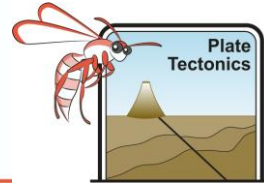


## Beaconsfield Disaster – Student Activity



Western Australia is our most seismically prone state. It also relies heavily on mining for income.

Mining both causes and is affected by seismicity. Ancient faults caused pathways for underground fluids to bring up fluids with gold.

Miners tell of the mine “talking” to them. Rock creaks, groans and spits as it adjusts to stress on cavity boundaries.

Incompetent (soft) rock such as you find in coalmines makes constant small adjustments. Competent “hard rock” found in some gold, silver and copper mines build up stress until it explodes with the sound of gunfire and earthquakes can be felt.



### The Beaconsfield Mining Disaster

The Tasmanian Beaconsfield goldmine collapse on the 25<sup>th</sup> April 2006 resulted in one death and two men spent fourteen days trapped in a metal cage until they were rescued.

You will be researching what happened during the two weeks when the miners were trapped.

First a visualisation tool for you (imagine):

Measure out a 1.2m X 1.2m area on the ground. Fit two large students into it. There is not enough headroom to sit up and the space is also full of rocks. How would you feel?

*Remember to select at least two sources to ensure you have the most correct answer.*

What problems would the miners have if they were confined for many days? \_\_\_\_\_

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Where is the Beaconsfield mine? \_\_\_\_\_

What did the earthquake measure? \_\_\_\_\_

Did the earthquake itself trap the miners? \_\_\_\_\_

How many miners were underground at the time? \_\_\_\_\_

How many were trapped underground? \_\_\_\_\_

Did the rescue party enter the mine immediately? \_\_\_\_\_

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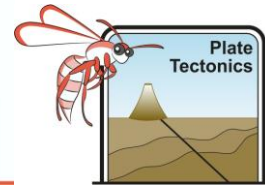
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After they found the body of Larry Knight, what did the rescue miners intend to do? \_\_\_\_\_

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## Beaconsfield Disaster – Student Activity



What evidence did the rescuers have that two miners had survived? \_\_\_\_\_

\_\_\_\_\_

How had the trapped miners avoided being crushed in the rockfall? \_\_\_\_\_

\_\_\_\_\_

How many days after the rock fall did food and water to the trapped miners? \_\_\_\_\_

How did the rescuers manage to get the food to the miners? \_\_\_\_\_

When the hole was expanded to 90mm what else was sent to the miners? \_\_\_\_\_

\_\_\_\_\_

Why would the miners need plastic bags? \_\_\_\_\_

Finding drilling and blasting too dangerous, what novel technique do the rescuers decide to use?

\_\_\_\_\_

Did they start drilling the rescue bore immediately? \_\_\_\_\_

Did they drive the pilot tunnel through to the miners? \_\_\_\_\_

Why did the rate of penetration slow down again? \_\_\_\_\_

What was the next technique the rescuers tried? \_\_\_\_\_

How long had the miners spent underground before the rescuers broke through? \_\_\_\_\_

When did the two trapped miners walk into the light at last? \_\_\_\_\_

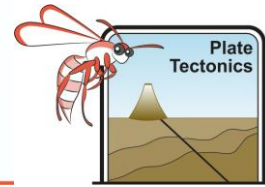
How was Science directly employed in the rescue? \_\_\_\_\_

\_\_\_\_\_

Why do you think they send iPods to the men? \_\_\_\_\_

\_\_\_\_\_

## Beaconsfield Disaster – Student Activity



What, to date, is the longest time miners have been trapped underground and survived?

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Lessons learned at Beaconsfield and the drilling expert from Beaconsfield were used to bring these miners to the surface in a rescue pod

Please cite your references here:

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### The 2010 Boulder Earthquake

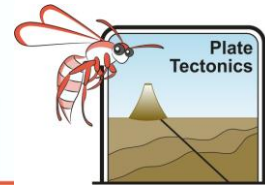
On The 20th April 2010 an earthquake registering 5 on the Richter scale hit the Western Australian gold mining centres of Kalgoorlie and Boulder. Many of the older buildings in Boulder were damaged and local gold mines and the Mt Charlotte Super pit were closed. Kevin McCue the president of the Australian Earthquake Engineering Society suggested that the absence of aftershocks inferred the quake was caused by mining activities.

**“Mining can be a dangerous occupation. Gold can be used to make jewellery. Gold mining should be banned in Australia because it is dangerous and is used frivolously.”**



Pit props used to support the roof of an old stope in Hannans gold mine in Kalgoorlie.

## Beaconsfield Disaster – Student Activity



Consider these statements and give a scientifically reasoned response to them. Please cite references.

**“Mining can be a dangerous occupation. Gold can be used to make jewellery. Gold mining should be banned in Australia because it is dangerous and is used frivolously.”**

**Key words to use**

**Key ideas**

**Bibliography**