

Year 9

Assessment 1

Making paint

- We are **exploring** the composition of everything by investigating the periodic table.
- We are **focusing** on the Chemical & Physical properties of materials.



Your task is to make paint using natural earth pigments and a binding oil.

Equipment

- 15g Earth pigment
- 14g Cornstarch
- 14g sugar
- Measuring spoons and scale
- Jars for storing the paint

METHOD

1. Boil sugar and water in a stovetop pot: add 40mL of water to a beaker. Stir in 120g of sugar until dissolved. Heat on a bunsen burner until water boils.
2. Stir the sugar mixture continuously until the sugar dissolves. Once the mixture becomes a clear syrup, remove the beaker from the heat. LET COOL COMPLETELY.
3. Add 21g (3 tablespoons) of cornstarch and 14g (2 teaspoons) of baking soda to the sugar syrup. Mix until you have a smooth liquid.
4. Pour half of your mixture into one jar and the second half into a second jar.
5. In one jar, add 10g of pigment. Mix until you have a solid colour.
6. In the second jar, add two to three drops of food colouring. Mix until you have a solid colour. Add more drops for a deeper colour.



The Chemistry of Paint

Red paint has iron oxide in it which makes it red.

Brown paint has manganese oxide in it which makes it brown.

Titanium white paint has titanium dioxide in it which makes it white.

Research the following chemicals and answer the questions.

Iron

- What are the chemical properties of iron?
- What are the physical properties of iron?
- What do people use iron for?
- Why is iron good for those uses?



Manganese

- What are the chemical properties of manganese?
- What are the physical properties of manganese?
- What do people use manganese for?
- Why is manganese good for those uses?

Titanium

- What are the chemical properties of titanium?
- What are the physical properties of titanium?
- What do people use titanium for?
- Why is titanium good for those uses?



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Bibliography

List any websites/
books/ resources you
used for your
information.

Rubric



Technological uses of materials	You have related the chemical and physical properties of different materials to technological uses	You have related and described chemical and physical properties of different materials to technological uses	You have related and described with some examples, chemical and physical properties of different materials to a range of technological uses	You have accurately related and described in some detail, chemical and physical properties of different materials to a range of technological uses
Physical and chemical properties	You have investigated and grouped a range of different materials based on some chemical and physical properties	You have investigated and described a range of different materials using some chemical and physical properties	You have investigated and described with some examples, a range of different materials using chemical and physical properties	You have investigated and accurately described in some detail, a range of different materials using their chemical and physical properties
Communicati ng Science	You have used several scientific symbols, conventions, and/or vocabulary	You have used at least two of: relevant scientific terms, symbols, simple representations, or simple models to communicate effectively	You have used a range of relevant scientific terms, symbols, simple representations, and simple models to communicate effectively	You have used a range of relevant scientific terms, symbols, representations, and models to communicate effectively
Research skills	You have accessed data from several sources that are relevant to the research question/topic	You have accessed data from a wide range of sources, including one scientific source	You have accessed data from a range of sources, including some scientific sources	You have accessed data from a range of scientific sources
OVERALL GRADE	Towards	At	Above	Beyond