Chapter 6, Section 1: The Expansion of Industry

At the end of the 19th century, natural resources, creative ideas, and growing markets fueled an industrial boom.

Opening Activity:

In a paragraph discuss what invention expanded industry in 19th century United States.
# Taking Notes

**Directions:**

List resources, ideas, and markets that affected the industrial boom of the 19th century. In the second column, note how each item contributed to industrialization.

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<th>Resources, Ideas, Markets</th>
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**Define the following terms:**

Edwin L. Drake  
Thomas Alva Edison  
Alexander Graham Bell  
Bessemer process  
Christopher Sholes
I. Natural Resources Fuel Industrialization

A. The Growth of Industry

- By 1920s, U.S. is world’s leading industrial power, due to:

  * Wealth of natural resources.
  * Government support (lack of interference) for business.
  * Growing urban population.
B. Black Gold

-Pre-European arrival, Native Americans make fuel, medicine from oil.

-1859, **Edwin L. Drake** successfully used a steam engine to drill for oil.

-Petroleum—refining industry first makes kerosene, then gasoline.
C. Bessemer Steel Process

- Abundant deposits of coal, iron spur industry.

- **Bessemer process** puts air into iron to remove carbon to make steel.

- Later open-hearth process makes steel from scrap or raw materials.
D. New Uses for Steel

- Steel used in railroads, barbed wire, farm machines.

- Changes construction: Brooklyn Bridge; steel-framed skyscrapers.
II. Inventions Promote Change

A. An Age of Inventions

- Numerous inventions change the landscape, life, work.

- Inventions of the 1800s: photography, telephone, sewing machine, internal combustion engine, dynamite, typewriter, light bulb, phonograph, telegraph, electric motor, radio, motion pictures, x-ray machine.

![U.S. Patents Issued, 1860–1909](chart.png)

*Source: Historical Statistics of the United States*
B. The Power of Electricity

- 1876, **Thomas Alva Edison** establishes first research laboratory:

  * 1880, patents incandescent light bulb.

  * Creates system for electrical production, distribution.

- Electricity changes business; by 1890, runs numerous machines.

- Becomes available in homes; encourages invention of appliances.

- Allows manufactures to locate plants anyplace; industry grows.
Factories after Electricity
C. Inventions Change Lifestyles

- **Christopher Sholes** invents typewriter in 1867.

- 1876, **Alexander Graham Bell**, Thomas Watson introduce telephone.

- Office work changes, brings women into the work force.

- Traditional jobs of women at home brought into factories (sewing/clothing).

- Industrialization makes jobs easier; improves standard of living.

  * By 1890, average workweek 10 hours shorter.
  * As consumers, workers regain power in market.
Review Questions

1. Edwin L. ___________ made drilling oil practical by successfully using steam engines to drill for oil.

2. The _____________ process removed carbon from iron making steel, which revolutionized the iron industry by making a lighter, more flexible, and rust-resistant metal.

3. Thomas ____________ development of a system to producing and distributing electrical power and the invention of the light bulb allowed manufactures to locate their plants wherever they wanted.

4. Alexander Graham ___________ and Thomas ________________, in 1876, invented the telephone that opened the way from a worldwide communications network.

5. All of the following but the _____________ was an invention in the 1800s: photography, telephone, sewing machine, internal combustion Engine, dynamite, typewriter, airplane, light bulb, phonograph, telegraph, electric motor, radio, motion pictures, x-ray machine.

Words:
Bessemer    Watson    Drake    Bell    Edison