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Nuclear Energy – An Elementary Look at Fission and Fusion

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Nuclear energy is the release of energy from an atom. To release energy, atoms can either be joined or broken apart.

Electricity is first produced by turning water to steam. The steam is able to spin the turbines, which are responsible for creating electricity through the generator. On the other hand, a nuclear fission power plant is different. Nuclear fission occurs when uranium atoms are broken apart. The process of splitting atoms or when atoms are broken apart is called fission. Heat is created when uranium atoms split. This makes energy in the form of heat. Nowadays, Nuclear fission is a way to produce energy.



The process when two small atoms join to form a larger, heavier one is called fusion. Nuclear fusion works the same way as the sun does to give us heat and light. When these atoms join, energy is produced. This is dangerous and can't be controlled. As a result, this is not used to produce electricity.



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How They Work

Power plants: Nuclear fission plants work just like how normal power plants do. They change chemical energy into electricity. Coal plants do this by burning coal. Both create electricity by spinning turbines. However, water in nuclear plants is heated in a different way. It is heated as a reaction from nuclear fission. The atom is broken apart which makes a lot of heat energy. This heat is used to change water into steam to spin the turbines.

Nuclear weapons: There are two types of nuclear weapons.

1. Atomic bombs which are fission bombs
2. Hydrogen bombs (H-Bombs), which are fusion bombs.

How do fission and fusion bombs compare? Fusion bombs cause more damage. They are 100 times stronger than fission bombs.

Current Applications

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Environmental Impact

Fission and fusion reactions don't spread dangerous gasses into the air but it can produce radioactive waste that can last for a long time. It must be disposed of safely or it can harm living things.

Reading Comprehension Questions:

1. What is nuclear energy?
2. How
3. What is the difference between nuclear fission and nuclear fusion?
4. Where
5. Why aren't there any fusion power plants?
7. How
8. Why
9. What is a negative impact of using nuclear power?

Extension Questions

9. Research why nuclear power plants are used on vessels such as spacecraft, submarines and aircraft carriers.
10. What

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