

Lesson Plan

Description
 Rocks and minerals are an important to many Indigenous communities. In this lesson, students will be guided through traditional ways in which rocks and minerals are used to create art and jewelry.

<p>Learning Outcomes</p> <ul style="list-style-type: none"> • Pigments can be created out of natural substances. • Indigenous peoples used ochre as paint to create pictographs and ways of camouflage. • Jewelry creation in Indigenous culture evolved through the years and is still used today. 	<p>Specific Expectations</p> <p>E2.4 describe everyday uses of rocks and minerals</p> <p>E2.6 demonstrate an understanding of First Nations, Métis, and Inuit geological knowledges that are used in the selection of different rocks and minerals for specific purposes</p> <p>A3.3 analyze contributions to science and technology from various communities</p>
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Introduction

Aanii Hello my name is Kirsten St Louis, I am from the Nipissing first nations; I am of Ojibway and Mohawk decent and I am one of the Indigenous programs interns at Science North. I've been at Science North for almost 5 years, most of my work here has been done on the second floor growing my knowledge and passion for rocks, fossils and invertebrates.

Part A: Rocks and Minerals in Paintings

Natural colours are all around us in the world. Today we can go to the store and buy pencil crayons or paints, or we could do what people did centuries ago and create our own pigments from the tools mother Earth gave us.

The Indigenous peoples, amongst other things, used berries and leaves for pigments, but most importantly used ochre; these are natural clay Earth pigments. Red ochre contains a mineral called hematite. Yellow ochre contains a mineral called limonite. And brown ochre contains a mineral called goethite. These minerals range from 60-80% iron, which is why these minerals can produce their colours. Mars is red because there's a layer of iron on the surface.

The Indigenous peoples had a few uses for ochre. They would paint themselves with it to camouflage with their surroundings, not only through sight but also smell. Because the ochre has an earthy smell to it, that would hide the smell of the human so animals did not know the human was there. They would also paint with ochre, creating stories, pictures, or visions; for

example: a man hunting a deer, a snake with horns, bird men, an object morphing into another object, and more naturalistic paintings of bears and turtles.

But what do these pictures mean? Well, we can't exactly go back in time to ask the people who created them, so it's up to us to interpret what the picture or story is trying to convey. For our activity you'll be creating a picture or story and you'll get a partner/friend to try and guess what it means.

Part B: Rocks and Minerals in Jewelry

Jewelry of the Indigenous peoples is influenced by the land, spiritual beliefs, legends, and the cultures of each nation. Some items resembling jewelry were used as a part of their regalia to be worn in ceremony.

Traditionally, Indigenous peoples used hide, animal tendons, porcupine quills, and strong plants to wrap their rocks and shells into jewelry. Most commonly, the mineral turquoise was mined and shaped into beads and pendants. In Indigenous culture, turquoise is believed to create a direct connection to the sky. It is a symbol of protection, truth and courage and is said to protect you from harm. Beads were used to embellish clothing and everyday objects. Indigenous artists created many styles including patterns that resembled animals, geometric shapes and abstract floral patterns.

In the 1800's silver was introduced and by 1870 some skilled craft smiths from the Navajo tribe were able to metalwork, making silver into wire and pendants. Metalworking skills were passed on between neighbouring tribes through trade. The Zuni peoples had already been metalworking iron and copper so the Navajo and Zuni traded skills, Later the Zuni would pass their knowledge on to the Hopi tribe and so on. Skills were also passed down through generations, and as time went on and tools evolved wire wrapping became more common and is one of the most popular techniques in the creation of jewelry today.

Materials

Part A: Rocks and Minerals in Painting

- Ochre powder
- Bowl and paintbrush
- Paper
- Water

Part A: Rocks and Minerals in Jewelry

- 20 inches of 20-22 gauge craft wire (any colour)
- Chain nose pliers of flat nose pliers

- Round nose pliers or wire looping pliers
- Jewelry wire side cutters
- Rock of choice (preferably raw – not polished)

Action

Part A: Rocks and Minerals in Painting

1. Hand out packets of ochre powder, a bowl, a paint brush, a sheet of paper and water.
2. Add the powder to the bowl
3. Using the paintbrush, add drops of water into the powder until it has turned into a paste. The thicker the paste, the more intense the colour and the thicker the paint will be
4. Use the now liquid mixture to paint a picture or story
5. Let your partner guess what your picture or story means



Image from freepik.com

Part B: Rocks and Minerals in Jewelry

1. For a complete walk through of how to wire wrap a rock pendant, refer to the additional handout.

Consolidation/Extension

As an extension to activity A, students can create more pigments out of other things such as berries (pinks, purples, and blues) and leaves or clovers (greens.) Alternatively, they could try to make their own paper out of birch bark.

- **Creating paint from berries:** crush about a handful of the berry of your choice (can use strawberry, blackberry, raspberry or blueberry) finely into a bowl, add two tablespoons of hot water and mix. Strain out chunks if desired, and you're ready to paint!
- Creating paint out of leaves, or clovers: collect green leaves or clovers of your choice outside, put them in a pot and add just enough water to cover them halfway. Boil for

10 minutes to extract the pigment from the leaf or clover and let cool. You can strain out the chucks or add the whole mixture to a bowl and you're ready to paint! This paint will be more of a watercolour.

Consolidate the learning by:

Asking the students what rocks and minerals they use in their everyday lives

Asking the students why rocks and minerals are so important in their lives and Indigenous culture

Accommodations/Modifications

- Prepare the wire ahead of time
- Put students into groups to help with dexterity or tricky parts of both activities
- Go for a nature walk to find the rocks for Part B

Assessment

This activity can be used as Assessment *for Learning*. Gather information from the students throughout the activity to gauge their level of understanding.

Additional Resources

Talking Rocks - Ron Morton (goodminds.com)

Reading Rock Art - Grace Rajnovich (goodminds.com)

Where to buy powder ochre – Etsy shops (not always available yet easy to search for)

[Runecraftworkshop- Etsy](#)

[KonstantasShop - Etsy](#)

Jackson art, UK (shipping 4-30\$) [JacksonArt](#)

Natural pigments, Toronto (shipping around 20\$) [NaturalPigments](#)