Home Economics

Textiles, Clothing and Fashion

Topic: Classification of Dyes

Group Level: Form Four/Form Five Revision

Instructions:

1. Read the information provided on natural and synthetic dyes.
2. Review what you have learned by completing the activity sheet.
3. Use the answer key to assess your performance.

Natural and Synthetic Dyes

A dye is a coloured substance which can be natural or synthetic that bonds to the material to which it is applied.

Reasons for adding colour to fabric:

- To enhance the attractiveness of the fabric.
- To add value to the fabric - intensity of colour or cost
- To improve appearance
- To brighten fabric
- To make fabric more attractive/noticable
- To improve quality of textile goods
- To change the appearance of the fabric
- To make it fashionable
- To cover a spot or stain

Natural dyes are manufactured from natural products such as flowers, roots, vegetables, insects, minerals and wood. Natural dyes were the only source of colours for textiles and other textile materials before synthetic dyes were discovered. But today, natural dyes are only used in handcrafted fabrics or projects.

- Batches of natural dye were never exactly identical in hue and intensity.
- Natural dyes can be expensive to produce.
- Natural dyes do not contain chemicals which are harmful to health and the environment.
- Natural dyes do not give a wide range of colour
- Natural dyes are not as colourfast (may fade or bleed/run when washed)
- Natural dyes are best used on natural fibres

Examples of natural dyes:

Colour	**Plant material**
Orange	carrots, onion skins
Brown	Tea, coffee
Pink	Berries, cherries, red and pink roses
Blue	Indigo, red cabbage
Red-brown	pomegranates, beets, hibiscus
Green	Spinach, peppermint leaves
Yellow	Bay leaves, paprika, sunflower petals, saffaron

Natural dyes need help to stick to the fibres, if not, it will wash off or fade away. Mordants and fixatives will help the dye to adhere to the fibres and also maintain the colour brightness.

Mordant: a chemical compound that allows the dye to bind to the fabric and can brighten the dye colour. Used on natural protein fibres, example silk and wool. Iron, copper and alum are examples of mordant.

Fixative: natural products that help set dye without using chemicals. Used on natural plant fibres, example cotton and linen. Examples of fixative are vinegar, salt and baking soda.

Synthetic dyes are manufactured from organic molecules and were discovered in 1856. Development of different man-made fibres dictated the creation of special dyestuff for the fibre. In addition to the textile industry, synthetic dyes are also used in the paint and printing industries.

- Synthetic dye colours are consistent. Computer colour matching produces colour that is identical with every batch.
- Synthetic dye colours are long lasting (colourfast).
- Wide range of dye colours can be produced.
- Less expensive to produce than natural dyes.
- Chemical compounds in synthetic dyes are harmful to humans and the environment.(during production and manufacturing)
- Synthetic dyes are used on both natural and man-made fibres.

Activity Sheet

Answer all Questions

1). State FOUR reasons for adding colour to fabric.

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2). State TWO differences between natural dyes and synthetic dyes.

i)……

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ii)……..

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3). List three plant sources of natural dyes.

i)…… Ii)…… Iii)……

4). What is the best type of fabric to use natural dyes on?

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5). Define the following terms:

i) Mordant ……

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ii) Fixative ……

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6). Place the following in the correct column: Iron, Copper, Vinegar, Salt, Alum, Baking Soda.

Mordant	Fixative

Answer Key

1). Four reasons for adding colour to fabric:

i) To enhance the attractiveness of the fabric.
ii) To add value to the fabric - intensity of colour or cost
iii) To improve appearance
iv) To brighten fabric
v) To make fabric more attractive/noticable
vi) To improve quality of textile goods
vii) To change the appearance of the fabric
viii) To make it fashionable
ix) To cover a spot or stain

Any four reasons

2). Differences between natural and synthetic dyes:

I. Natural dyes are produced from different plant/animal sources while synthetic dyes are made from chemicals.
II. Natural dyes are less colourfast than synthetic dyes.
III. Synthetic dyes give a wide range of colours while natural dyes do not give a wide range of colours.
IV. Batches of natural dyes are never exactly the same colour while the colours of synthetic dyes can be produced consistently.
V. Natural dyes are more environmentally friendly while synthetic dyes can damage the environment
VI. Natural dyes are often more expensive than synthetic dyes

Any two difference

3). Plant sources of natural dyes:

carrots, onion skin, tea, coffee, berries, cherries, roses, red cabbage, beets, hibiscus, pomegranates, spinach, peppermint leaves, bay leaves, paprika, sunflower petals, saffron.

Any three sources

4) The best type of fabric to use natural dyes on: natural fibre fabrics.

5). Define the following terms:

i) Mordant: a chemical compound that allows the dye to bind to the fabric and can brighten the dye colour. It is used on natural protein fibres, example silk and wool

ii) Fixative: natural products that help set the dye without using chemicals. It is used on natural plant fibres, example cotton and linen.

6).

Mordant – Iron, Copper, Alum	Fixative – Vinegar, Salt, Baking Soda

References

http://www.allnaturaldyeing.com/mordants-fixatives/
https://www.sciencedirect.com/topics/engineering/synthetic-dye
https://fashion-history.lovetoknow.com/fashion-clothing-industry/natural-dyes

IMAGE:
https://p0.pikrepo.com/preview/433/610/brown-wooden-round-container-with-blue-rope.jpg