**What is Necessary to Have an Industrial Revolution?**

Industrial revolutions don’t just happen. To have an industrial revolution, a country must have at least seven different things:

1. Natural resources such as fertile soil, coal, and iron ore
2. Basic inventions such as the telegraph and electric generators
3. A transportations system, called an infrastructure, that includes roads and railroads.
4. A large workforce
5. A surplus of money to invest. This is called capital.
6. Men or women of talent, ambition, and energy, with administrative abilities – entrepreneurs
7. A favorable government policy

England led the way in industrialization, but the United States soon followed. The United States was rich with natural resources. It had a rich supply of fertile land to provide food for a workforce and endless forests to provide wood for building and heating. There were swift rivers to power mills and move goods. Huge deposits of coals were discovered in the Alleghany Mountains around the time of the Civil War. The mighty Mesabi Mountain range in Minnesota was a source of ore needed to make iron and steel. Rich deposits of copper were found in the West. Reserves of crude oil were discovered in Pennsylvania and Ohio, and when these ran out they found Oklahoma and Texas.

Although the technological basis for our industrial revolution was created in England, it was not long before Americans added to the world’s list of important inventions. There was Eli Whitney’s cotton gin and the invention of interchangeable parts which allowed for each item produced by a particular company to be produced with exactly the same parts. Other inventions include the sewing machine, the steam engine, the telegraph and Morse code, etc. The number created at this time was astounding and truly revolutionary, especially after the harnessing of electricity.

The infrastructure that included, first and foremost, a system of transportation was also developed during the industrial revolution. By the time of the Civil War, there were already 30,000 miles of railroads spanning America. A full 200,000 miles of railroads were built between 1865 and 1910. Steel rails covered the country, connecting East to West, North to South, and all regions in between. The most notable accomplishment was the completion of the transcontinental railroad in 1869.

The workforce for America’s Industrial Revolution came from two sources. First, such inventions as the mechanical reaper allowed for mostly larger scale farms to be able to afford the new machines. Prices for farm goods plummeted, making it possible for hundreds of thousands of small farmers and their children to leave their farms and move to the cities for jobs in factories and offices. Meanwhile, millions of immigrants left England, Germany, Poland, Romania, Russia, Greece, and dozens of other countries and came to the United States where they hoped to find jobs created by the Industrial Revolution.

And then of course there was money! Nothing of great importance happens without it. The American Industrial Revolution was financed by two sources. First, profits from previous commerce, such as New England’s famous ‘China trade’ of the 1840’s and later from the profits made by industrialists like Andrew Carnegie and John D. Rockefeller. Second, investors from foreign countries, particularly England, played a major role in financing our industrial revolution.

The Industrial Revolution in the United States may never have occurred without the contributions of a relatively small group of energetic men who devoted their intelligence, daring, energy, and administrative abilities to the purpose of making money by creating huge industrial empires. These individuals used their capital to continually invest in new ventures to improve the revolution. These individuals include Cornelius Vanderbilt in the steamboat and then railroad industries, Andrew Carnegie in the railroad and then the iron and steel-making business, and J.P. Morgan who advanced banking and financed big businesses.

The United States government provided an important role in advancing the industrial revolution. Beginning with the Federal Bank, protective tariff, and a push for internal improvements were early policies. After the Civil War, the North was able to impose its economic priorities on the rest of the country. High protective tariffs were passed to shield American businesses from foreign competition. An open immigration policy guaranteed a plentiful supply of workers willing to labor for long hours at low wages. A sound money policy kept the currency from inflating and convinced creditors they would not be repaid with dollars of equal value. Striking workers were frequently harassed and arrested by state, local, and national governments dedicated to keeping an obedient work force. Millions of dollars and acres of land were granted to corporations to encourage them to lay more railroad track then were laid in the rest of the world.

Perhaps the most important government policy regarding businesses was to leave them alone and unregulated. That way, businessmen did not have to worry about government interfering with their activities and they had the freedom (within limits) to make money any way they could. This policy was based on a belief in ‘laissez-faire’ and ‘survival of the fittest.’

what factors were necessary for American industrialization?

Determine the factors that are necessary for the Industrial Revolution in the United States as you read “What is Necessary to Have an Industrial Revolution?.” While you read, explain these factors in the following graphic organizer by giving details to each factor from each box.