

COSMIC COLORS

WARNING — THIS SET CONTAINS CHEMICALS THAT MAY BE HARMFUL IF MISUSED. READ CAUTIONS ON INDIVIDUAL CONTAINERS AND IN MANUAL CAREFULLY. NOT TO BE USED BY CHILDREN EXCEPT UNDER ADULT SUPERVISION.

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SAFETY

Safety Rules

Read these instructions before use, follow them and keep them for reference.

Keep young children, animals and those not wearing eye protection away from the experimental area.

Always wear eye protection.

Store this experimental set out of reach of children under 7 years of age.

Clean all equipment after use.

Make sure that all containers are fully closed and properly stored after use.

Ensure that all empty containers are disposed of properly.

Wash hands after carrying out experiments.

Do not use any equipment which has not been supplied with the set or recommended in the instructions for use.

Do not eat or drink in the experimental area.

Do not allow chemicals to come into contact with the eyes or mouth.

Do not replace foodstuffs in original container. Dispose of immediately.

First Aid

In case of eye contact: Wash out eye with plenty of water, holding eye open if necessary. Seek immediate medical advice.

If swallowed: Wash out mouth with water, drink some fresh water. Do not induce vomiting. Seek immediate medical advice.

In case of inhalation: Remove person to fresh air.

In case of skin contact and burns: Wash affected area with plenty of water for at least 10 minutes.

In case of doubt, seek medical advice without delay. Take the chemical and its container with you.

In case of injury always seek medical advice.

CAUTION!

For the three colored polyvinyl alcohol-containing gels:

May cause eye irritation.

Do not get in eyes.

Wash hands thoroughly after handling.

Do not ingest. Use only as instructed.

WARNING!

Not suitable for children under 3 years. There is a risk of choking due to small parts that can be swallowed or inhaled. There is a risk of strangulation if long strings or cords are placed around the neck. Keep the packaging and instructions, as they contain important information.

EXPERIMENT: STAINED GLASS PLANET

1. Push the inner pieces of the foam planet out so that you have the outline only.



2. Place the foam outline on the clear plastic sheet.

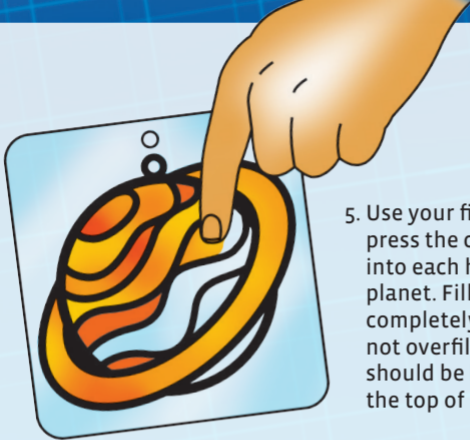


3. Cut open the colored gel packets.



4. You can mix the primary colors together to get a wide array of secondary colors. Use the colored gel carefully, as it may stick to or stain fabric, wood, carpet, or other materials. Clean with water.





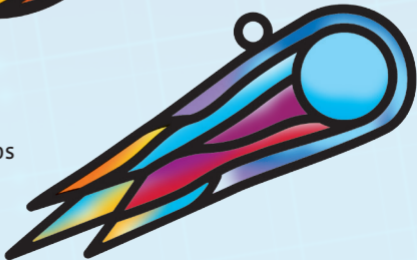
5. Use your fingers to press the colored gel into each hole in the planet. Fill the cavity completely, but do not overfill it. The gel should be level with the top of planet.

6. When you are done filling in the planet, leave it on the plastic sheet to let it dry completely. The drying time will depend on the temperature and humidity.



7. Once your planet has dried completely, thread the string through the eyelet hole to hang the planet up in a window or other place where light can shine through it.

8. Repeat the steps for the comet.



TWO MODELS FOR COLOR

Subtractive color refers to the mixing of dyes, inks, and paints to create a wider range of colors. Each colored substance absorbs some wavelengths of white light, subtracting those out of the resulting color. The final color displayed is made of whichever wavelengths are not absorbed by the substance. The gels in this kit are examples of subtractive color. Cyan, magenta, and yellow are the primary colors in this model. When you mix them, you get a color close to black.



Additive color refers to the mixing of different colored light. The primary colors in this model are red, green, and blue. When you mix them, you get white light.



PLANETARY COLORS

The planets all have different colors because their surfaces and atmospheres are made of different substances that absorb and reflect light differently.



Mercury is just bare rock with no atmosphere, so it looks gray. **Venus** appears yellow because of its sulfuric acid clouds. **Earth's** oceans, water vapor clouds, vegetation, and land give it a blue, white, green, and brown marbled appearance. **Mars** is reddish-brown because it is covered in iron oxide (rust) dust. **Jupiter** has white bands colored by ammonia clouds and orange bands colored by ammonium hydrosulfide clouds. **Saturn's** clouds give it a pale yellowish-brown color. **Uranus** and **Neptune** are both bluish due to the methane in their atmospheres, but Neptune is a darker blue because it is farther from the light of the sun.