



science
& technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA

SCIENCE SPAZA

www.sciencespaza.org



SA ROCKS!



SOUTH AFRICA ROCKS!

SOUTH AFRICA HAS MANY AMAZING **GEOLOGICAL FEATURES**. WHAT MAKES THEM SPECIAL IS THAT THEY ARE ALL FORMED IN DIFFERENT WAYS.

THE **DRAKENSBERG MOUNTAINS** DID NOT ALWAYS LOOK LIKE THIS. ONCE THIS WAS A HUGE MUDDY LAKE, THEN IT WAS A DESERT. UNDER GREAT PRESSURE THESE LAYERS HAVE BECOME ROCK. FINALLY, IT WAS COVERED BY MOLTEN ROCK FROM VOLCANOES!

EACH LAYER OF ROCK TELLS US A DIFFERENT PART OF THE STORY.



BASALT (MADE FROM MOLTEN ROCK)



CLARENCE SANDSTONE
(MADE FROM THE SANDS OF A DESERT ROCK)



MUDSTONE
(FROM ANCIENT LAKES AND RIVERS)

Knowledge is Ncaw!



START YOUR OWN ROCK COLLECTION

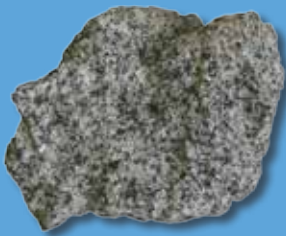
All the rocks that make up our amazing geology can be grouped into 3 types – *sedimentary*, *metamorphic* and *igneous*.

Collect different rocks from various places and see if you can arrange them into these three groups using the guidelines given ...



Igneous

- Tough rocks
- Little texture or layers
- Colour: mostly black, white and/or grey
- Look like granite or lava



Sedimentary

- Made up of sandy or clay-like layers
- Colour: mostly brown to gray
- They may have fossils and water or wind marks

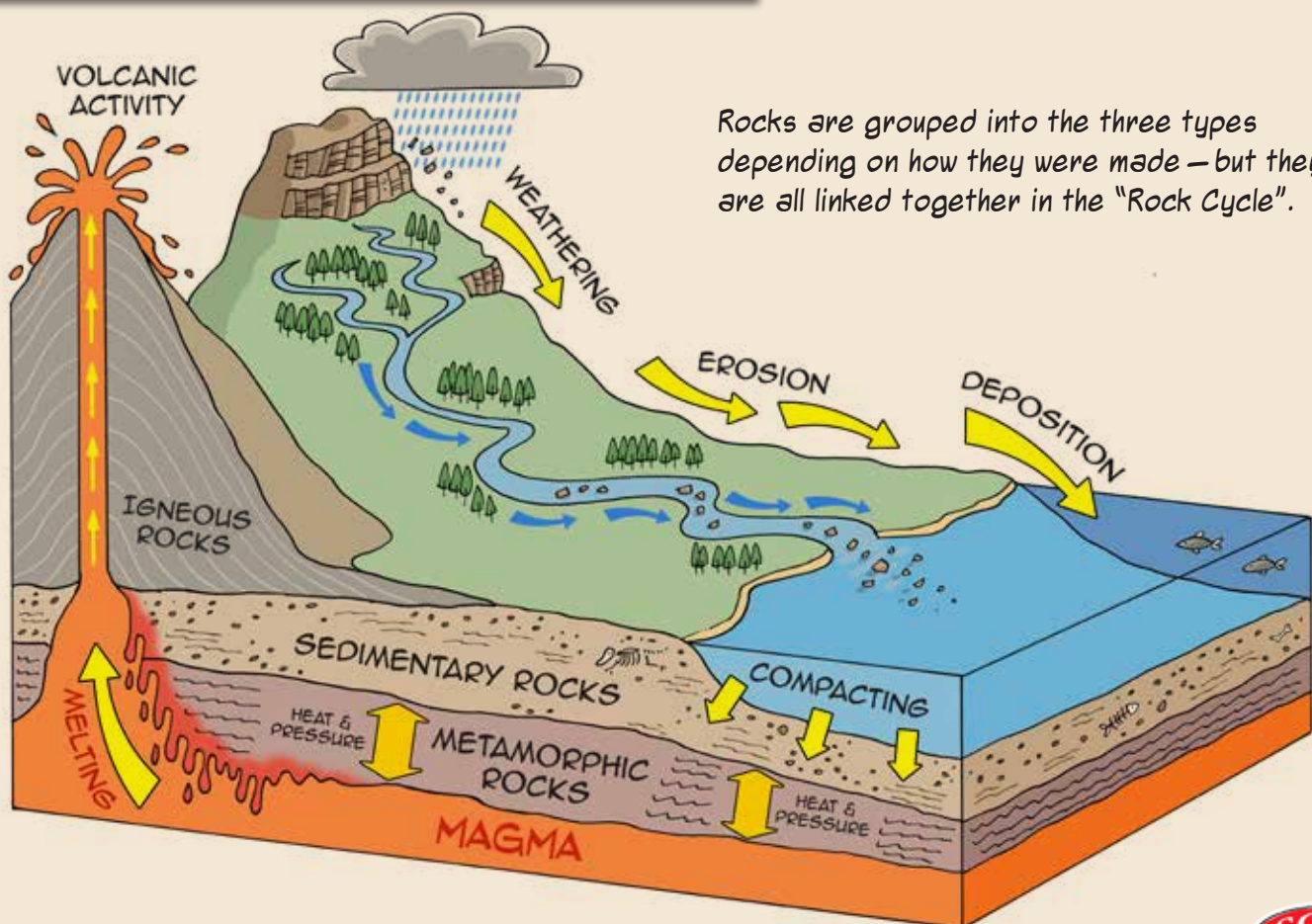


Metamorphic

- Tough
- Straight or curved layers of light and dark
- Colours: various
- Often glittery when held in sunlight



WHAT'S HAPPENING HERE?



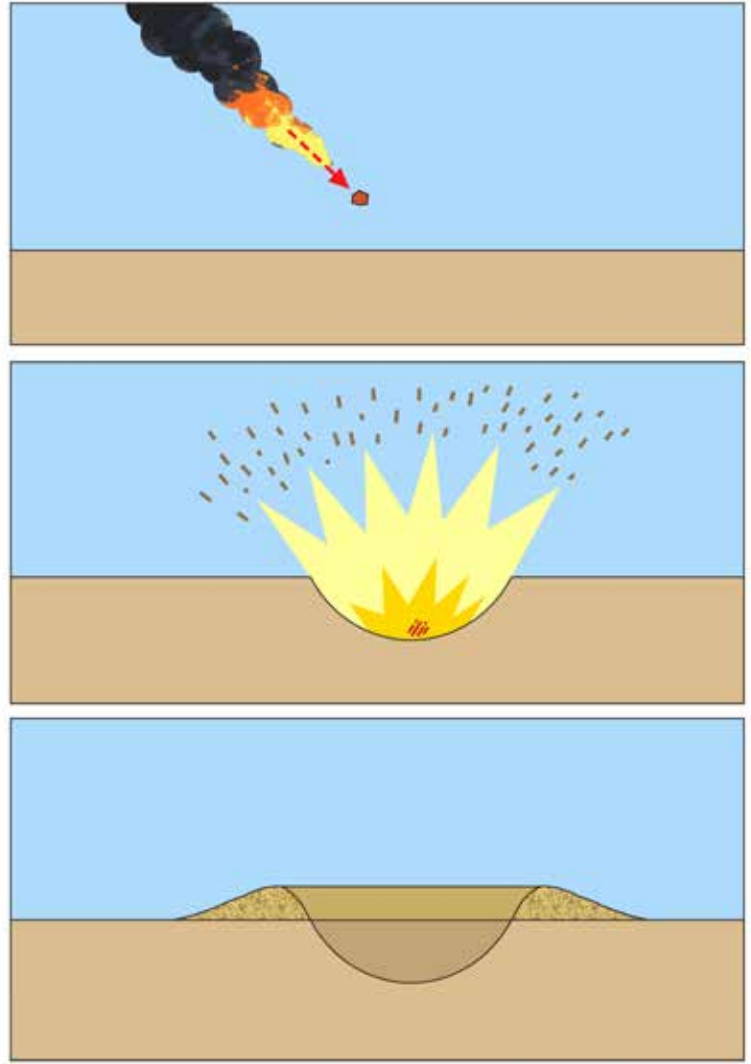
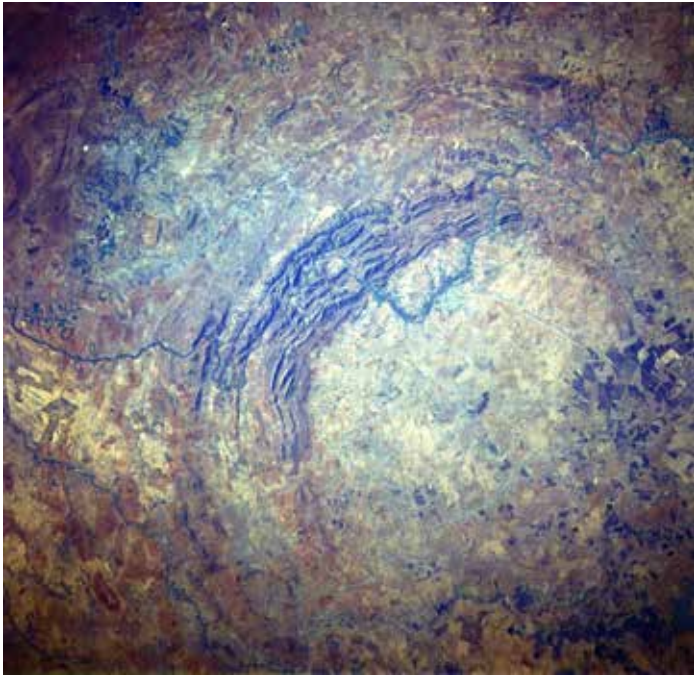
Rocks are grouped into the three types depending on how they were made – but they are all linked together in the "Rock Cycle".

THE VREDEFORT DOME

The *Vredefort Dome* was Formed a bit differently!

A massive *meteorite* (a piece of rock from outer space) hit the earth. The impact bent the rock layers into a shape like an *upside-down bowl* and created a dome shape. It also made a *crater* 100km wide! Crazy!

It is the oldest known meteor impact site in the world!



CAREERS:

Geologists study what the Earth is made from, how it was made and the history of the Earth. They can tell you how rocks were formed, and know the structure and composition of the minerals making up those rocks.

Seismologists study earthquakes. They use seismographs and other instruments to do this.

Engineering geologists use geology to assist in building and environmental projects. Their knowledge of how the world is made is important in major construction jobs and projects such as environmental cleanups.



Geologists use hammers like this one to break open rocks.

Pic: commons.wikimedia.org - Mike Beauregard

CURRICULUM LINKS

- **GRADE 7 & 8:**
Natural Sciences – Matter and Materials (Properties of materials/Particle model of matter)
- **GRADE 9:**
Planet Earth & Beyond – Lithosphere (the rock cycle)
- **GRADE 10, 11 & 12:**
Tourism – Tourism attractions, Culture and Heritage

Knowledge is NCAH!



PUZZLE YOUR MIND!!!

LINK EACH DEFINITION IN THE LEFT-HAND COLUMN WITH A WORD IN THE RIGHT HAND COLUMN.

ROCKS THAT ARE FORMED FROM MAGMA THAT HAS COOLED DOWN.

AN OPENING FROM WHICH MAGMA COMES OUT ONTO THE SURFACE OF THE EARTH.

WHEN ROCK IS BROKEN DOWN INTO SMALLER BITS.

THE STUDY OF ROCKS AND THEIR FORMATION.

THE ROCKS THAT ARE FORMED WHEN LAYERS OF SEDIMENT ARE PLACED ONE ON TOP OF EACH OTHER.

A ROCK FORMATION THAT IS ONE OF THE 7 NATURAL WONDERS OF THE WORLD.

A TYPE OF METAMORPHIC ROCK.

WHAT IS NEEDED TO CHANGE A ROCK INTO METAMORPHIC ROCK.

THE OLDEST KNOWN METEORITE IMPACT SITE IN THE WORLD.

SEDIMENTARY

HEAT AND PRESSURE

VREDEVORT DOME

IGNEOUS

TABLE MOUNTAIN

GEOLOGY

VOLCANO

MARBLE

WEATHERING



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Visit www.sciencespaza.org, email info@sciencespaza.org, sms or WhatsApp us on 076 173 7130 or write to us at PO Box 22106, Mayor's Walk, 3208.

WE WANT YOUR FEEDBACK!

SEND US A PICTURE OF YOUR ROCK COLLECTION WITH THE DIFFERENT TYPES OF ROCK LABELED.



This Science Spaza resource was produced for the National Science Week celebrations of Science for Sustainable Tourism. National Science Week is an initiative of the Department of Science and Technology (DST). It is implemented by the South African Agency for Science and Technology Advancement (SAASTA), a business unit of the National Research Foundation. For more information visit www.saasta.ac.za



Science Spaza is managed under the auspices of the YAZI Centre for Science and Society in Africa (NPC-K2015047709, Non-Profit Organisation 151-830 NPO). www.yazi.org.za

