

YESTERDAY IN ENERGY

Students explore life in the past, with an emphasis on changing energy use.



GRADE LEVEL

4–12

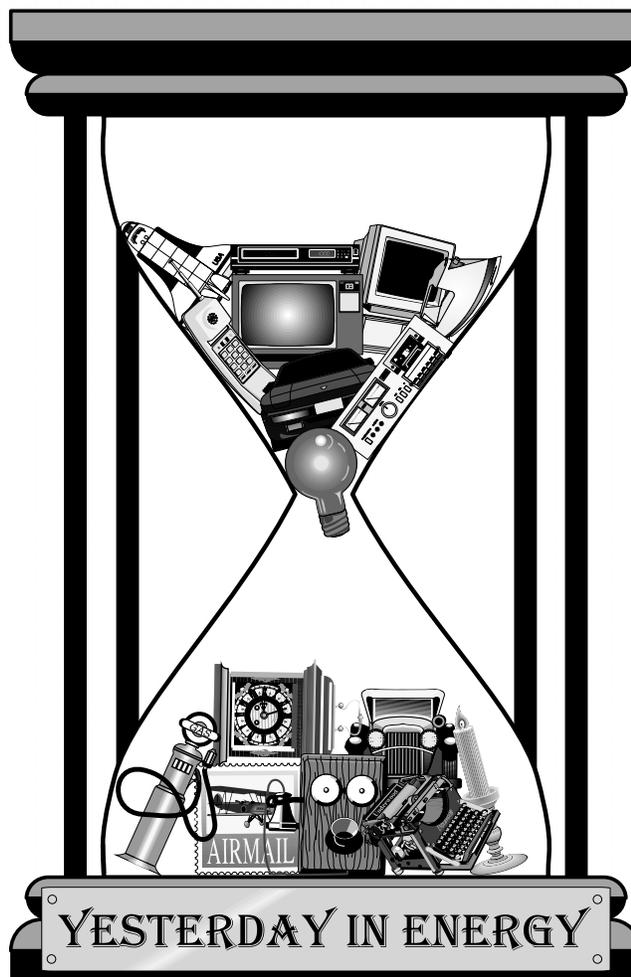
SUBJECT AREAS

Science

Social Studies

Language Arts

Performing Arts



Putting Energy into Education

NEED Project PO Box 10101 Manassas, VA 20108 1-800-875-5029 www.NEED.org

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Teacher Advisory Board Vision Statement NEED Mission Statement

The mission of the NEED Project is to promote an energy conscious and educated society by creating effective networks of students, educators, business, government and community leaders to design and deliver objective, multi-sided energy education programs.

In support of NEED, the national Teacher Advisory Board (TAB) is dedicated to developing and promoting standards-based energy curriculum and training.

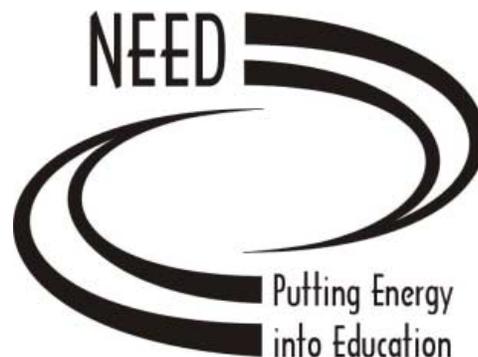
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Correlations to National Science Standards

(Bolded standards are emphasized in the unit.)

PRIMARY (K–4) STANDARD–E: SCIENCE AND TECHNOLOGY

2. Understandings about Science and Technology

- b. People have always had problems and invented tools and techniques to solve problems. Trying to determine the effects of solutions helps people avoid some new problems.

PRIMARY STANDARD–F: SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES

5. Science and Technology in Local Challenges

- a. People keep inventing new ways of doing things, solving problems, and getting work done. New ideas and inventions often affect other people; sometimes the effects are good and sometimes they are bad. It is helpful to try to determine in advance how ideas and inventions will affect other people.
- b. **Science and technology have greatly improved food quality and quantity, transportation, health, sanitation, and communication. These benefits of science and technology are not available to all of the people in the world.**

INTERMEDIATE (5-8) STANDARD–E: SCIENCE AND TECHNOLOGY

2. Understandings about Science and Technology

- c. **Technological solutions are temporary and have side effects. Technologies cost, carry risks, and have benefits.**

INTERMEDIATE STANDARD–F: SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES

5. Science and Technology in Society

- a. Science influences society through its knowledge and world view. The effect of science on society is neither entirely beneficial nor entirely detrimental.
- b. Societal challenges often inspire questions for scientific research, and societal priorities often influence research priorities.
- c. **Technology influences society through its products and processes. Technological changes are often accompanied by social, political, and economic changes that can be beneficial or detrimental to individuals and to society. Social needs, attitudes, and values influence the direction of technological development.**
- d. **Science and technology have contributed enormously to economic growth and productivity among societies and groups within societies.**
- e. **Science cannot answer all questions and technology cannot solve all human problems or meet all human needs. Students should appreciate what science and technology can reasonably contribute to society and what they cannot do. For example, new technologies often will decrease some risks and increase others.**

INTERMEDIATE STANDARD–G: HISTORY AND NATURE OF SCIENCE

3. History of Science

- c. Tracing the history of science can show how difficult it was for scientific innovators to break through the accepted ideas of their time to reach conclusions that we take for granted today.

SECONDARY (9-12) STANDARD–F: SCIENCE IN PERSONAL & SOCIAL PERSPECTIVES

3. Natural Resources

- a. Human populations use resources in the environment to maintain and improve their existence.

Teacher Guide

TO INFORM STUDENTS ABOUT HOW LIFE HAS CHANGED IN THE UNITED STATES IN THE LAST 100 YEARS, WITH A PRIMARY FOCUS ON ENERGY SOURCES AND USAGE.

BACKGROUND

In this cooperative learning activity, students work in small groups to prepare a museum exhibit and short presentation about one facet of life yesterday and today, such as transportation, heating, lighting, etc. The activity itself has been designed for students in grades four to twelve, but tours of the museum would be appropriate for all grade levels. This activity is especially well suited for PTA and community outreach presentations.

*Optional Activity—one class period. Students can create a “talk show” about life in the early 1900s. Several students dress up as senior citizens, and one student serves as the host. Develop a list of questions to ask the guests. Give the “old folks” a copy of the list ahead of time so they can prepare their answers. If you are short on time, use **The Dark Ages—Life Before Electricity** as a script for the show.*

CONCEPTS

- Life in the United States 100 years ago was much different than it is today.
- Technology has made enormous advances in the last 100 years.
- Energy sources and energy usage have changed considerably in the last 100 years.

TIME

Four to six class periods, plus homework.

MATERIALS

- One copy of interview, **The Dark Ages—Life Before Electricity**, for each student
- One Student Guide for each student
- Poster board, construction paper, markers, scissors, and old magazines
- Library resources and history books

PROCEDURE

Step One—Preparation

Divide the class into six working groups, with one student leader in each group, as follows:

Transportation
Communication

Heating/Cooling/Lighting
In the Home

Entertainment
On the Job

Make copies of the interview and the Student Guides. Each student should have a copy of the interview and a copy of the Student Guide for his/her group. Label one large envelope or file folder for each group. A blank workplan sheet may be attached to the front of each folder to help keep students on task.

Step Two—Introduction of Activity

Introduce the activity to your class. Explain to the students that they will be working in small groups to construct an exhibit and prepare a short presentation on one aspect of life 100 years ago, focusing on energy usage. Have the students read the interview, **The Dark Ages—Life Before Electricity**. Facilitate a class discussion, focusing on:

- Differences between life 100 years ago and today.
- Different energy sources available then and now.
- Different ways energy was used then compared to now.
- Differences between urban and rural uses then and now.

Step Three—Preparation of Exhibit and Presentation

Review the general guidelines for all groups, as follows:

- Each group will be responsible for preparing an exhibit that illustrates their topic. They can use costumes, hands-on items from that period, pictures from magazines, drawings, dioramas, charts, conversations with grandparents, etc. Some of this work must be done outside of class.
- Each group will be responsible for preparing a three minute presentation that covers the major points of their topic, as listed in the Student Guide.
- Each group may want to assign specific tasks to each member of the group—information gathering, interviewing older people, drawing, writing the script, etc.
- Give the students the deadline for completion of the project. Students should be given at least a week to complete the project.
- Give the students their group assignments. Each group should be given 10-15 minutes to read their Student Guides and prepare a workplan that includes goals, objectives, resources, specific daily tasks and the estimated time for each task. Younger students may need assistance with this.
- Tell the students which resources are available in the classroom and the library. Give the groups 15-45 minutes each day to work on their daily tasks. Monitor the groups' progress and offer guidance as needed.
- Check the presentation scripts to make sure the major points are covered, the facts are accurate, and that they fit within the time frame of three minutes. Remind students to speak slowly and clearly as they practice.

Step Four—Museum Presentations

Let's take a trip to the **Yesterday in Energy Museum!** For classroom use, allow two days for presentations. Have the groups set up their exhibits around the perimeter of the room. Have two presenters for each group stay with their exhibit, while assigning the other students to stations in equal groups. Have the groups tour the Museum stations at five minute intervals. This allows three minutes for each presentation, plus two minutes to examine the exhibit and ask questions. On the second day, have the presenters from the previous day tour the exhibits, while the other members of the groups make the presentations.

For presentations to other classes, set up the exhibits in a large room, such as the cafeteria. Instruct the groups to let all members take turns as presenters. Try to keep the number of people in each touring group to six or less, especially for younger students. The time interval can be increased for older audiences to allow for more discussion and questions, and decreased for younger audiences, if necessary. Take pictures! Take the museum on tour to a nearby school, nursing home, or mall. Invite the local media. Most of all, have fun.

Step Five—Grading and Evaluation

If this is a graded activity, you can use the outline below or your own grading system.

Individuals:

- Worked well in group—25 points
- Accomplished assigned tasks—25 points
- Knew material well—25 points
- Shared information with others—25 points

Groups:

- Group Work—25 points
- Exhibit—25 points
- Script—25 points
- Presentation—25 points

Communication

TO MAKE A MUSEUM EXHIBIT THAT TELLS THE STORY OF HOW PEOPLE HAVE COMMUNICATED WITH EACH OTHER IN THE LAST 100 YEARS AND THE ENERGY SOURCES THEY HAVE USED.

BACKGROUND

People have always needed to keep in touch with each other. Today, we use telephones, fax machines, computer networks, satellites, couriers, delivery services, and the good old U. S. Postal Service. Electricity, gasoline, and jet fuel are the main power sources. How did people let each other know what was happening before all this technology was invented? What energy sources did they use? Your museum exhibit will show the different ways people have communicated during the last 100 years.

MAJOR POINTS

- How did people communicate in cities? In rural areas?
- How did people communicate across long distances? Overseas?
- What kinds of energy sources were used?
- Were the energy sources expensive? Were they reliable?
- How are things different today?

LET'S GO

Step One—Research Your Topic

First, gather information from *The Dark Ages—Life Before Electricity*, the library, and older people you know to answer the questions above. Next, organize your information by topic. An index card for each topic works well. Finally, as a group, decide which points are the most important and put a star (*) by those.

Step Two—Make Your Exhibit

As a group, talk about ways to illustrate the most important facts—the ones you have starred (*). Try to think of several different ways to tell your story—don't just use pictures. The most interesting exhibits have a variety of things to look at, read, and touch. Some things you can use are: poster boards, costumes, pictures, old photographs, drawings, graphs, models or dioramas, interviews, and a tape player.

Step Three—Write Your Script

Write a three minute script about your topic. Make sure you cover the major points you starred (*). Use short, clear sentences that your audience will find interesting. You might want to tell a story to present your information.

Time your script, speaking slowly and clearly. Your script should be three minutes long. If it is too short, add more information. If it is too long, decide which information can be taken out. Give your finished script to your teacher for approval. Make copies of your script for each member of the group.

Every member of the group will make a presentation. Each member should practice until he/she can make the presentation without reading from the script. Each member should practice presenting to the other members of the group. Be sure to time each other. Give positive comments and help each other with any problems.

Step Four—Presentation

When it is your turn to make the presentation, be ready to go. Speak slowly and clearly. Speak loudly enough for everyone to hear. Point to your exhibit as you talk about it. Ask if there are any questions when you are finished. Thank your tour group when it is time for them to move on to the next exhibit.

Entertainment

TO MAKE A MUSEUM EXHIBIT THAT TELLS THE STORY OF HOW PEOPLE HAVE ENTERTAINED THEMSELVES DURING THE LAST 100 YEARS AND THE ENERGY SOURCES THEY HAVE USED.

BACKGROUND

People have always needed some form of entertainment. Today, we have television, MP3 players, X-Box, 3-D movies, and Disney World. Most are powered by electricity. The electricity might come from solar cells; a nuclear, gas, or coal-fired power plant; a wind farm; a geothermal or hydropower facility, or a trash-to-energy plant. What did people do when they were bored? What energy sources did they use? Your museum exhibit will show the different ways people have entertained themselves during the last 100 years.

MAJOR POINTS

- What did people do for entertainment in cities?
- What did people in rural areas do?
- What kinds of energy sources were used?
- How are things different today?

LET'S GO

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Heating/Cooling/Lighting

TO MAKE A MUSEUM EXHIBIT THAT TELLS THE STORY OF HOW PEOPLE HAVE HEATED, COOLED, AND LIGHTED THEIR HOMES AND BUSINESSES IN THE LAST 100 YEARS AND THE ENERGY SOURCES THEY HAVE USED.

BACKGROUND

People have always found ways to stay warm in the winter, stay cool in the summer, and make light when the sun goes down. Today, there are space heaters, furnaces, heat pumps, air conditioners, flashlights, lanterns, and electric lights. What kinds of fuels do they use? What did people do in the past to stay warm, stay cool, and make light? What energy sources did they use? Your museum exhibit will show the different ways people have stayed comfortable and in the light during the last 100 years.

MAJOR POINTS

- How did people warm their homes in cities? In rural areas?
- How did people stay cool in hot weather?
- How were homes and businesses lighted?
- How are things different today?

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In the Home

TO MAKE A MUSEUM EXHIBIT THAT TELLS THE STORY OF HOW PEOPLE HAVE PERFORMED HOUSEHOLD CHORES IN THE LAST 100 YEARS AND THE ENERGY SOURCES THEY HAVE USED.

BACKGROUND

People have always needed to store and cook their food, wash their clothes, and clean their houses. Today, we have refrigerators, freezers, microwaves, stoves, hot water heaters, vacuums, washers, dryers, and indoor toilets—every kind of modern convenience. Electricity and natural gas are the main power sources. How did people run their homes before all this technology was invented? What energy sources did they use? Your museum exhibit will show the different ways people have kept house during the last 100 years.

MAJOR POINTS

- How did people store and cook their food? How did people heat water?
- Was life different in the country from life in the city?
- What kinds of energy sources did people use?
- How are things different today?

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On the Job

TO MAKE A MUSEUM EXHIBIT THAT TELLS THE STORY OF THE IMPORTANT JOBS PEOPLE HAVE PERFORMED DURING THE LAST 100 YEARS AND THE ENERGY SOURCES THEY HAVE USED.

BACKGROUND

People have always worked. Today, most people's jobs involve providing services to others. These workers include teachers, doctors, lawyers, social workers, and other office workers. Electricity is the main power source for the equipment they use. The manufacturing industry and farmers have machines to do much of the work. These industries use electricity, coal, natural gas, and petroleum products as their sources of energy. Your museum exhibit will show the working world of the last 100 years.

MAJOR POINTS

- What were the most important jobs in the past?
- What machines did people use to help them do their jobs?
- Were jobs different in the country from jobs in the city?
- What kinds of energy sources did people use in their jobs?
- How are things different today?

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Transportation

TO MAKE A MUSEUM EXHIBIT THAT TELLS THE STORY OF HOW PEOPLE AND GOODS HAVE BEEN TRANSPORTED FROM PLACE TO PLACE IN THE LAST 100 YEARS AND THE ENERGY SOURCES THAT HAVE BEEN USED TO MOVE THEM.

BACKGROUND

People have always shipped goods and traveled from place to place. Today, we use trucks, trains, barges, and airplanes to ship goods. Most are fueled by petroleum products, gasoline, and diesel fuel. People travel on bicycles, subways, buses, trains, ships, planes, rocket ships, and, of course, in cars. What kinds of fuels do they use? Your museum exhibit will show the different ways people have traveled and moved goods in the last 100 years.

MAJOR POINTS

- How did people get around in cities? In rural areas?
- How did people travel and ship goods long distances? Overseas?
- How are things different today?

LET'S GO

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THE DARK AGES

Life Before Electricity

Remember the last time you complained to your parents or grandparents about having to walk to school? Were you forced to endure another one of their famous stories? You know the stories I'm talking about. "When I was your age, I had to walk ten miles to school, uphill both ways, through a blizzard, barefoot, and carrying my six brothers and sisters on my back." And they call those the "good" old days?

Have you ever wondered what life was really like in the past? What was it like living without electricity? How did people get around when they didn't have automobiles? What did people do for entertainment before TVs and video games were invented? To answer these questions, *NEED* spoke to Mr. and Mrs. Hatfield. Joe Hatfield was born in 1910 in West Virginia, and Selma Hatfield was born in 1912 in New York City.

NEED

What was it like growing up without electricity?

Selma

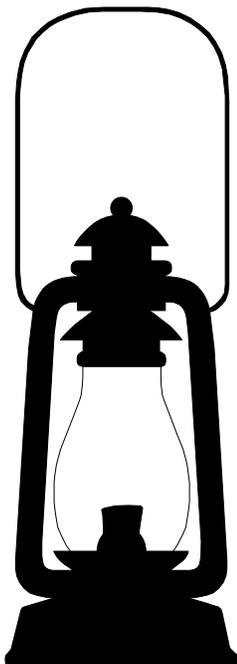
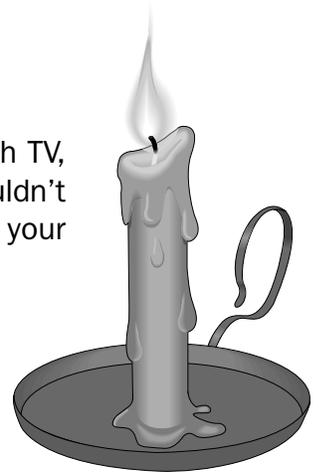
Think about the last time your power went out. It was dark. You couldn't watch TV, listen to that noise you call music, or play those infernal video games. You couldn't cook anything, and the food in your freezer started to thaw. Suddenly, all your electric appliances were useless.

Joe

Yep, that's what it was like before electricity.

NEED

Wow, what a bummer. How did you see at night if you didn't have electric lights?



Joe

Oh, we had kerosene lamps. Those darn lamps were hard to light and even harder to keep lit. And they sure didn't give off much light. It was tough doing homework with all ten of us kids huddled around one lamp.

Selma

Kerosene lamps were dirty, too. My mother hated to clean them. I remember the day we got electric lights. Momma threw all her kerosene lamps out the window of our apartment building. And wouldn't you know, one of the lamps hit a policeman right on the top of his head. He was okay, but we never did let Momma forget about her run-in with the law.

NEED

When did you first get electricity?

Selma

It wasn't until 1920 when I was eight years old. We thought electricity was magic. My sisters and I would run from room to room turning on all the lights in the house. My father wasn't too happy when he got his first electric bill.

Joe

My family didn't get electricity until 1945.

NEED

Why so late?

Joe

I'm from a coal mining town. We just couldn't afford it. I had an uncle who was a farmer, and he didn't get electricity until 1949.

Selma

Electricity sure made our lives easier.

NEED

Why do you say that?

Selma

Electricity meant an end to ice boxes, wood stoves, and hand washing your clothes.

Joe

That's right. I can still picture Momma bent over a hot stove shoving one piece of wood after another into the firebox. Every morning before school, I had to chop enough wood to keep the fire going all day. And that old stove sure used a lot of wood. But I'm not complaining. I got off easy.

NEED

What do you mean?

Selma

He means the kitchen would get extremely hot and filled with smoke every time you used the wood stove. It was like cooking in Hell's kitchen.

Joe

Especially in the summer when the canning was done. My poor momma would spend all day canning in this little room with a tin roof. The fire in the stove had to be kept roaring hot so that the water would boil. Between the sun beating down on the roof and the heat from the stove, I don't know how she managed.

Selma

Don't forget the ash box. It had to be emptied twice a day. No matter how careful you were, ashes would fly everywhere when you pulled the ash box out from under the stove.

NEED

What about refrigeration? How did you keep your food cold?

Selma

We had an ice box. The iceman would come around every day with his wagon, and we would buy a 100 pound block of ice from him. Boy, did he hate carrying that ice up to our 4th floor apartment. When it got really hot in the summer, I would chip a piece of ice off the block and rub it over my arms and legs. You see, we didn't have air conditioning back then.

NEED

Did you have heat?

Selma

Of course! Living conditions may not have been what they are today, but they weren't barbaric. Our house was heated by a coal furnace. The same man who delivered our ice also delivered coal. He would dump coal down the chute into our cellar coal bin. I remember how Frank Lewis and his friends used to steal coal. Frank would go down a neighbor's coal chute and fill several bags with coal. The other fellas would wait at the top to pull up the bags. If the furnace man happened to come by, all the fellas would run. Poor Frank would be stuck down in the coal bin.

NEED

How did the coal furnaces work?

Selma

We would load coal into the furnace every morning, and then we'd add more throughout the day. At the end of the day, we would empty the ashes from the furnace into an ash can. In those days, ash cans were more common than garbage cans.

NEED

Did you have running water?

Joe

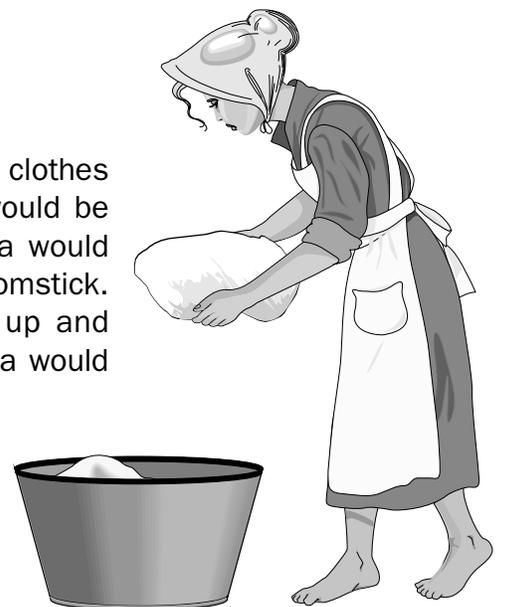
Sure, we had running water—I would grab two buckets and run with them from the well to the house. That was our running water. And I sure did a lot of running on washtday. I had to fill three 20-gallon washtubs and a huge vat that was suspended over a fire. In a family of coal miners, you can imagine how dirty our clothes got. The water in the washtubs had to be changed after every load.

NEED

You mean you didn't have a washing machine?

Joe

My mother was our washing machine. Momma would scrub the clothes on a washboard with homemade lye soap. Then the clothes would be wrung out by hand and put in the vat of boiling water. Momma would stand over that boiling water and stir those clothes with a broomstick. She would move the broom handle around and around and up and down for 15 minutes. When the clothes finished boiling, Momma would put them into the "rinse tub." She would swish each piece of clothing around, wring it out, and put it into the third washtub that contained bluing. Bluing was what we used instead of bleach. After the clothes were swished around in the bluing, they would be hung on the line to dry. And that was just the first load!



Selma

Then came the ironing. You young folks don't even know the meaning of the word iron. Today, everyone uses lightweight electric irons. When I was a girl, an iron was a six or seven-pound wedge of iron that was heated on the wood stove. We would wrap a pot holder around the iron's handle to keep from getting burned. Of course, the pot holder would always slip, and then you would feel hot metal against your skin. My hands had blisters on top of blisters at the end of ironing day.

NEED

Ironing DAY?

Selma

In those days, ironing was an all day affair. It would take forever just to iron one cotton shirt—we didn't have permanent press!

NEED

Life sounds pretty rough back then. Did you ever have fun?

Joe

Sure, we had fun. We didn't have TVs or video games when I was growing up, so we had to make our own fun. We used to play baseball. Let me tell you, I was a heck of a right fielder. Just like Babe Ruth.

Selma

Oh, I'm sure you were just as good as Babe Ruth. I don't know why the Yankees never asked you to play for them.

Joe

I was good. I just couldn't hit like the Babe. No one could.

**Selma**

I was never much of a baseball fan. I preferred the motion pictures. I saw my first motion picture in 1920. It was a silent film called *The Sheik*, starring Rudolph Valentino. All the women were swooning over Valentino and fainting in the aisles. With all that commotion going on, you couldn't read the subtitles. It was very annoying.

NEED

I imagine it was.

Selma

Thankfully, *The Jazz Singer* with Al Jolson opened in 1927. It was the first full-length talkie. When Jolson said, "You ain't seen nothin' yet," I think he was talking about the movie industry. Things really happened fast after that.

NEED

I hear radios were popular before the days of television.

Selma

Just about everyone I knew had a radio. We got our first radio in 1925, and I would run home from school every day to hear my favorite programs. Of all the new electric appliances you could buy, I think the radio was the most popular.

Joe

We didn't have a radio. Some of the men who had musical instruments would get together at night and play a few tunes. Our neighbors, the McCoys, had a phonograph. They only had one record, and they would play it over and over again. It drove us crazy, until my brother Frank Hatfield "accidentally" broke the record.

NEED

Were the McCoys mad?

Joe

I thought there was going to be another feud! But they simmered down. Neighbors really had to depend on each other in those days. If there was an emergency, you couldn't pick up a phone and call someone.

NEED

What did you do?

Joe

You would send someone for help. Of course, you never knew when, or if, help was coming. In more than one case, help arrived too late.

NEED

Without telephones, how did people keep in touch?

Selma

My mother used to write a lot of letters. She would write to her family in Europe every week. I remember she used to write on the envelope "per" and then the name of a ship.

Joe

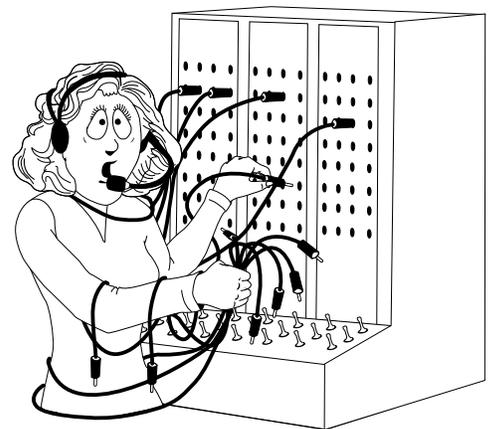
People would send telegraph messages when it was something really important. We hated to get telegrams—it always meant someone had died.

NEED

When did you get a telephone?

Selma:

We got our telephone in 1922. Momma didn't care much for the telephone. The bell would ring all day, and she couldn't get anything done. But I liked being able to talk to my friends at night. In fact, after high school, I went to work as a telephone operator. Things were a lot different in those days. Whenever someone picked up a telephone receiver, an operator would say "Number, please." The operator would plug a jack into the proper place on a board to make the connection. You really had to work fast. I don't know how many times I pulled out the wrong jack and disconnected people in the middle of their conversation.



Joe

Tell the story about your first day on the job.

Selma

Oh, yes. A woman came up to me and said, “If there’s a snowstorm, this place will really blow up.” When I got home, I told my parents I couldn’t work for the phone company because it might blow up. You see, I misunderstood the woman. She meant the phone company would get really busy when it snowed.

NEED

What about transportation?

Joe

Since we didn’t live far from the coal mines, we walked to work every day. You just didn’t travel much in those days. To go any distance, you had to take a train or boat.

Selma

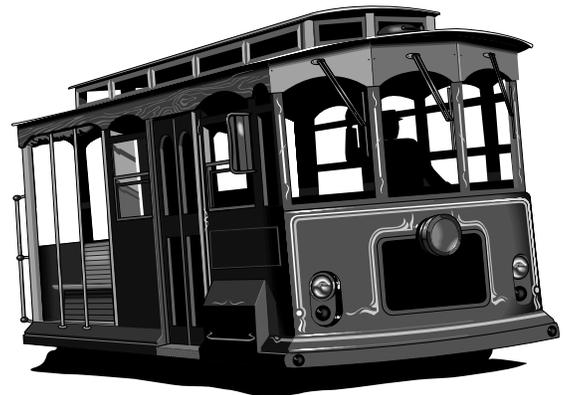
It was a lot easier getting around in the city. Before electricity, there were horse-drawn streetcars, hansom cabs, and horse and carriages. Every morning I woke up to hear the clip-clopping of the horses’ feet on the cobblestones as the milkman and bakery man began their deliveries. In those days, almost everything was delivered to you.

NEED

Did electricity change things?

Selma

Oh, yes. After the city was electrified, you could ride a trolley car just about anywhere for a nickel. The trolley cars ran along tracks embedded in the street. Overhead, there were wires that provided electricity to the trolley cars. As a prank, some of the older boys would tug on the pole that transferred electricity from the overhead wire to the trolley car. The power would be cut off, and the trolley car would coast to a stop. We would laugh as the motorman dashed out of the trolley car after those boys. Of course, the adults in the trolley never thought it was funny. I guess they didn’t care for the delay.

**NEED**

Did they have subways in New York City back then?

Selma

There were subways and elevated trains called EIs. In those days, most of the subway lines were also elevated. The EIs and subways were so much faster than the trolley cars, and it was fun riding high above the city streets.

NEED

What about automobiles?

Selma

My family got our first automobile, a Model T Ford, in 1927. That was the last year Model T’s were manufactured. You can’t imagine the freedom we acquired when we bought that Model T.

NEED

What do you mean?

Selma

Well, owning a car meant that we could travel more easily outside of New York City. Although the roads back then were nothing to write home about. Only the city streets were paved with asphalt. Once you got out of the city, you had to drive on dirt roads.

NEED

At least your gasoline was cheap. I've seen movies that showed gas stations selling gas for 12 cents a gallon back then.

Selma

How much is minimum wage today for a young worker?

NEED

About six dollars an hour.

Selma

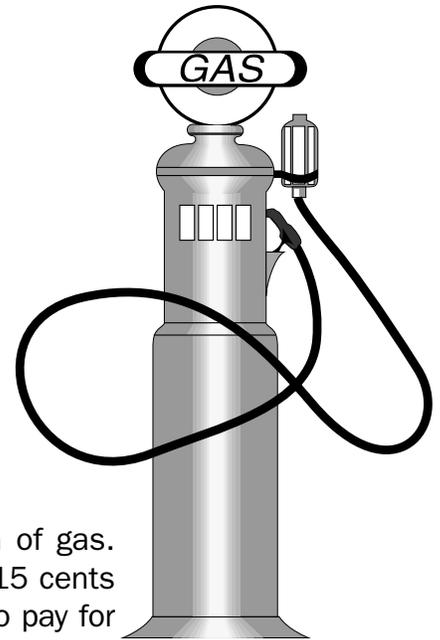
And the price of a gallon of gas?

NEED

About three dollars.

Selma

So, you only have to work about half an hour to pay for a gallon of gas. Well, when I first started working at the phone company, I earned 15 cents an hour. That means I would've had to work almost a whole hour to pay for a gallon of gas. You see, gas is cheaper today than when I was young.



NEED

When did driving get really popular?

Selma

Not until 1945 when the first super highways were built. It was the beginning of the American Dream—inexpensive cars, cheap gasoline, and safe super highways.

Joe

Come to think of it, I got my first car in 1945. It was also the year I met Selma.

NEED

How did you two meet?

Joe

It was during the war. I had just returned from a tour of duty in Europe, and I met Selma at a USO dance in New York City. I got a job working for a printing company, and we were married a year later. I was happy I didn't have to go back to the mines.

NEED

How long were you a coal miner?

Joe

Twenty years. I started working in the mines when I was 11 and didn't quit until I joined the army in 1941.

NEED

What was it like being a miner in the 1920s and 30s?

Joe

Those were hand loading days. We didn't have the fancy mining machinery they use today. Our tools consisted of a miner's pick, a hand auger used to drill holes, and a shovel. The coal company made us buy our own tools. We even had to buy our own blasting powder, fuses, lamp oil, and head gear.



NEED

How much were you paid?

Joe

Ten cents per ton of coal. I could usually load 20 to 25 tons per day.

NEED

Can you describe a typical day in the mines?

Joe

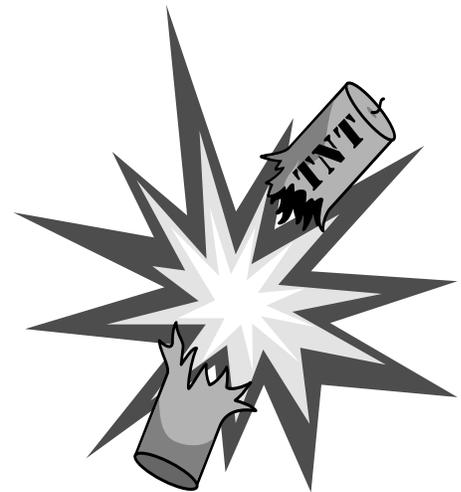
I would be at the mine by 6:30 to catch a coal car into the mines. If you missed the car, you would have to walk. It was at least a seven mile trip, and they didn't pay you for the time you spent getting into the mine.

NEED

What did you do once you got inside the mine?

Joe

Well, the "hoot owl" shift would have undercut the coal face with a cutting machine the night before. A loader's first job was to lay track and set timbers to support the roof. You weren't paid for those jobs either. After drilling holes, you would blast the coal with dynamite.



NEED

Wow, that sounds dangerous. What happened after the coal was blasted?

Joe

You would shovel the coal into empty mine cars. If your coal had any "gray band," or slate, you had to throw it out. If you didn't clean the coal, they would dock your pay for loading dirty coal. If you didn't clean up your work space, the cutting machine wouldn't come into your room.

NEED

I've heard that coal mining was a dangerous job in those days.

Joe

I can't think of a more dangerous job than mining. Black lung disease, caused by breathing in coal dust, was a long-term problem for almost all of the miners I knew. And no matter how many timbers we set, there was always the danger of a cave-in. Of course, explosions were a constant threat, too.

NEED

Why?

Joe

Coal dust was always hanging in the air, and one spark from a kerosene lamp could set it off. Gas explosions were also a problem. When I first started mining, we brought caged canaries into the mines to test for methane gas. When the canary died, we got out of the mines as fast as our legs could carry us.

NEED

Isn't there anything the coal company could have done to prevent these explosions?

Joe

They could have sprayed the walls with water to keep the coal dust under control, but the company said it was too expensive. But we did have a fire boss who came around once a day with a safety light to check for gas.

NEED

Do today's coal miners have it any easier?

Joe

Yes, mining has come a long way since the days of hand loading. Now they have machines to do the dangerous work, and safety regulations to protect the machine operators.

NEED

Boy, things sure have changed a lot in the last 80 years. What do you believe has made the biggest difference in your lives?

Selma

I think it was electricity. Electric appliances—refrigerators, washing machines, electric stoves—meant an end to household drudgery. Electricity also revolutionized the work place—from factories to farms.



Joe

I would have to disagree with you, Selma.

Selma

I'm not surprised.

Joe

The automobile made the biggest difference in my life. Suddenly, you could go anywhere in the United States. Owning a car also changed the way many Americans lived. You could work in a city and live in the surrounding countryside. Of course, the automobile industry made a huge difference in the trucking industry. Food and goods could be moved much quicker across the country.

NEED

It sounds like both electricity and the automobile were important inventions.

Joe

They were. Things changed so quickly, it was sometimes hard to keep up.

**Selma**

Joe's right. In my lifetime, I went from not having electricity to seeing a man walk on the moon. That's pretty darn amazing!

YESTERDAY IN ENERGY

Evaluation Form

State: _____ **Grade Level:** _____ **Number of Students:** _____

- | | | |
|--|-----|----|
| 1. Did you conduct the entire activity? | Yes | No |
| 2. Were the instructions clear and easy to follow? | Yes | No |
| 3. Did the activity meet your academic objectives? | Yes | No |
| 4. Was the activity age appropriate? | Yes | No |
| 5. Were the allotted times sufficient to conduct the activity? | Yes | No |
| 6. Was the activity easy to use? | Yes | No |
| 7. Was the preparation required acceptable for the activity? | Yes | No |
| 8. Were the students interested and motivated? | Yes | No |
| 9. Was the energy knowledge content age appropriate? | Yes | No |
| 10. Would you use the activity again? | Yes | No |

How would you rate the activity overall (excellent, good, fair, poor)?

How would your students rate the activity overall (excellent, good, fair, poor)?

What would make the activity more useful to you?

Other Comments:

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