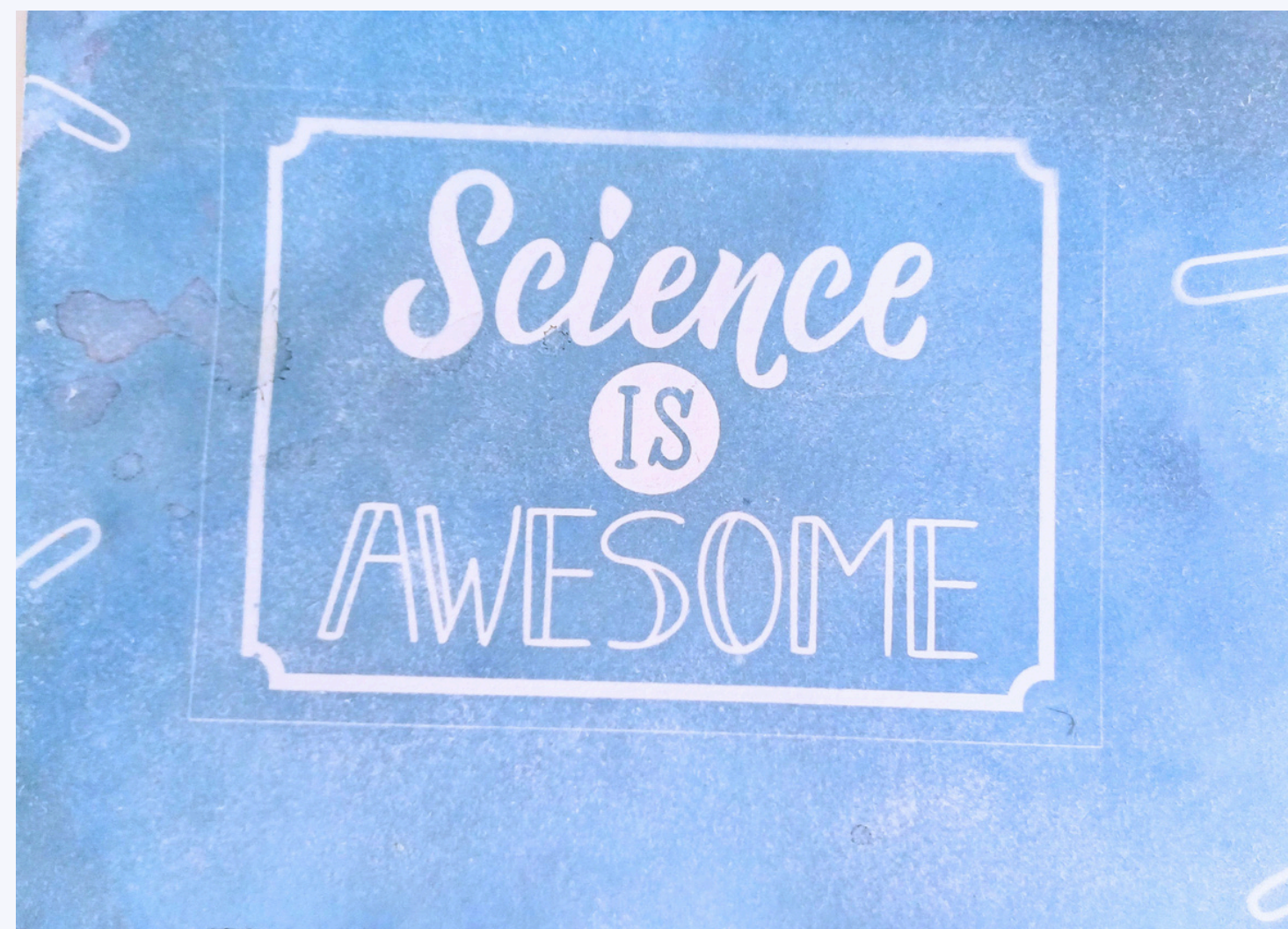




CYANOTYPE PHOTOGRAPHY



Overview

photochemical reaction is a type of chemical reaction initiated by the absorption of energy in the form of light.

Example:

- Photosynthesis is the process of capturing light energy and transforming it into chemical energy.
- Cyanotype photography is a camera-less technique that involves laying an object on paper coated with a solution of iron salts before exposing it to UV light and washing with water to create stunning white and Prussian blue images.

Engineering challenge

The engineering challenge of using Potassium ferricyanide and Ferric ammonium citrate in a 1:10 ratio for cyanotype photography involves precision in mixing the chemicals to achieve the desired sensitivity and contrast. Ensuring accurate measurements and maintaining consistent ratios is crucial to produce high-quality prints. Furthermore, the challenge extends to controlling environmental factors such as light and temperature during the coating and exposure process to achieve optimal results. Finally, students should explore innovative ways to experiment with exposure times and material variations to deepen their understanding of the cyanotype photographic process.

ATTENTION PLEASE



Precautionary Measures for Using Potassium Ferricyanide and Ferric Ammonium Citrate

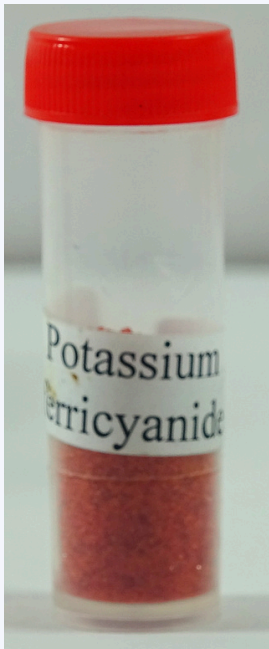
- **Wear Protective Gear:** Always wear gloves and safety goggles to protect your hands and eyes.
- **Handle with Care:** Handle the chemicals gently and avoid spills.
- **Avoid Ingestion:** Never taste or swallow the chemicals, they can be harmful if ingested.
- **Work in Well-Ventilated Areas:** Perform experiments in areas with good airflow to avoid inhaling any fumes.
- **Clean Up Properly:** Clean up spills immediately and wash your hands thoroughly after handling the chemicals.

Materials Required

1



2



3

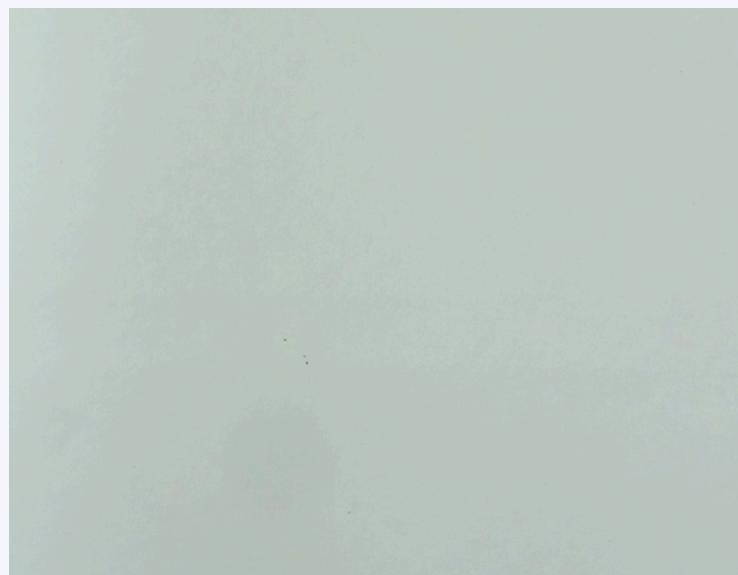


4

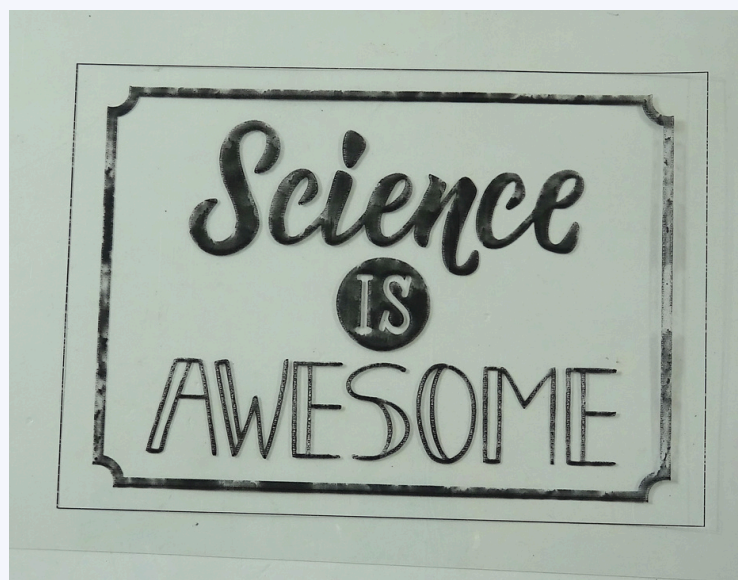


Sr.No	Name	Qty
1	Cyanotype Chart Sheet	2
2	Potassium Ferricyanide	4gm
3	Ferric Ammonium Citrate	10gm
4	Paper Clip	4

5



6



Materials Required

Sr.No	Name	Qty
5	Empty Template	2
6	Photo Template	1

7



8



9



Materials Required

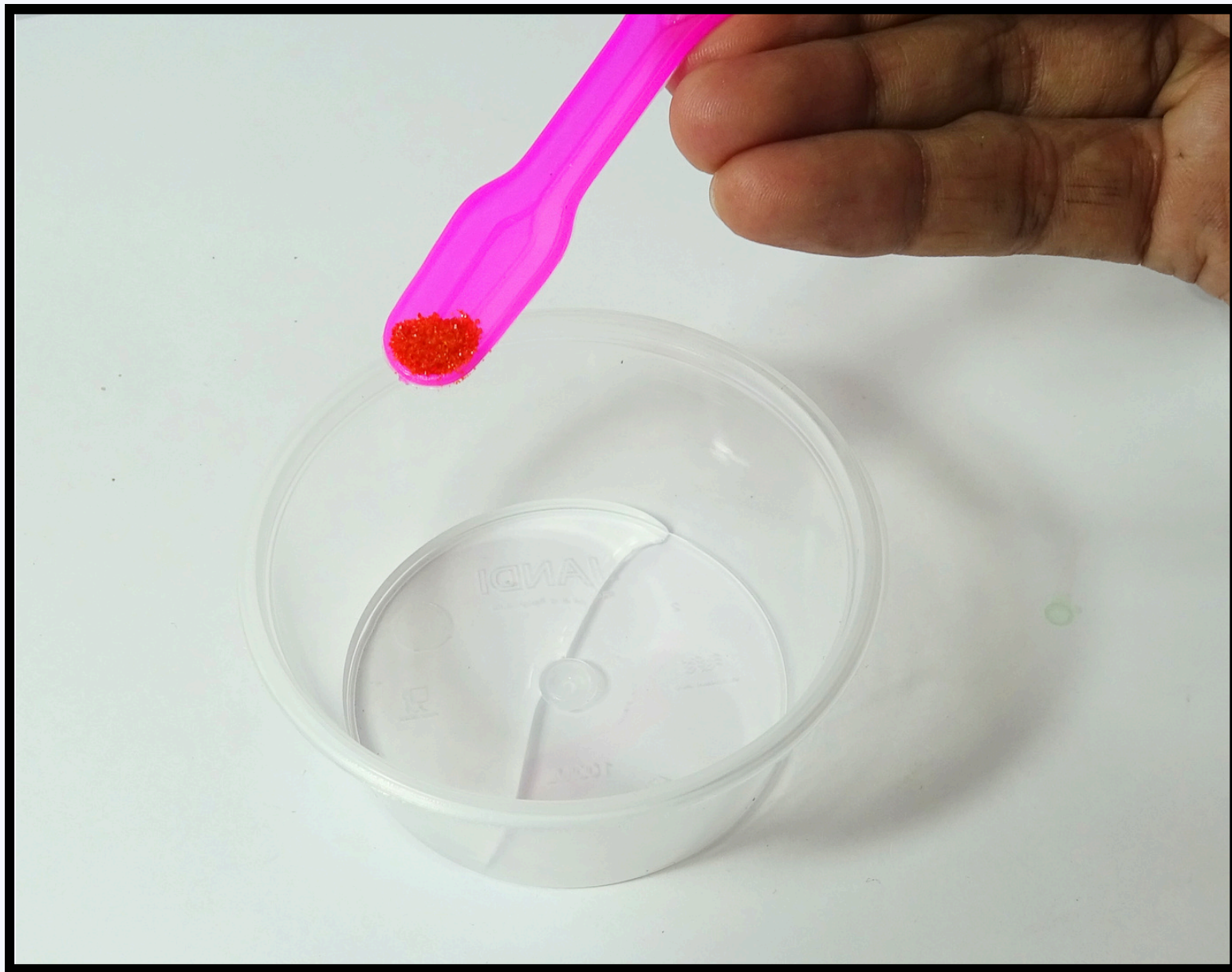
Sr.No	Name	Qty
7	Spoon	1
8	Cotton	2
9	Container	3

Procedure

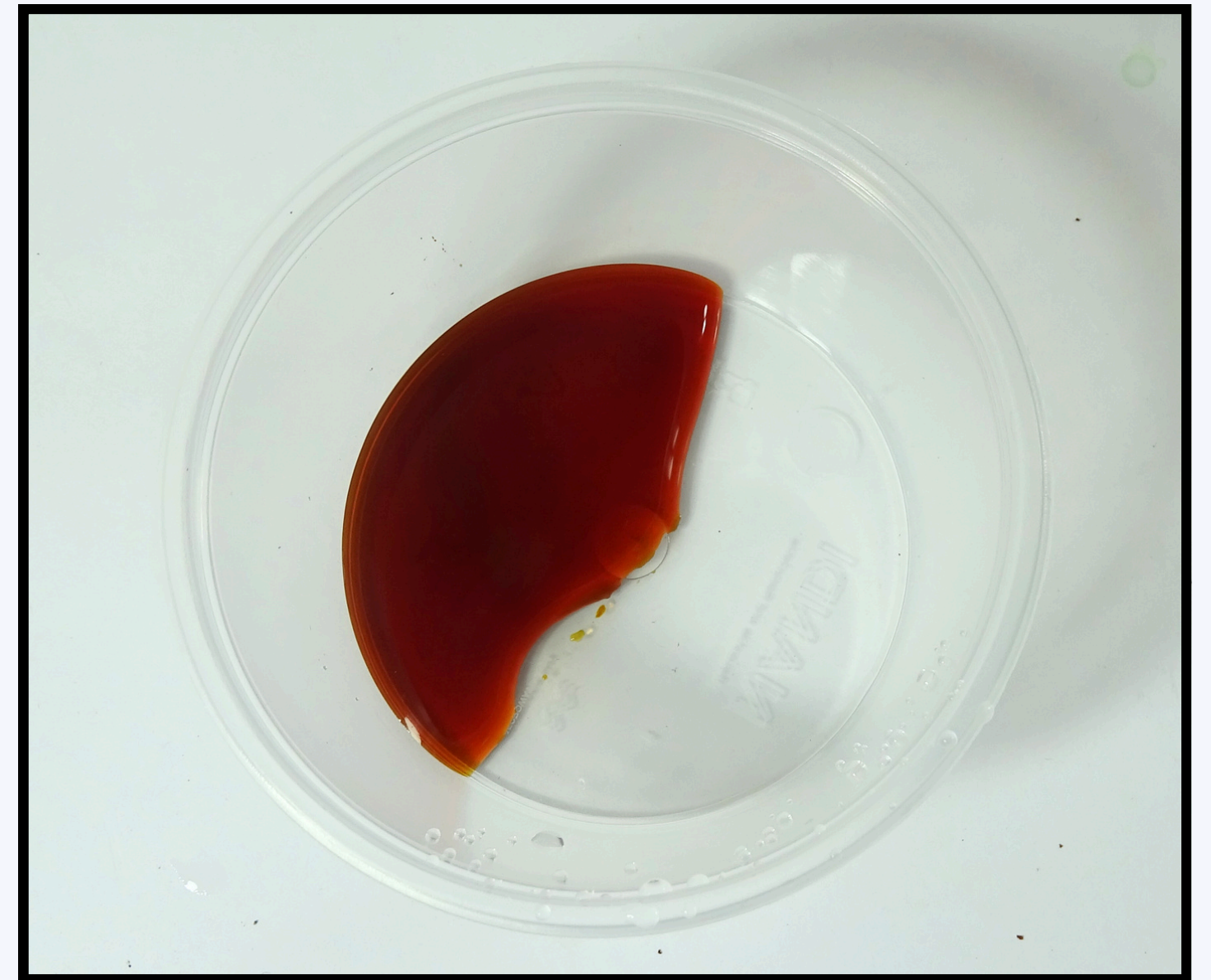
Take 10 ml of water in both the container



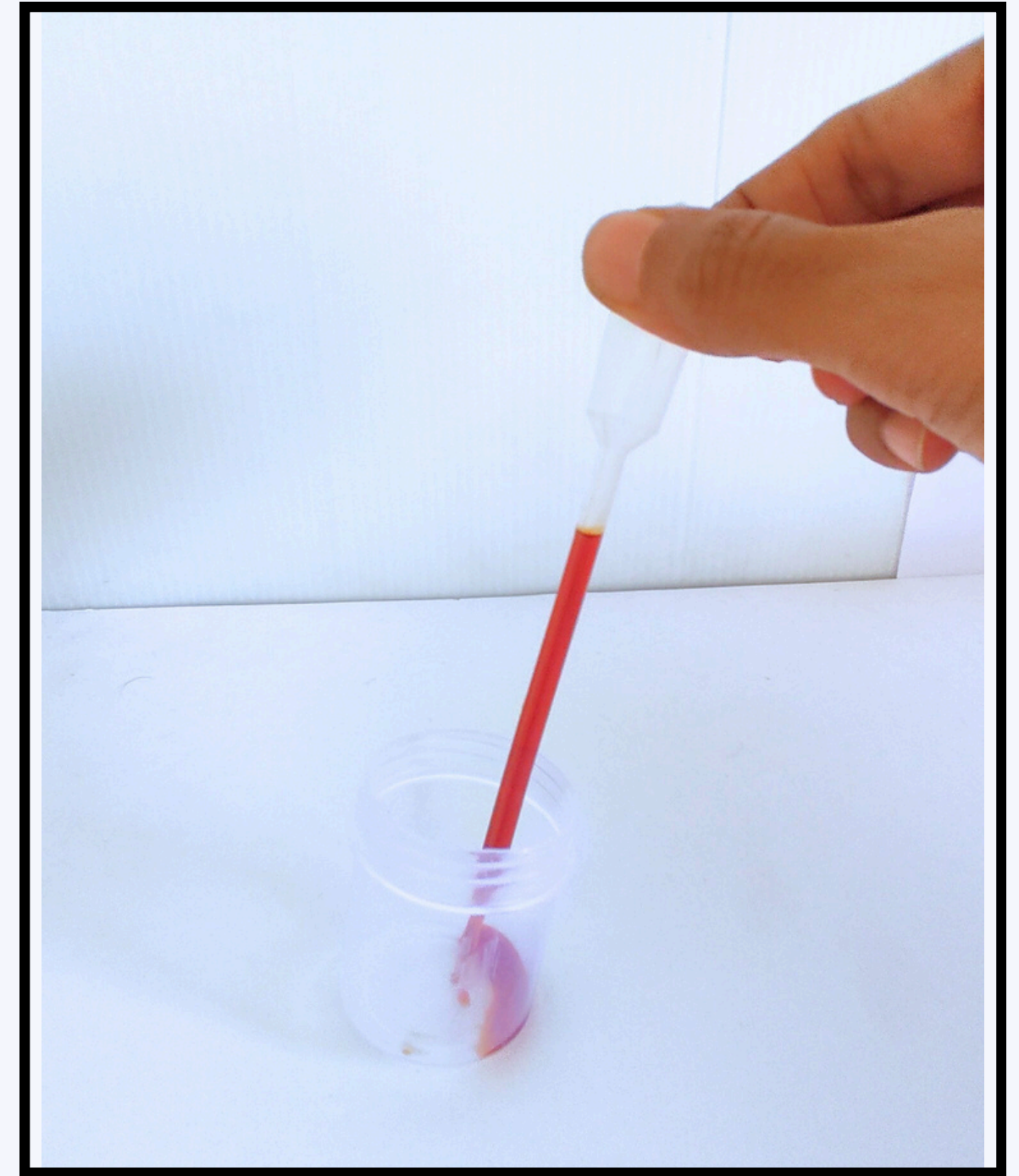
Add 1/4 spoon of potassium ferricyanide to 10ml of water (NOTE - Potassium ferricyanide and Ferric ammonium citrate ratio should be in 1:10 ratio)



**Add 3/4 spoon of Ferric ammonium citrate to 10 ml of water (NOTE
- Potassium ferricyanide and Ferric ammonium citrate ratio should
be in 1:10 ratio)**



Take 1 ml of Ferric ammonium citrate in a pipette and pour it into another container as shown

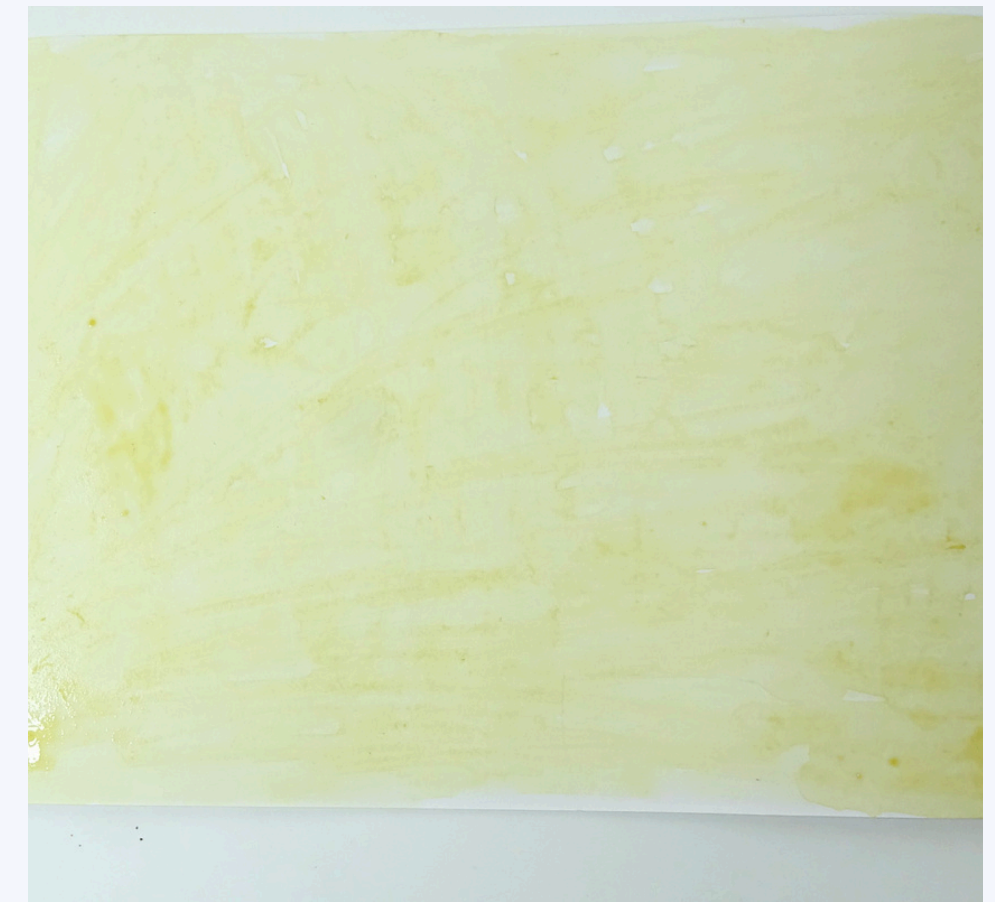
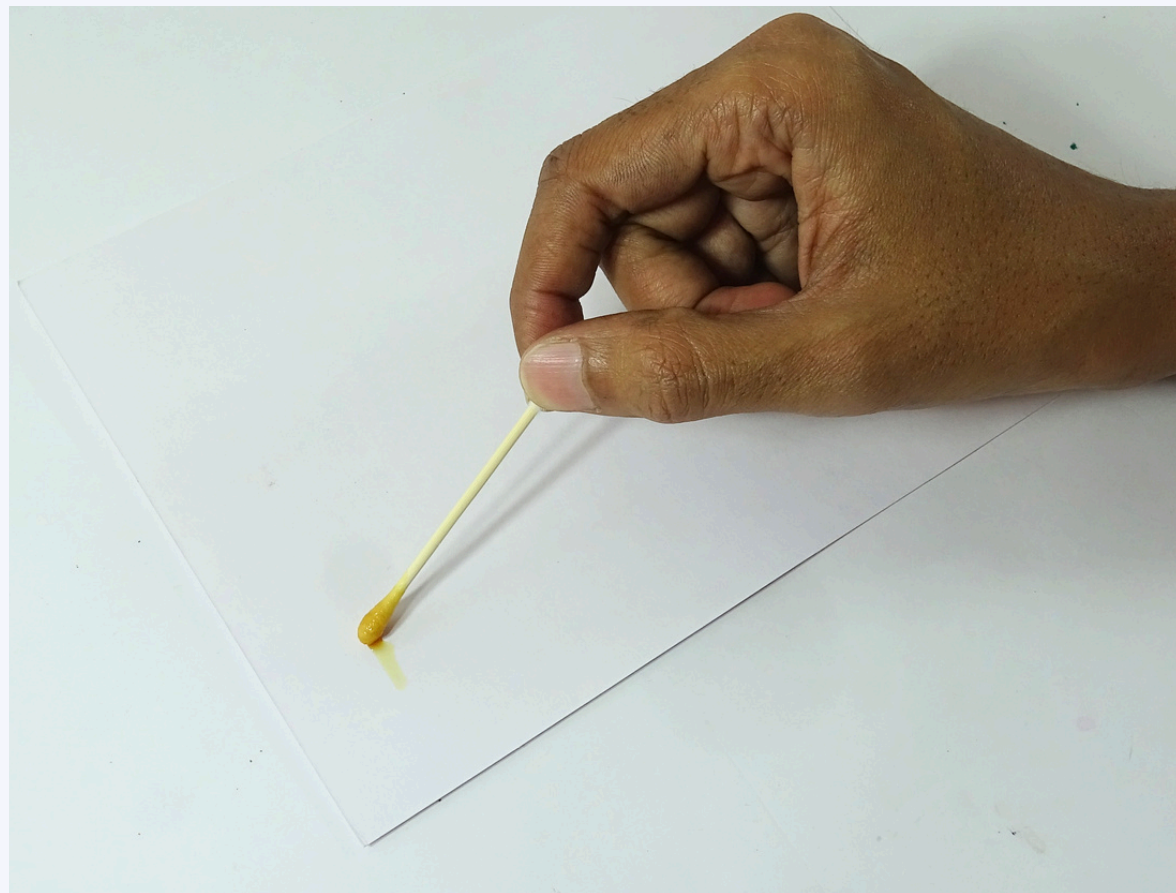


Take 1 ml of potassium ferricyanide in a pipette and pour it into a container containing 1 ml of Ferric ammonium citrate, as shown.



The final outcome solution should look like this.

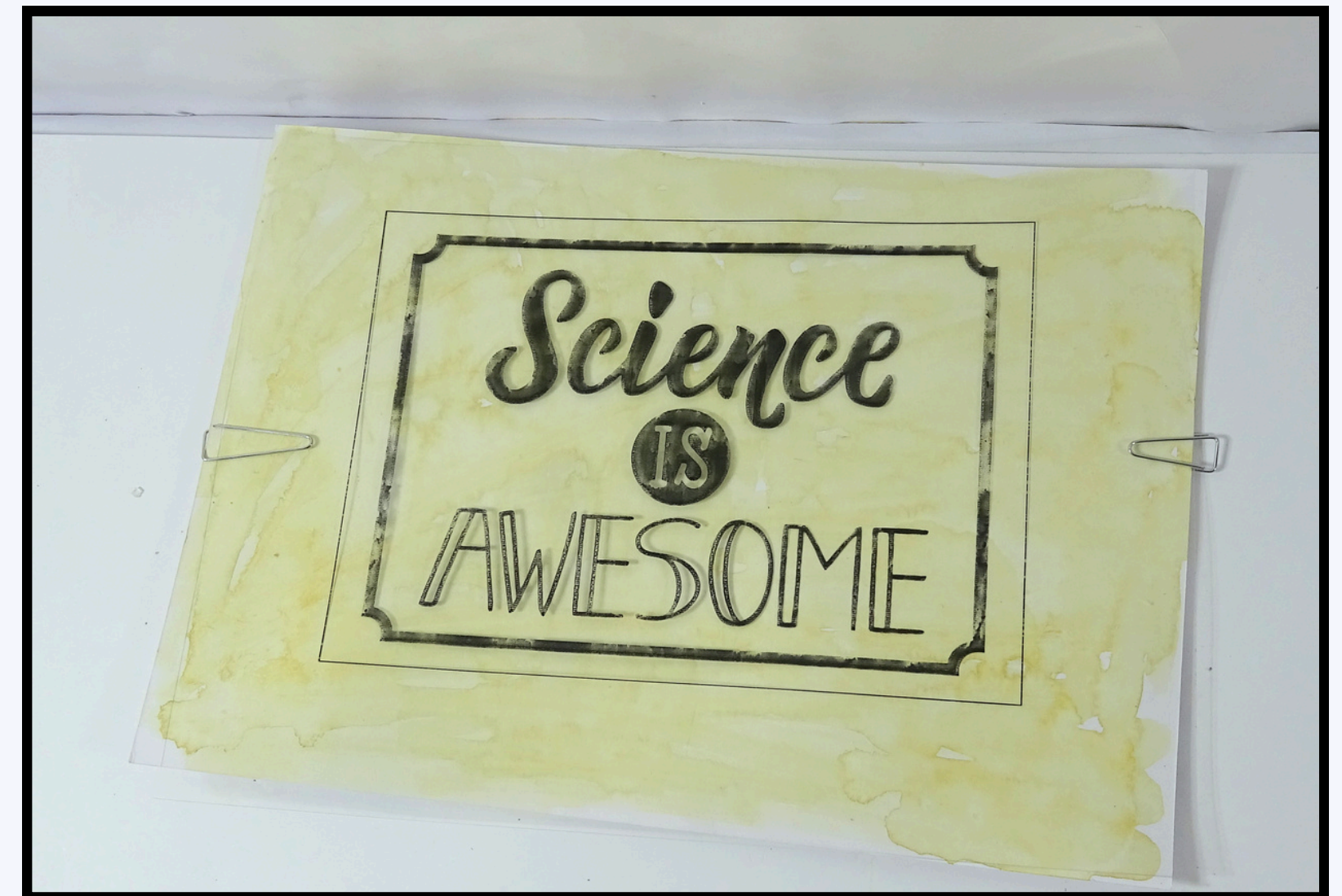
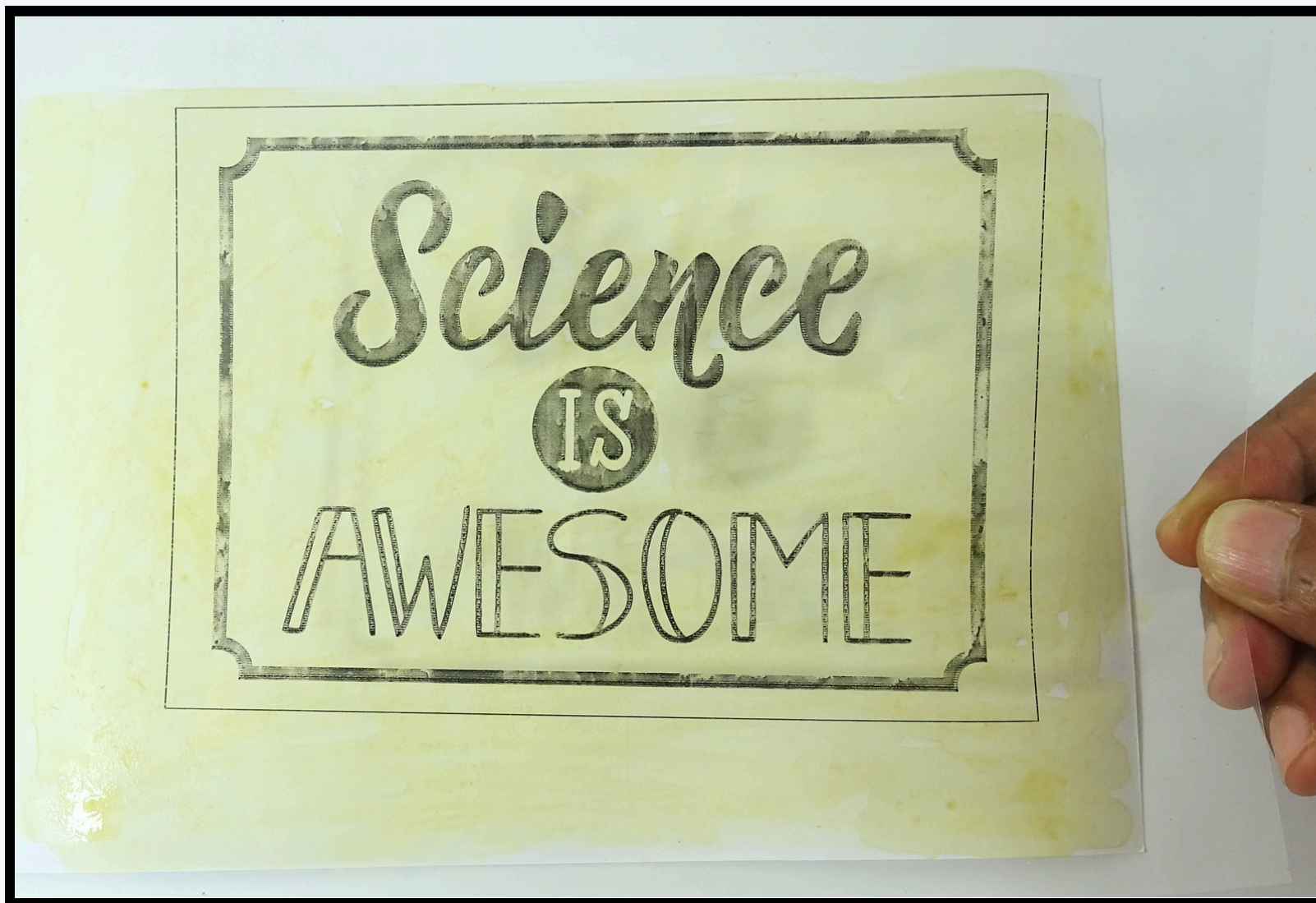
Use the ear buds to apply the solution on A5 sheet as shown below



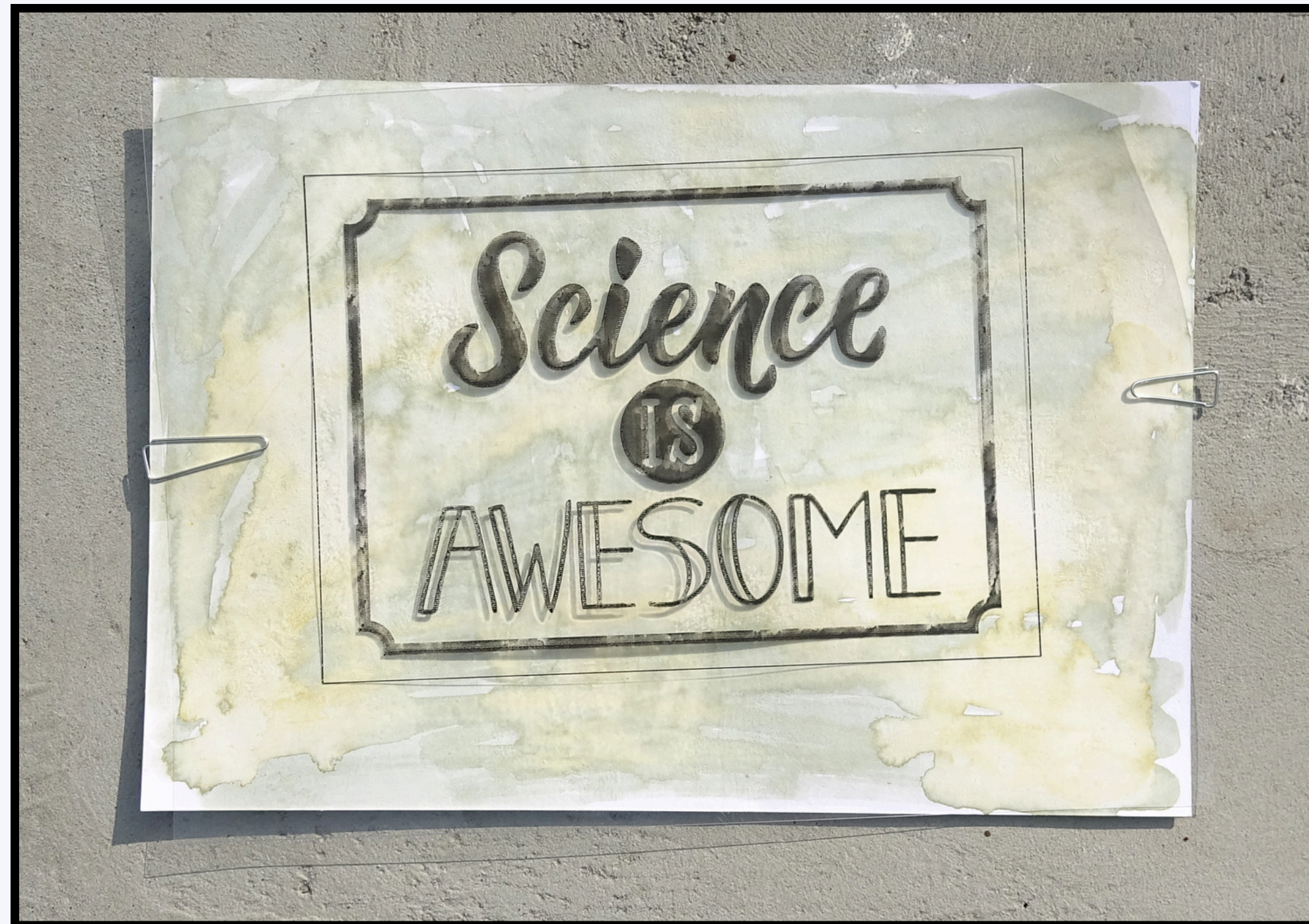
**Use cotton to apply the potassium ferricyanide and
Ferric ammonium citrate, as shown.**

Now place the photo template on the A5 sheet as shown below

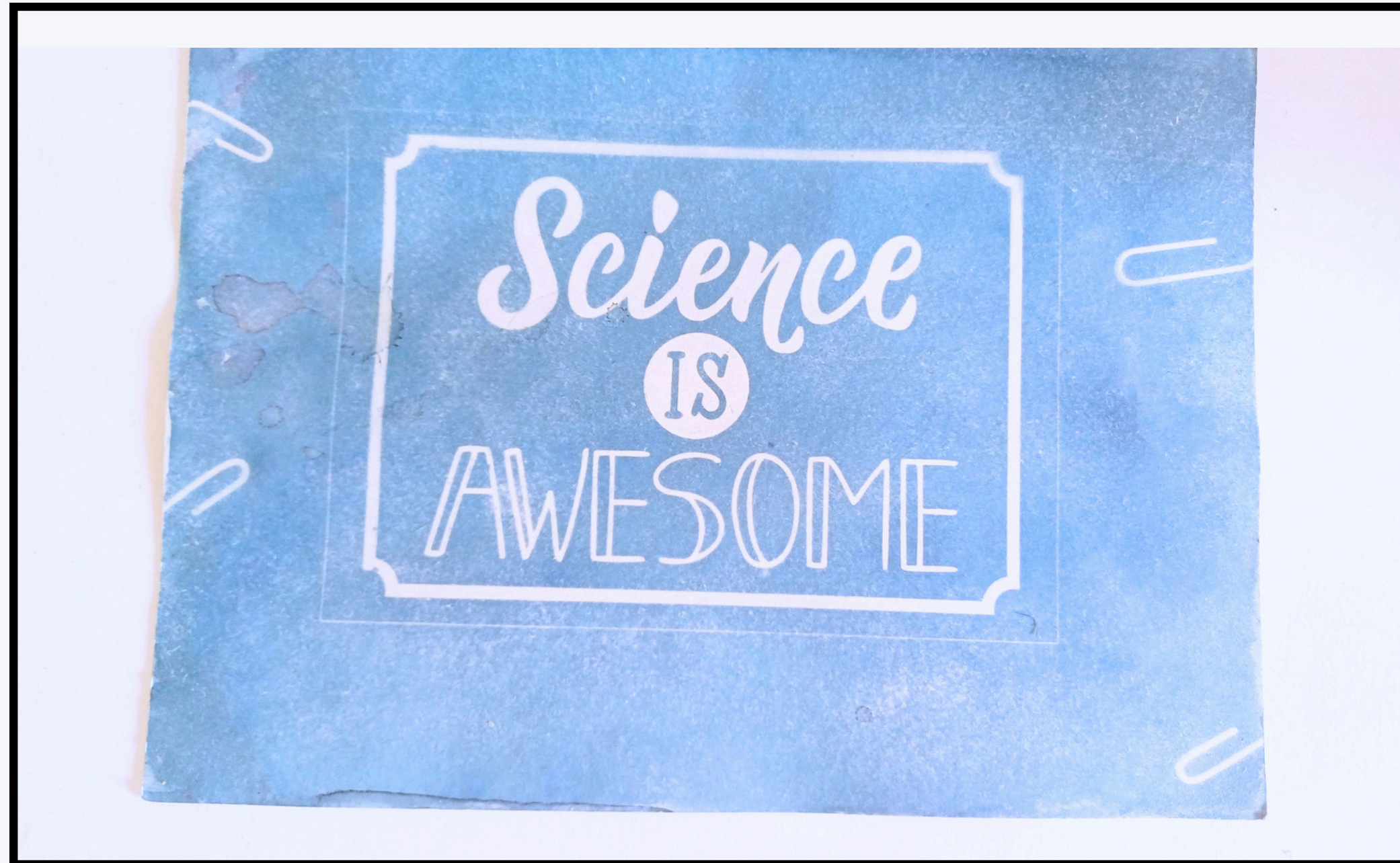
Add paper clip to A5 sheet and photo template as shown below



Now keep the photo template in sunlight for 5mins



Now you can observe the changes in the template



H2O2 6%

To develop the photo on the template, wash the photo template using the 6% hydrogen peroxide (H2O2) chemical available in nearby medical stores.

How does it work ?

Film is applied with mixture of two chemicals ferric ammonium citrate and potassium ferricyanide, which are coated on the paper. When exposed to the sunlight, a complex photochemical reaction (any reaction initiated due to absorption of light energy) occurs between the chemicals on the paper and the absorbed UV rays from the sunlight.

The result is an insoluble, blue dye (ferric ferrocyanide) known as Prussian blue.

The extent of colour change depends on the amount of UV light.

