How does Ernest Rutherford’s work affect us?

It is now 100 years since Ernest Rutherford was awarded the Nobel Prize “for his investigations into the disintegrations of the elements, and the chemistry of radioactive substances”. Some of the knowledge and applications coming from Rutherford’s research over the past century are as follows.

- Some atoms give off radiation
- What an atom looks like
- Atoms can be changed into other types of atoms
- The electronic age
- Modern ways of communication
- The information age
- The age of the Earth
- X-rays
- Radiography
- Radiotherapy
- Nuclear energy
- Nuclear weapons
- Smoke detectors
- Geiger counters
- TV
- Radio
- Sonar
- Particle accelerators
- Sterilising bandages
- Finding cracks in metal
How does Ernest Rutherford’s work affect us? Task sheet

**Task 1**
Make lists of knowledge and applications from the list above

<table>
<thead>
<tr>
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**Task 2**
What are some of the things we use in the electronic age that people in 1908 never used?

**Task 3**
What are some of the different ways we communicated in 1908 and 2008?

**Task 4**
How was information communicated in 1908 and 2008?
Task 5
How has knowing about X-rays helped us?

Task 6
Make a list of good and bad things associated with nuclear energy. Be prepared to give a reason for your answer.

Task 7
Can computers, cell phones and TVs have disadvantages?

Task 8
If you were making decisions about how we decide to use these applications such as nuclear energy, TV, computers, what would you need to know?

Task 9
How has these newer devices made our life’s better or easier?
How does Ernest Rutherford’s work affect us? Task Sheet Answers

**Task One**
Make lists of knowledge and applications from the list above

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**Task Two**
What are some of the things we use in the electronic age that people in 2008 never used?
- Electronic weather stations
- Electronic watches, stop watches
- Electronically controlled washing machines, dishwashers and clothes dryers
- Microwave ovens
- Etc

**Task Three**
What are some of the different ways we communicated in 1908 and 2008?
- **Hand written letters delivered by mail**
- Telegraph
- Telephone

- E-mail
- Texting
- Facebook, Bebo, Skype etc
- Cell Phones

**Task Four**
How was information communicated in 1908 and 2008?
- Town Cryer
- Newspapers
- Putting up posters/notices
Television and radio
On-line news
Websites and blogs
Computers
Smart phones

Task 5
How has knowing about X-rays helped us?
Radiography, radiotherapy and finding cracks in plane fuselages.

Task 6

Make a list of good and bad things associated with nuclear energy. Be prepared to give a reason for your answer.

Smoke detectors
Nuclear power stations (a debateable area)
Nuclear weapons

Task 7
Can computers, cell phones and TVs have disadvantages?

Computer and TV addicts
Computer fraud and harmful sites
Text and cyber bullying
Driving hazard
Thinking the information given is true or the whole story
Reduces communication between people

Task 8
If you were making decisions about how we decide to use these applications such as nuclear energy, TV, computers, what would you need to know?

Nuclear energy: do we need it, is it safe, how about waste?
TV: for educational uses as well as entertainment?
Computers: for educational uses as well as entertainment and communication?

Task 9
How has these newer devices made our life’s better or easier?

Can keep in contact with family anywhere at all times
Can find out about what is happening, where and when, a lot easier
Helped in detection and treatment of injury and disease
Be protected from house fire when asleep
Can detect fish in ocean easier
Easier access to information

etc