

The Jet Engine
Inventions that Shook the World Series

Vocabulary:

Jet engine, propeller, Royal Air Force, Frank Whittle, E.A. Griffiths, propulsion

Pre-Viewing Discussion:

How has the jet engine changed the world since the 1940s? What would be different if it had never been invented?

Post-Viewing Discussion:

Why was Frank Whittle a good pilot? Why was he a difficult pilot?

Why did planes have to fly higher to go faster? What were the challenges Whittle faced in trying to make planes fly at higher altitudes?

How did Whittle's new jet engine work? What were the problems associated with it?

Why did the British government finally decide to invest in the jet engine? How were they able to solve Whittle's problems?

Further Activities:

Imagine that the jet engine is not invented until later in the 20th century. Write a report on how World War II might have ended.

The Computer**Inventions that Shook the World Series****Vocabulary:**

Conrad Zuse, binary code, computer

Pre-Viewing Discussion:

How was the business world different before the invention of the computer? Give specific examples.

List some of the ways you have used computers so far today.

Post-Viewing Discussion:

Why was Zuse frustrated in his career? What aspects of his personality do you think account for this? Why did he decide to create a machine that would do mathematical calculations?

What was one of the benefits to moving away from mechanical switches to electrical relays? Why was this better?

How do you think the time period affected Zuse's work (specifically related to the fighting of World War II)?

Further Activities:

Imagine that the computer is never invented. Write a fictional story about a character that lives in this alternate 21st century.

Research the way the technology underlying computers has changed since Zuse's time. What has stayed consistent, and what has changed dramatically?

The Microwave Oven
Inventions that Shook the World Series

Vocabulary:

Microwave, Percy Spencer, magnetron, magnetic field, electromagnetic energy

Pre-Viewing Discussion:

Prior to the invention of the microwave, do you think people ever imagined cooking food without heat? Why or why not?

What are some of the effects of the microwave on the cooking habits of people since the 1940s? What makes the microwave so popular?

Post-Viewing Discussion:

What was Percy Spencer's background? How do you think that affected his personality and his ability to create new things?

How did Spencer discover the potential for cooking food without heat? How did he test his hypothesis?

How do you think Spencer felt when he received his honorary degree from the University of Massachusetts?

Further Activities:

Research other cooking technologies and how they were invented. Write a biography of one of the inventors you discover.

Kitty Litter

Inventions that Shook the World Series

Vocabulary:

Kitty litter, Fuller's Earth, superabsorbent

Pre-Viewing Discussion:

What do you think pet owners did with their cats before kitty litter? How would owning a cat be different without this product?

Post-Viewing Discussion:

How did Fuller's Earth come to be tested as a kitty litter? What were the results?

How was Fuller's Earth formed? What makes it super-absorbent?

How did Lowe initially sell his product? What eventually happened to his business?

Further Activities:

Research how Lowe created a business out of kitty litter. What steps did he take and how did the business grow?

Research and write a biography of Ed Lowe. Be sure to cover his childhood, personality, and other accomplishments.

The Crash Test Dummy
Inventions that Shook the World Series

Vocabulary:

John Stapp, G-force, crash test dummy, accelerometer, pressure transducer

Pre-Viewing Discussion:

How do you think cars and air travel would be different today if we did not have the crash test dummy?

What do you think drove the invention of the crash test dummy? What do you think some of the challenges were?

Post-Viewing Discussion:

Why was Dr. Stapp chosen to head up project MX981?

What is the problem with the dummy made of sand? Why is it not sufficient for Dr. Stapp's tests? What were some of the injuries Dr. Stapp sustained during his testing?

Why did the crash test dummy need to be built like a real person? Why did they build the dummy with sensors inside?

Do you think Captain Stapp was too dedicated to his cause? Why or why not?

Further Activities:

Research the way crash test dummies have changed since Captain Stapp's invention. What has stayed consistent, and what has changed dramatically?