PROFESSIONAL DEVELOPMENT

AP® U.S. History

Work, Exchange, and Technology

CURRICULUM MODULE

For the redesigned course launching Fall 2014

The College Board
New York, NY

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The College Board strongly encourages educators to make equitable access a guiding principle for their AP programs by giving all willing and academically prepared students the opportunity to participate in AP. We encourage the elimination of barriers that restrict access to AP for students from ethnic, racial, and socioeconomic groups that have been traditionally underserved. Schools should make every effort to ensure their AP classes reflect the diversity of their student population. The College Board also believes that all students should have access to academically challenging course work before they enroll in AP classes, which can prepare them for AP success. It is only through a commitment to equitable preparation and access that true equity and excellence can be achieved.

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Preface

AP® curriculum modules are exemplary instructional units composed of one or more lessons, all of which are focused on a particular curricular topic; each lesson is composed of one or more instructional activities. Topics for curriculum modules are identified because they address one or both of the following needs:

- a weaker area of student performance as evidenced by AP Exam subscores
- curricular topics that present specific instructional or learning challenges

The components in a curriculum module should embody and describe or illustrate the plan/teach/assess/reflect/adjust paradigm:

1. *Plan* the lesson based on educational standards or objectives and considering typical student misconceptions about the topic or deficits in prior knowledge.
2. *Teach* the lesson, which requires active teacher and student engagement in the instructional activities.
3. *Assess* the lesson, using a method of formative assessment.
4. *Reflect* on the effect of the lesson on the desired student knowledge, skills, or abilities.
5. *Adjust* the lesson as necessary to better address the desired student knowledge, skills, or abilities.

Curriculum modules will provide AP teachers with the following tools to effectively engage students in the selected topic:

- enrichment of content knowledge regarding the topic;
- pedagogical content knowledge that corresponds to the topic;
- identification of prerequisite knowledge or skills for the topic;
- explicit connections to AP learning objectives (found in the AP curriculum framework or the course description);
- cohesive example lessons, including instructional activities, student worksheets or handouts, and/or formative assessments;
- guidance to address student misconceptions about the topic; and
- examples of student work and reflections on their performance.

The lessons in each module are intended to serve as instructional models, providing a framework that AP teachers can then apply to their own instructional planning.

Note on Web resources

All links to online resources were verified before publication. In cases where links are no longer working, we suggest that you try to find the resource by doing a key-word Web search.

— The College Board

Introduction

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Technology — anything used, developed, or created by humans — has always surrounded us. Throughout history, people have put naturally occurring objects to use, turning them into tools — or *technics* — in the process. Each technology interacts with its user; each one changes the other over time. Everyone involved ultimately influences the technology and the cycle starts again. The invention of a technology is not a one-time historical event. It is this cycle of human interaction with technology that is significant to the historian.

In U.S. history, we look back to the time of the earliest British and European settlers for our technological antecedents. They quickly discovered that the few tools they brought with them were not suitable for their new environment. They soon realized that Native American technics were better suited, and they adopted some of those technics straightaway. In other cases they modified a technology that was perfectly suited to their ancestral homeland but was unsuitable for the New World; for example, settlers made changes to the axe that allowed them to clear the vast New World forests that stood in the way of establishing farms. From the earliest settlements until today, technologies have been transferred into and out of the United States, modified by users, and then transferred once again. Not only do technologies modify our ways of life and work; we in turn modify the technologies in a continuous pattern that creates both winners and losers.

The history of the interplay between technology, society, and work cannot be separated from issues of race, ethnicity, class, and gender, nor from culture and national identity. Changes in demography, economics, the physical environment, and globalization all depended on changes in transportation, production, and communication. Some of the adverse effects of technology on working Americans, particularly children, helped to drive the reform movement during the Progressive Era. Faster and less expensive communication technologies influenced, among other things, the relationships among people living in the United States as well as their relationships with other people around the world.

In this curriculum module, we trace the interplay between technologies, society, and work in the United States since the late 18th century:

- Kristine Harper's lesson looks at the many tools and craft skills used by pioneer farmers and their wives as a way to study the degree to which these families were "self-sufficient." Using archival probate records from the period, students assess the relative self-sufficiency of farm families in both the North and South.

- Ronald Doel's lesson addresses the impact of the Industrial Revolution on American workers, using textual and visual sources to examine the differences between skilled, de-skilled, and unskilled labor from the early 19th through the early 20th centuries; who filled these jobs; and how the discontent of de-skilled and unskilled laborers contributed to eventually successful labor unions and Progressive Era efforts to enact workplace protections.
- D. J. Kinney's lesson examines the changes in communication technologies wrought during the 20th and 21st centuries, using visual evidence to compare how the world of work has changed in the last 100 years. Students trace the evolution of the business-purposed telephone to the present-day smartphone, with both voice and data capabilities that keep many people tied to their jobs all day, every day, as they communicate with worldwide contacts.

We intend for this curriculum module to be a starting point for introducing the scholarship of technology, society, and work. Research in this field will continue to influence the content of the U.S. History survey course at the college level as well as the AP U.S. History course.

Connections to the AP U.S. History Curriculum

The lessons in this curriculum module address the theme of work, exchange, and technology in the *AP U.S. History Curriculum Framework*, particularly Learning Objectives WXT-1, 2, 3, 5, and 7. The module's activities are designed to allow students to analyze documents and photographs that illustrate how access to and uses of technologies (anything human built) have affected (and have been affected by) American society, including how people have lived and worked; the development of labor and technological systems; and government, social, and economic policies.

By extension, the lessons are connected to the themes of identity (Learning Objectives ID-1, 2); peopling (PEO-2, 3, 6); politics and power (POL-3); America in the world (WOR-1, 3); environment and geography — physical and human (ENV-3); and ideas, beliefs, and culture (CUL-2) in the *AP U.S. History Curriculum Framework*.

The individual lessons have been designed to develop the following historical skills (as identified in the *AP U.S. History Curriculum Framework*): Skill 1 (historical causation), Skill 4 (comparison), Skill 5 (contextualization), Skill 6 (historical argumentation), Skill 7 (appropriate use of relevant historical evidence), and Skill 8 (interpretation). As they complete the activities in this module, students will be using primary sources to place concepts and events into historical context, and to construct logical historical arguments.

Connections to the AP U.S. History Exam

Many of the historical details of this module are too specific to be the subject of assessment on an AP U.S. History Exam. However, given the new conceptual focus of the redesigned course and exam, these details do help develop students' ability

to reason about the theme of work, exchange, and technology, one of the seven themes that will be represented on the exam. This curriculum module includes activities designed to help students analyze textual and visual primary source materials and use the evidence therein to support a well-reasoned historical argument. These skills are assessed across the redesigned AP U.S. History Exam, most particularly in the document-based question and multiple-choice question sections.

Instructional Time and Strategies

These three lessons should be implemented when chronologically appropriate in the course — with material in the late 18th to early 19th, early 19th to early 20th, and early to late 20th centuries, respectively. The idea here is to illustrate ways that the development, introduction, and assimilation of technologies, as they relate to work, have affected individuals and society over time. Within each lesson, students are moved from simpler to more complex analyses of primary sources. Each set of activities includes step-by-step instructions for you to follow and also allows plenty of room for modification, depending on the needs of you and your students. The lessons have been designed to take approximately two hours each, but they could be completed in one hour by doing the introductory activities in class and the remaining activities as homework assignments followed by in-class discussion. Lessons also include suggestions for addressing common misconceptions about the lesson topics.

Lesson 1: The Ideal of Self-Sufficiency

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Essential Questions

- How have changes in markets, transportation, and technology affected American society from colonial times to the present day?
- In the late 18th and early 19th centuries, how did the technologies used by farming families — over 80 percent of the population — influence their way of life and their reasons and methods for trading with others?
- How "self-sufficient" were these farming families?
- How might a belief in pioneer self-sufficiency influence both subsequent industrialization and governmental policies?

Lesson Summary

The idea that farming families were "self-sufficient" can be traced back to leaders such as Thomas Jefferson, who advocated for an agrarian economy and society in the early United States. As historians, we can use the tools of studying the past to ask: how self-sufficient actually were pioneer farming families? By examining probate inventories from the late 18th and early 19th centuries, historians can look for the tools (technologies) and craft skills possessed by these families. They listed everything — down to the stored food in out-buildings or cellars — that the decedent owned at the time of death. From these inventories one can ascertain whether the individual and his family had the wherewithal to provide for all of their needs. With the exception of rich landholders like Jefferson, who had the money for many kinds of tools and a slave labor force to use them, the answer turns out to be no; farmers needed to be able to obtain goods that they could not provide for themselves. They did so by trading with their neighbors who had different sets of tools and skills. In towns and cities, where people had the opportunity to purchase consumer goods and did not have the space to raise their own food, the relative level of self-sufficiency would have been much less.

This lesson gives students the opportunity to determine the relative self-sufficiency of an individual family, explore the meaning of self-sufficiency in U.S. history, and explain the relationship between interdependence and industrialization.

Connections to the AP U.S. History Curriculum Framework

This lesson connects to Periods 3 and 4, and the following learning objectives in the *AP U.S. History Curriculum Framework*: (WXT-2, 4), (ID-1), (WOR-1), and (CUL-2). It also addresses the following skills from the *AP U.S. History Curriculum Framework*: Skill 1 (historical causation), Skill 4 (comparison), Skill 5 (contextualization), Skill 6 (historical argumentation), Skill 7 (appropriate use of relevant historical evidence), and Skill 8 (interpretation).

Student Learning Outcomes

As a result of this lesson, students should be able to:

- draw a connection between a family's possessions and its ability to create those possessions without outside assistance (that is, to be self-sufficient) using Skill 1 (historical causation) and Skill 7 (analyzing historical documents)
- assess the relative self-sufficiency of rural families in the late 18th and early 19th centuries as compared to those who lived in towns and cities on the Atlantic Coast using Skill 4 (comparison) and Skill 7 (appropriate use of relevant historical evidence)
- develop and present a well-reasoned argument concerning the self-sufficient nature of rural families using Skill 6 (historical argumentation)
- develop and present a well-reasoned argument about why the lack of self-sufficiency spurred industrialization in the United States in the early 19th century using Skill 6 (historical argumentation)
- present possible reasons why the idea of self-sufficiency became closely tied to American identity using Skill 5 (contextualization) and Skill 8 (interpretation)

Student Prerequisite Knowledge

Before the lesson starts, students should have read the section of their textbook that addresses early American settlement patterns, why most people lived on farms, how they worked and lived, their transportation options, and how their lives differed from urban dwellers (who were more likely to be artisans). From their reading they should already be able to explain why immigrants were drawn to the land, the overall lack of labor, and how colonial economic policies had affected trade. Students should also have some concept of early American tools: butter churns, candle molds, cider presses, carding combs, spinning wheels, axes, hoes, and the like. If they do not have this knowledge, a brief review could be accomplished by creating a PowerPoint presentation or directing students to the following resources:

Useful websites

- http://www.americancenturies.mass.edu/home.html: The Memorial Hall Museum Online, which has many online exhibits. For short videos showing the tools in use, see http://www.americancenturies.mass.edu/activities/tools/index.html.

- http://www.history.org/history/index.cfm: Colonial Williamsburg site with many excellent images and descriptions of life in the 18th century.
- Books such as Eric Sloane's *A Museum of Early American Tools* (Dover Publications, 2002).

▶ *Common Student Misconceptions*

A common student misconception — and one of the reasons for creating this lesson — is that as Americans moved away from highly settled coastal areas, they became entirely self-sufficient: they grew all the fruit, vegetables, and grain that they needed, raised domestic animals for meat, made their own butter, ground their own grain for bread, chopped down trees to build their homes and other shelters, etc. This lesson addresses this misconception by having students compare and contrast families' possessions with the families' means to create those possessions. For example: Did they own candles? Did they also own candle molds or a mechanism for hand-dipping candles? If not, we can conclude that they were either trading for or purchasing the candles, not making them.

▶ *Teacher Learning Outcomes*

Through this lesson, you should improve your skill in facilitating students' analyses of historical data, drawing inferences from the data, and then making an argument based on those data. To do this, you must be familiar with the data, the meanings that can be derived from the data, and how questions posed from a historical perspective can lead students to develop a historical sense when answering those questions.

▶ *Teacher Prerequisite Knowledge*

You will need to know the basics of the social history of technology in the United States, in particular that of rural farmers (most of the population in the late 18th and early 19th centuries), including the kinds of technologies that people owned and used for farming and daily life, as well as how people worked the land, lived on a daily basis, and interacted and traded with other settlers and traveling merchants to get what they needed. You will also need knowledge of available transportation, how that changed from the late 18th into the 19th century, and what impact that had on farm families. A basic understanding of the Industrial Revolution and its transfer from Great Britain to the United States will also be helpful for this lesson. You may find the following resources useful:

- Good surveys are presented in Ruth Schwartz Cowan's *A Social History of American Technology,* Carroll Pursell's *The Machine in America: A Social History of Technology*, 2nd edition, and Gary Cross and Rick Szostak's, *Technology and American Society: A History*.
- For a discussion of the use of probate records, see Judith A. McGaw's, "'So Much Depends upon a Red Wheelbarrow': Agricultural Tool Ownership in the Eighteenth-Century Mid-Atlantic," in *Early American Technology: Making and Doing Things from the Colonial Era to 1850* (Judith A. McGaw, ed.).

- For information on early technologies, see Brooke Hindle and Steven Lubar's, *Engines of Change: The American Industrial Revolution*.

Materials or Resources Needed

- Handout 1: Questions for Probate Records
- One probate inventory for each group of three to four students. Sources of probate records include the following:
  - For York County, Virginia: http://research.history.org/DigitalLibrary/BrowseProbates.cfm (Sortable by year, male/female, wealth—lower, lower middle, middle, upper middle, or upper class).
  - For Virginia and Maryland: http://www.gunstonhall.org/library/probate/index.htm for the period 1740–1810 (sortable by year, county, male/female, slave holding or not, urban or rural). Note: the Gunston Hall records include probate records for plantation owners and can be sorted by slave-owning and non-slave-owning landowners.
  - For one historian's take on a probate inventory from 1804, see: http://historymatters.gmu.edu/mse/sia/inventory.htm
  - Essex County, Massachusetts, probate records from the 17th and 18th centuries: http://www.salemstate.edu/academics/schools/5568.php
  - North Carolina probate inventories: http://www.learnnc.org/search?phrase=probate+inventories
  - Ripley County, Indiana, probate inventories: http://resources.umwhisp.org/inventories/ripley/19cinrip.htm
  - Franklin County, Indiana, probate inventories: http://resources.umwhisp.org/inventories/franklin/19cinfra.htm
  - Dearborn County, Indiana, probate inventories: http://resources.umwhisp.org/inventories/dearborn/19cindea.htm
  - Old Sturbridge Village, probate inventories for Massachusetts shoemakers from 1830–1839: http://www.osv.org/explore_learn/document_viewer.php?Action=View&DocID=1020

- For Formative Assessment 1: an image of a colonial kitchen to project on a screen. One example: http://www.nps.gov/gewa/photosmultimedia/index.htm (labeled "Cooks")

Activity 1: Defining Self-Sufficiency

Step 1: Brainstorm the types of technologies late 18th and early 19th century American families would have needed to live a "comfortable" life in (a) an urban setting (could be a small town with craftsmen/merchants) or (b) on a farm.

a. After reminding students that anything that is "human built" or "human used" is a technology — not just things that are electronic — ask: *What must the settlers own to have a reasonable quality of life?*
b. Students might make their own lists and then share them with a partner before starting the entire class discussion, or they could just participate in a general class discussion.
c. List students' responses on the board under the category headings "urban" or "farm," with the students preferably developing their own sub-groupings (e.g., farm implements, household items).

Step 2: Once the list is reasonably complete, ask the students questions such as the following:

- *Why and how would families use these items?*
- *Where would they likely have gotten such items? That is, would they have made them or would they have had to purchase them from an artisan or a merchant?*
- *How would their geographical locations affect what these households owned?* [For example, an urban household would be more likely to buy most of what it needed from an artisan or merchant because of better access to transportation (shipping on the coast or by river).]

Step 3: Ask students: *Based on what we have discussed, which family — an urban family or a farm family — would you expect to be "self-sufficient"? Why?*

At this point, students should agree that the urban family — which would have access to merchants selling dishes, clothing, shoes, foodstuffs, candles, etc. — would probably not be self-sufficient. However, they may well guess that farm families, living at a time when transportation options were limited, had to be self-sufficient.

▶ *Formative Assessment 1*

Useful website

Project for the students (or have them call up on their iPads or computers if you have a class set) a picture of a colonial kitchen such as the one found at the George Washington Birthplace website (http://www.nps.gov/gewa/photosmultimedia/index.htm), labeled "Cooks."

When showing the photograph to the students, note that it is much bigger and more sophisticated than a one-room log cabin kitchen, but the tools it contains are still from the 18th century. Ask the students to jot down answers to the questions below (which you could either hand out or write on the board) and then discuss with a partner when they are done:

- *Based on what you see here, in order for the owners to have been "self-sufficient," what tools would they have owned?*
- *What kinds of skills would they have needed to make these items?*
- *Do you think they would have been able to produce all of these items themselves? Why or why not?*

Once students have had a chance to "write and pair," engage the entire group in a short discussion about the above questions. You may choose to jot their answers down on the board or just summarize as you go along. Provide feedback by reinforcing answers that correctly address the tools, skills, and time it would have taken for the people who used this kitchen to provide for themselves. Similarly, if students seem confused or are veering off track, provide additional prompts to assist them in discovering the correct answers with their classmates.

▶ *Reflection on Formative Assessment 1*

This assessment, placed after the opening discussion on self-sufficiency among urban and rural dwellers, provides an opportunity to determine whether students are ready for the probate inventory part of the lesson. Ask yourself: *Do the students recognize that many tools and skills would be needed to create cast-iron pots, stoneware crocks and pitchers, barrels, copper heating pans, furniture, etc.? Are the students able to explain that cast-iron pots would require the on-site presence of a smithy, cast iron to be melted, molds for casting the iron, and tools for finishing the molded pots once they are cooled?* If so, then they are ready to move on to the next activity. If the students do not realize that any one family would be unable to create all of these items (and hence could not be self-sufficient), then ask probing questions to have them explain the kinds of craftspeople who would create them and under what kinds of conditions.

If the students can identify the materials needed, but not the skill set required to manipulate those materials into a product, use images showing early craftsmen (blacksmiths, coopers, shoemakers, weavers, etc.) working; this can serve as a starting point to discuss the skills needed to successfully make pots, barrels, shoes, etc. If the students can identify the skill set but not the materials needed, use the images suggested above to discuss what the craftsman needs to have in his shop to make his products: *If a weaver makes cloth on his loom, what does he need to make the cloth* [yarn/thread] *and where would that come from* [a spinner of wool/cotton/linen]*? Where would the spinner have gotten her wool/cotton/flax?* [She might have raised her own sheep, in which case she might have sheared, cleaned, and carded the wool before spinning it. She might have raised her own flax plants, harvested the leaves, split them and broken them on a hackle, and

then spun them into thread for linen.] In each case, help the students think back to the raw material, which will also give you an opportunity to introduce the idea of a system: all of the parts, including the materials, workers, machines, and transportation, that are necessary to produce any kind of consumer goods.

Activity 2: Analyzing Probate Inventories for Clues About Self-Sufficiency

Step 1: Introduce the students to probate inventories.

When people died, their possessions were accounted for and a value assigned to each one. These early probate inventories included everything in the person's possession (many times including foodstuffs that had been stored for the future) when he or she died. As such, they may provide valuable information about how people lived.

- Using PowerPoint slides, a document camera, or printouts, show students an example of a probate inventory (see resources list above), and discuss the listed items.

Step 2: Ask students the following questions:

- *If you had access to a person's probate inventory, what kinds of inferences could you make from these data?*
- *Would you be able to describe how the person lived and how he took care of himself?*
- *Would you be able to determine whether he had the ability to have created all of his possessions himself? Why or why not?*

▶ *Formative Assessment 2*

Use the answers to the above questions to determine whether the students are connecting what is listed on the probate inventory with the workings of the household. For example, if there are textiles in the house and no loom, then where did the textiles come from? Orally reinforce correct answers (e.g., he had candles but no candle-making materials, so he must have purchased or traded for them) and ask follow-up questions for those that miss the mark (e.g., not connecting consumer goods in the inventory with the raw materials and tools necessary to make them).

▶ *Reflections on Formative Assessment 2*

This assessment can help you determine whether students recognize that the objects in the inventory are related to how people in the household lived and what they could have crafted. If the students realize that the owner would have

had to purchase or barter for some of the possessions, then they are ready to move forward to the next step. If they are not making the connection, then it will be worthwhile to work through some other examples (e.g., candles, chairs, dishes) until you are sure that all the students are ready to tackle the probate inventories in their small groups.

Step 3: Students Analyze Probate Inventories

Handout 1

Arrange the class into small groups of three or four students. Assign each group a different probate inventory (see resources list above); you might choose to make this a handout if students do not have access to laptops or tablet computers. Selecting one member of each group to be the group recorder, ask each group to answer the questions on the lesson handout (see Handout 1).

Step 4: Comparing and Contrasting Group Results

When all groups are done with the task in Step 3, have each group report its findings to the rest of the class. Other groups should be encouraged to ask questions of the reporter.

Once they have heard all the reports, guide the students to make conclusions about what they have found:

- *Were there any self-sufficient families among their subjects?*
- *If so, what factors were important to their being self-sufficient?*
- *If not, what factors did they have in common? If there were differences among them (e.g., some were rural and some were urban), how did those differences contribute to their ability to live reasonably well without being self-sufficient?*
- *When thinking about rural families, what does their level of self-sufficiency tell you about how they obtained what they needed to live?*

Step 5: Once students have completed reporting their results, conduct a follow-up discussion with these questions:

- *How do your conclusions compare to your textbook's accounts of how people lived in the late 18th and early 19th centuries?*
- *Why might your conclusions differ from the textbook's account? Does your work with the probate inventories lead you to question what you read in your textbook? Why or why not?*
- *Do the conclusions we reached differ from what you expected before starting this activity? If so, how and why are they different?*

Conclude by asking students: *Since the information found in the probate inventories can be used to address other important historical themes, how might this important primary source be used to pose and answer other historical questions?*

Lesson Summative Assessment

Essay prompt: *In a well-developed essay supported with relevant historical information, explain whether probate evidence supports the varying degrees of self-sufficiency exhibited by late 18th- and early 19th-century farm families. What was the relationship between the degree of rural self-sufficiency and the development of industrialization in antebellum America?*

In evaluating the student responses, look for evidence that the student connects consumer goods in the home with the raw materials and tools necessary to make them. For example, people had clothing, but if they did not have a loom, then they were getting the woven material from someone else. If foodstuffs included flour but they did not have grinding stones, then their grain was being ground by a miller. Wealthier families, particularly ones that owned plantations and had slaves and/or indentured servants with the skills to use many tools and the access to raw materials to make what the family needed, might have been more self-sufficient in some instances. However, a wealthy family in the city would have purchased consumer goods, and therefore not needed the tools to make them. Similarly, rural farmers who traded with those in their local area, likely had some tools (for gardening or spinning wool or making butter) that allowed them to provide goods and services to trade with their neighbors who had different sets of tools and skills. However, by themselves they would not have been wholly self-sufficient. Even at the far reaches of the frontier, people were interdependent. A complete student answer might explore why the Jeffersonian ideal of self-sufficiency became an important part of definitions of American national identity in this period, in spite of this reality of interdependence.

LESSON 2

Lesson 2: Using Primary Source Documents to Explore the Relationship Between Technology and Work

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Essential Questions

- How have changes in markets, transportation, and technology affected American society from colonial times to the present day?
- Throughout the 19th century, how and why did industrialization and mechanization affect the work and home lives of American men who worked in industry and agriculture?
- How did industrialization affect the work lives of women through the 19th and into the early 20th century?
- Why were children, some as young as six or seven, used as factory workers?
- How did union organizing and Progressive Era movements seek to better the lives of workers?

Lesson Summary

Nineteenth-century industrialization in the United States had a number of causes: the nation's need to build foreign trade based on finished goods instead of raw materials, domestic demand for consumer goods, government demand for armaments, and persistent labor shortages requiring the development of mechanized production of both manufactured goods and agricultural output. With the increase in available consumer goods, especially textiles, the standard of living improved for most Americans. However, this technologically driven change in the world of work did not affect everyone equally: some won, some lost. How did factors such as gender, race, ethnicity, age, artisanal skills, mechanical skills, or the lack of skills affect the lives of workers during this period of rapid industrialization?

Focusing on three groups of workers — the skilled, the de-skilled, and the unskilled — this lesson uses drawings, photographs, and other primary source documents spanning the "long 19th century" as primary source evidence for the effects of industrialization on American workers. Students will have the opportunity to determine how and why workers became de-skilled, who filled the ranks of skilled and unskilled workers and why they did, and how working conditions differed for the skilled and unskilled. Since the unskilled laborers worked under the worst conditions and for the least pay, students will then consider the impact of unionization and Progressive Era efforts to improve working conditions.

Connections to the AP U.S. History Curriculum Framework

This lesson connects to Periods 4, 5, 6, and 7, and the following learning objectives in the *AP U.S. History Curriculum Framework*: (WXT-2, 3, 5, 6, 8), (ID-2, 7), (PEO-6), (POL-3), and (CUL-5). It also connects to the following historical thinking skills defined in the *AP U.S. History Curriculum Framework*: Skill 1 (historical causation), Skill 4 (comparison), Skill 5 (contextualization), Skill 6 (historical argumentation), Skill 7 (appropriate use of relevant historical evidence), and Skill 8 (interpretation).

Student Learning Outcomes

As a result of this lesson, students should be able to:

- explain the impacts of industrialization on American workers in the late 19th and early 20th centuries
- explain how the impacts of industrialization depended upon class, ethnicity/race, gender, and occupation
- explain the difference between *skilled*, *de-skilled*, and *unskilled workers*
- explain the role of unions and Progressive Era movements in attempts to improve working conditions for unskilled workers
- reason about causality, continuity, and change over time
- compare and contextualize historical development over time
- create a plausible and persuasive historical argument based on photographic and textual evidence

Student Prerequisite Knowledge

Before starting this lesson, students should have read sections of their textbook that address the early 19th-century debate between the Jeffersonians, who advocated a predominantly agrarian society, and the Hamiltonians, who advocated for a more industrial society; the types of craftsmen active in the early 19th century and their roles as producers of consumer goods; the introduction of factories; and the development of the American System of Manufacture and how it was fundamentally different from European industrialization. Students should also know the difference between primary and secondary sources.

Any confusion over the ramifications of the Jefferson-Hamilton debate could be handled with a brief review in class. If students are lacking knowledge on the role of craftsmen or what those crafts might have been, the following Colonial Williamsburg site has many excellent images and descriptions: http://www.history.org. For an excellent Web review of the American System of Manufacture, refer students to the following site at Clemson University: http://www.clemson.edu/caah/history/FacultyPages/PamMack/lec122/amsys.htm.

▶ *Common Student Misconceptions*

Students' most common misconception about the Industrial Revolution in the United States is that it affected all people in the same way. For those who think industrialization was an absolute positive experience — allowing for the production of finished goods, increasing the nation's ability to provide its own consumer goods, lowering the cost of many consumer goods — there is the tendency to believe that it was therefore good for all people. For those who are not sure whether industrialization was totally positive — pollution of waterways, people forced to leave their farms, people working long hours under dangerous conditions for low pay in factories — there is a tendency to believe that it was good for only a handful of people. Students are likely to see the arguments in stark terms and not realize the nuances caused by class, race/ethnicity, gender, and occupation. One purpose of the lesson is to address these misconceptions. Determining which of these misconceptions the students hold before starting the lesson will help in addressing them during the lesson.

▶ *Teacher Learning Outcomes*

Through this lesson, you should improve your ability to help students analyze different forms of historically relevant primary sources; draw inferences from such sources; and make an argument based on those sources. You will need to clearly present the complex and uneven ways that industrialization affected different segments of society in the United States at different times.

▶ *Teacher Prerequisite Knowledge*

Teachers should have a basic understanding of the following topics:

- the early 19th-century debate between pro-agrarian and pro-industrialization factions
- the rise of the Industrial Revolution in the United States and the resultant American System of Manufacture
- the effects of industrialization on workers (including de-skilling of craftsmen)
- farm mechanization
- the employment of women, children, and immigrants as low-paid sweatshop and factory workers
- late 19th- and early 20th-century attempts to address labor abuses through unionization and the work of Progressive Era organizations

The following resources may be helpful in providing this background knowledge:

- Good surveys are presented in Ruth Schwartz Cowan's *A Social History of American Technology,* Carroll Pursell's *The Machine in America: A Social History of Technology*, 2nd edition, and Gary Cross and Rick Szostak's *Technology and American Society: A History*.
- For information on early technologies and the effects of the Industrial Revolution, see Brooke Hindle and Steven Lubar's *Engines of Change: The American Industrial Revolution*. See also the websites "Immigration to the United States, 1789–1930," and "Women Working, 1800–1930," both at the Harvard University Library Open Collections Program.

▶ *Materials or Resources Needed*

For Activity 1, Step 1:

A pair of images for the students to examine, showing: (1) an individual craftsman making a consumer good, and (2) a machine making that same consumer good. The images may be projected on a screen, called up on individual/group computers, or printed out for student use.

Possibilities include:

- Gunsmithing: http://www.history.org/Almanack/life/trades/tradegunfou.cfm?showSite=mobile-regular
- Guns made by machine at the Springfield Armory (1861 from *Harper's Weekly*): http://www.hampdencountyhistory.com/springfield/arsenal/index.html
- Agriculture: http://www.harvestofhistory.org/primary_sources.html (search for sets of images that cover the path from manual to mechanized farm work, such as threshers and reapers)
- Demonstration of spinning with a spinning wheel: http://www.americancenturies.mass.edu/activities/tools/index.html
- Women tending spinning machines in 1909 (see panel 4): http://archives.columbusstate.edu/digital_collections/bibb_city.php

For Activity 1, Step 3:

Two images to project on the board: one of unskilled workers and one of skilled workers.

- Preparing sausage casings, 1912: http://iarchives.nysed.gov/PubImageWeb/viewImageData.jsp?id=66280
- Chemical Laboratory, Western Electric, 1920: http://ids.lib.harvard.edu/ids/view/1370053?buttons=Y

For Activity 1, Step 4:

One photograph for each group of three or four students from the National Child Labor Committee Collection at the Library of Congress (Lewis Wickes Hine photos): http://www.loc.gov/pictures/collection/nclc/

For Activity 2, Step 1:

A copy for each student of the 1905 Manifesto passed by the Conference of Industrial Unionists in Chicago: http://www.iww.org/en/history/library/iww/industrial_union_manifesto

For each group of students, an artifact (banner or cartoon) from: http://www.laborarts.org/exhibits

- "We Love a Parade": union banners
- "Solidarity Forever: A Look at Wobbly Culture": cartoons
- "Songs from the New York City Labor Chorus": 1912 song "Bread and Roses"

Useful website

For Activity 2, Step 2:

Choose digitized documents, available at http://ocp.hul.harvard.edu/ww/nwtul.html, related to the Chicago Garment Workers Strike of 1910 (Folder 58). The items "To the public," "Letter Emma Steghagen to District Council," and any of the worker statements would be most appropriate (they are all one to two pages long); one for each group of students.

Activity 1: Analyzing Historical Photos for Clues About Industrialization and Labor

Step 1: Defining *Skilled*, *De-skilled*, and *Unskilled*

Ask the students to jot down their answers to these questions:

- *How would you define* skilled, unskilled, *and* de-skilled *labor from the early 19th through the early 20th century?*
- *What would be the attributes of the work done by the workers who fell into these categories?*

After a few minutes, ask students to share their answers. The students will probably have a fairly good idea of what would have constituted *skilled* and *unskilled labor*, but the concept of *de-skilled labor* might be a little more difficult. Use one or more of the image pairs in the resources list above, then ask the following questions:

- *What takes more skill: creating an entire object or material, performing an action with hand tools, or tending a machine that does the same thing?*

- *Why does it take more skill? What would someone need to know? How might someone gain that knowledge? How long might it take?*
- *Once a mechanical way of performing a task or creating an object were developed and widely available, would it be less or more expensive than doing it by hand? Why?*
- *What would happen to the people with craft skills once customers were able to purchase less expensive versions of the same product?*

Tell the students: People who were no longer able to support themselves by practicing their craft because it had been mechanized were "de-skilled." This term was also applied to people who, for example, had built carriage wheels, once automobiles were widely available and people did not need carriages anymore.

To make clear that de-skilling is still going on today and will continue in the future, raise the following questions for discussion:

- *Is de-skilling something that only happened when the United States was just beginning to become industrialized, or is de-skilling something that can happen today and in the future? Why?* [Example: automated phone menus that replace people to direct information calls, or welders being replaced by robots.]
- *Can you think of examples of occupations that may become de-skilled through automation in the future? Are there some occupations that will likely never be de-skilled?* [Barbers!]

Develop class definitions for the three terms and post them so that all the students can refer to them later.

Step 2: Discussing Historical Sources

Have students brainstorm the types of historical sources that could provide insight into the lives and experiences of laborers. Students should consider the composition of the skilled, de-skilled, and unskilled groups:

- *What kinds of people (gender, race/ethnicity, class, age) were in each group?*
- *What kinds of occupations might have been considered skilled and unskilled from the early 19th into the early 20th century (also known as the "long 19th century")?*
- *What kinds of historical sources would best capture the experiences of each group? Why would some sources be more useful to a particular group than to others?*

Once they have created a list, discuss the advantages and disadvantages of each historical source based on the typical attributes historians use to assess sources: the author, the audience for which he or she wrote it, and the context in which it was written. If students have not mentioned images as sources, propose them as an option. Ask students:

- *Why might an image provide more information about workers, the types of work they did, and the conditions under which they worked, than text sources would provide?*
- *If images were to be your sources, what kinds of questions would you want to ask about an image? How would you interrogate it? What attributes would be important in the image?*

Step 3: Using Historical Images: Workers and Working Conditions

Following the discussion, project the photographs of unskilled and skilled workers (see the preceding resource list) one at a time and have students analyze them, first in pairs and then as a whole group.

If students have not asked the following questions, guide the conversation by posing them:

- *What do you see in this photograph? Make sure your response is complete.*
- *When do you think this photograph was taken and why?*
- *Are these skilled or unskilled workers? Justify your answer.*
- *How safe do you think this work was? Justify your answer.*
- *What would you like to know about the photograph that you might not be able to tell just from looking at it?* [Information provided by the photographer of the sausage casing's photo: "Two male workers make sausage casings for Adam Stecher in a cellar located on the edge of the Hudson River at #656 West 41st St., New York City. Barrels and machinery fill the room, which the investigator described as 'excessively hot, humid and foul smelling.'"]
- *What other sources could you seek to provide further evidence about labor related to this photograph?*

Step 4: Decoding Photographs in Groups

Once you are satisfied that the students have basic skills in interrogating and decoding photographs, assign photographs to teams of three or four students, with one student in each group assigned to record the conversation. You have a number of options in the National Child Labor Committee Collection (it is not just about children): just choosing one gender, age, or ethnic/racial group and a variety of work sites; or using a combination of your choice. Use whichever seems most appropriate for your course. Using the "advanced" searching option for "subject," enter the combination that should appear in the photos: boys, girls, women, men, immigrants, African Americans, lumber industry, textile mills, glassworks, cannery workers, sewing, sweatshops, etc.

Ask students to answer the following questions about their assigned image:

- *Describe the people working in this image (gender, class, race/ethnicity, age). Why do you think these types of individuals are working there?*
- *Is there a supervisor in this image? If so, how do you know who it is?*

- *What are the working conditions? Do they appear safe? What evidence do you have from the photograph?*
- *Is the labor being performed skilled or unskilled? How can you tell?*
- *Can you tell in which part of the country the photograph was taken? What evidence supports your conclusion?*
- *What can you conclude about the attitudes toward labor in the early 20th century using elements of this photograph as evidence?*
- *What might have been the photographer's purpose or point of view?*

When all of the groups have finished answering the questions above, ask each group to explain to the rest of the class what it discerned about the workers in its photograph.

▶ *Formative Assessment*

Once all of the reports have been heard, guide the students to make conclusions about what they have found, using a write-pair-share format, in response to the following questions:

- *What were common themes in these photographs?*
- *Why do you suppose there are so many women and children doing factory work?*
- *Who are the supervisors?* [Generally white men] *Why do you think that was the case?*
- *Based on these images, what conclusion can you reach about the nature of labor in this period and its relationship to industrialization?*
- *How do your conclusions differ from what you thought about labor and industrialization in the long 19th century before we started this activity?*
- *Do your conclusions differ from your textbook's account? Why or why not?*

During the discussion, you may choose to jot down short answers on the board. If you do, then as the discussion wraps up, go back and indicate which answers are on track and why. If possible, help students modify the answers that might be incorrect in some way, or otherwise explain why they are incorrect (either yourself or with the assistance of the class as they think through the answers). Orally reinforce students' correct use of evidence from the photographs.

▶ *Reflection on Formative Assessment*

This assessment provides an opportunity to determine whether students are able to analyze imagery for information about labor conditions (in this case) in the early 20th century. Ask yourself:

- *Do the students recognize that the supervisors (if they appear in the photos) are white men?*
- *Do they recognize the circumstances under which women, children, immigrants, and African Americans worked were often dangerous and unsanitary?*

- *Do they recognize that working in conditions of low light and limited ventilation (no windows or blocked windows) makes work dangerous?*
- *Do they recognize the lack of safety devices on mechanical equipment?*
- *Do they recognize the weariness present in the faces of these workers and the poor condition of their clothing and shoes?*
- *Do they recognize that children — some of whom are very young — working anywhere are being placed in a position that is unhealthy and dangerous?*

If so, then your students are ready to move on to the next activity. If the students do not recognize that the working conditions of most of the people in these photographs were unsafe and unhealthy, then either display one of the photographs already discussed or put up one that they have not seen and then ask very specific questions about the clues the photograph gives about the working conditions.

Activity 2: Analyzing Textual Material: Unions and Progressive Era Movements

Ask your students: *Based on your assessment of the photographs, you recognized that these people were working in unsafe and unhealthy situations. What are some possible reasons why these working conditions continued?*

Write their answers on the board. Some reasons might include the evolving nature of technology, the lack of government regulation, the needs of industrial competition, and the fact that most unions in the 19th century were composed of native-born, skilled workers, operating more as guilds that protected their expertise than what people might consider a union today. Use this activity to segue into a discussion of the nature of unions and industrial reform in the late 19th century. By the early 20th century, the first industrial unions started to form, led by people who were considered to be radicals (and politically dangerous) by many, and they recruited unskilled workers. At the same time, groups of reformers concerned for the welfare of immigrants, the poor, women, children, and other marginalized groups took steps to mitigate the worst abuses of factory labor.

Step 1: Examining Early Industrial Labor Union Artifacts: Industrial Workers of the World (IWW)

Provide a copy of the 1905 Manifesto to the students (one per student or pair), and ask them to answer the following questions:

- *What was the primary message of the Manifesto?*
- *Did it support existing trade (craft) unions? Why or why not?*
- *How did the writers of the Manifesto propose to create better conditions for factory workers?*
- *According to the Manifesto, where would power lie with this group?*
- *Was membership inclusive or exclusive? What evidence do you have?*

Labor Arts, which is located at New York University, has a website with a wide variety of online exhibits and songs that could be used with your students (see resources list above).

Next, provide sample artifacts (banners and/or cartoons; see resources list above) by having students call them up on their own computers or projecting them to the class (play the song in the background). Ask students to analyze the differences in 19th- and 20th-century iconography in the banners and analyze some of the cartoons aimed at recruiting members to the IWW. Ask them to answer the following questions:

- *How are the 19th-century trade union banners different from the 20th-century banners? Why might those differences exist, and what do they tell you about differences in these organizations?*
- *What kinds of symbols did the cartoonists use to get their point across? How can you tell the "good guys" from the "bad guys" in these cartoons? Who are the "good guys" and who are the "bad guys" according to the cartoonists?*
- *Considering either the banners or the cartoons, what can you discern about the audience, the creators, and the sources of these materials? How might you use such artifacts in historical research?*

Step 2: Another Look at Labor Unions: The National Women's Trade Union League of America (NWTUL)

While the IWW leaders were considered radicals, the NWTUL operated under the combined forces of wealthy women, reformers, and working-class women who sought a way to improve conditions for the latter. As such, it is interesting to compare and contrast documents related to the two groups.

Give each group of three or four students (designate one student in each group as the recorder) a copy of one of the statements or letters in the Chicago Strike of 1910 collection and ask the following questions (Note: not all questions will apply to all documents):

- *What are the main grievances of the workers?*
- *Based on their statements, would they have any recourse without their union?*
- *What do they hope to accomplish?*
- *What is the NWTUL planning to do for them?*

Once the groups have responded to the questions, lead a class discussion of the following questions:

- *What did all the documents from the NWTUL have in common?*
- *Consider the 1905 Manifesto that preceded the establishment of the IWW that we read earlier. How was the document different in tone and goals? Why might that have been the case?*

- *Which of these groups (the NWTUL and IWW) would likely have been most palatable to most Americans? Why?*
- *Changes to labor conditions were not widespread until the 1930s. The Fair Labor Standards Act, which limited child labor, was not signed until 1938. Why might it have taken so long for regulations protecting labor to be passed?*

Lesson Summative Assessment

Essay prompt:

Ask students to write a well-developed paragraph in answer to this question: *Using the evidence we have examined, how would you describe the impact of industrialization on American workers in the "long 19th century"?*

In evaluating student responses, look for evidence that students grasp the relationship between advances in technological systems (such as threshing machines and power looms) and the de-skilling of individuals who had labored to produce products and goods in pre-industrial times. For instance, workers skilled at reaping wheat with simple tools found their skills had little value once mechanized threshers became economically cheaper for farmers to use; a similar kind of de-skilling occurred when the skills of hand-weavers lost value after large mechanized textile mills were introduced, creating opportunities for entrepreneurs and mechanics but limiting them for weavers. A strong essay might address the debate between Jefferson and Hamilton over the need for industrial development in the United States in the early 19th century and conclude with discussion of the role of labor unions in addressing the wages and working conditions of laborers. Students need to grasp that not all Americans benefitted from the introduction of new technologies: industrialization caused some workers to lose their livelihoods.

Lesson 3: Technology and Expectations in the American Workplace

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Essential Questions

- How have changes in markets, transportation, and technology affected American society from the late 19th century to the present?
- How has the use of technology in office spaces changed over the past century?
- How has the use of technologies changed how people work in offices, and how have people influenced changes in these technologies?
- How have changes in office technologies changed how businesses operate?
- What do changes in technology tell us about the way that technology is used (e.g., does miniaturization result in smaller technologies that can be carried around [portability], or does a demand for portability result in a trend toward miniaturization)?
- How has the recent portability of communications equipment led to difficulties separating time "on the job" from time "off the job"?

Lesson Summary

This lesson examines the idea that the relationship between people and technology is a two-way street. Although people develop a technology, that technology then influences how people work and live — often in unexpected ways — which in turn influences how society functions in the broadest sense. This technological influence then leads people to adapt and refine the technology to meet new personal and societal needs.

While communications technologies were already transforming the workplace and the economy at the beginning of the 20th century, the rapid technological advancements after World War II and during the Cold War generated an ever-increasing rate of productivity and interconnectivity that fundamentally changed the ways that people work and live in the United States and interact with

people around the world. This lesson gives students the opportunity to follow the development of office-related technologies over the decades (typewriters, telephones, and computers and their ancillary equipment) and correlate them to changes in the ways that Americans work.

Students will first consider the historical use of typewriters and telephones (who used them and why) and how that changed over time by looking at images of the technologies and how they appear in photographic evidence. Students will then analyze images of the American workplace and form ideas about how changing workplace technologies result in changing ways of work.

▶ Connections to the AP U.S. History Curriculum Framework

This lesson connects to Periods 7, 8, and 9, and the following learning objectives in the *AP U.S. History Curriculum Framework*: (WXT-3, 5, 8), (PEO-6), and (WOR-3). It also connects to the following skills in the *AP U.S. History Curriculum Framework*: Skill 1 (historical causation), Skill 4 (comparison), Skill 5 (contextualization), Skill 6 (historical argumentation), Skill 7 (appropriate use of relevant historical evidence), and Skill 8 (interpretation).

▶ Student Learning Outcomes

As a result of engaging in this lesson, students should be able to:

1. Draw connections between historical events in political and diplomatic spheres and the evolution of technology
2. Identify the ways in which new technologies contributed to changes in the workplace and larger economy
3. Present an informed argument as to what degree technological developments are a benefit or a detriment to the American economy (productivity, innovation, quality of life)
4. Reason about causality, continuity, and change over time
5. Compare and contextualize historical developments over time
6. Create a plausible and persuasive historical argument based on photographic and textual evidence

▶ Student Prerequisite Knowledge

Students should have already read in their textbooks about the development of typewriters during 19th-century industrialization, and the development of telephones and the telephone system in the late 19th and early 20th centuries. They should also have read about the development of computing in the mid-20th century, including the development of the Web and Internet in the late 20th century. From their readings, students should have a sense of how quickly communications devices and systems have changed over time, although the rapidity of technological change is generally most easily experienced by living through it. Students should also know that anything a human builds and/or uses is a technology — it does not have to be electronic.

If students do not have this background knowledge — and, in particular, if they do not have a sense of how quickly technology changes — then a short PowerPoint or other presentation that includes images of these technologies and the periods in which they were introduced for commercial and personal use should be made available to them.

▶ *Common Student Misconceptions*

The main student misconception in understanding communications and office technology is really a lack of knowledge (e.g., the cell phones that they can slip into their back pockets have not always existed). This can be mitigated by assigning background reading in the text and addressing the development of technology over time in a short presentation, if needed. This misconception is also at the heart of the lesson, which attempts to place students back in time.

▶ *Teacher Learning Outcomes*

By presenting this lesson, you should improve your ability to help students make historical connections across sub-disciplines. History lessons are often taught through a narrow point of view: as political history, military history, or social history. Looking at the 20th century through the lens of technology and communication should provide a template for teaching other periods by accessing a variety of historical disciplines and perspectives. For example, you should come to understand that because we live in a human-built world, everything that we do is connected to technology, and those technologies influence how people live and work; how the nation engages in warfare; how transportation and business technologies influence migration (where people choose to live), the flow of goods and services, and what people eat and where they eat it; and what people listen to and see and how those sounds and images affect culture, society, and individuals. All of it comes down to technology. You will also have the opportunity to use a variety of sources and source artifacts that can be tailored to their skills and interests or the needs of the class.

▶ *Teacher Prerequisite Knowledge*

Often repeated is the idea that most students know more about electronic technology than their teachers, but as these technologies become more sophisticated, their design and ease of use limit the ability of most people to understand the system and processes that make them work (e.g., cell phones work without anyone knowing what the "cell" in "cellular" means). You should prepare by acquiring a basic knowledge of the timelines of communications and computer technology, as well as some of the underpinnings of information technology, particularly the basics of how computers and the Internet came to be in their present form. Good sources include the following books:

- *America Calling: A Social History of the Telephone to 1940* by Claude S. Fischer
- *Network Nation: Inventing American Telecommunications* by Richard R. John
- *A History of Modern Computing* by Paul E. Ceruzzi

- *A Social History of American Technology* by Ruth Schwartz Cowan
- *American Genesis: A Century of Invention and Technological Enthusiasm* by Thomas P. Hughes
- *Technology in Postwar America: A History* by Carroll Pursell

▶ *Materials or Resources Needed*

If your school has an old typewriter, either manual or electric, that you could bring into your classroom to let the students use, consider doing it.

Image Sets

Technology in the classroom

- Eastern High School Zoology Class, Washington, D.C. circa 1899: http://www.loc.gov/pictures/resource/cph.3a39505/
- Typing class at Winooski High School, circa 1952: http://cdi.uvm.edu/collections/getCollection.xql?pid=mcallister&rows=1&start=45&term1=classroom&field1=kw

Telephones

- Stick phone without dial, early 20th century: http://www.telephonearchive.com/phones/we/we20b.html
- Wall phone at farm, early 20th century: http://digitalgallery.nypl.org/nypldigital/id?92252
- Stick phone with dial, circa 1920s: http://digitalgallery.nypl.org/nypldigital/id?98286
- 1930s dial phone: http://www.telephonearchive.com/phones/assets/we/we202/202_in_spotlight_800.jpg
- 1960s Princess phone: http://www.telephonearchive.com/phones/assets/we/princess/princess-pink-rc-full.jpg
- 1960s Trimline phone: http://en.wikipedia.org/wiki/File:TrimlineExposed.jpg
- Push-button phone: http://en.wikipedia.org/wiki/File:ATTtelephone-large.jpg

Office spaces

- Office, 1896: http://www.officemuseum.com/IMagesWWW/1896_Metropolitan_Life_Insurance_Co._MetLife_Archives.jpg.JPG
- Office, 1907: http://www.officemuseum.com/1907_Burroughs_Corp_Collection_Charles_Babbage_Institute_U_MN_cb000184.jpg
- Office, circa 1918: http://www.officemuseum.com/WWI_war_insurance_office_at_Smithsonian_SI.JPG
- Office, 1920s: http://www.officemuseum.com/Office_Ponca_City_OK.jpg
- Office, 1951: http://www.officemuseum.com/1951_General_Accounts_Section_UN_HQ_NY_NY_x.JPG
- Office, 1980s: http://cse.csusb.edu/dick/25th/198nDeptOffice.jpg

Search online for images of offices with cubicles and a person working on a laptop and/or cell phone and select something appropriate to round out the set.

Handouts:

Handout 2: Technology over Time: Telephones

Handout 3: Technology at Work over Time: Office Spaces

Activity 1: Technology in the Classroom

Step 1: Explain to students that classrooms a little over 100 years ago did not look like they do today. Show the students the image of the 1899 zoology classroom (see resources list above). To start the class discussion, ask:

- *What kinds of equipment and materials do these students have to work with?*
- *If these students had been assigned to write a report about an animal as part of their zoology course, where would they have gone for information?* [school library, public library]
- *Washington, D.C., was a large city even in 1899, so these students likely could have gone to a large city library or even the Library of Congress reading room, which has lots of material. What if they had been living in a small town of a few thousand people? Would they have had access to a lot of print sources?* [probably not — possibly an encyclopedia and a few books]
- *Where would they have looked up the correct spellings for words?* [dictionary]
- *What kind of tools would they have had to produce their report? In other words, in what form would they have turned their report in to their instructor?* [pen and paper; might need to remind students that they would not have had ballpoint pens or fountain pens, but would have used stick pens dipped into ink bottles]

Step 2: Explain to students that mid-century classrooms were not so much more sophisticated than they had been in 1899. Show them the image of the Winooski High School class from 1952. To start the class discussion, ask:

- *What kinds of materials do these students have to work with?*
- *If these students had been assigned to write a term paper for this course, where would they have gone for information?* [school library, public library]
- *What kinds of sources would they have had available?* [books; maybe some magazines and newspapers; probably no academic journals]
- *Where would they have looked up the correct spelling for words?* [dictionary]
- *What kind of tools would they have had to produce their report? In other words, in what form would they have turned their report in to their instructor?* [fountain pen and paper; might need to remind students that they would not have had ballpoint pens]

Anticipating that someone might suggest a typewriter for the term paper, show students the next photograph of the typing class at Winooski High School circa 1952 and ask the following questions:

- *What is going on here?* [typing class]
- *Given that the typewriters were made of steel, were they light or heavy?* [heavy]
- *Portable or not so much?* [only with great effort]
- *Would the families of these students have been likely to have had a typewriter at home?* [probably not — too expensive and no need to have one at home]
- *So, thinking back to the first Winooski High School classroom that we looked at, were any of their term papers tapped out on a typewriter?* [probably not]

Ask your students if they have ever typed anything on a typewriter. If so, was it electric or manual? Explain to students that these manual typewriters were not so easy to use. If students made a mistake while typing their papers, they had to roll out the paper, use a special eraser to erase the mistakes, try to line the paper back up in the typewriter, and then type in the correct letters or numbers. If they were using carbon paper (the early method of making copies), then they had to erase the error on all of those copies as well. Later, they could have put "liquid paper" (a white fluid) on the mistake instead. In that case, one had to blow on it so it dried before rolling the paper back into the machine as mentioned above.

Electric typewriters were easier to use, and versions from the 1980s had the ability to remove ink from the page and then allow the typist to replace the incorrect letter or word.

Step 3: Ask students the following questions:

- *Do we have computers in every classroom at our school?* [If not, are there computers in some classrooms that students use? Does your school have a computer lab with banks of computers for student use?]
- *If I assign you a term paper for this course, where will you get the information to write it?* [school library (if it still exists), public library (if it still exists), online databases via the Internet]
- *Although you might be (are) encouraged to write papers using actual print materials (books, journal articles, newspaper articles, and perhaps archival material), in some cases is it possible for you to do all of your research without ever opening up a physical book or touching a piece of paper?* [most students will probably say "yes"— with digitization of old books, current journals, and archival material, they may be able to do all of their research online]
- *How will you check your spelling?* [with a "spell-check" function available in word processing software; perhaps an online dictionary]
- *Now, when you turn in your paper, how will you turn it in to me?* [printed out on paper after composing it on a computer; sending it electronically as an email attachment]

▶ *Formative Assessment*

Now that the students have discussed technology in classrooms in three different periods — the beginning of the 20th century, mid-20th century, and early 21st century — ask them the following: *Based on what we have just discussed, how has available technology changed the way you research, write, and produce a paper for a history class, compared to how you would have done it early in the 20th century and in the mid-20th century? Considering all factors (doing the research, writing the paper, preparing it for your teacher), would you have expended more or less time and energy on this paper in 1900, in 1950, or today? Justify your answer.*

If the students are responding orally, reinforce answers that provide evidence. If the answer is fundamentally correct but the evidence is insufficient, ask the class to provide additional evidence. If the answer is incorrect and/or uses evidence that does not apply, ask more questions that will encourage the entire class to develop an appropriate justification for their answer. If you choose to have students respond in writing, the answers would provide a sense of how the entire group has grasped the influence of technology on the classroom. You could still provide the feedback orally by summarizing the stronger and weaker answers, or you could provide individual written feedback.

▶ *Reflection on Formative Assessment*

Students should recognize that with all of the options they have for research today, the research part of the paper would take longer than just looking up information from the very few print sources or an encyclopedia that they would have had access to in the early periods. Because they can access all kinds of information (which may or may not be valid, depending on the source) with a few key strokes, the expectation is greater that they will have gathered more information, which also means they must do more analysis. Therefore, the research part of the project can be prolonged because there is always the temptation to find one more piece of data. In earlier periods they would likely have written a draft or two in pencil and then the final paper in ink. Had they made a mistake, they would have put a line through the word and kept on writing. Now, with the ease of making changes, the temptation tends to be to keep changing the paper until just before it is due. There is also the temptation to wait until the last minute because it is so easy to keep printing out copies.

If students recognize that how they conduct research and write papers is fundamentally different because they have access to computers and the Internet — that all people have a relationship with the technologies around them that affects not only how they work, but how that work changes the technologies over time — then they are ready to go on to the next activity.

If not, consider the ethnic and socioeconomic composition of your class and/or school before taking the next step. If your school and many (or all) of your students do not have ready access to computers, printers, and the Internet, then you will need to demonstrate — perhaps with your own laptop — how you would do research online and then format and create the report. If your school has easy

access to computer equipment and your students have laptops, tablet computers, or the latest portable, Internet-connected device on which they can work, then it is time to review what students had available to them in earlier periods. One possibility might be to do an exercise where students must take handwritten notes from one of their books, synthesize the information, and then compose a well-written paragraph in ink with no grammatical or spelling errors. Then ask: *What do you think now? Does technology make a difference in how you perform in this course? Might you look for a better way to do it — a different technology — if you thought it would make it easier or produce a better outcome?*

Activity 2: Tracing Technologies Through Time: Telephones

As students found in the first activity by looking at technology in the classroom, those technologies change as people's needs change and in turn influence how people work, which again spurs technological changes. In this activity, students will examine photographs of telephones and analyze how they would have been used. In other words, how did people interact with telephones and, in turn, how did telephones change how people lived and interacted with one another, thereby influencing the social, political, and economic history of the United States?

Step 1: Using the telephone image set (see resources list above), either print sets of photographs or develop a PowerPoint presentation that all of the students can view.

Handout 2

Step 2: Individually or in small working groups, students look at the changes over time and use the Handout 2: Technology over Time: Telephones to guide the analysis.

Step 3: Lead a classroom discussion based on the answers to the questions in Handout 2. Use the additional questions below to guide the discussion as needed. Note: Because this is a lead-in to the next set of photographic analysis questions, you should guide the discussion toward the first question (How does technology interact with the user?) in any history that involves technology:

- *How does technology interact with the user? Does the user influence changes in technology or the other way around?* After looking at all of the images, students should be able to discern that if a telephone did not have a dial, then the user could not reach another person directly — the user had to go through yet another person who would manually connect him to the individual he was contacting. That meant that the person doing the connecting could listen in to the phone call; there was no guaranteed privacy.
- *If you knew other people could listen in to your calls, how would that affect what you discussed? Would that make a difference if you were a business person? Would it make a difference to everyone? Why or why not? Do you think this issue of people listening in might have spurred the development of direct dial phones? What about the issue of saving time by letting users dial phones themselves?*

- *With Skype on a computer or cell phone, it is possible to talk to someone outside the United States at no cost and to see the person, too! How might this capability affect your life or the way you work?*

Activity 3: The Technological Office Space

Having considered changes in how we produce term papers (pen, ink, and paper to typewriters to computers and printers) and how we use telephones, students will look at a series of 20th-century office spaces. These images show a variety of technologies and demonstrate the ways that this workspace has changed over time with the evolution of information technology. This activity is similar to Activity 2, but this time students will need to consider the entire system that supports the workplace's use of business technologies. How does using these technologies impact the way people do business, and how do businesses' needs influence the further development of these technologies?

Step 1: In small working groups, students examine a set of photographs that depict typical American office spaces over time (see resources list above). Tell students that if they are having trouble deciphering what technology is being used in these images, that they should ask — but only after they have wrestled with it for a bit. Using the guiding questions on Handout 3: Technology at Work over Time: Office Spaces, groups discuss and analyze the photos.

Handout 3

Step 2: Discuss the findings of each group. Compare and contrast explanations of productivity and technological change over time. As part of the discussion, be sure to emphasize the concept of productivity and just what it means. Ask students: *If a technology allows one or two people to do the work that a different technology required 10 people to do in the same amount of time, which situation is most productive?* Explain that it is automation in this sense — not just in the sense of robotics — that leads to changes in the labor market. Some jobs will disappear (e.g., those involving people tapping in numbers and words on clunky machines), and others will appear (e.g., those involving people who can teach others how to use the new technology and people who can repair it). This is a continuing cycle of de-skilling, just as when people who had spun yarn by hand were replaced by machines that could do the same thing faster.

▶ Lesson Summative Assessment

Essay prompt: *Based on your analysis of the images and the subsequent discussions, explain how the technologies that humans create, once used by them on a daily basis, come to be improved and/or replaced as people interact with them. In other words, based on the examples we studied, how do technologies and people act on one another to change the world of work and school?*

At a minimum, students should point to how technologies have changed over time because of how people used them. Telephones, which were originally just for business, became so useful for sharing information that they moved into households and eventually, as with cell phones, into people's pockets and purses. A more advanced answer would point to how communication technologies have

come to easily connect people from around the world and thereby spread ideas much more quickly. Those ideas, which often impact all facets of our lives, in turn speed up changes in technologies. Consequently, technological change that has occurred during the students' lives has occurred at a much faster pace than the changes that occurred during the same number of years early in the 20th century (e.g., new smartphones with expanded capabilities appear on the market before the previous versions have lost their effectiveness).

Summative Assessment for the Curriculum Module

Essay prompt: *Anything created or used by a human is a technology (even genetically modified crops are a technology) and technologies are never static. Considering the changes in technologies over the last 200 years, provide at least two examples of technologies that have affected (positively or negatively) the work and home life of Americans, how they have done so, and how their changes over time have also influenced American society, culture, and economics.*

Students' answers should be well-reasoned historical arguments that exhibit their ability to use and interpret evidence drawn from textual and visual primary source materials that have been used in these lessons to illustrate how access to, and uses of, technologies have affected (and been affected by) American society, including how people have lived and worked; the development of labor and technological systems; and government, social, and economic policies (Learning Objectives WXT-1, 2, 3, 5, and 7 in the *AP U.S. History Curriculum Framework*). Additionally, this assessment draws on the students' ability to correctly identify historical causation and contextualize evidence.

Students' essays should be evaluated in terms of how effectively they are able to interpret evidence that supports their arguments concerning the effects of the two chosen technologies. Arguments should be nuanced, providing evidence that the students understand the historical complexity of human-technology interactions over time. Students' answers should show that they understand that technologies are not static because our interactions with them change not only the technology but also the people who use them. And that furthermore, because people's use of technologies changes the people themselves, it also changes how they live and work, and how their governments make decisions and implement policies concerning labor, society, and economic issues. Superior answers will include specific, well-chosen evidence directly tied to the question.

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Handout 1

Questions for Probate Records

1. Who is your subject? What is his/her name? Where did he/she live? What do you know about this person from the probate documents?

2. What types of kitchen tools and foodstuffs are listed? What might they tell you about the kinds of food that were prepared and eaten? Why were they listed?

3. What kinds of textiles and how many of each are listed? Based on the inventory, did this individual have the capability of creating textiles? Why or why not?

4. What kinds (and quantities) of household objects (e.g., candles and carding combs) are listed in the inventory? Based on the inventory, could they have been made by the decedent (person who died)? Why or why not? Be very specific.
   If you determine that the household had the tools necessary to make these objects, be sure to connect the tool in the inventory to these objects. If you determine that the household did not have the tools necessary to make these objects, indicate what tools would have been required to do so.

5. What kinds (and quantities) of "outside tools" (e.g., axes, hoes, and saws) are listed in the inventory? What do the items in this list tell you about what the decedent was capable of making/building/doing on the land? What kinds of skills would his descendants need to have to use these tools?

6. Did the decedent own books or works of art? What might the presence of these items in the inventory tell you about him/her?

7. Did the decedent own slaves? If so, how many? Can you determine what work they did for the decedent? What difference would the owning of slaves make to the ability of this family to be self-sufficient?

8. Once you have accounted for all of the items in the inventory and their uses, answer the following questions:
   a. Could the decedent and/or his/her family have made everything that they owned? Why or why not?
   b. Could the decedent and/or his/her family have built their own home? Why or why not?
   c. Could the decedent and/or his/her family have grown and processed all of their own food? Why or why not?
   d. Could the decedent and/or his/her family have relied on or supplemented their diets by hunting game or fishing? Why or why not?

Handout 2

Technology over Time: Telephones

1. What were some trends over time you noticed in the images of the telephones? What changed and what stayed the same?

2. If an individual used one of these telephones, where did he or she need to be? In other words, could the telephone be moved?

3. Today, many people use cell phones for both work and personal use. How does using a cell phone instead of one of the telephones shown in the images change the way you think about using it?

4. Although wireless technology has been available since early in the 20th century, it was not compact enough to be useful for something like a cell phone. Thirty years ago, cell phones like those in use today were in the realm of science fiction. Today they are everywhere. What are the positive and negative attributes of the switch to cell phones as compared to telephones that are plugged into a wall?

5. Would you want to go back and use any of the older versions of these objects? Why or why not?

Handout 3

Technology at Work over Time: Office Spaces

1. Identify the important technologies in each of the offices.

2. Are there any objects that remain the same over time? If so, what are they? If not, why might that be the case?

3. What objects change from one office scene to another?

4. Which of these offices made it possible to get the most work done? Provide evidence for your answer.

5. What do today's office workers need to know that their predecessors did not? Provide evidence.

6. In the earliest images, where did these offices' customers most likely live? (That is, were they local, across the country, or across the ocean?) Why do you think so? In today's offices, where might the customers be? How does that make a difference for the way a business operates?

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