



E. H. Danner Museum of Telephony



PARENT / TEACHER GUIDE

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A virtual museum might be approached as any collection of artifacts. The major difference is that it can be accessed a little easier than many collections. The E. H. Danner Museum of Telephony is located in San Angelo, Texas, and provides an esoteric tour of a device that has become a fixture of daily life and yet, items whose operation remains mysterious and poorly understood by the general public. The telephone has placed communication in the hands (and the ears) of everyone. It is possible to call from a telephone in the lobby of a hotel in Krakow, Poland to a cellular telephone in a pickup truck on a caliche road in West Texas as easily as dialing ten numbers and, suddenly, be as close as voices will allow. The telephone call is something we take for granted; and yet when the ability to call is gone, the distance seems all the more real and the separation that much greater.

History is full of inventions which changed the way the world worked; the telephone is one of these. By understanding the world before and after the invention of the telephone is to understand something about how people have dealt with communication, distance, emotion, good news and bad. It is a microcosm of how we have grown because of one small innovation.

The curriculum included here is a suggestion of how the material in the museum might be used. It emphasizes a variety of approaches with some of the material taking a class period to complete and others extending well beyond a week or more. While the material concentrates on grades 4 through 8, many of the suggestions can be modified for a different grade level by changing some of the content and determining which of the Texas Essential Knowledge and Skills (TEKS) would need to be adjusted. The curriculum includes material currently keyed to the TEKS as well as other material needed to introduce concepts. There has been an attempt to create a thematic unit which the museum would be able to support with its artifacts.

In addition, the material below has been linked to the National Standards for Social Studies. The standards consist of ten strands and suggestions for students at early Years, Middle Grades and High School.

The strands are:

- I. Culture
- II. Time, Continuity and Change
- III. People, Places and Environment
- IV. Individual Development and Identity
- V. Individuals, Groups and Institutions
- VI. Power, Authority and Governance
- VII. Productions, Distribution and Consumption
- VIII. Science, Technology and Society
- IX. Global Connections
- X. Civic Ideals and Practices

These standards have been developed to explain what students need to know to be active participants in a democracy and to suggest how the strands might be measured. The strands are identified in the questions with Roman Numerals and a letter linking them to a grade level. For example, VIIa would identify the eighth standard, Science, Technology and Society, and the first activity. Fourth grade material addresses the early grades, while seventh grade addresses the Middle Grade standards.

Theme—Systems
Generalizations

1. Systems consist of component parts.
2. Systems influence the development of other systems.
3. Systems must be adapted in order to survive.

Fourth Grade-- Texas History

Communication is basically the transfer of ideas from one person or society to another. In order to transfer an idea, several systems must be developed. What kinds of communication systems are there?

Students may be divided into smaller groups to conduct short-term research on communication systems. Students may be assigned to continents and then instructed to find out how the people on the individual continents communicated. Did they have written language? When was it developed? What sort of writing systems did the people use? When did modern technology begin to impact communication? When did the nations who had not developed the technology begin to adopt it? Students will display their research on a time-innovation line, which will show the development of the innovation (writing, printing press, telephone). (NS I a)

4(14)(A) OR 7(20)(C) Define technology. How have technological advances changed a society? Students may work in groups and identify technological innovations which have had an impact on Texas. The teacher may provide the names of the innovations for the students. Some innovations that might be listed are: barbed wire, steel plow, windmill, **telephone**, computer technology, medical technology such as magnetic resource imaging and compact disk technology in the music industry. Students will identify how the innovation has created an industry and describe how the innovation has been seen in Texas. For example, MRI technology has created not only jobs in hospitals but also created a host of ancillary services such as out-sourcing stations for such imaging. Students will create a time-line showing proper **sequencing** of the innovation and how, if appropriate, one influenced the development of another. (NS VIII a,c,e)

4(b)(1)(B) Native Americans in Texas and in the American West had a variety of methods of communicating over distances. Students working in small groups or triads will identify these methods and create drawings illustrating how they were conducted. For example, smoke signals and signaling with blankets and robes were traditional methods of communicating over distances. (NS I c)

4(b)(12)(A) As the telephone impacted early communities, the people who had telephones were people who could afford them. What did the rest of the community use the telephone for communication? Examine the development of the pay telephone. When did it first develop in the United States, in Texas? Were there any other public utilities that developed parallel offerings such as the public telephone? What patterns do you see in this development? Compare and contrast the development of the public telephone and public utilities. (NS VIII a, b)

4(b)(21)(C) What is the next big step for the future of the telephone? What kinds of changes can you predict for the future of the telephone? Support your answers with evidence.

4(b)(21)(C) Create a graph illustrating the use and development of the telephone in private homes in Texas between 1880 and 2001. You may use any approach to graphing that you choose. (NS VIII a)

7th Grade Texas History

1. Maps are a form of communication. Using primary and secondary sources, determine why the kings of Spain and Portugal kept most maps under lock and key. Why were maps stolen frequently in the 15th century? (One source to use in preparation of this content is The Island of Lost Maps by Miles Harvey. New York: Random House, 2000.)

2. When Cortez landed in Mexico, Montezuma knew of it within minutes of the landing. Conduct research to determine how the Aztecs communicated. Compare that to how Europeans communicated over distances in the Old World. **Create a venn diagram** to illustrate your findings. In Mexico, this form of communication with mirrors was conducted by *avisos*. (It is possible that the only easily accessed document to describe this kind of communication is Chronicles of the Big Bend by W. D. Smithers. Austin: Madrona Press, 1976. See page 83-96 for a description of this primitive form of communication.) **(NS I c, d)** How did the increased speed of communication influence the Aztecs response to the European invasion? **(NS II b)**

3. Before the invention of the telephone and other wire communication, the fastest that any information could travel for the main stream of society was the speed of a horse. How fast can a horse run over an extended time?

7(20)(D) What is wire communication? When was it developed in the United States? What was the first piece of technology that used wires to transport information? **(NS VIII b, c)**

7(b)(5)(A) When did telephones come to Texas? How did the telephone impact urban life in Texas? What towns had the first telephone service? **(NS VIII c)**

7(b)(10) How did the telephone affect economic growth in Texas? Which industries were impacted first, which least? Explain why some businesses were affected more strongly than others. **(NS VII a, b)**

7(b)(13)The telephone had a dramatic effect on the societies it touched. How does a telephone actually work? Conduct research to determine how a telephone works. Choose a method of exhibiting how the original telephone worked, how a modern telephone works and how a cellular telephone works. **(NS VIII b)**

7(b)(20)(E) Define interdependence. How are countries interdependent on each other? Are towns interdependent on each other? Explain how the telephone contributes to the interdependence of individuals, companies and nations. **(NS VIII c)**

7(b)(22)(B) Determine if there is a connection between increased car accidents and use of mobile telephones in Texas during the most recent period of time for which data is available. Summarize the arguments in favor of and opposed to limiting the use of the mobile telephone to vehicles when they are not moving. **(NS VI a)**

7(b)(22)(A) Using primary sources describe the coming of the telephone to different Texas towns. What was the reaction of the people? What effect did it have on the local community both economically and socially? (NS V g)

7(b)(1)(A) Using Team Word Webbing (see SSCED Tool Kit) students will identify major eras in Texas History and identify major technological advances of that era.

7(b)(2)(A) Compare and contrast different methods of communication used by native Americans, Spanish and Mexican Colonists and Anglo colonists prior to 1875.

7(b)(3)(B) Conduct short term research to identify primary source information describing the major incidents of the Texas Revolution. Write a script covering one of the major incidents as if television was covering the incident. Compare and contrast how the coverage would be different.

7(b)(6)(A) Who was Col. A. H. Belo and what contribution did he make to the history of communication in Texas?

7(b)(6)(A) George Washington Breckinridge is sometimes given credit establishing the first telephone in Texas. Some claim that he was using a “printed message system”. What is a printed message system and how did it work?

7(b)(6)(A) Part of the mystique of the new telephone system involved why women were used as operators. In a time when there were few jobs outside of the home for women, they quickly became an accepted part of the new industry. Why were women used as operators?

7(b)(6)(B) Discuss the impact of the telephone and other improved communications systems on small towns in West Texas. When did the utility begin to come into the area, how was it regulated and who was Central?

7(b)(6)(B) Explore the growth of the telephone industry in Texas between 1875 and 1925. Examine the ways the industry was developed, funded and how it expanded. In 1880 how many subscribers to telephone were there in Texas, how many in 1925? Create a graph to illustrate the growth in the number of telephone users in Texas during these years.

7(b)(7)(A) The “boom and bust” cycles affected most of the economy in Texas during the 20th Century. How was the telephone industry affected? Compare and contrast the telephone industry’s fortunes as compared to oil, aviation and real estate. How were these major industries interdependent?

7(b)(8)(A) Create a thematic map of Texas to illustrate when and how utilities eventually came into all parts of Texas. Suggestions for the utilities might include telephone, electricity, gas and television.

7(b)(10)(A) In triad groups determine the effect of geography on the expansion of public utilities in Texas. Did the challenge of geography end with the closing of the frontier in 1895?

7(b)(12)(A) There was no Public Utility Commission in Texas until 1975. Determine what factors led to the creation of the PUC and determine if the creation of the agency was justified. Support your position with evidence.

7(b)17(C) Students will set up and take part in a debate to determine if there should be ceilings on the amount of money that a public utility can charge for services.

U.S. History 1877-Present

8(1)(B) Students use a round-robin technique (see SSCED Tool Kit) to give opinions on the most significant inventions affecting modern American life from 1877-2001. As a group plot the inventions and dates of their introductions and major revisions on a time line.

8(2)(B) In the United States, there has always been a close tie between business and politics. Conduct individual research, and then use the Think-Pair-Share technique to determine how the business community began to influence policy during the Grant administration. How did reform emerge to deal with the encroachment of business? Compare the influence of business in the Grant Administration and one modern administration. One group might concentrate on the impact of the entertainment industry on the Clinton Administration, and communication on the Reagan Administration.

8(3)(A) As the United States became a greater world power, beginning in 1898, its influence was felt not only through the use of the military, but also by its expanding business community. Explore the relationship between U.S. foreign policy from 1898 until 1929 and business interests. It might be especially useful to examine the influence of Standard Oil in Mexico and various American fruit companies in Central America. In modern times, how have communication companies influenced U.S. policy? Use a co-op group to explore several viewpoints concerning this issue. Students report their findings to the entire group. They should be prepared to support their positions with evidence.

8(6) Technology constantly evolves during times of great pressure. Using an inquiry method (see SSCED Tool Kit) have the students identify major technological forces in existence at the beginning of the Second World War. For example, aviation, communication (including the telephone), radio (commercial and military), movies, automotive and any other industry in existence at the beginning of World War II. Assist them to generate a hypothesis concerning the growth of technology because of the influence of the war. Students will then conduct research and analyze data to determine if industry responds in a positive way to the influence of major world tensions.

8(8)(A) Students, working in groups, create a thematic map of the United States showing the growth and expansion of various business-industry forces. For example, where did the initial telephone-communication, textile, steel manufacturing, entertainment and aviation industries begin and where did they expand? Describe the reasons for the initial locations and reasons for the movement.

8(13)(A) How did American Telephone Companies, or other industries, extend their power overseas during the time period of 1877-1929? How did companies create a market for their products and make connections between the United States and other countries in Europe, Asia, South America and Africa? Create a game that illustrates foreign policy and foreign influence during this period.

8(13)(A) Write a fictional letter home from a foreign nation, the choice is the students, using recognized problem solving techniques to deal with the expansion of a company in a nation that is reluctant to accept additional U.S. influence.

8(14)(A-E) Examine the history of the American Telephone and Telegraph Company from it's inception in 1875 to date by looking at it's financial performance on the stock market . Students will develop generalizations concerning the growth and expansion of the company and relate them to the growth and expansion of the United States economy.

8(20)(A) Business and the arts have been closely related since the first company bought a piece of art for one of its offices. Discuss the connections between business and the arts as seen through the influence of large companies and their contributions to such entities as Nation Public Radio and Television, public theaters and national television networks. Using think-share pairs, debate the question of whether a sponsor has a right to exert control over artistic expression when the artistic expression is contrary to the likes of the sponsor. Students should examine primary and secondary historical records during the period of 1945-2000 to find data to support or refute the position. Report your findings. What sorts of community and entertainment venues have been supported by the telephone industry in Texas and the United States?

8(22)(A) Determine how the telephone has affected the lifestyles of people in West Texas. Special consideration should be given to the impact on employment directly connected to the company and how the company affected other businesses in West Texas.

The following section addresses the area of Social Studies Skills addressed in the final section of each of the grade level TEKS. The activities may be modified to address the skill level of the students in a variety of grades. The content of the material below addresses both history and economics in Texas and the United States.

The issue of de-regulating industries in Texas and in the United States was a major political and economic issue in the 1980's. Define de-regulation as it applied to public and private industries. Create a time line identifying when various industries were de-regulated. **Problem solve** the issue of de-regulation. (NS VI g)

The telephone, in all its permutations, has become an American icon. Explain how the image of the telephone in the culture has changed over time. Where did the telephone show up in American culture? Describe the role it played in changing society. For example, did the telephone impact the way nations communicated? Did it change the way businesses conducted business? Was it found in entertainment? What role did it play in radio, movies and television? Create a debate supporting the idea that the telephone was a major factor in social change in the United States and Texas. Use a **decision making process** to support your position and be able to defend your position with evidence. (NS VI g)

For years the use of the telephone was limited to individuals without particular handicaps. Now, through innovation, hearing impaired people can use the telephone, people with problems dialing can make connections, and language can be translated. **Make predictions** concerning the future of the telephone and handicapping conditions. Where will innovation take the society next? How will these changes affect the way physically challenged people interact? **Support your position with data.** (NS VIII e)

Reading List

20s & 30s, The: Flappers & Vamps

by Cally Blackman

About Pioneers: Yesterday, Today, and Tomorrow

by Wilma Willis Simpson, John Alexander Simpson, Florence Kerechuk

Album of the Great Depression, An

by William Loren Katz

Alexander Graham Bell

by Leonard Everett Fisher

Alexander Graham Bell (Rookie Biographies)

by Wil Mara

Alexander Graham Bell

by Richard Rich

Alexander Graham Bell: An Inventive Life

by Elizabeth MacLeod, Barbara Spurl (Illustrator)

Alexander Graham Bell : Making Connections (Oxford Portraits in Science)

by Naomi Pasachoff

Always Inventing

by Tom L. Matthews, Gilbert M. Grosvenor

Bleeps and Blips to Rocket Ships: Great Inventions in Communications

by Alannah Hegedus, Bill Slavin, Kaitlin Rainey

Children of the Dust Bowl: A True Story of the School at Weedpatch Camp

by Jerry Stanley

Christmas After All: The Great Depression Diary of Minnie Swift

by Kathryn Lasky

Communications

by Sarah Angliss, Christine Roche

Digital Revolution

by Stephen Hoare

Encyclopedia of Technology and Applied Sciences

by (pub) Marshall Cavendish

From Scrolls to Satellites: The Story of Communication

by William Wise

Garden Carried In The Pocket A Magic Button to Wall Street, A

by Edith Nisberg, Margaret Geiger (Editor)

Glass Ceiling, The: A Look at Women in the Workforce

by Ann E. Weiss

Great Careers for People Interested in Communications Technology

by Julie Czerneda

Great Depression, The

by Jacqueline Farrell

Great Depression, The: An Eyewitness History

by David F. Burg

High-tech Science

by Nicholas Harris

History of the Internet: A Chronology, 1843 to the Present

by Christos J.P. Moschovitis

How the Future Began: Machines

by Clive Gifford

How Things We Use Are Made

by Shirley Chilton

I Know a Telephone Operator

by Jane A. Evans

Illustrated History of Women

by Irene M. Franck

I Want to Be a Telephone Operator

by Eugene H. Baker, Lois Axeman

Kids' Business Book, The

by Arlene Erlbach

Letter to Mrs. Roosevelt, A

by C. Coco De Young

Life during the Great Depression

by Dennis Nishi

Messengers, Morse Code, and Modems

by Janice Parker

Modern History

by (pub) P. Bedrick Books, 2002

Rise of Industry, The, 1860-1900

by Christopher Collier

Rose's Journal: The Story of a Girl in the Great Depression

by Marissa Moss

Samuel F.B. Morse, Artist-Inventor

by Jean Lee Latham

Satellites and Communications

by Ian Graham

Science and Technology Breakthroughs: From the Wheel to World Wide Web

by Leonard C. Bruno

Stock Market, The (Exploring Business and Economics)

by Fred Barbash

Stock Market, The (Economics for Today)

by Robin R. Young

Stock Market Game - A Simulation of Stock Market Trading

by Dianne Draze, Lou Johnson (Illustrator)

Storms

by Seymour Simon

Story of Communications, The

by Anita Ganeri

Study Book of Telegraphs, The

by Ray Mitchell

Technology in Action: Science Applied to Everyday Life

by Phillis Engelbert

Teddy Bear Company, The

by Carol Marsh Longmeyer

Teddy Bear Company Economics, The

by Carol Marsh

Teddy Bear's Report: "Honey for Money"

by Carol Marsh

Telephone, The (Turning Point Inventions)

by Sarah Gearhart, Toby Welles (Illustrator)

Thunder, Singing Sands, and Other Wonders: Sound in the Atmosphere

by Kenneth Heuer

Understanding a Company

by Jeffrey B. Little, Paul Anthony Samuelson

Unsung Heroes of World War II: The Story of the Navajo Code Talkers

by Deanne Durrett

World War I

by Simon Adams, Andy Crawford

Links

Included are some of the most interesting and useful web sites relating to the history of the telephone. Please keep in mind that links change. Therefore, we are including the exact name of the site rather than the internet link.

United States Patent and Trademark Office
Library of Congress
Smithsonian Institute
America's Library
Antique Telephone History

Hotline

As you view the site by yourself or with a parent or teacher, questions about a phone or the history of the industry may arise. You can send your questions to wtc@angelo.edu. With the help of the Concho Valley Telephone Pioneer Club, we will do our best to answer your question.