

# How can energy come from the ground?

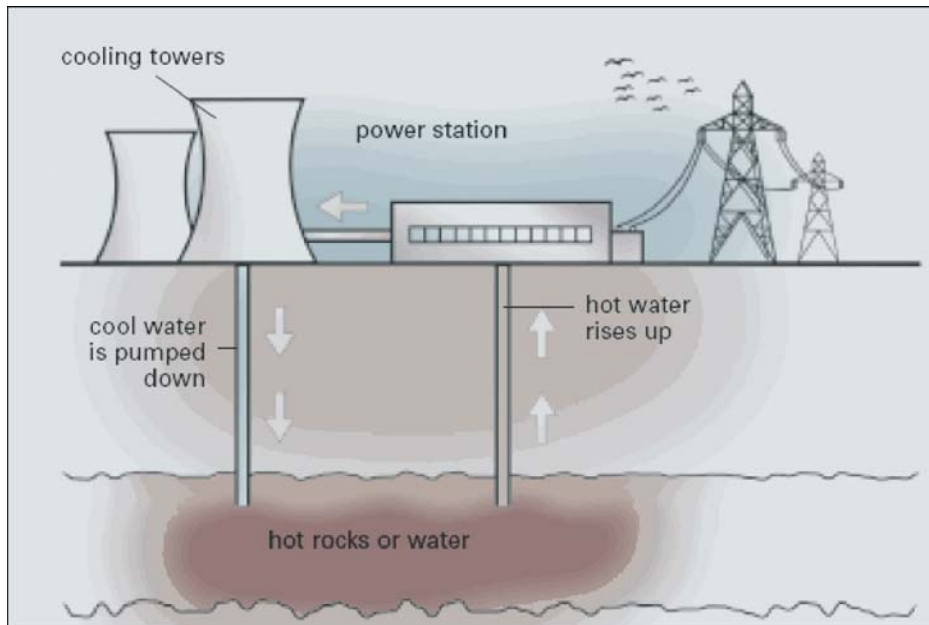
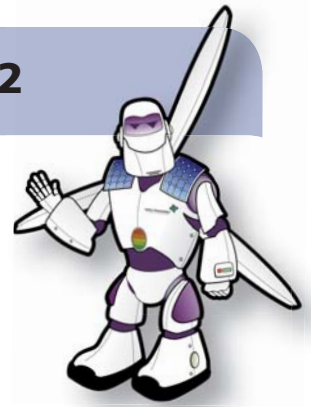


Renewable Robbie learnt that the deeper you dig into the earth, the hotter it gets. This is because of the heat at the earth's core. The Earth's natural heat is called geothermal energy. **Geo** means earth and **thermal** means heat. Water that has been heated by geothermal energy can be used to heat buildings or provide electricity.

There are two main ways of using geothermal energy:

- In some places in the world, naturally heated water from under the ground rises to the surface as steam or hot springs (geysers). If the hot water doesn't rise to the surface, boreholes can be drilled into the ground to get it.





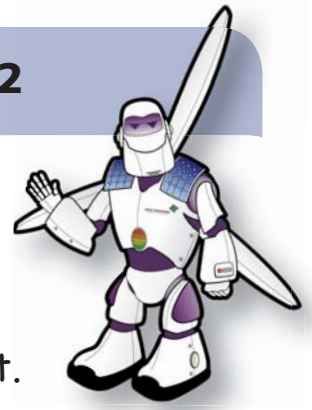
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- Two holes are drilled into the earth to reach hot rocks or a hot underground lake
- Cold water is pumped down underground where it is heated by rocks or a lake
- Hot water is pumped up to the Power Station at the surface
- The steam turns a machine called a generator to make electricity

There are **advantages** of using geothermal energy:

- No fuel is used so it is a renewable resource
- There is very little pollution.
- Much of the technology used is hidden underground which makes it very quiet.
- A geothermal heater is also very energy-efficient. Almost none of the energy used is wasted, so it helps keep heating bills very low during the winter.





A possible **disadvantage** is:

- It can be difficult to find underground heat close enough to the surface for a geothermal power plant.

## Example of Geothermal Energy

Renewable Robbie discovered that Northern Ireland does not have any geothermal Power Stations that produce electricity. However, in Southampton in the South of England, there is a Civic Centre which is partly heated by a geothermal system.

A well has been dug which is 1800 metres deep. Hot water from this well is piped around the City and provides heating for buildings within 2 kilometres of the well!



**Renewable Robbie enjoyed learning about geothermal energy. Did you? Join him on the Activities page to see how much you have learnt!**

