

## CBA 2 Science in Society Investigation

- CBA 2

- Introduction: Energy- science in society  
Has an effect on the environment  
**Should we use nuclear energy as an energy source?**

- What is nuclear energy?

Nuclear energy is the energy inside the nucleus of an atom. Atoms are the small particles that make up everything. Inside the atom there are neutrons and protons held together, nuclear energy holds these together.

- How is it made?

There are 2 methods of making nuclear energy

- Nuclear fission: Splitting an atom into smaller pieces which releases energy.
- Nuclear fusion: When many atoms are combined they release energy.

Nuclear fission is the method that is used at nuclear power plants to make nuclear energy.

- Where is it made?

Nuclear energy is made in places called nuclear power plants. The nuclear power plant is actually very similar to other types of power plants when it comes to the method of work.

- Positive effects

1. Generating nuclear energy reduces the amount of fossil fuels required for generating energy, this means less greenhouse gas is released.
2. The cost of making nuclear energy is much less than traditional methods due to less fuels being required, and less waste is made also.
3. Because fossil fuels are being used faster than they are being made, nuclear power could be the main source of power in a near future due to the costs and the small wastage.

- Negative effects

1. If nuclear power workers are not professional and slack, accidents can happen. An example of a deadly mistake when it comes to nuclear power plants would be the Chernobyl disaster in 1986.
2. Nuclear waste is not only hard to get rid of, but it is also expensive and takes a long time because of it being radioactive, and again you would need professionals to get rid of it.
3. Waste produced by nuclear power plants can be a key component for nuclear weapons, which causes wars called nuclear warfare. A nuclear bomb called

1. Chooses a topic and research question

2. Mentions the impact of the topic on the environment.

3. Provides information on different sides of the argument.

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the fat man was dropped on Hiroshima which ended World War 2 but also caused many deaths.

- How does the one outweigh the other?

I have made 3 points for positive effects and negative effects, but it is clear the positives outweigh the negatives. I have come to this conclusion because, while the negatives of nuclear energy is certainly there, they can be avoided and are not mandatory.

- Chernobyl

The Chernobyl disaster was an event caused by poor design of the nuclear power plant in 1986. Steam explosions and fire caused by it released at least 5% of radioactive core released into the atmosphere. Two Chernobyl workers died the night of the accident, and 28 people died a few weeks later due to radiation. This is an example of what can happen if there is not professional workers or designers in a nuclear power plant

- Different opinions on my topic

45% percent of citizens favour building more nuclear power plants, while 65% of American Association for the Advancement of Science scientists support building more nuclear power plants.

- My personal opinion

In my opinion nuclear energy is a much cleaner, cheaper and safer way to make electricity. But I also believe that nuclear power plants can be dangerous for the environment and humans they are not ran properly. Events such as Chernobyl and Hiroshima can be repeated if we don't take steps to make the nuclear power plants a safer environment.

- Evaluating my sources

All of my sources have been made within the past 3 years, but none of the sources have authors names and seem to be biased so I am sceptical about the legitimacy.

- Reference list: [timeforchange.org nuclear-energy.net/advantages-and-disadvantages-of-nuclear-energy.html](http://timeforchange.org/nuclear-energy.net/advantages-and-disadvantages-of-nuclear-energy.html) <http://www.world-nuclear.org/information-library/safety-and-security/safety-of-plants/chernobyl-accident.aspx> <http://www.pewinternet.org/2015/01/29/public-and-scientists-views-on-science-and-society/>

4. Presents the information in a structured way using relevant scientific terminology ..

5. Gives a personal opinion with some explanation.

6. Gives some consideration to reliability of the sources..

7. Finds some useful sources of information about the topic and gives some references..

