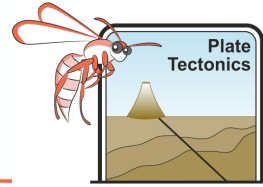


Basel's Fault – Student Activity



Heat (geothermal energy) is generated by radioactive element breakdown deep within the planet. The deeper you go the hotter it gets.

Hot water can be pumped from underground aquifers and used directly.

Geothermal energy is already used to heat the swimming pools at Beatty Park and Bicton Baths in Perth. It is also used to supply energy for air conditioning at the Chemistry Centre at Curtin University and at the University of Western Australia.



This use of geothermal energy causes minimal pollution and does not require the use of precious fossil fuels.

Geothermal energy can also be obtained by pumping cold water from the surface down through drill holes into “hot rocks” such as granites at depths of up to five kilometers. Water is the medium that carries heat back up to the surface to power turbines and create electricity for domestic and industrial use.

Granite has a high thermal capacity (holds heat well) but is not permeable. It does not allow water to pass through it. Drilling and fracturing (**stimulation**) creates small cracks that allow the cool water to pass through the granite, be heated up and be pumped back to the surface.

Materials per student or group

Access to Internet or a print of the article (Induced seismicity in Basel) at:

http://en.wikipedia.org/wiki/Induced_seismicity_in_Basel

Read the article and answer the questions provided. Please explain your answers as in some cases more than one answer is possible.

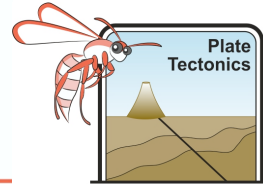
In what city and in which country was the geothermal project situated?

What was the established problem? _____

How did the engineers know that there was an established problem?

Had the engineers established a plan in case earthquakes were induced before they started drilling?

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What was the trip point that caused the injection to be reduced? _____

Why were six borehole seismometers installed near the stimulation/injection well?

What was the damage claim by Swiss citizens as a result of the events?

Why was the project cancelled?

Has there been any direct benefit from this event?

There are arguments for and against using geothermal power in Australia. List some of them and write your opinion below.

