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| Technician’s Guide |
| Rocks & Minerals |

Rocks & Minerals Technician Sheet

# Rock 1 (Sedimentary) Apparatus (based on 20 pupils)

Small baking paper cups x 20

100 cm3 of saturated magnesium sulphate solution (rock solution)

Silver Sand (enough to ½ fill 20 baking cups)

Stirring rods x 20

Heat proof mat (150 mm x 150 mm) x 5

Pasteur pipettes (1 cm3) x 10

Spatulas x 10

Tongs x 10

Scissors x 10

Access to an oven (90oC for 90 mins)

# Rock 2 (Metamorphic) Apparatus (based on 20 pupils)

Tea lite candles cut into ¼’s (8 pieces of wax per pair)

Soft fudge (8 pieces per pair)

Plastic zip bag (95 mm x 150 mm) x 20

Stirring rod x 10

250 cm3 plastic beaker x 20

250 cm3 glass beaker x 20

Scissors x 10

Crushed ice

Access to a kettle

# Rock 3 (Igneous) Apparatus (based on 20 pupils)

12 g stearic acid x 10 bottles

250 cm3 glass beaker x 20

Large spatula x 10

Test tubes x 40

Test tube rack x 10

Test tube tongs x 10

Tongs x 10

Bunsen burner, tripod, heat proof mat x 10

Crystallising dish x 20

Silver sand x 10 bottles (enough to ½ fill the crystallising dish)

Small baking paper cups x 10

Paper towel x 10

Access to torch or small lamp

# Preparation of magnesium sulphate (rock solution)

Weigh out 26 g of anhydrous magnesium sulphate and dissolve into 100 cm3 of distilled water. Place into a 10 bottles and label as sediment solution.

# Preparation of stearic acid

Weigh out 120 g of solid stearic acid and place into 10 bottles with irritant pictograms.

| Step 1 | Step 2 | Step 3 | Step 4 |
| --- | --- | --- | --- |
| *List Significant hazards here:* | *Who might be harmed and how?* | *What are you already doing?* | *What further action is needed?* | *Action by whom?* | *Action by when?* | *Done* |
| Magnesium sulphate | Technician, teacher by inhalation and splashes | Avoid breathing any dustWear indirect vent goggles BNS 16 63 |  |  |  |  |
| Sediment solution | Technician, teacher and pupil by splashes | Wear indirect vent goggles BNS 16 63 |  |  |  |  |
| Stearic acid is irritant | Technician, teacher and pupils by contact on skin | Wear indirect vent goggles BNS 16 63Wear glovesIf split on skin, wash off with copious amounts of water |  |  |  |  |
| Molten stearic acid is irritant | Teacher, pupils | Use test tube tongs to pour the acid into the paper cup and beaker of water |  |  |  |  |
| Silver sand | Technician, teacher, pupil | Wear indirect vent goggles BNS 16 63If contact with eyes wash out sand with copious amounts of water |  |  |  |  |
| Hot objects | Teacher, pupils | Allow to cool properly and use tongs/ holders where appropriate |  |  |  |  |
| Boiling water | Teacher, pupils | Care when pouring into beakers Ensure the beakers are no more than ½ full to avoid water displacement of zip lock bags |  |  |  |  |
| Molten candle wax | Teacher, pupil | Keep plastic zip bag sealed at all times |  |  |  |  |

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| **Description of activity:**Making sedimentary rocks using a saturated solution of magnesium sulphate (Epsom salts) and silver sand. Mixing the 2 reagents and then drying in an oven.Making metamorphic rocks by heating and squeezing a layered mixture of soft dairy fudge and candle wax in a sealed zip bag and allowing it to cool in crushed ice.Making igneous rocks by heating solid stearic acid and quickly cooling it in cold water and slowly cooling it in a paper cup surrounded by sand. |

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| **Additional comments:** |