire, any person might forget the special signal.
3. Every school building should have adequate means for calling the fire department.

Outline for Fire Drill

Alarm sounds.

Teacher takes charge, signals pupils to rise.

Children rise, without books, wraps or anything in their hands.
No talking, laughing or crowding allowed.

Teacher and monitor go to the exit door.

Teacher gives signal for lines to start leaving the room, led by the monitor, watched by the teacher. This signal is important as each room must observe its place in order of evacuation.

The teacher, after the departure of every pupil, closes windows to prevent drafts which might spread flame and follows the pupils, closing the exit door on leaving.

The pupils walk briskly, but never run, to a point at least fifty feet from the building, remaining in line until the roll is called. This determined point must not be near a fire hydrant. The lines should not cross a street unless absolutely necessary.

The principal gives the signal to return.

Pupils return to classrooms in reverse order of evacuation.

A Block Drill

In the event of fire there is always the possibility that an exit may be blocked or that the order of fire drill may be changed by smoke or flame. For this training the principal shall decide which exit may be blocked. On this exit place a sign, perhaps a piece of cardboard with flames drawn on it with colored crayons. When the first monitor, or leader, sees this sign he immediately raises his arms and each pupil back of him does the same. This continuous raising of arms passes the signal quietly back along the lines, prevents excitement or crowding and gives the leader opportunity to change the direction of exit.

RURAL SCHOOLS

Pupils in rural areas where there is no organized fire fighting equipment should be very alert in watching for fire hazards. In many such areas, the county board of education appoints a "Rural School Fire Warden". This man should have a telephone, a truck or car always ready for use and be easy to locate in case of fire. He should study fire prevention and fire fighting with rural equipment; visit the school for inspection at least once a month; discuss local problems, distribute literature and interest pupils in fire prevention.

THINGS TO REMEMBER

No school building is completely fireproof.

No fire drill is fool-proof.

No crowd of children is panic-proof.

Take care of your school building.

ACTIVITY

School Quiz—

1. The prevention of destructive fire in the school is the duty of:
(a) the principal; (b) the teachers; (c) everyone.....()
2. Fire drills are held in our school because:
(a) the school board requires them; (b) to provide a break in class work; (c) so that we may learn the best and quickest way to get out of the building in case of fire.....()
3. Every fire drill at school should:
(a) be conducted when nothing else interesting is to be done;
(b) cause everyone to conduct themselves as though the building were on fire; (c) be conducted during good weather that will not be harmful to the pupils.....()
4. The number of fires occurring in schools throughout the country in which pupils are often injured and in which property is always damaged is: (a) three days every week; (b) five every day; (c) quite small()
5. The most important thing to do during a school fire drill is to:
(a) get out of the building as quickly as possible; (b) calmly obey the orders of the person in charge and follow regular plan;
(c) tell the boy or girl in front of you what to do.....()

INSPECTION OF MY SCHOOL

Name of School..... Location.....

1. Type of Construction: Walls..... Floors.....
Roof..... Attic..... Basement.....
Probable age.....
2. Exits: Are there TWO on each floor?..... Do they open outward?.....
Are they used in fire drills?..... Are there any obstructions around doors?..... Are all windows free from heavy screens or bars?.....
3. Heating: Type of furnace..... Fuel used.....
Is extra fuel kept in a safe place, well away from heat?.....
Are ashes placed in METAL containers?.....
4. Storage: Is space under stairway free from storage of any materials?
..... Can you find rubbish, waste paper, old books or trash in building?..... Is gasoline or kerosene used?..... Why?.....
.....
Where stored?..... Are there good metal cans for oily waste, polishing cloths, etc.?..... Where are mops kept?.....
5. Fire: How is the alarm sounded?.....
How many chemical extinguishers on each floor?..... Have they been recharged within a year? How often is the fire drill held?
..... Has there ever been a fire in your school?.....
What caused it?.....
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ELECTRICITY

A storm shows the power of nature. Flashes of lightning, great black clouds, thunder crashing and making the earth tremble, have caused awe and fear in mankind.

Many people for thousands of years wondered about the great force we know as electricity. The people of ancient Greece said that their mighty god, Zeus, was hurling thunder bolts because he was angry. The Romans had the same idea but their god was called Jupiter. The early inhabitants of northern Europe imagined the flashing of lightning was caused by the hammer blows of their fierce god, Thor, striking with such force that they sent fire across the sky. All of them felt this was a thing to be greatly feared and never dreamt that it could also be a controlled force when men would one day learn its secrets, harness the power and make it a useful servant.

Only a few years ago scientists began to learn some of the laws of this force. Americans love the story which tells how Benjamin Franklin drew lightning from the skies. Franklin was about forty years old when he wrote a paper on "The Sameness of Lightning with Electricity". The idea was not new because it had often been thought that lightning was a huge spark of electricity. But Franklin was the first to suggest tapping the electricity in storm clouds and bringing it to earth.

His paper was published in pamphlet form and the members of the Royal Society of Scientists in London were amused by it as the idea seemed ridiculous. Some French scientists, however, were so interested that they tried to attract lightning by placing an iron rod on a high place. Lightning struck the rod and destroyed it.

Franklin had planned to build a tall spire for his experiment but became impatient and decided to send a kite aloft. The kite string was tied to a metal key which Franklin held in his hand wrapped in a silk handkerchief. When he saw a loose strand of the kite string suddenly stiffen, he touched the key and felt the shock which meant the first introduction of electricity to the earth at the direction of man.

Electricity was considered a mere scientific wonder because laboratories produced such feeble currents. No one thought anything would come of it. Then in 1831 the Dynamo was invented.

The simple explanation of the dynamo is that it converts mechanical power into electrical power; but you should visit some

power plant to get the full idea of the might of a dynamo. A little over one hundred years ago it made people realize that currents of electricity could be sent anywhere by means of wires, and amazing things could be done with it. Today it is used in so many forms that we call this the "Age of Electricity".

Electricity lights our streets, homes, carries voices, brings the world to us by radio, furnishes power for thousands of factories, and makes possible many conveniences in the modern home. The list of benefits could be much longer for there is hardly a town in this country which does not have electricity and few persons who do not use it in some form. Therefore we should understand what it can do and recognize the great danger it can bring if rules of care and safety are not used in its control.

Benjamin Franklin invented the lightning rod in 1752. In an improved form it is still serving today as protection to buildings of all types. If properly installed, a lightning rod will prevent 99 out of 100 fires caused by lightning.

Lightning causes about 400 deaths each year in the United States. Most of these are in rural areas because the lightning hazard is greatest where people work out of doors. Fires set by lightning usually spread so rapidly that many people may be injured in fighting such a fire.

Oil tanks, barns and churches head the list of fires caused by lightning. It is comparatively safe to be inside a house during an electrical storm, because metal water pipes, drains and lightning rods will carry electrical charges into the ground. Outdoors, the danger is much greater. It is advisable to keep away from wire fences, wire clothes lines and lone trees. It is far better to get wet than to take refuge from rain under a tree which stands alone. A grove of trees will offer safety where a single tree invites lightning.

Rural homes now have electricity for light, heat and other conveniences. Because such places may be far from fire fighting equipment, greater care should be used in handling this great power.

Defective wiring, overloading of circuits and careless handling of appliances are the chief causes of fire started by electricity. An "overloaded" electric circuit, simply means that the wires are carrying too much electricity and will become hot enough to cause a fire. The little round fuse, which you can see in the fuse box, is the friend to warn you of overloaded wires. The fuse "blows out" and tells you that too many lights or appliances are being used at the same time. The correct fuse for ordinary use is 15 amperes. If a fuse of more amperes is used to replace the blown one, then the wires may get

hotter and hotter until a fire results. A penny placed behind a blown fuse will have the same serious result.

All wiring should be of standard design and installed by an expert. Even the radio which brings so much pleasure can bring death and destruction if the lead-in wire should contact a power wire; the antennae should be safely protected.

Every portable electric device which furnishes heat, such as irons, toasters, and bathroom heaters, should be disconnected if left for even a short time. These have caused so many fires that now many of them have an automatic control to prevent overheating. Disconnect them by pulling out the plug; *not* by yanking on the cord.

Since electric cords are the most obvious conductors for using this power, their dangers should be carefully considered.

1. Cords are affected by moisture, oil, heat and handling. In kitchen, bathrooms and laundries where the air may be moist with steam, cords are especially dangerous and should have waterproof covering.
2. Cords on lamps, irons, fans and other portable appliances cannot be kept out of reach or protected by metal covers. For this reason, they wear out relatively soon. They should be replaced at the first sign of fraying or breaking.
3. Cords should never be run through staples, hung on nails or supported by any metal rod. They should never be under rugs.

The light bulb is another common hazard. Lamp bulbs can become very hot and curtains, decorations or any flammable material should be kept well away from them. When a bulb "blows out", it may explode and the hot fragments have been known to start a fire where they fell on material which burns easily.

Many mechanical toys are on the market today. They are usually smaller, cheaper reproductions of appliances used in the home and being inexpensive often lack good insulation or protection. They should never be used where a child might touch a faucet, radiator or any grounded item. Electrical toys should never be handled with wet hands. These toys should be repaired at the first sign of disorder. Kite strings should be of nonconducting material. A cotton string is safest but will conduct electricity when wet. Remember that the human body is also a conductor of electricity.

Electrical wiring outside of buildings is placed underground or on overhead structures with clearance from trees, buildings or obstruction. A wire which has broken or sagged sufficiently to be in

reach of people or vehicles should be reported at once. Children should never fly kites near electric wires nor throw strings or pieces of wire across power lines. Trees must be cut away from power lines because the wind may blow them against the wire until the insulating covering is worn away.

What a "U. L." Label Means

The users of electricity have a good friend in Underwriters' Laboratories, Inc. This is true even though the user may be careless when he uses his electrical appliances. You may have noticed that names, or the letters U. L., on the little paper bracelet around a lamp cord, on your new radio or television set, or on the metal label attached to a fire extinguisher. Such a tag, stamp, or label means that the device to which it is attached has been tested and made as safe as possible.

While there are many fires resulting from the wrong or careless use of electrical equipment, there would be many more such fires if it were not for the work of the scientists and engineers of the Underwriters' Laboratories. These people work constantly to make electrical appliances and many other things safe for us without our doing or even knowing anything about it.

If you were to walk through the big brick and concrete building at 207 East Ohio Street in Chicago, where the main laboratories are located, you might see a technician in one room dropping an electric iron on the floor several times—to see whether such an accident would injure the built-in temperature controls; or, in another room, an engineer draping cheese cloth over an electric heater, to be sure the heater will not start a fire; or, in another room, you may see a weight striking the front of a shiny new television set—to find whether or not an accidental bump would break the safety screen and the large glass vacuum tube behind it, thus throwing splintered glass throughout the room. Or, in other laboratories, you may see a rack with mechanical fingers snapping light switches on and off, giving them many years of normal wear in just a few days; or a machine pulling a heating pad back and forth over a 90° bend to be sure that the heating elements and thermostats inside will work safely even after years of use.

Before any device or equipment is finally "approved", it must have passed all of the safety tests required of that product. Only about half the devices tested "pass" the first time. Of the ones that "fail", many are changed by the manufacturer until they do pass. But many others never pass the tests.

That is why it is so important to use only "approved" fire doors, fire extinguishers, dry cleaning equipment, and particularly electrical devices. In fact, this latter is so important that the Kentucky Standards of Safety, and most electrical codes permit the use of only "approved" electrical appliances and equipment.

It was electricity that brought the U. L. into existence over fifty years ago. In 1893 a new invention of Thomas Edison's, the electric light, was causing a great many fires at the first world's fair, in Chicago. The insurance companies were much concerned over the losses that followed, and they sent a young engineer named William Merrill to investigate the new invention. His report showed that advance testing and changes in design could have prevented most of the fires. So, with about \$300.00 worth of homemade equipment donated by the insurance companies, Merrill and another man set up a simple laboratory. Later, when the work of this first laboratory proved so valuable, the insurance companies pooled their resources and gave real support to the project.

Now however, and in fact, since 1917, the U. L. has been entirely self-supporting. That is, the makers of various articles are so anxious for U. L. approval that they pay the expense of making tests and investigations. Last year there were seven hundred million labels placed on "approved" products.

All of this is done at cost. There are no stockholders—no profits. Only the actual expenses, such as the workers' salaries and cost of materials are charged for. The motto of the Underwriters' Laboratories is "For Service—Not for Profit". The work of these people means a safer and happier America for all of us.

Electricity—Your Friend

To appreciate electricity as a servant and friend, check the many places where it is found in your home. Begin with the equipment for comfort, such as lights, heating stoves, electric blankets, and pads. Next note the radio and electric toys or gadgets for hobbies or pleasure; then make the long list of labor-saving things, such as washers, ironers, cooking stoves, refrigerators and deep freeze boxes, toasters and cooking aids. In the future, the average home may have television because of this great force we call electricity.

The rules of friendship with electricity are simple. Keep the rules and keep a powerful friend. Break the rules and the most powerful force in all nature will turn against you.

Remember—

1. The human body, metals and water are conductors of electricity. Rubber, glass, wood and woolen cloth are non-conductors of electricity.
2. If a fire is started by faulty electric wiring, water should not be thrown on it. Water is a conductor of electricity and may carry the current to your body.
3. If a fuse blows out, "turn off" the current by the control switch before replacing the fuse. If a fuse blows twice, call an electrician to correct the cause of the trouble.
4. A penny put behind a burnt out fuse to restore contact is very dangerous. The one penny could start a fire which would cost thousands of dollars.
5. Be sure that your hands are not wet when touching an electric light, switch or any electrical appliance.
6. Don't touch an electrical fixture while in the bathtub or standing on a damp floor.
7. Don't touch two electrical appliances at the same time.
8. If you see an electric wire which has fallen or sagged, warn others to stay away from it and notify the electric company, the telephone company or the owner.
9. Don't touch a person who has been shocked while he is still in contact with the wire. The wire can be removed by using a long, dry board, pole, broom or rake handle; but this should only be done by a strong, careful person with experience. Call the nearest doctor and the lighting company.
10. DON'T TAKE CHANCES WITH ELECTRICITY.

ACTIVITIES

Pictures of electrical appliances can be obtained from mail order catalogues or magazine advertisements. Children bring these pictures to class and describe:

1. What the appliance does.
2. How the work was done before electricity was used.
3. Where the primitive ways are still used.
4. Ways to be safe in using the appliance.

Each child could explain one appliance or the whole class could discuss it.

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For example: *THE LIGHT BULB*:

1. The light bulb is used for lighting dark places. We see them in homes, schools, offices, stores, public buildings, on streets and highways. They also help us see a movie.
2. Lighting began with flaming torches. Then people learned to make tallow candles or carried burning oil in a container. The kerosene or coal lamp was the next means of lighting. Gas was the last means of modern lighting before Thomas A. Edison invented the light bulb.
3. Where people do not have electricity the kerosene lamp is still used. It is used in rural areas in our country and in Canada, Europe and Australia, in most of India, China, Japan, and near East Africa and South America.
4. Handle a light bulb carefully as it breaks easily. After it is turned on for a while it becomes very hot. A lamp-shade, paper or anything which burns easily should never touch a lighted bulb. A light bulb is in an electric socket which should never be touched with wet hands.

Have an electrician visit the class and explain with illustrations how several electrical things work. Have him explain fuses, sockets, cords and plugs. Display a cord in good condition and one in bad condition. Exhibit a new fuse and one that is blown out. Demonstrate the safe way to disconnect an appliance. The children can have their turn removing a plug from an outlet and explaining the need for carefulness.

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HOME SAFETY

The home should be a place of comfort and safety. It is the place we love best, the place where we live with those who care most for our happiness and welfare. It is shocking to know that more fires occur in homes than in any other place. Almost all deaths from fire are in homes. Every day, ten children die in home fires.

Whether a home is in the city, village, in the country or in an apartment house, nearly all the furnishings are things which burn easily. Home fires spread quickly and often cause panic because people become more excited when fire loss is a personal thing.

We usually think that "fire inspection" is to remove causes of fire in public buildings, such as schools, libraries, business houses, manufacturing plants and industries. The increase of fires in homes caused some cities to plan for home inspection. A home owner may think that no one has any business inspecting his house but this service is for the good of the entire community. Many houses are set close together and one fire could cause several homes to burn.

On home inspection, the firemen usually go to the back door, explain what they wish to do, ask the housekeeper or home-owner to go with them and check conditions which might cause a fire. People are notified ahead of time and this often means that the homeowner will go over his building carefully before the firemen arrive. The firemen leave literature about preventing fires and sometimes place a card in the window saying the home has been inspected. This shows that members of a family living in that home are good citizens.

Every lesson about fire prevention can be applied to the home. Everything learned in previous chapters of this book concerns the home. This can readily be seen in this list of the seven major causes of fires in homes:

1. Matches and Careless Smoking
2. Rubbish
3. Defective Chimneys
4. Combustible Roofs
5. Defective Heating Apparatus
6. Gasoline, Kerosene, Etc.
7. Electrical Defects

MATCHES AND CARELESS SMOKING

Here is that bad word "careless" again! It is carelessness when matches are placed where children can reach them and when smokers

leave books of paper matches in every room of the house. Matches are often tossed aside when they are still hot. Grown-ups, who should know better, throw matches out of windows, into wastebaskets or on rugs where they could easily come back to life and start a fire.

When a cigar or cigarette stub is thrown away without being crushed out, it is the same as throwing aside active fire. It is not necessary to have a flame in order to have fire. A lighted cigarette has no flame but fire is consuming the tobacco. A cigar or cigarette stub is usually more than an inch long—which means that it will continue to burn for at least ten minutes. Twelve thousand fires a year are charged to this carelessness.

RUBBISH

Rubbish is not just waste paper and dirt as many people think. Rubbish is anything which has no worth or value, but which is kept because it may be used "sometime". "Sometime" never comes, but fire does.

Americans probably keep more rubbish than any country in the world. We also have the worst fire rate. We seem to hang on to things which should be discarded, such as old magazines and newspapers, outgrown clothes, broken furniture, trunks of old keepsakes, barrels and boxes of useless things. These make fine fuel for the fire which may also take our valuable things.

Rubbish is usually found in the basement or attic. Good home planning often makes the basement into a playroom or the attic into a bedroom. This makes every part of the home usable and removes the most likely places for storing rubbish.

Every home, not having regular trash collection service, should have a good metal incinerator and burn rubbish daily.

HOME COMFORTS

The other causes of home fires concern the comforts of a home. The most needed comforts are heat and light. Both of these are fire in some form. They either produce heat or are a product of heat.

Fire hazards are not difficult to discover. For example, suppose that a chimney of your home is in bad condition. Any member of the family can see if plaster or wallpaper around a chimney flue is cracking. This shows the chimney is not safe. The danger can be *felt* by holding the hand against the chimney wall. If heat is felt, the chimney should be examined and repaired or rebuilt.

Gasoline, kerosene and all kinds of gas should be installed and handled by adults only; but a child can smell them and give warning

of danger. The danger in gasoline is the fact that it evaporates so rapidly and that its vapors are highly explosive. These vapors are heavier than air; therefore, they float along lower level until they reach a spark from a match, cigarette, pilot light on a stove or some bit of flame which will immediately cause an explosion and fire.

If a person is foolish enough to clean garments in gasoline these vapors surround the person. The heat caused by rubbing the garments together may cause the vapors to burst into flame, from which there is no chance to escape. Home cleaning can be done with a safe "cleaning solvent". This should always be used out of doors because the fumes, though not explosive, are dangerous when breathed and should not be allowed to collect in the house.

Electricity brings light and heat into the home. The electric fuse is a safety valve. It has a thin metal strip which melts easily. When too many lights and electric fixtures are turned on at one time or wires become short circuited, electric wires get hot. Before they can get hot enough to cause a fire the fuse burns out, the electricity is stopped and a fire prevented. House wiring is big enough for *only* 15-ampere fuses. If you use bigger fuses then you get hotter, more dangerous wires. With proper fuses, good electric cords and care in using appliances, electricity will never burn your home. Count the things which bring the comfort of light and heat into your home and name a fire hazard connected with each of them.

HOLIDAYS

Holidays are special days which usually center entirely around the home. They are meant to be times of happiness but we do many things on holidays which bring fire and tragedy.

Candles are widely used when celebrating birthdays, Halloween and Christmas. Candles should only be used in well-made candlesticks. This means a candlestick or holder with a broad base which will prevent tipping over. They should never be used on Christmas trees or placed near anything which will burn easily. Candles are so dangerous that many books on fire prevention simply say "NEVER USE CANDLES".

A home is often decorated for a holiday. Never use paper or cotton decorations unless they have been flameproofed. Use Christmas tree lights that have plugs and wires in good condition. The tree should be firmly fastened to the floor. Place it well away from stoves and fireplaces. Never use candles on the tree and see that light globes in the tree do not touch anything. Fall decorations, such as cornstalks and vines, should be carefully placed and never used in

large amounts. A jack-o-lantern with a candle in it should be left in one safe place and never carried when lighted. Use a flashlight instead of a candle.

Fireworks are a serious fire hazard which have brought more sorrow than joy to the American home. Adults are to blame for permitting fireworks; but the children are the ones who suffer, have hands without fingers, feel their bodies burned, and often lose their eyesight because of this dangerous display. A chance to see a few bright lights of fireworks is not worth a life of total darkness.

Every holiday should be observed in such a manner that it will become a happy memory of home life.

HOME FIRE DRILL

A home is planned to suit the purposes of the people who will live in it. That is why no two homes are exactly alike. There are many different types of building materials because some people want a home of stone while others prefer brick, frame or stucco. There is one plan every home should have—a *plan to prevent fire*.

Inspect the home carefully, remove fire hazards, then have *another plan*. No matter how careful a person may be, always consider the fact that fire *may* strike and *plan* what to do in case of fire. For example, one family realized that they had only one stairway by which they could leave the second floor in case of fire. They then built a trellis from the ground to the roof of the front porch, which was strong enough to bear the weight of a person wishing to use it as a ladder. Vines with slender stems made the trellis a thing of beauty as well as a safe way to leave the upper story of the home.

Three quarters of the people who are killed in dwelling fires die upstairs from fires that start downstairs. Heat rises, or is drawn upward by drafts, and poisonous gases from a fire have killed people in their sleep without their ever knowing there was a fire. Many people killed in home fires were never burned at all.

What shall we do when we are face to face with actual danger and know there is a fire in our home? First of all, let us keep calm. We must act quickly of course, but excitement may make us do exactly the wrong thing. The only way to keep from getting excited is to *plan when there is no fire*, what to do when there *is* fire. There are several features of home fire fighting which must be remembered:

1. Be sure that every member of the family knows how to call the fire department. If in a rural home, know how to call the nearest neighbors and where the pails for water, or fire extinguishers are placed.

2. If you wake up at night and smell smoke, DON'T open your door until you feel it with your hand. If it's hot, don't open it. Go to the window and yell for help. If the door does not feel hot, get a piece of cloth, wet it and hold it over your face. Then you can go into the hall to awaken others and reach a telephone to call the fire department.
3. Never attempt to fight a fire in cellar or basement which has become filled with smoke. The fumes are poisonous and may quickly overcome a person.
4. Don't try to enter a room where much fire can be seen.
5. Remember that a woman is not dressed for fire fighting. Her clothing burns easily. A human life is worth more than any building or contents.
6. Close any door or window that will help confine the fire.

Remember that money spent for fire prevention is better than money spent on extinguishing equipment. Here is a list of necessary things: Ash trays; approved electrical wiring and appliances, repairs to chimneys, new stovepipes, metal waste and ashcans, fireproof cellar ceilings and fire resistant roofs. Money spent for these things may save you the cost of an entire new home.

INSPECTION OF MY HOME

Name

Home Address

Type of House or Apartment.....

Number of Rooms..... How many people live in it?.....

1. Is there any rubbish, old papers, broken furniture, etc., in attic?.....
Basement?..... Closets?..... Garage?..... Yard?.....
2. How often do you regularly dispose of rubbish?.....
3. Are walls, floors, ceilings, protected from overheated stoves, pipes, furnaces?
4. Are ashes kept in covered metal containers?.....
5. Are matches kept in metal boxes away from heat and small children?
6. Do you ever use gasoline for cleaning?..... Kerosene for starting fires?.....
7. Do you have any frayed electric cords in your home?.....
8. Ask your parent to inspect fuse box and see if fuses are 15 amperes.....
9. Are all mops hung up and oily rags kept in metal containers?.....

10. Do you have any fire extinguishers in the house?.....
When charged?
11. Plenty of ash trays in the house?.....
12. Do stovepipes pass through attics, closets or walls which could
burn?.....
13. Are chimneys in good repair and cleaned once a year?.....
14. Do you have screens for all open fireplaces?.....
15. What is the Fire Department's telephone number?.....
16. What would you do if fire broke out in your home?.....
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17. List any fire hazards you have removed from your home.....
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FARM FIRES

Fires on the farms of the United States are so numerous and serious that they should be of concern to everyone, whether he lives on a farm or not.

Each year, three thousand five hundred human lives are lost in farm fires.

Unlike places where fire protection and water supplies are available, farms often face total destruction when fire strikes. Even when the property is covered by insurance, there is a loss of livestock, farm machinery, personal property and food which take years to replace and time and labor to rebuild.

Farmers produce the food of our nation. More food than usual is needed today, because we must send large quantities to the people of other countries so crushed by war that it will be many years before they can entirely feed themselves. Thus fire, which destroys feed, grain and farm equipment, is actually both a national and international tragedy. Thousands of tons of foodstuffs worth millions of dollars are lost each year in fires which level barns, granaries and warehouses. The farm fire loss is nearly one third of a million dollars for every working day of the year.

Agricultural organizations, schools, civic groups and fire departments are working on a nation-wide program to inform the American farmer and farm family of fire prevention needs and methods. Carelessness and lack of forethought cause the majority of farm fires.

In preventing fires, the first thing to know is how they may start. This following list of causes of farm fires is based on reports for recent years.

	Percentage of Fires
Lightning	37
Chimneys, flues, cupolas, stacks.....	11
Petroleum and products	8
Matches and smoking	7
Sparks on roof	7
Stoves, furnaces, boilers and pipes	6
Exposure (to another fire)	5
Spontaneous ignition	5
Misuse of electricity	3
Friction sparks from running machinery.....	2
Hot ashes and coals, open fires.....	2
Miscellaneous	7

The miscellaneous causes include explosions, sparks from locomotives, bonfires, incendiarism, ignition of grease and oil, overheated electrical devices, gas, fireworks, rubbish, and steam pipes.

LIGHTNING

First on the list of causes of farm fires is LIGHTNING. Even this great power of nature can be controlled. Lightning rods, properly placed and expertly installed, will prevent 99 out of 100 fires caused by lightning. It is unfortunate today that many farmers do not trust lightning rods. This is due to the fact that when they were first introduced, salesmen went into rural areas and sold defective rods which were more dangerous than helpful. Lightning rods today are perfectly safe and should be placed not only on homes but every outbuilding on a farm. Wire fences, especially those with wood or concrete posts, will conduct electricity and livestock should be protected by grounding such fences. This is done by bringing them into contact with small iron pipes driven at least three feet into the ground at intervals of 150 to 300 feet. Fences joined to a building should be grounded at the post nearest the structure.

CHIMNEYS

Cracks in the chimney wall, loose bricks or washed out mortar may easily cause a fire. Loose bricks should be relaid, mortar joints pointed up, and, if necessary, repairs made in the foundation and all cracks plugged with cement mortar. Cracking plaster or breaks in wallpaper show danger in the chimney.

The walls of a chimney should be about eight inches thick, or four inches when lined with tile. All chimneys should be cleaned at least once each year, but if the walls are thin, they must be cleaned more often and should be rebuilt for safety.

PETROLEUM AND PRODUCTS

Although modern conveniences are now available to many farms, kerosene (coal oil) lamps and lanterns are still widely used. They should always be carefully cleaned after filling, set upon sturdy bases and have metal oil containers. Lanterns should have wire guards and when used near flammable material be set at a safe distance or hung on suitable hooks.

The person who says "I will start a fire with coal oil because my mother did", is ignorant and dangerous. If a person must do this foolish thing, he should soak small bits of kindling in the fuel and stand well away from it when applying a match. Never, never throw coal oil on a low fire or into a warm stove. It may cause facial

burns, loss of eyesight, loss of life and complete destruction of the home. In spite of continued warnings people *who know better* continue to make fires in this manner.

The use of petroleum and gases in liquid form has greatly increased on the farm. They are used for cooking, lighting, heating and as fuel for farm machinery.

Gasoline and coal oil should never be handled or stored in open containers. They catch fire easily and when mixed with air by evaporation become highly explosive. If they are on the farm in large quantities they should be stored in underground tanks. Smaller supplies should be kept in metal drums in a well ventilated shed or cover at least forty feet away from all buildings.

Never light a match when there is the odor of gasoline, coal oil or gas in the air.

Nature has given most of these products a definite odor; but some recently developed forms of gas are so dangerous that they have been artificially odorized so that they may be quickly smelled when escaping. Never search for leaks in pipes or containers with a lighted match. Thick soapsuds on a suspected leak will produce bubbles if gas is escaping. All repairs of such leaks should be made by an expert. When the odor of gas is in a room or building, cut off the supply of gas at the source, raise all windows, see that no match is lighted and call a trained repair man.

A separate building should be provided for automobiles, tractors and gasoline engines. Never keep them in barns where a spark from backfire or an overheated muffler may set fire to hay, fodder, or other materials which burn easily.

The only safety education in handling such products is to study all the dangers involved. A lesson cannot be learned by experience alone because one mistake will probably be fatal.

MATCHES AND SMOKING

The danger of careless smoking and thoughtless disposal of matches is well-known. In barns and places about the farm where fire hazards exist, place "NO SMOKING" signs in plain view. See that the signs are obeyed.

SPARKS ON ROOF

Roofs made of wooden shingles should be watched. Broken, loose or curled shingles should be replaced. Many farm homes have "spark arresters" on their chimneys. A spark arrester is a woven wire cage or basket inverted 14 to 18 inches over the chimney.

A metal, tile, slate or composition roof is not expensive and, compared to the loss of a building by fire, will seem the cheapest form of protection.

STOVES, HEATING EQUIPMENT

Heating plants and stoves should be placed at least 18 inches from walls and woodwork and be properly insulated. Place sheet metal or other non-combustible material under the stoves set on wood floors, with metal extending beyond the stoves at the front. Run stove pipes as far as possible from unprotected walls or woodwork and keep heating apparatus clean at all times. Never let them become red hot.

Fuel for such appliances should be carefully stored, in orderly manner and well protected from heat. Regular inspection will prevent fires from this source.

SPONTANEOUS FIRES

Many barns are destroyed by fires that are the result of spontaneous ignition. These two big words simply mean fires that seem to start themselves. Hay, straw, fodder and other feed crops should be thoroughly cured (dried) before being put into barn lofts, silos or storage rooms. If they are stored while yet damp or green, here is what happens: The base or core of the pile shut away from air starts an action called fermentation which makes heat; this heat can reach a very high temperature and burst into flames.

Storage rooms should be well ventilated; but if the farmer suspects that the feed is heating, he should keep out as much air as possible until he makes a test. He can drive a pipe deep into the pile and lower the thermometer into the pipe and leave it in the pipe for about 15 minutes. A temperature of more than 158 degrees Fahrenheit is dangerous and the feed should be carefully moved. If a temperature of 212 degrees F. is shown, all preparations should be made to fight fire. When overheated foodstuff is moved and air is admitted, it will surely become a flaming mass of destruction.

This same process occurs when oily rags, materials used in painting, or cloths soiled with flammable liquids are allowed to remain in closets or poorly ventilated places. They should be destroyed or kept in a covered metal box.

MISUSE OF ELECTRICITY

The farmers of America have modern equipment and conveniences far better than the farm homes of any nation under the sun. Electric power is being carried to remote places offering greater comfort.

happiness and more leisure time to the farmer. Electricity as a carefully controlled servant can make farm life the most secure and ideal life in America today.

Many electrical appliances have been developed solely because of farm needs. The milking machine is an interesting and complicated thing, yet its use can be easily learned. It saves many hours of manual labor and permits greater milk production. The temperature of fresh milk should be lowered quickly and electric coolers save large quantities of this valuable farm product.

Hatching hundreds of eggs by controlled electric warmth, and protecting the small chicks in electric brooders, have made the selling of small chicks a wholesale business.

Farm homes may have every electrical convenience, but many remote homes are far from distributors or firms specializing in electric service. Therefore, the farmer must be very careful when installing electric equipment. It would be well for neighboring farm homes to plan for expert inspection at regular intervals for the entire community.

Children on the farm may not understand the working of all electrical aids, but they can watch for many small things which can cause big fires. A child can see broken fixtures, sockets and worn lamp cords; switch boxes which are exposed when they should be in metal cabinets; portable cords wrapped around nails or metal rods, and light bulbs burning too close to curtains or flimsy materials.

Every person on the farm who uses electricity in any form should appreciate its value but realize its danger.

HOT ASHES, COALS, OPEN FIRES

Hot ashes should always be stored in metal containers until they are thoroughly cooled. Never deposit them near a flammable substance. Many fires have been started by ashes placed in a wooden box or barrel.

Little children should never be allowed to play about an open fire. All fireplaces should be protected with metal screens. When trash, rubbish or any waste material about the farm is cleaned away by burning, a responsible adult should be on guard. Water or some means of keeping fire from spreading should be on hand. The fire should not be left until every spark has died and water put on the ashes or the ashes turned under by spading. There should be no wind as a fire creates its own drafts by the heat which rises and may toss a spark to a higher current of air. Every farm should have a large

incombustible container for burning trash, paper and rubbish. Leaves should never be burned but used to enrich the soil of flower beds or vegetable gardens.

COMMUNITY PROTECTION

Rural residents must realize that fire apparatus owned and operated by the nearest village or city is provided by the residents of that area at their own expense and for their own protection. They do not owe the farmer fire protection any more than he owes them the use of his farm machinery. Such fire equipment was not designed for rural use and could be of little help unless the farmer had a convenient water supply and the fire department had proper pumps to use the water.

People in a rural community may seek protection from the nearest fire department and pro rate the cost of service so that each person in a given area will pay his rightful share. An individual may arrange protection by payment based on mileage to be covered and number of hours spent in fighting the fire. In either case, each farmer should have water storage, good roads to this supply, keep the department informed on directions to reach the farm and cooperate with them in every way.

Where fire protection is not available, a farmer should have a definite plan as to what he and his family or helpers would do in case of fire. Barrels of water with buckets should be in convenient places and marked "For Fire Only". A 55 gallon oil drum with one end removed makes a fine fire barrel. A few drops of kerosene (coal oil) on such containers will repel mosquitoes, and calcium chloride at the rate of three and three-fourths pounds for each ten gallons of water will prevent freezing in winter.

An extension ladder long enough to reach the eaves of the roof, an axe to cut into concealed places and a rope to lift tools to the roof, should be kept handy. Several old burlap sacks kept in or near a barrel of water will be helpful in beating out a roof or grass fire. Many farms now have pressure sprays for fruit trees or gardens. These could be used in throwing water on a fire. Saving farms from fire means saving food. Saving food means saving lives.

Someone in every farm home should be prepared to give first aid treatment for burns. A physician, nurse or druggist will list the necessary supplies for a first aid kit and explain the simple rules for using them. Proper treatment while waiting for a doctor to arrive will ease pain, avert scars and hasten recovery.

The American farmer is our first line of defense in the world war against hunger.

PATRIOTISM AND FIRE

Fire is a powerful weapon in modern warfare. It is the ammunition of the flame throwing mechanized divisions of armies. This is a terrible form of liquid fire which leaps out of "flame throwers" in great streams of death dealing flames. Chemical bombs dropped from airplanes rain fire as they burst above the earth. Wherever they fall nothing is spared. They send fire upon homes, women and children, sacred shrines and fields of grain.

Sometimes an army in retreat burns everything on the land which it is leaving, in order that the approaching enemy may not find food, shelter or protection. This is called the "scorched earth" policy. The destructive power of fire is one of the many reasons why we should work for peace on earth and good will among men.

The United States considers fire prevention of major importance to national safety. Government agents, known as F. B. I. men, because they work for the Federal Bureau of Investigation, keep a constant watch over plants which manufacture munitions, airplanes and armaments. Their task is to reduce fire hazards and prevent enemies from setting fire to these plants. Such burning by a spy or enemy agent is called "sabotage". Fire deliberately set by a person is called an "incendiary" fire; and the act, when malicious, is called "arson". Arson is a major crime and the law regards persons who deliberately set fires as dangerous criminals.

In the second world war the inhabitants of Japan probably feared fire more than any other danger. Their homes are built of materials which burn easily. Their flimsy houses are set close together, their streets are narrow and their cities densely populated. Women and children were taught fire fighting.

Enemy planes could also fly over the United States, so in this same war our civilians were trained to keep watch on tall buildings in our cities, especially those along the coastlines. They were instructed in fire fighting, were given equipment to put out fire, field glasses to study the sky and sirens to give warning if a strange plane was sighted. In sparsely settled areas high towers were built for "watchers" who were constantly on the lookout for enemy planes which might rain fire from the sky upon our homes, forests, fields of foodstuff and great factories.

Fire in war is not a new thing. When men first built cities they built high walls about them for protection against the enemy. One

Emperor of China even started a wall to completely surround his entire country. It was difficult to destroy walls in those days, so the first flame throwers were developed. Soldiers trying to enter a walled city put great balls of flammable material on the end of sticks, lighted them and threw them over the walls.

Gunpowder was probably first developed in China. It is the earliest known manufactured explosive. When it was used as far back as the year 673 by the defenders of Constantinople, it was called "Greek Fire". It was lighted and hurled against the enemy, but not used to propel balls or shot until early in 1300.

In the early days of this country gunpowder was usually carried in a "powder horn". The horn of an animal was cut off, the large end fitted with a block of wood, and the tip fitted with a tiny wood or bone stopper. George Washington's powder horn, which he carried through the Indian Wars, came from the head of a buffalo. It is large, gracefully curved, and has a mirror set in the wide end.

While the white man carried his powder and shot with him, some Indians carried fire itself. They kindled reeds, wrapped them loosely with moss covered by skins, and thus kept them glowing for a long time. In 1777 the Indians were attacking Fort Henry. They had been supplied with gunpowder but knew little about its use. They hollowed out a maple tree, plugged one end, bound it with iron chains and filled it with gunpowder, stones and iron slugs. They planned to throw it against the walls of the fort; but when the torch was applied the great log burst into a thousand pieces, killed several Indians and scattered the rest of them in fear and terror.

Because gunpowder makes such a black smoke it is not widely used today. Railroads use it in flares placed behind stalled trains to prevent collisions. Airplanes carry parachute flares to light the ground for forced landings. Rockets or roman candles have been used as signals between ships at sea and from ship to shore, and are still used as signals of distress. Gunpowder is also used in blasting, but its widest use today is in *Fireworks*.

China was the first country to use fireworks, but they were also developed in India and Italy for use in celebrations. Today the United States leads the world in the manufacture and use of fireworks. It is strange indeed that this great country should do so much to preserve the health, welfare and happiness of children, and yet should continue to permit the use of fireworks, which bring such terrible disasters on such a wide scale.

Some form of fireworks costing only a dime can cause injury which will cost hundreds of dollars in doctor's and hospital fees and

will leave a child with scars which a parent would give all the money he possesses to erase. Eyesight is priceless, yet the majority of the people in schools for the blind are there because of accidents with fireworks. Fingers or perhaps an entire hand can be blown off by exploding firecrackers; powder-using toy cannons may explode and flying bits may destroy eyesight; bombs, roman candles, sky rockets and fire balloons have possibilities of destroying both life and property. The substances composing fireworks are *all* of dangerous nature and should *never* be handled by children.

Fireworks are so closely associated with the celebration of American Independence that the Fourth of July has become a day upon which we expect tragic news. We use these bright, colorful displays of light to celebrate the birth of freedom, yet more people have been killed or wounded by fireworks than were killed or wounded to gain this freedom! Of the heroes who fought in the Revolutionary War, about four thousand never returned, and six thousand returned permanently disabled. In the years 1900 to 1930, four thousand, two hundred and ninety Americans lost their lives celebrating the victories of the original four thousand. Americans hurt, crippled or blinded numbered *ninety-six thousand*. These numbers increase every year.

THERE IS NOTHING PATRIOTIC IN THESE PRACTICES.

There is no thought of American Liberty or the Glory of Democracy in them. They represent only childish indulgences and stupid adult irresponsibility.

What can be done about this tragic situation? There is actually no protection against fireworks. An adult using them cannot control the unexpected explosion of a roman candle or control the actions of a frightened injured child. If fireworks are to be shown, it is advisable to keep buckets of water, or a hose connection close at hand while setting them off, and to plan before the display what to do in case of accident. The only real remedy is to remove the cause. Laws should be passed preventing the general sale of fireworks, and permitting their use only for professional displays by experts who plan such performances for special occasions.

Communities should plan special programs of recreation, ball games, athletic contests or patriotic meetings to keep the patriotic day happy, wholesome and safe. To safeguard children from fire the year round and then deliberately expose them to its dangers on July 4th, is worse than folly; it is a crime.

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THE HISTORY OF FIRE FIGHTERS

Since the discovery of a fire brings the immediate thought of the Fire Department, a study of the development of organized fire fighting should prove interesting.

The first organized fire fighting was in London, England, in 1666. Two-thirds of this great city had been burned in what was called "The Great London Conflagration". This aroused the people to form fire brigades, subject to call in case of fire. Fire insurance companies financed these first fire fighters and made a serious study of the problem of preventing fires.

Early in the nineteenth century, there were five London insurance companies with fire brigades whose members were called "Water Men". Strange as it may seem these firemen would not fight a fire which was not insured by the company they were employed to represent. To identify the special property under their protection, each insurance company used a "fire mark" in the form of a metal plaque of unusual design. These were hung above doorways or in some prominent place on the front of a building to guide the firemen. If a fire brigade arrived at a fire and found that the premises were not insured by their company, they would actually withdraw or wait until the proper firemen arrived, even though the entire property burned before their very eyes! Their equipment was crude but their work was surprisingly effective. Hand pumps were invented and they also used a huge syringe, flexible hose and leather water buckets—all forerunners of modern equipment.

Fire companies were very jealous of one another, but in 1865, most of the companies in England were merged and known as the London Fire Engine Establishment, financed and directed by the city of London.

In America, our fire prevention dates from 1659, when the Dutch Colony of Nieu Amsterdam placed a tax of one guilder on every chimney in the town, and organized fire companies, equipped with ladders, hooks and leather buckets. These organizations were called "fire societies" and their membership was entirely voluntary. The office of Fire Chief was created to direct the fire fighting in this little town, which we now know as the great city of New York.

The story of the Phoenix Fire Society of Boston is found in an interesting old document. The membership was fixed at thirty.

Quarterly meetings for instruction were held and a fine of one shilling was imposed on any member absent without excuse. Each member must keep on hand and in good condition, two buckets and an iron key. This key was to loosen the rope that served as bedsprings in that early day. Thus a fireman might be called out at night and find it necessary to dismantle his bed as part of his fire fighting duties.

As population and property increased, fires increased. Soon these select societies gave way to larger volunteer systems with engines, hose and bucket men. They were to fight fire wherever they found it, regardless of ownership.

George Washington was a volunteer fireman. He purchased the first fire engine for the town of Alexandria, Virginia, a few miles from Mt. Vernon. The old engine is still preserved. In the small towns merging into Washington, D. C., there are many old houses wearing the early fire marks on their quaint aging fronts.

Benjamin Franklin was a volunteer fireman. He was a member of a club, composed of young men who were interested in the welfare of the good city of Philadelphia. At a meeting one evening, Franklin asked this question: "Friends, what would you say is the greatest enemy of safety in our town?" Several voices answered at once, "Fire!"

In those days, people had only open fires for heating their houses and cooking their meals. Coal was not known and all home-owners were afraid of fire.

Franklin and his friends went to work to arouse the interest of the people and soon a volunteer company of thirty men was organized. At the first meeting, it was decided that each fireman must have a leather bucket to dip into a well. Also, each must take with him a big basket for carrying property out of a burning home. These men studied how to handle fires and were so much admired and praised that more fire fighting groups were formed. Within a few years, Philadelphia had thirty volunteer fire companies and was called the safest city in America.

In 1835, there was a great conflagration in New York. The Franklin Fire Engine Company of Philadelphia hauled their engine through mud, ice and snow for three days in an attempt to help the New York Fire Department. They arrived a day late but their heroic efforts were so appreciated that the New York firemen entertained them lavishly and gave them a pair of fine carved engine panels, upon which were paintings of Benjamin Franklin.

It is difficult for us today to believe it, but these early volunteers resented and opposed any new improvements for fire fighting. They said that the first rubber hose put too much distance between the men and the fire, and that steam engines were in themselves as dangerous as the fire. Cincinnati, Ohio, has the honor of being the first city to have a paid fire department, and of introducing the first successful steam engine. This engine was called "Joe Ross", and required a permanent force to keep steam up in it. Many cities followed the lead of Cincinnati, while others clung to the volunteer system until some great fire showed how weak this system had become. Early pay arrangements provided regular salaries only for the fire chief and drivers of apparatus, while the firemen were given two dollars for each alarm answered.

Study this early history of fire companies and then think of the great progress made through the years. Today, fire fighters have aerial ladders which are used to rescue people from burning buildings and can reach a height of 125 feet. They have blowers to aid in ventilation, lighting plants for illumination, oxy-acetylene for cutting through any substance, air drills, special dewatering pumps to prevent flooding of cellars, besides equipment for fighting the blaze itself. Any improvement is not only welcomed but constant research on better means of preventing and combatting fires is being conducted.

With all this progress, we must never forget that the human element, the fireman himself, is still very important. Firemen must be strong, brave, well-trained men who keep clear-headed and always alert. Every year many of them are injured, burned or even killed in the line of duty. Know them. Appreciate them. Co-operate with them. They will always be our first line of defense in "what to do in case of fire".

PUPIL ACTIVITY

1. Visit the local fire department headquarters.
2. Prepare list of questions to ask the firemen.
3. Guess the number of fires in your county during the past six months. Find the official figures to compare with your estimate.
4. Discuss what you saw when visiting the "fire house" and see if you think any improvements are needed for better fire protection.

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WHAT TO DO IN CASE OF FIRE

Every year more fire prevention literature is published; more fire prevention ideas are studied by clubs, business firms and organizations of all types; more laws are passed for fire safety; and more publicity regarding fire dangers is provided by motion pictures, radio programs and newspapers.

Fire losses in America will be lowered, when young people study fire prevention during their school years and resolve to practice it all their lives.

Fire is a terrible thing when it gets out of control and takes lives, homes and the rich resources of our country. Its work of destruction is so rapid that it is wise to plan what to do in case of fire. The knowledge may be needed at the most unexpected time.

THE FIRST FIVE MINUTES OF A FIRE ARE THE MOST IMPORTANT. These are the minutes in which calm thinking and quick action will prevent little fires from becoming big ones.

1. When fire is first discovered, or suspected because of smoke, never shout "Fire" unless calling for help which is not close at hand. Never loudly call "Fire" when in a theatre or other crowded place, because a panic is almost certain to follow and a panic is always dangerous.

2. Call the Fire Department. Even if a blaze is so small that it seems easy to put out, the fire department should be called. The telephone number of the fire department should be in a conspicuous place by each telephone or telephone extension. In reporting a fire, the speaker should give these three things which the fire department will need as information:

- a. The number of the house or building.
- b. The name of the street or road.
- c. The telephone number from which the call is sent.

If the alarm is sent from a fire alarm box on the street, someone should be left near the box to direct the firemen to the fire.

3. Before the fire department arrives, a person may:
- a. Use a fire extinguisher. Extinguishers hang, ready to use, on the walls of schools, theatres, factories, stores and office buildings. The law requires ships, trains, highway busses and airplanes to have them on hand. There are many

types of fire extinguishers, but most of them have an operating period of less than one minute. Direct the extinguisher on the base of the flame.

- b. Smother the fire with a woolen blanket or rug, or throw water at the base of the flame. Both of these methods cut off air, which contains oxygen, without which fire cannot burn. Water will cool the material which is burning and also produce steam which when confined acts as a smothering agent.
- c. Smother a fire caused by oil or grease by throwing flour, sand, salt or dirt upon it. A metal cover will also smother it. Water on such a flame would cause it to spatter and spread.

4. Saving lives in case of fire is of great importance. Many people try to save personal property or to put out a fire in a reckless manner and some lose their lives in doing so. Think clearly, act quickly, but never risk life.

5. A person exposed to smoke or flame should tie a wet towel or cloth over the mouth. This prevents suffocation which takes as many lives as burning. To reach an exit, keep close to the floor, crawl on hands and knees as drafts cause smoke to rise and, therefore, air near the floor is purest. Get out of an upper story on to a roof, if possible. This gives relief from smoke, attracts rescuers and in a well-planned building should be a means of reaching the ground. Do not jump from a window unless into a life net. Notice the exits in theatres and moving picture houses. Ask in hotels where fire escapes are located and look at them to see how far they are from your room.

6. If clothing catches fire, *do not run*. This will fan the flames and also prevent anyone from helping you. Lie down quickly. It is fatal to breathe hot air and fire. Hot air and fire travel rapidly to your face when you stand up. Cover your face with your hands and arms, *lie down and roll*. If water is handy, roll in spilled water. Flaming clothing causes panic. A person near enough to help someone whose clothing is afire should trip or force them if necessary to make them lie down. If a fire extinguisher is used, be sure not to direct the stream to the face. In throwing a rug or heavy woolen material over a person, be sure to throw it downward, toward the feet as flames must be kept from the face.

FIRST AID is help given in an emergency. A person giving this aid should keep calm, take command of the situation, and do or direct

others what to do. Call a doctor in case of severe accident and know what to do until he arrives. First aid in case of fire often concerns the treatment of burns.

1. *First degree* burns are those which have caused the loss of outer skin layers, produce a painful redness but do no great injury. Use unguentine, tannic acid jelly or sterile vaseline and bandage loosely.

2. *Second degree* burns are those which cause the skin to blister or break. The treatment is similar to that of a first degree burn. Relief from pain can also be given by wrapping the burns in sterile gauze or clean cloths, soaked in a solution of baking soda. Use three tablespoons of soda in a quart of warm water. Epsom salts may also be used in the same proportion.

3. *Third degree* burns destroy tissues, scar deep into the flesh and expose nerve endings which, in contact with air, cause intense pain, low temperature and shock. A doctor should be called immediately. If the burn was caused by a fire or automobile accident, don't treat it locally. Cover the patient with blankets and get him to a hospital as quickly as possible.

If the burn occurs in a home, remove all loose clothing from the burned places, but not if it sticks to the flesh. Cut around it and wait for the doctor to remove it. Keep the patient warm, his head slightly lowered and give sips of water frequently.

It is also important to know what *not* to do.

1. Never apply iodine to a burn or scald.
2. Don't use oils or greasy ointments in case of severe burns.
3. Don't use boric acid for first aid treatment of burns.
4. Never use absorbent cotton directly on a burn.
5. Don't use tannic acid on face, hands, or any mucous membrane.
6. Never open large blisters.

When a person is overcome by smoke, get him to the outside air as soon as possible. If the person is not breathing, apply artificial respiration and call a doctor and a fire department rescue squad if available. Keep on with artificial respiration until the patient revives, help arrives, or the doctor pronounces the patient dead.

Broken bones, cuts and bruises, received because of a fire, are treated in the usual manner.

The first treatments given are the ones which decide whether a person may be badly scarred, suffer infection or lose their life.

Be prepared. Know what to do in case of fire.

WHAT TO DO QUIZ

1. The first thing to do in reporting a fire over the telephone is to: (a) find the number of the Fire Department; (b) dial or speak directly to the operator; (c) pick up the receiver and yell "FIRE".
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2. The first thing to do if your clothing catches fire indoors is to: (a) smother the flames by wrapping up in a rug or woolen cloth and rolling on the floor; (b) wet the burning clothing; (c) run and call for help.
3. If you are in a smoke filled room, it is best to crawl to an exit because: (a) you will be able to see better from the light of the fire; (b) the purest air is one or two feet above the floor; (c) you may stumble over something and hurt yourself.
4. When a fire is known to be outside the room you are in, you should: (a) feel the door panels and find out if they are hot before opening the door; (b) open the door and rush out quickly; (c) always leave the room through a window.
5. If you know that your dog is trapped in the burning house, you should: (a) go into the house and save him; (b) tell a fireman or some other grown person; (c) tell some other child.
6. During an average year, the group of persons most frequently burned will be: (a) old people; (b) men; (c) children.
7. The cost of fires in our country is paid by: (a) insurance companies; (b) fire departments; (c) everybody.
8. The main thing that should be done to reduce fires throughout the country is: (a) develop more efficient fire departments; (b) eliminate the use of flammable materials; (c) reduce carelessness among people.

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