

Name:..... Date:.....

# Crystal chemistry

## Growing crystals

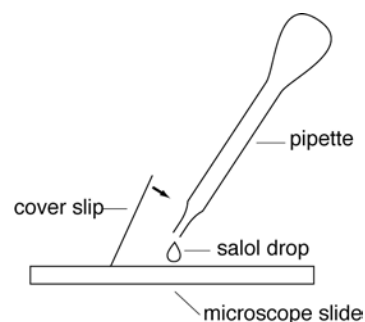
All crystals grow from something! But how do they start and how can large crystals form? Here is an experiment to find out more about crystal growth.

### Big or small?

This experiment shows what makes crystals large or small.

#### What you need

- Microscope slides, x2 – one cooled in a freezer and another heated in hot water
- Cover slips, x2
- Melted salol
- Pipette
- Microscope or hand lens
- Paper towel
- Stopwatch
- Eye protection



Experiment: big or small?

#### What you do

1. Take a COLD microscope slide. If needed, dry it using the paper towel.
2. Put one drop of melted salol on to the slide.
3. Place a cover slip over the drop – to do this, see diagram above.
4. Start the stopwatch.
5. Look at the slide under a microscope or with a hand lens.
6. Without stopping the timer, note the time when crystals first appear.
7. Note the time when crystallisation seems to stop.
8. Reset the stopwatch.
9. Repeat these steps with a HOT microscope slide. If needed, dry it using the paper towel.
10. Look at both slides carefully again under the microscope or hand lens. What differences do you see? Make as many observations as possible and write your answer in the table.

#### Safety

Wear eye protection.

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## Results

Slide	Timing	Appearance
COLD	Time when first change happened:	
	Time when no more change happened:	
HOT	Time when first change happened:	
	Time when no more change happened:	

What differences are there between the crystals on the two slides?

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## Questions for group discussion

*If asked by your teacher, make a group of four with two other students.*

Compare your results. Were they the same or similar?

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On which slide did changes happen fastest?

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What did you notice about the salol on each slide after there was no more change?

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Which slide had the biggest crystals?

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Explain why. Agree an answer in your group.

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Decide who is going to report back what your group thinks to the class.

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## Questions for individual work

1. Which slide had the biggest crystals? Explain why.

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2. What happens to the particles when crystals form?

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3. The same process happens in rocks when magma cools. Find out the names of rocks formed by quick and slow cooling, and describe their crystal size.

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