

## Oxidation – Teacher Notes

### Chemical Weathering

#### Oxidation

The most common form of chemical weathering is oxidation. Oxygen makes up almost 21% of our atmosphere. It reacts with minerals and new products are created.

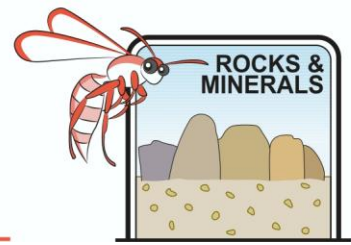


*Kangaroo petroglyph Burrup North West Western Australia*

This kangaroo petroglyph (Greek petros = stone, glyphein = to carve) is from the Burrup Peninsula (Murujuga) near Karratha on the Pilbara coast. Freshly broken rock is dark grey in colour because it contains some dark iron rich minerals. Weathering over millions of years has oxidised some of these surface minerals into a red rusty weathered crust. Aboriginal people have chipped through the crust to create images that relate to their cultural beliefs. The art dates back over a period of 30,000 years to the last Ice Age. The Dampier Archipelago contains the largest concentration of rock art in the world. Petroglyphs are more resistant to weathering than paintings which often have to be protected by overhangs or caves.

Oxidation rates vary according to weather, exposure and variation in rock type. This cannot be used as an accurate measurement of time to date the age of the art or to estimate relative age between different areas or rock types. Weathering of rock is a long slow process. This is why monuments, gravestones and important public buildings often use stone. The materials for construction last longer than the builders.

Over the last 30,000 years Aboriginal people have expended a lot of time and energy chipping through the red rusty crust of the rock to create these images. They must have been very important. If you had to spend weeks perched on a very hot rock in high temperatures, chipping away, what image would you create? [Student answers will vary](#)



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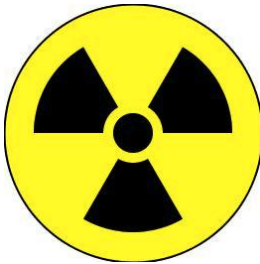
In the modern world, we also use symbols to represent complex messages. What would these symbols mean?



road slippery when wet



flammable



radioactive



riding of horses prohibited

Scientists also use symbols to represent elements. Elements are substances made with only one kind of atom. What elements do these symbols represent?

H hydrogen      O oxygen      C carbon

Fe iron      N nitrogen      Mg magnesium

Al aluminium      Ca calcium      Au gold

Si silicon      S sulfur