

**Exemplar Papers
with
Annotations**

Purpose of Exemplar Set

The set of exemplar papers is made up of examples of student responses that represent each score point. Please note that “exemplar” refers to the fact that these student responses are good examples of particular scores, not necessarily ideal or exemplary work. Each exemplar paper has been previously scored and includes an annotation that provides an explanation about the rationale for scoring.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA Technology Through The Ages

Before the printing press was taken beyond the drawing boards three requirements were necessary to further its development. One of these necessities was paper from China, instead of expensive parchment. Egg-based tempura ink was used previously on the vellum of religious manuscripts, however the development of oil based inks was necessary for a smug resistant and non-fading ink. The third necessity was funding, which he recieved in 1450 when he set up a partnership with the German merchant and moneylender Johann Just. The printing press was therefore an important technological development because it increased the literacy rate of the general European public, allowed religious reformers' ideas to spread quickly, and on a large scale



STUDENT RESPONSE BOOKLET

— Continued —

Europeans were smarter than past generations.

Do to the invention of the printing press; Europe experienced an increased literacy rate in their general public. Since the printing press could make a lot of books cheaply on paper, rather than on expensive parchment more Europeans were able to get their hands on books, which had more people reading. Before the printing press was invented the literacy rate of Europeans was a measly 5%, 200 years later in the 18th century the literacy rate in Europe had increased to 50%. The significant of the increased literacy rate was the start of more cultural diffusion. Now that people had a way of experiencing different cultures of the world without having to travel long and far they had a less narrow mind of view. The books made with the printing press did not only help more Europeans to be able to



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read, but also made a gateway for new ideas to spread in the religious world more quickly.

With the mass production of books came the quick spread of religious reformers' ideas. The spread of the Protestant reformation occurred through books published by the printing press. On Halloween in 1517, Martin Luther nailed his 95 Theses of Contention to the Wittenburg Church door. This famous theses was made by the printing press which gives you only one example of how the press let religious reforms spread easier. Impacting the lives of religious reformers such as Martin Luther was significant because the 36 lined bible in the hands of European citizens gave them their own views on how the church was being run. They could see written proof that maybe the priest or Pope was carrying out actions not quoted in the bible. This then created a huge power struggle



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— Continued —

between religious reformers and the church noblemen, also known as the priests, clergy, & Popes. Not only did the printing press help religious reformers ideas spread with ease, but also became the cause for a more knowledgeable European public.

Making head way the printing press also furthered the developement of smarter minds in the European public. With more books now available to the publics' minds, the Renaissance's scientific revolution took off. Great doctors, astronomers, and navigators were able to write books on such ideas as gravity (as did Newton) and a helioistic universe which Nicolaus Copernicus had believed in. The significants of this is that these books could be published for the public to buy, therefore making each generation smarter having built on the written works of previous



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— Continued —

scientists. Because of the printing press was able to make more average people equal to those with more money when it came to resources to gain knowledge, it further proved why it should go down in history as the greatest invention.

In conclusion the printing press is an amazing invention in world history because it increased the literacy rate of the European public, through out the Renaissance religious reformers ideas were able to spread with more ease, and more of the European public were smarter than past generations. All should be thankful for the printing press was invented for it has greatly impacted the world's history as well as present human lives.

EXEMPLAR #1 ANNOTATION

History Rubric

Score: 4

This response earns the score of 4 on the History Rubric for accurately explaining why a technological development was significant by providing at least three specific effects of this change. The response provides three positive effects of the invention of the printing press and supports these effects with specific historical information: it led to higher literacy rates (e.g., they went up to 50% — while it is difficult to confirm this as accurate for all of Europe, it is reasonable to state that at least parts of Europe in the eighteenth century had literacy rates as high as 50%), allowed religious reformers to spread their ideas with ease (e.g., Martin Luther’s 95 Theses), and helped start the Scientific Revolution (e.g., Copernicus sharing ideas through books). Accurately explaining three specific effects of the technological development earns the response four points on this rubric.

Economics Rubric

Score: 0

This response earns the score of 0 on the Economics Rubric because it never addresses human capital. Without either explicitly mentioning human capital or at least showing it at work, no points can be earned on this rubric.

Skills Rubric

Score: 3

This response earns the score of 3 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a well-organized and well-supported paper/presentation. The response includes a clear and plausible thesis (“the printing press was therefore an important technological development...”) and it is well-organized. No further credit is awarded because the response does not include a general statement about why this technological development occurred. Presenting a clear and plausible thesis in a well-organized and well-supported paper/presentation earns the response three points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA _____

How did the ether inhaler and anesthetics change American medical history?

Today, when someone “goes under the knife,” the process is relatively painless, during and after the surgery. Now, imagine getting an appendix removed, without any anesthetics. Before the 19th century, that nightmare was reality for many people. Even at the beginning of the evolving process of anesthetics, they drugs would hurt the patients, until the ether inhaler was invented.

Before the 1800’s, surgery was the last option for saving a life. The patient was strapped down on the table and given something to bite on. The process was so excruciating that some patients would pass out from the agony. Back then, a surgeon was criticized by how fast they worked, rather than quality. Other substances were used to dull the pain like marijuana, opium, hashish, acupuncture, and alcohol, but failed miserably. It wasn’t unusual, also, to find the doctor drinking himself to help him handle the screaming from the patients.

In the 1840’s, ether was commonly used for a recreational use. It wasn’t too long after, that an American Physician, Crawford W. Long, had experimented with the drug and found that “people under the influence of ether, felt no pain.” The first procedure using ether as a pain killer took place on March 30th 1842. Although the ether was affective, it still hurt the patients mouth and nose.

William T.G. Morton, a dentist from Boston, realized that the ether was uncomfortable for the patients. Within months, he invented the first inhaler called Morton’s ether inhaler. It was made out of glass and wood, with a sponge, ether, and water inside. The first public surgery was on October 16, 1846 in the surgical



STUDENT RESPONSE BOOKLET

— *Continued* —

amphitheater of Massachusetts General Hospital where a tumor was removed successfully from a 20 year man who was sedated by anesthetics.

They say “Pain is Nature’s alarm, her method of calling attention to something that is wrong with our bodies,” and many people believed in keeping it that way. Those who had never had to experience a surgery, or been close to someone who had, had the opinion that anesthetics were against their religion. There were several meetings to try and ban the substances, but no points were made strong enough to change anybody else’s mind on this great new creation.

During the first couple years of using the ether inhaler, there were plenty of mishaps, mistakes, and errors. With the relieving assurance of a painless surgery, patients were quite calmer. But, when not a big enough dosage of ether was given, patients were more frightened than when they had started, which made the process just as complicated as it was before they discovered anesthetics. Having the patients sedated allowed the doctors to have more time, and prevented possible infections that would make patients problem’s worse or even die.

Military advances sky rocketed after the invention of the ether inhaler. Lives were saved, soldiers were eventually able to recover and soon return to their stations, if injury wasn’t too bad. Even though it was helpful, it was also very expensive, not only for the ether itself, but also for the inhaler. The size factor didn’t help either. The preparation that was needed to set up the inhaler was also very difficult. Precise measures were needed or else it was a waste of ether, or enough to knock the person out for more than needed. It eventually came down to using the inhaler on life or death situations.

Hours upon hours of experiments, labs, and tests were accomplished to prove that the drug was not only useful, but necessary for major operations. Many physicians, dentists, doctors, and surgeons attended open operations, surgeries, lectures, and seminars to get to know this new invention. At first, doctors asked



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their patients to allow them to use anesthetics, but eventually, once the drug became more popular, patients requested them.

The founding of the ether and its affects in the medical industry soon led to other anesthetics like chloroform and curare. Chloroform was easier to use than ether, but also had affects like severe liver damage and sudden death. Curare a “buddy” drug that doctors would use after the patient was given an anesthetic to relax stiff muscles. Once ether was introduced to the medical world, different varieties of anesthetics were appearing left and right.

It was quite a cost to get the necessary products needed for ether inhaler and to store the drug. Once others in Britain heard about the substance, the trading between the two countries changed drastically. British scientists eventually figured out how to use their own resources and the high demand decreased.

From the average dentist visit, to a gory cut that needed stitches, anesthetics are very common, and taken for granted. If it weren't for the invention of the ether inhaler and the finding anesthetics, surgeries, operations or procedures would be excruciating and possibly deadly. This significant technical change that helped save a lot of lives and painful operations is now a necessity in the medical world.

EXEMPLAR #2 ANNOTATION

History Rubric

Score: 2

This response earns the score of 2 on the History Rubric for accurately explaining why a technological development was significant by providing at least one specific effect of this change. The response provides one specific positive effect of the invention of the ether inhaler and anesthetics: it allowed doctors to do more surgeries and save more lives and gives the example of an 1846 surgery in Massachusetts to remove a tumor to support this claim. The response also explains that it led to the invention of other drugs like chloroform and curare and it aided the military by improving health care on the battlefield, but these effects are not supported with any specific information and do not earn the response any additional credit. Accurately explaining one specific effect of the technological development earns the response two points on this rubric.

Economics Rubric

Score: 2

This response earns the score of 2 on the Economics Rubric for explaining with partial accuracy/clarity how technology changes require investment in human capital citing at least one specific example. The response does reference the spending of human capital that occurred in the development and experimentation process leading to these new surgical tools, but it never explicitly identifies the process as involving human capital. Without specifically addressing the idea of human capital, no more than two points can be earned on this rubric.

Skills Rubric

Score: 3

This response earns the score of 3 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a well-organized and well-supported paper/presentation. The response notes that ether and anesthetics “helped save a lot of lives” and are “now a necessity in the medical world” and provides support for those assertions. The response also includes a general statement about the why this technological change took place: first, to limit the pain that surgical patients were suffering from, and later to make the process smaller and more portable. No further credit is earned because the paper is not well-organized and the ideas lack transitions and do not follow a logical order. Presenting a clear and plausible thesis that is well-supported and includes a general statement about the need for change earns the response three points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA Technology Through The Ages

Throughout history the scientific world has perfected & advanced their finds until they are unsurpassable. Although these inventions require immense time & effort, the outcome has overwhelming possibilities. Johann Gutenberg is the credited inventor of the printing press. Although his invention is incredibly beneficial, it demanded several hours of labor. Each sheet had to be fed manually and a new type set was needed for each new sheet. The printing press also stirred up quite a controversy throughout the papal court. It required a license from the catholic church, which was later denied. Library owners were also extremely resistant in having printed books. By offering printed books, it meant that the valued hand printed copies would lose it's status & importance. But determined to succeed Johann persisted and created the printing press using a loan



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— Continued —

from Johann Fust. With the bad luck that followed Gutenberg, he was not able to repay the loan given. Johann Fust later sued. Although Gutenberg never saw the day his invention was embraced, the printing press flourished and became a technological revolution.

Johann Gutenberg put all of his time & energy into his invention of the printing press, but never couldve imagined the impact it had on the world. Not only were books more accessible, but people were able to learn an unlimited amount of information & cause religious turmoil.

As printing became easier & faster, more and more books were accesible to the public. Books were then drastically cheaper than the hand printed books that were currently used. Common people were able to purchase books & devour each page. As well as books being cheaper, people learned to read & write. Before the printing press, during the Medieval period, people discarded education completely. As the printing press



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became prominent, learning became an important part of each day. Lastly, the significance of the printing press put an end to the church's manipulation. People were able to read the bible for themselves, therefore the church had little to no impact on influencing the public. With a whole new stretch of education open to the public more & more people were able to purchase books & learn to read & write. This brought back the importance of education.

As books became more accessible, an unlimited amount of information elevated which encouraged a phenomenal learning revolution. People were able to attain information that was never thought possible. They learned about medicine, law, astrology, mining, and geography. Now Europe's population was an educated group with a broader range of books available and used to their full extent. Before, books were non-existent, almost unheard of. Not only did this learning revolution result in an educated &



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overachieving public, but is also resulted in a scientific revolution. The printing press laid the path for thousands of other inventions such as a typewriter, the computer, and even the internet. Education was finally a priority once again. People were encouraged to learn which as a result, brought upon many other significant events.

Surprisingly, the printing press had a major impact among the church and it's hierarchy. Religious turmoil sprung from the invention. The church no longer was able to control & manipulate the public.

Therefore, the church & it's officials were bitter. As more & more people were able to read, the first book they picked up was their bibles. They were finally able to read & interpret it's meaning themselves, no longer relying on the church. For this reason, the christian community spread their religion faster than ever before. Missionaries were no longer common, when printed bibles could spread the word of God



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themselves. Although the church wasn't found of the printing press in the beginning, it actually benefited them in the end. Not only did their religion spread faster than ever before, but the Christian community became more united.

Throughout history many technological finds have had a profound effect on our human culture. The printing press is definitely no exception. The printing press is by far the most beneficial and outstanding invention of all time. It put a close to the manipulation of the church, skyrocketed science, brought on a scientific revolution, and allowed religion to spread faster than ever. The printing press caused an eruption of commotion during the Renaissance era and made a lasting impression on the scientific community. Not only did the printing press make life easier, but it broke the barrier for thousands of other inventions to be discovered.

EXEMPLAR #3 ANNOTATION

History Rubric

Score: 1

This response earns the score of 1 on the History Rubric for describing why a technological development was significant without providing any specific effects related to costs and/or benefits. The response provides numerous effects of the invention of the printing press: it made reading more accessible to the general public, it helped engender a scientific revolution because findings could be spread among the scientific community more easily, and it led to the distribution of different religious views. However, none of these effects are supported with any specific information and cannot earn the response more than one point on this rubric. While a “scientific revolution” is mentioned, it is not explained clearly or in relation to a specific historical event. Without providing any specific effects, no more than one point can be earned on this rubric.

Economics Rubric

Score: 2

This response earns the score of 2 on the Economics Rubric for explaining with partial accuracy/clarity how technology changes require investment in human capital citing at least one specific example. The response does reference the spending of human capital that occurred in using the printing press (it was a laborious process, taking several hours of work to produce each single sheet), but it never explicitly identifies the process as involving human capital. Without specifically addressing the idea of human capital, no more than two points can be earned on this rubric.

Skills Rubric

Score: 2

This response earns the score of 2 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a well-supported paper/presentation. The response includes a clear and plausible thesis (the printing press is the “most beneficial and outstanding invention of all time”), and that is supported throughout the response. No further credit can be awarded because the response is not well-organized and does not include a general statement about why this technological change took place. Presenting a clear and plausible thesis and supporting it earns the response two points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA _____

The Assembly Line was a huge technological change because, it made it affordable for everyone to own a car. The importance of this was so huge that it even helped create a middle-class. The Assembly Line reduced the amount of time and money that was put into making automobiles. Henry Ford, the creator of the Assembly Line, was so famous for the Model T car.

Ford was born in 1863 in Michigan and died in 1947 in his estate. His first car was called the Quadricycle in June 1896. He introduced the Model T in 1908 and became very successful. The automobile was assembled in 93



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minutes. In 1913 Ford installed the first Assembly Line and became the largest car manufacturer in the world. 15 million Model T's were manufactured by 1927.

The reason Ford created the Assembly Line was because he wanted a car that everyone could afford. This was because in 1907, automobiles were handmade, which meant very expensive. The Model T kept the same design up to the last one in 1927. How they created the Assembly Line was by having these four goals: interchangeable parts, continuous flow, division of labor and reducing any wasted effort. Ford produced his cars w/ these goals at a record breaking rate.

Each and everyone of the workers



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at Ford's Compony put a lot of time and effort in creating this. Ford raised his worker's wages to \$5 a day in 1914, which was an excellent wage. This amount was considered bad to the press because they would say that the workers would do nothing and machines would do their work. Ford, in the other hand thought that well paid workers would be loyal. Ford maneged to get a lot of money because he lowered the price of cars but would sell more than other componies.

The Assembly Line is signifcant even now to this day because every-body in middle class is able to own a car. A negative consequence of this creation was that it reduced the amount of workers because they were



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replaced by machines. A very positive outcome of this was the well-paid workers. Other than that, it was a very significant and Rewarding invention in technology.

Henry Ford, the inventor of this amazing machine wouldn't of made it without his loyal workers. His idea was made possible by his workers. His workers stayed with him and eventually even purchased his cars. Because of this, Ford rewarded them with an incredible wage at that time.

This technological invention had a tremendous change in the world. It lowered the price of automobiles, and it was so huge it almost created the middle-class. The reason this invention has lasted so long is because it



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*reduces the amount of time and money
put into making a car.*

EXEMPLAR #4 ANNOTATION

History Rubric

Score: 1

This response earns the score of 1 on the History Rubric for describing why a technological development was significant without providing any specific effect related to costs and/or benefits. The response provides numerous effects of the assembly line: cheaper cars, creation of the middle class, and replacement of workers by machines. However, none of these effects are supported with any specific information and cannot earn the response more than one point on this rubric. While an increase in workers' wages is supported with specific information, the response does not explain how the development of the assembly line caused this increase. Without providing any specific effect, no more than one point can be earned on this rubric.

Economics Rubric

Score: 2

This response earns the score of 2 on the Economics Rubric for explaining with partial accuracy/clarity how technology changes require investment in human capital citing at least one specific example. The response does note that Henry Ford invested in humans so that they would be loyal to him, but it never explicitly identifies the process as being one involving human capital. Without specifically addressing the idea of human capital, no more than two points can be earned on this rubric.

Skills Rubric

Score: 3

This response earns the score of 3 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change, including a general statement about why this change occurred, in a well-supported paper/presentation. The response notes that the assembly line was "a huge technological change" and includes a general statement about the need for the change (Ford came up with the assembly line because he wanted to be able to produce a car that everyone could afford). No further credit is earned because the paper is not well-organized and the ideas lack transitions and do not follow a logical order. Presenting a clear and plausible thesis in a well-organized and well-supported paper/presentation and including a general statement about the need for change earns the response three points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA Technology through the Ages

I watch as the mouse darts across the screen, and my fingers glide over the keyboard. There, in the soft glow of the monitor where I sit, I have access to the largest resource of tools, information, and products that are available anywhere. With a click, I have access to the Encarta encyclopedia. Another click, and I purchase a new set of golf clubs. Click again, and I have help with my homework. This vast resource has as much influence on today's society, economy, and government as any singular entity out there. This resource, now known as the Internet, plays an important and changing role in our lives today.

The history of modern internet, of course begins with the development of capable, practical computers, of which most emerged during the 1980's and 1990's. The internet, as the layman knows it, is essentially a giant digital network, with each individual participant constantly sending and receiving digital information in the form of Internet



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Protocol, or IP. Computer scientists first developed and used the internet network system as a military resource, capable of sending messages and information between supercomputers at bases. This technology, which was known as ARPAnet, began emerging through the 1960's, and by 1972 the development was demonstrated for the public, and the possibility of 'e-mail' was introduced.

However, widespread internet use and the World Wide Web did not happen until much later. Throughout the earlier stages of development, the network was only used by those who needed it and could provide funding for it, most notably the government, it's subsidies, and universities. Computer scientists had to overcome many scientific and technological barriers before the World Wide Web and its' infostructure was introduced in the early 1990's.

When scientists found ways to make it technologically feasible for a multi-use system, they realized the potential for broad appeal and commercialization. With the development of the domain system and the economic



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prosperity of the 1990's, the Internet was finally ready to become a widely-used system. Since the initial boom of the Internet, technology and developments have advanced the network even further, and machines today can do and access things that were only dreams fifteen years earlier.

The ultimate significance of this technology is access to any type of seemingly unlimited resources without any regard to geographical location. This broad, worldwide capability totally revolutionizes the communication and information ability of the common man. Information databases can be accessed or added to from anywhere, giving scientists and other professionals a whole new problem solving resource.

Among the other important aspects of the internet is the emerging digital economy, both in America and on a worldscale. A significant and growing amount of commerce and business is conducted digitally, and corporations rely more and more on network connections and infrastructure. The Dot-Com Boom of the 1990's revealed an emerging and



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powerful digital-economy in America, and the potential that a well managed and highly modern economy can have.

Americans know can conduct nearly every aspect of their fiscal lives digitally, from doing business, to buying gifts, or even doing their taxes.

This exciting new technology is an unbelievably massive and influencing aspect of global life for the amount of time it has been available. It has and will have monumental affect on society today, and future proliferation may bring even more brilliant and high-tech innovations. The positive aspect of this development is immense, and negative aspects are few and can be dealt with. It is important that we continue the maintenance of this technology, and use its' capabilities to help better the world we share.

EXEMPLAR #5 ANNOTATION

History Rubric

Score: 2

This response earns the score of 2 on the History Rubric for accurately explaining why a technological development was significant by providing one specific effect of this change. The response identifies one effect of the invention of the Internet, it encouraged an emerging and burgeoning digital economy, and supports this effect with a specific reference to the Dot-Com Boom of the 1990s. While it also describes how the internet provided access to unlimited information without regard to one's geographic location, it does not support this effect with any specific information. Accurately explaining one specific effect of the technological development earns the response two points on this rubric.

Economics Rubric

Score: 1

This response earns the score of 1 on the Economics Rubric for identifying how technology changes require an investment in human capital without providing any specific examples. The response does recognize the exhaustive work that many computer scientists had to do to overcome scientific and technological barriers before the World Wide Web and its infrastructure were introduced in the early 1990s, but the idea is not sufficiently explained with specific examples. Identifying how technology changes require an investment in human capital without specific examples earns the response one point on this rubric.

Skills Rubric

Score: 3

This response earns the score of 3 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a well-organized and well-supported paper/presentation. The response includes a clear and plausible thesis (“the Internet . . . plays an important and changing role in our lives today”) that is supported by evidence. No further credit is awarded because the response does not include a general statement about why this technological development occurred. Presenting a clear and plausible thesis in a paper/presentation that is well-organized and well-supported earns the response three points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA Technology through the Ages

The printing press was an important technological development because it made books cheap, it gave access to readable bibles, and literacy rates went up. Books were made cheaper & affordable because of the mass production of them. Since there was readable bibles, people didn't have to go to the church & listen to get knowledge about god. They could buy a bible & form their own opinion. The literacy rates went up because more kids from all social classes could go to school & read.

Since books were now cheaper because of the printing press, more people could buy them. More people could buy them because of how much production the printing press put out. Before the press monks used animal skin & wood to make a book. Using those, it was not only scarce with supplies, but it took a long time. Now with the printing press, publishers use metal, machinery, & paper to make a book. The "stamping" method was fast, & the supplies



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were sufficient. The significance of books being cheaper was that all people of the social classes could afford to buy a book & read. Which this led to the access of a readable bible.

With society havin access to a readable bible, the church lost power. Before the bible being printed, church was the only way to practice religions & form opinions. After it being printed people could read the bible & make opinions about god themselves. The significance of the access to readable bibles was the the church did not have as much control over society which resulted in them losing their power. Now that their was books & bibles for people to read, literacy rates went up.

With the mass production of books & books being affordable, people became more literate. With the amount of school attendance rates going up, shows that people were becoming more literate. Before, only upper class could afford to buy books & read. But after them becoming more affordable, lower classes could afford to buy books to



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read & attend school. The significance of people becoming literate was that they could read the laws & not get cheated throughout society.

EXEMPLAR #6 ANNOTATION

History Rubric

Score: 1

This response earns the score of 1 on the History Rubric for describing why a technological development was significant without providing any specific effects related to costs and/or benefits. The response identifies two positive effects of the invention of the printing press: books became cheaper (allowing more people—and more classes of people—to read), and more bibles could be printed (taking some power from the Church and giving it back to the people). However, none of these effects are supported with any specific information and cannot earn the response more than one point on this rubric.

Economics Rubric

Score: 1

This response earns the score of 1 on the Economics Rubric for identifying how technology changes require an investment in human capital without specific examples. The response does recognize that with the invention of the printing press, less human capital was needed to produce books (no longer did monks need to transcribe them by hand). The response does not recognize this as a matter of human capital. Identifying how technology changes require an investment in human capital without specific examples earns the response one point on this rubric.

Skills Rubric

Score: 2

This response earns the score of 2 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a well-supported paper/presentation. The response includes a clear and plausible thesis (the printing press was an “important technological development”), but it is not well-supported and is not followed by a general statement explaining why this technological change took place. Presenting a clear and plausible thesis in an organized essay/presentation earns the response two points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA Technology

Throughout history, the world has had many technological advances. A major advancement was the automobile. With the invention of the automobile came the problem of accidents due to non protected intersections and no way to control the traffic.

Something had to be done to resolve this problem before it started to endanger people's lives. That is when Garrett Augustus Morgan invented the traffic light.

The first "traffic light" was a revolving lantern with red and green signals inside, red meaning "stop" and green meaning "caution." The lantern was illuminated by gas and was turned from a lever at the base, informing the traffic which action to take. In order for the lantern's different colors to be shown, it needed an operator.



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Police officers were usually in charge of the lantern's operation. With more and more lanterns being put up, the demand for police officers also went up. With new technology, lanterns were put out of use as the new, electrical traffic light came into use. This was a definite plus because it reduced the police force.

The traffic light has had many pros since it first appeared on the street in 1923. The number of accidents has greatly decreased, this is because everything is so much more controlled. Before the light came to use, people would just fly through an intersection and would not even stop to think. The same would happen on both roads, causing a big crash. That can no longer happen because people are forced to stop.



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— Continued —

Many people were upset with this invention. They were mad because they had increased taxes to provide money to build and put them up. On top of the high cost, traffic lights held you up in time. If there were no cars coming, people would want to just go, but they couldn't, they had to wait for the light to turn green.

Another reason why people don't like them is a trust issue. What would happen when everybody is so used to using them and then the power gets shut off and they stop working? It would result in many accidents. So some just wanted to save that hassle and not put them in to begin with.

Traffic lights have had a huge impact on America. Without them today, I probably would not have made it to school on time. (Well, maybe, considering we only have one in Cheweah!)

The majority of people rely on



STUDENT RESPONSE BOOKLET

— Continued —

them everyday. Accidents have been caused near traffic lights, mostly due to the stupidity of people. When they were first invented, there were more negatives, but people have gained their trust over the years and couldn't live without them.

EXEMPLAR #7 ANNOTATION

History Rubric

Score: 1

This response earns the score of 1 on the History Rubric for describing why a technological development was significant without providing any specific effects related to costs and/or benefits. The response identifies one positive effect of the invention of the traffic light: it reduced the number of accidents. However, none of these effects are supported with any specific information and cannot earn the response more than one point on this rubric. While an increase in workers' wages is supported with specific information, the response does not explain how the development of the assembly line caused this increase. Without providing any specific effects, no more than one point can be earned on this rubric.

Economics Rubric

Score: 2

This response earns the score of 2 on the Economics Rubric for explaining with partial accuracy/clarity how technology changes require investment in human capital citing, at least one specific example. The response references the spending of human capital that occurred in the development of the traffic light because it led to a great demand for traffic lanterns and police officers; but the response does not specifically address this as human capital and does not fully explain it. Without specifically addressing the idea of human capital, no more than two points can be earned on this rubric.

Skills Rubric

Score: 3

This response earns the score of 3 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a paper/presentation that is well-organized and includes a general statement about why this technological change took place. The response notes that "traffic lights have had a huge impact on America," the essay is well-organized, and it includes a general statement about why this technological change was needed: with the increasing number of automobiles and corresponding automobile accidents, it was necessary to somehow control traffic flow. While all of that is acceptable, no further credit can be earned because the paper is not well-supported. Presenting a clear and plausible thesis in a paper/presentation that is well-organized and includes a general statement about the need for change earns the response three points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA _____

Telephone

Before the 1800's, communication was limited. To stay in touch with someone meant a personal meeting whether they were one mile away or one thousand. To sum it up, communicating was not at all easy. All this changed when Alexander Graham Bell invented the telephone in 1863 resulting in a major technological change for the benefit of, not only the country, but the whole world. With human investment, the technological change was a significant benefit with both negative and positive consequences.

Invention of the telephone was an ambitious process that took several determined years. The "history of the telephone is a stormy one" (Encarta). Alexander Graham Bell is credited for the invention others contributed significantly to the final product. For example, "in 1831, Englishman Michael Faraday (1791-1867) proved that vibration of metal could be converted to electrical impulses" (Ament). Although this advancement was "the basis of the telephone . . . no one actually used this system to transmit sound until 1861" (Ament). In addition, the "the first working electrical sound-transmission was crafted in 1864, by German teacher Johann Philipp Reis" (Engelbert 71). Along with Reis, an Italian inventor also contributed new technology to help design the telephone. This inventor, Antonio Meucci "sold the prototypes of his invention to a telegraph company, that later gave them to Alexander G. Bell, who in turn patented the invention of the phone" (Popular Science). Although, other controversies debate who officially invented the telephone, "Bell's claim to being the inventor of the first



STUDENT RESPONSE BOOKLET

— *Continued* —

telephone had to be defended in court 600 times before the supreme court of the United States decided in his favor” (Encarta) and he is today still the patented inventor of the telephone. To achieve this great success, Bell had spent “three years, working mostly at night, in a cellar in Salen, Massachusetts” (Ydney) to develop and complete his invention. To help the situation, financial issues were not a problem either because “Hubbard, who resented the absolute control then exerted by the western Union Telegraph Company, instantly saw potential for breaking such a monopoly and gave Bell the financial backing he needed” (Bellis). After lots of hard work, “Bell’s greatest success was achieved on March 10, 1876” (Bellis), as a result of the first telephone message between Bell and his assistant Watson, “Mr. Watson, come here; I want you” (Encarta). This great invention was the telephone.

This new technology was extremely significant to the entire world. Its invention sparked a fire of new enhanced technology for communicating. “Probably no means of communication has revolutionized the daily lives of ordinary people more than the telephone” (Ament). First, it greatly increased communication for contact between friends and families throughout the whole world and “use of the telephone spread rapidly” (McGrath 782). Second, it created long distance communication as well as messages to be sent in personal form. Before the telephone the “highly successful system, the telegraph, with it’s dot-dash- Morse code, was basically limited to receiving and sending one message at a time” (Bellis). Compare this to the telephone that enables us to “articulate speech at a distance” (Woolf 1189) so people can talk more productively to each other and it can “be operated without learning a code” (Telecommunication 1308). At a large science exposition soon after the invention of the telephone, it was so impressive “the judges took turns listening. . .the instrument was the center of interest for scientists the rest of the exposition” (Ydney). Even the “Lord Kelvin took the



STUDENT RESPONSE BOOKLET

— *Continued* —

receiver. ‘It does speak,’ he said. ‘It is the most wonderful thing I have seen in America’”(Ydney). The telephone is of extreme significance; it makes it possible for communication to be easily transmitted.

The telephone provided the world with many benefits it also had some negative consequences because although “most consumers were happy with the control of all equipment by the telephone companies, some were not” (Encarta). First, when telephone lines were originally put in, “early residential subscribers often shared the same line. These were called party lines-as opposed to private” (Encarta). It seemed like a simple way to control the phone usage with one plus families using the same line but “all the telephones on the line would ring whenever there was a call for one of the parties” (Encarta). Not only did that create a problem but also any one “could listen to conversation, thereby compromising its privacy” (Encarta). Although this created conflicts when it first began problems now are not that crucial. For example, a home telephone line may be on the same line as the Internet or fax machine thus using either would prevent calls to come through. Another minor problem is the fact that telephones cost money to buy and to use. Although there are few problems, the telephone creates no major crisis thus being a very reliable tool for our everyday use and benefits.

Telephone technology opened many new horizons. This new form of communication resulted in numerous positive consequences. First, it created several jobs for the employees of phone companies such as AT&T, “which grew to be the largest telephone company in the world” (Ament) with a “number of employees [more than] 61,600” (Williams). Also, “in the united states, about 94% of households have telephones, creating a huge opportunity for local and long distance service” (Encarta). Second, the telephone can be used for emergency purposes such as calling the fire department for a fire or calling the ambulance in need of a medical



STUDENT RESPONSE BOOKLET

– *Continued* –

accident. Next, the telephone has continued to expand, creating new communication such as “send[ing] faxes, access to the Internet, and video conferencing” (McGrath 782). Along with the technological expansion it also led to “Mobil phone technology enable[ing] communication from even the most secluded of places” (Telecommunication 1307). All in all, although there may be minor problems, the telephone is far more beneficial with positive outcomes that can help people and the communities today.

The invention of the telephone has revolutionized technology today and created a simple means of communication throughout the world. With this device, new advances continue to be discovered and created. Because of the telephone, which Bell patented in 1876, everyone has the opportunity to keep in touch and communicate. With hard effort expended, the telephone is extremely significant and important with few negative consequences and abundant positive benefits. In conclusion, the telephone launched a whole new world of technologies thereby being one of the most significant technological advances that has ever occurred.

EXEMPLAR #8 ANNOTATION

History Rubric

Score: 2

This response earns the score of 2 on the History Rubric for accurately explaining why a technological development was significant by providing one specific effect of this change. The response provides one positive effect of the invention of the telephone, it created new jobs, and it supported this effect with specific information (61,600 employees at AT&T). Accurately explaining one specific effect of the technological development earns the response two points on this rubric.

Economics Rubric

Score: 2

This response earns the score of 2 on the Economics Rubric for explaining with partial accuracy/clarity how technology changes require investment in human capital citing, at least one specific example. The response does reference the spending of capital that occurred in Hubbard's monetary investment in the idea, but the response does not specifically address this as human capital and does not fully explain it. Without specifically addressing the idea of human capital, no more than two points can be earned on this rubric.

Skills Rubric

Score: 3

This response earns the score of 3 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change in a well-organized and well-supported paper/presentation. The thesis is clearly stated (the telephone was a "major technological benefit" for the entire world), and the paper is well-organized and well-supported throughout. No further credit can be awarded because the response does not include a general statement about why this technological development occurred. Presenting a clear and plausible thesis in a paper/presentation that is well-organized and well-supported earns the response three points on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA _____

The subject that I chose was the parking meter. The parking meter is a device for generating money from a parking spot. When you put money in the meter, you are allowed to park for a given amount of time. After that you can be given a parking ticket.

The parking meter was invented by Carl C. Magee of Oklahoma City, Oklahoma, USA. The first parking meter was installed in Oklahoma City. Magee holds a patent for a "coin controlled parking meter", filed on May 13, 1935 and issued on May 24, 1938.

The parking meter helps the United States by giving a little extra revenue to the budget of America. Each day, all of the parking meters combined in the U.S. generate about 1.5 million dollars. I'd say the parking meter was a good idea. When everyone gives a little bit, it adds up to a whole lot which can help our economy.



STUDENT RESPONSE BOOKLET

— Continued —

But this certain invention wasn't completely benifential or good. Many people believe that it was a very bad idea. The thought of having to pay just to park your vehicle some where makes a great deal of people angry. Many opinions state that it should be a right to park wherever you please. But now it is something we all have to live with.

The popularity of the parking meter has not only stayed in the U.S. It has spread to many other countries around the world. The idea of people pay a little amount to park in certain areas, has influenced many countries to developpe little money makers such as this, to contribute to the revenue of their capital.

The parking meter wasn't the biggest or most important invention to ever happen, but it still has its place in the economy of our nation. We take for granted the little things such as the parking meter because they

EXEMPLAR #9 ANNOTATION

History Rubric

Score: 2

This response earns the score of 2 on the History Rubric for accurately explaining why a technological development was significant by providing one specific effect of this change. The response provides one positive effect of the invention of the parking meter, it helped municipalities raise funds, and supports this example with specific information (\$1.5 million collected a day). Accurately explaining one specific effect of the technological development earns the response two points on this rubric.

Economics Rubric

Score: 0

This response earns the score of 0 on the Economics Rubric because it never addresses human capital. Without either explicitly mentioning human capital or at least showing it at work, no points can be earned on this rubric.

Skills Rubric

Score: 1

This response earns the score of 1 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change. The response takes a position regarding the new development, stating that “it helps the United States by giving a little extra revenue.” No further credit can be awarded because the response is not well-organized or well-supported and it does not include a general statement about why the change was needed. Presenting a clear and plausible thesis earns the response one point on this rubric.



STUDENT RESPONSE BOOKLET

Please complete your final written response in the space provided

Name _____ Grade Level _____ Date _____

Name of CBA Technology

The microwave oven is one of the most use full invention ever discovered. We all have used a microwave at one point or another, but did you ever think of how the microwave was invented? Or consider how your life would be without it?

The microwave over war first invented in 1946, when Dr. Percy Spencer, a self-taught engineer with the Ray corporation, noticed something very unusual. During a test on a new vacuum tube called a magnetron, he discovered that the candy bar in his pocket had melted. He decided to test what would happen if he put some popcorn kernals near the tube. He watched with amazement while the popcorn kernals burst open.

The first microwave hit the markets is



STUDENT RESPONSE BOOKLET

— Continued —

1947, they cost anywhere from \$2000 to \$3000. The first microwaves were called "Radarange" and they stood 5 1/2 ft. tall and weighed about 750 pounds. Most radaranges were sold to restaurants.

Between 1952-55 the first home models were sold for a price of \$1295. Then in 1967 the first countertop model was available on the market for \$500 and now you can pick one up for around \$120, what a price change! But there still is one thing about them that hasn't changed, and that is the radiation they give off.

This radiation is given off in very small amounts, but can still be harmful to your health. The Department of Health and Human Services (DHHS) has set guidelines for how much radiation a microwave may give off. The maximum allowable leakage



STUDENT RESPONSE BOOKLET

— Continued —

from a microwave is 5 milliwatts (5 thousandths of a watt) per square centimeter (within the area the size of an aspirin tablet). A microwave's radiation disperses and dissipates very quickly in to the atmosphere, so the more space there is between you and the microwave, the safer you will be.

Microwaves cook faster and with less power than normal ovens, but people still use their old ovens. This might be because when food is cooked slower it tastes better. Or it might be because it's hard to fit things like pizza or a turkey into a microwave. What ever the reason the microwave still can't over-throw the uses of old-fashioned ovens.

In the end microwaves are great for leftovers and fast meals, but they still give



STUDENT RESPONSE BOOKLET

— Continued —

off radiation and they arn't right for every meal

• *Time Line*

• 1947 - Raytheon demonstrated the world's first microwave.

• 1947 - Raytheon builds the first microwave oven.

• 1967 - first countertop microwave oven

• *Facts*

• 90% US homes have microwaves

• the first microwave weighed over 750 lb. and over 5 ft tall.

EXEMPLAR #10 ANNOTATION

History Rubric

Score: 1

This response earns the score of 1 on the History Rubric for describing why a technological development was significant without providing any specific effects related to costs and/or benefits. The response notes one positive effect of the invention of the microwave oven (it cooked faster with less power) but it does not show how faster cooking affected people. Without providing any specific effects, no more than one point can be earned on this rubric.

Economics Rubric

Score: 0

This response earns the score of 0 on the Economics Rubric because it never addresses human capital. Without either explicitly mentioning human capital or at least showing it at work, no points can be earned on this rubric.

Skills Rubric

Score: 1

This response earns the score of 1 on the Skills Rubric for presenting a clear and plausible thesis on the significance of the technological change. The response takes a position regarding the new development (“the microwave oven is one of the most useful inventions ever discovered”) but no further credit is awarded because the response is not well-organized or well-supported and it does not include a general statement about why the change was needed. Presenting a clear and plausible thesis earns the response one point on this rubric.