

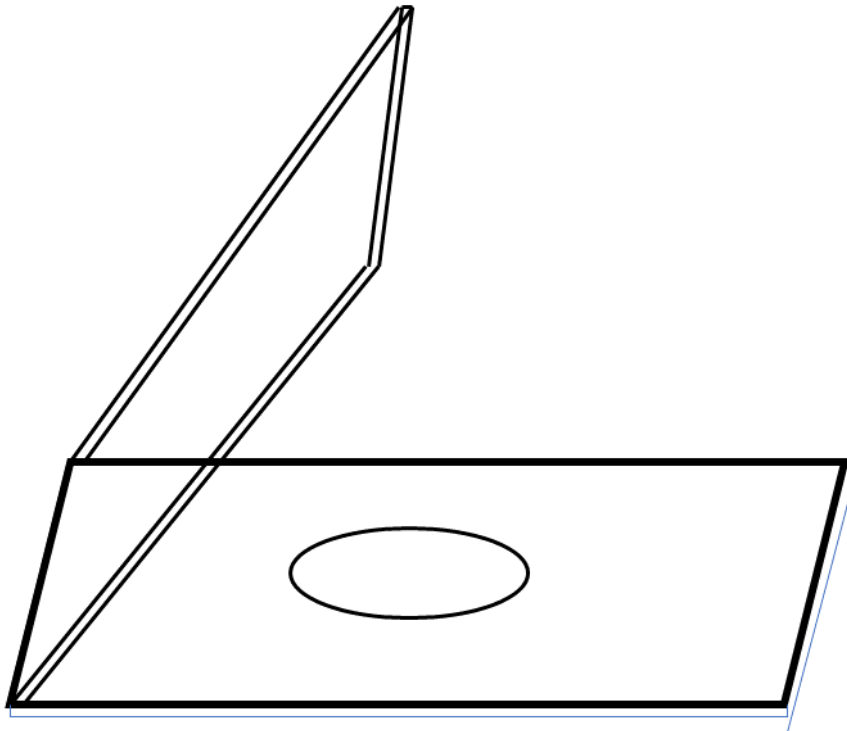
Crystal Size and Cooling Rate – Student Activity

Igneous rocks can either be intrusive (formed by magma cooling inside the Earth) or extrusive (formed by lava cooling at or near the Earth's surface).

The **aim** of this investigation is to determine how crystal size is linked to cooling rate and relate this to intrusive and extrusive igneous rocks.

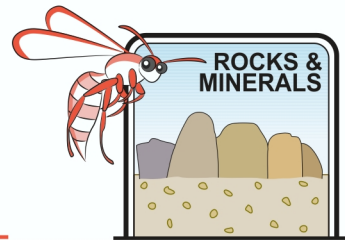
Materials per student or group

- Test tube containing warm Salol (from water bath)
- Pipette or glass rod
- Two warm glass slides
- Two cool glass slides (must be kept cool until ready to be used, so only collect them when you are ready to use them and work quickly)
- A hand lens or microscope
- Piece of coloured paper



Method

1. Use the pipette or glass rod to place a drop of Salol on one of the warm slides and then quickly place the other warm slide on top. Gently press it down to force the Salol to spread.
2. Repeat the process using the cool slides.
3. Place the slides on the coloured paper and watch the crystals grow using a hand lens or microscope.



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Results and Conclusions

Did the crystals start growing on the warm slides or cold slides first?

Did the crystals grow largest on the warm slides or the cold slides. Why do you think this occurred?

Which slides are modelling the formation of intrusive igneous rocks and which slides are modelling the formation of extrusive igneous rocks?

What can you conclude would be the difference between crystals in an intrusive versus an extrusive igneous rock?
