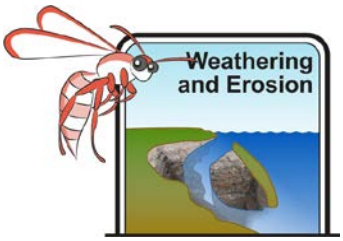


Paint Made of Rocks– Teacher Notes

We are not sure when early man started to paint their bodies and decorate rock walls for ceremonial reasons. We are sure it must have been very important to people because it took a lot of time and energy to find pigments and great expertise to efficiently apply them. The earliest evidence of ritual burial ceremony is of "Mungo Woman" whose bones were buried covered with ochre about 42,000 years ago near Lake Mungo in NSW.

Handprints are common in rock art.

Pigments (colours) are usually weathered rock which is mixed with a medium such as water, milk, animal fat, or blood, and then applied with hands, stick brushes or blown from the mouth. Paintings on bodies or exposed rocks do not last long because the pigments get washed away. But paintings on rocks deep in caves or under overhangs can last a very long time, because the pigments are protected from the weather.

This figure is found in rock art throughout the Kimberly and is known as 'wandjina'.

Aboriginal rock paintings are amongst the oldest in the world, pre-dating famous European cave art such as Lascaux in France by 20,000 years. Some recently discovered Aboriginal rock art at places in the Kimberly and Indonesia are over 40,000 years old. Sometimes it is difficult to accurately determine the age of a piece of rock art, because some sites have been painted over many times. But scientists continue to improve their dating techniques, and we can use other methods like comparing the style of the art to infer the age.

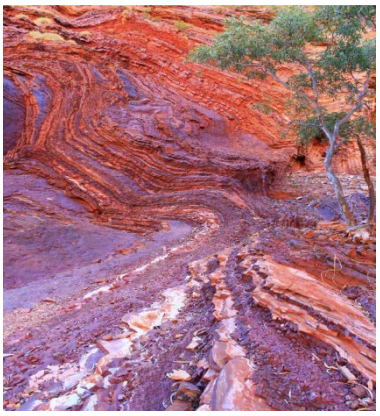
Australian Aboriginals and other early native peoples around the world used ochre as a pigment. Ochre is weathered rock from which silica has been leached, leaving a fine soft hydrated iron oxide. It was extracted from the ground using digging sticks and rocks. It was carried as rock fragments, and when needed smashed and ground into a fine dust between a hammer stone and flat rock (see right). It was highly valued and has been traded across vast distances Ochre from near Meekatharra has been found near Alice Springs, over 1500 km away; that's a long way to walk! People also used carbon from the fire ashes and white clays as pigment.

Ochre rock being ground into powder for paint.

Please note that non-aboriginal people collecting or using ochre can offend some Aboriginal groups.

Paint Made of Rocks– Teacher Notes

When demonstrating the use of ochre in a classroom, substitute tile grout colouring or powdered oxide. This is fairly similar in chemical and physical characteristics, but is produced by an industrial process. It is inexpensive and available from your local hardware store or garage sales. For this activity, one or two small jars are sufficient for a class of 32.



"True colour" weathered rock at Hamersley Gorge, WA.

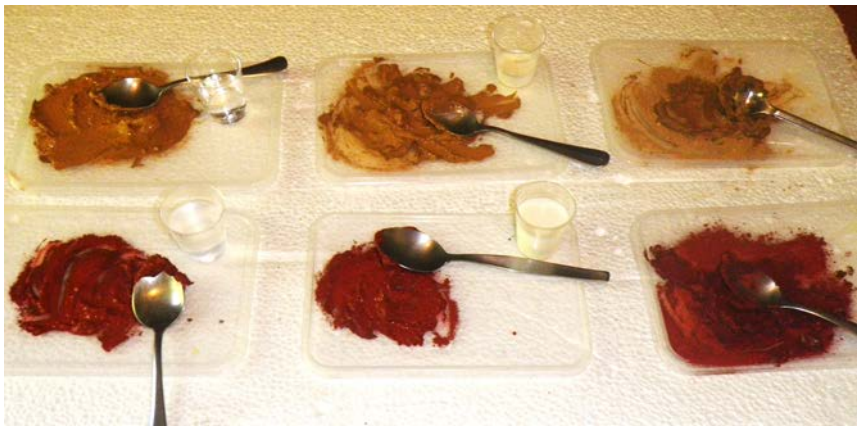
Preparation of the "paint" can be very messy. With more excitable classes, mix the paint in advance or select students to demonstrate the process. Use old newspaper to cover the desk or working surface.

Students will paint their lower arms with one or two oxide colours and discover which paint mixture lasts longer. Students with skin conditions like psoriasis or eczema should be excused from participating.

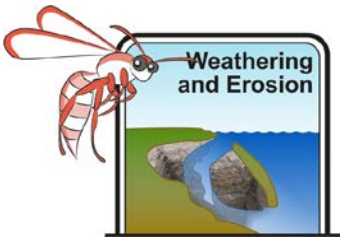
Teachers and students may wish to visit the "Creative Spirits" website to compare Gwion Gwion art (used to be known as Bradshaw art) from the Kimberley with the younger paintings from Lascaux, France (https://www.creativespirits.info/aboriginalculture/arts/bradshaw-gwion-gwion-rock-art)

Activity 1: Finding the best medium for body paint

Paint is made by mixing a coloured pigment (for example, powdered rock ochre) with a medium, which is a liquid that lets artists apply the paint to a surface. You've probably used several kinds of mediums in paint before, including water (in water colours or tempera paint), wax (in crayons), and maybe even oil (in oil paints). We will make paints by mixing commercial oxides with three mediums used in Aboriginal body painting: milk, water, and fat (butter) and observe the differences in the quality of paints.



Paint Made of Rocks– Teacher Notes



Materials:

- 3 Take-away container lids, saucers or plates to be used as mixing dishes.
- 3 teaspoons or pop sticks for mixing.
- About 1 teaspoonful each of animal fat, milk, and water. Butter or lard is easiest.
- 1 tablespoon of grout colouring (oxide) on each mixing dish (you may like to use two colours for comparision so will need 2 sets of materials).
- Two or three paintbrushes.
- Tissues to gently dab the drying pigment.
- Paper towels and a sink to wash up.

Method

1. Place old newspaper on your work surface.
2. Place one teaspoon of grout colouring (oxide) on each mixing plate.
3. On one plate, mix the grout thoroughly with butter. On the second plate, mix the grout thoroughly with about 5 drops of water. On the third plate, mix the grout thoroughly with 5 drops of milk to a smooth paint-like consistency.
4. Paint a neat stripe of each pigment mix across one person's forearm, near the wrist. Remember which stripe belonged to which medium! Perhaps fat at the top, milk in the middle and water near the wrist.
5. Walk twice round the oval swinging your uncovered arms briskly to help the paint dry.
6. Gently dab each pigment to see how well it still adheres to the skin.
7. Return to the classroom and compare the lasting effect of the different paint mixes. Enter the classes' results in the table below.
8. Clean up your work area.

Observations

Animal fat	Water	Milk
The pigment was uneven and difficult to apply. Most of the pigment was easily removed by a tissue.	The pigment was easy to apply. The pigment dried rapidly and became powdery Almost all was easily removed by a tissue	The pigment was easy to apply and left a smooth line Some pigment remained after being gently wiped by the tissue

Discussion

Which medium could you use if the pigment had only to last on your skin for a dancing ceremony that lasted 4 hours?

Any of them

Paint Made of Rocks– Teacher Notes

Which medium would you use if the pigment had to last 1 week?
The paint with either milk or animal fat mediums. The milk base would keep its shape better in heat.

You may wish to save any mix left over for the next short activity.

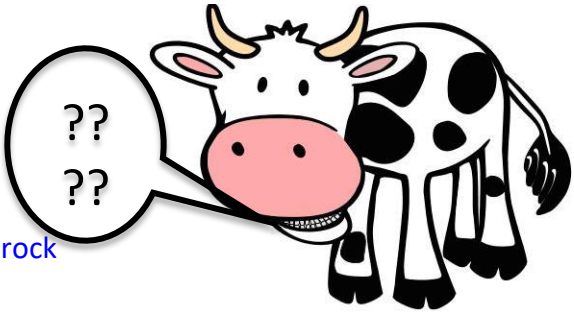
Activity 2: Rock paint and weathering

For this activity, you will test the effects of weathering on your paints. First, apply your different paints to two slabs of concrete (pavers or the like). Try to make your two slabs of concrete look identical. Then place one slab of concrete outside, open to the weather, and the other slab of concrete in a sheltered spot, which the sun and rain can't reach it. Leave the slabs alone for two weeks, then set them side-by-side to compare differences between the pigments.

Are there any differences between the same paints on the two different slabs of concrete? Describe what you see.
The slab left open to the weather had lost pigment much faster than the other in shelter. Photographs can be used to compare differences.

There is an inexpensive Smartphone App called "Colour Assist". Your phone or tablet will give you a general colour description and a numerical reading, which will allow you to compare colours.

Discussion



Was this a FAIR TEST? (Did the cow moo softly?)

Did we change one thing? Yes
What did we change? The location of the painted rock

Did we measure one thing? Yes
What did we measure? The colour of the pigment

Did everything else stay the same? Yes
Name three things that stayed the same? The rock type, the time left at the location, the pigment mix, the same geographical location.

From what you have learned, why do you think Aboriginal people and early European people created their paintings deep in caves or under overhanging rocks?
The paintings were protected from weathering so they lasted thousands of years.