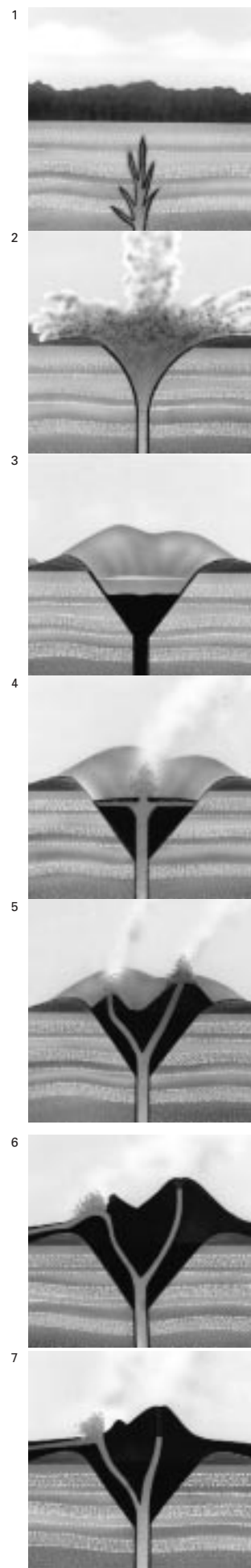


## How do Auckland Volcanoes Form?

Each of Auckland's volcanoes has an eruptive history all its own. However, a general sequence of events can be put together which is fairly typical of past eruptions from the Auckland Volcanic Field, and what we might expect from other eruptions in the future.

1. Hot magma is forced through fissures to the surface from depths of around 100 km.
2. As magma comes into contact with surface water, it causes violent explosions. Magma gases add to the blast. The explosions throw ash and shattered rock high into the air, which land to form a tuff ring or rim around the vent.
3. If there is no more magma after the first violent eruptions, then a broad crater called a maar forms, with a low rim around the edge. Several of Auckland's volcanoes, including Panmure Basin and Orakei Basin developed no further than this stage.
4. If magma keeps rising, a lava lake may form in the crater.
5. Rising magma leads to lava bursting from one or more vents (fire fountaining), building scoria cones. Smaller lava flows may emerge, but are held within the tuff ring. The Domain, Taylor Hill and Mangere Lagoon reached this stage. A lava lake may fill the crater then develop a crust. Subsequent eruptions blast holes through the crust, and build cones upon it (eg; Three Kings).
6. As the eruption continues, scoria cones grow larger and eventually bury the tuff ring. Lava may break through a cone or burst out at a lower level, flowing into surrounding valleys (eg; Mt Eden, Mount Smart and Mount Mangere).
7. The stream of lava can sometimes be so great that it weakens the cone, which collapses into the flow. A horseshoe-shaped crater is left behind (eg; Mount Victoria, Mount Hobson and One Tree Hill). If the flow continues, a large sheet of lava may cover the surrounding area, forming a 'shield' volcano (eg; Rangitoto).



## References and further reading

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**Hazardfacts in the volcano series:** H01 (Auckland's Volcanic Field), H03 (Rangitoto: Auckland's Youngest Volcano), H04 (Auckland's Volcanic Hazards), H05 (Auckland Volcano-Seismic Monitoring Network)

<http://www.arc.govt.nz/volcanic>

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