Batik and Candle-making

Activity scope
This document relates to student participation in Batik and Candle-making as a curriculum activity. Batik and candle-making refer mainly to the melting of wax and the mixing of dyes.

Special considerations
- This activity is not suitable for primary students.
- Waxing should be done under extraction fans or outdoors because fumes are toxic. Fumes can also be generated when ironing wax out of fabrics.

Minimum activity-specific qualifications for supervisors
- A registered teacher with experience (previous involvement) in batik and candle-making and use of the relevant equipment, OR
- An adult with Competence (demonstrated ability) in batik and candle-making and use of the relevant equipment.

Minimum activity-specific equipment/facilities
- In general, dyes to be used should be natural in origin (e.g. Indigo). Alternatively, cold wax could be used, which gives sufficient fabric penetration for school projects.
- Azoic and napthol dyes should be avoided completely. However, if these are used, either a hooded ventilation system or good air movement system should be available, and students must wear protective gloves and face masks.
- Only electric frypans or deep fryers with thermostats should be used for this activity. Wax should not be heated over a naked flame or hot plate.
- Eyewash facilities should be available when chemical dyes are used.
- Running water should be available adjacent to the work area in case of burns from molten wax.
- Protective equipment (e.g. safety glasses, face masks, footwear to protect against hot wax spillage and heat protection gloves) should be worn by all persons participating in the activity.
  - Note: the recommended wax mixture is one-third beeswax and two-thirds paraffin wax.

Activity-specific hazards/risks and suggested control measures
- Inspect equipment for cracks and damage.
- Do not heat or cool materials quickly.
- Ensure that extraction bags are fitted to equipment, as appropriate.
- Use a fume cupboard, where appropriate.
- Ensure all students and staff are warned about the extreme heat that the heat thermostat control unit of the frypan can generate. People may be inclined to touch this area when disconnecting the appliance.
- When boiling wax out of batik, the wax should not be poured down the sink because it will clog the drain as it solidifies.
- Ensure that students have adequate space within which to work safely with hot wax (i.e. a minimum of one arm’s length between students).
- Do not use solvents such as petrol, white spirits or carbon tetrachloride for the removal of wax from fabrics. The fumes generated are toxic and create a serious fire hazard.
• Ensure that dye solutions are disposed of daily.
• Ensure Chemical Hazards in the Curriculum guideline and related Chemical Hazards Guidance Notes are adhered to.
• Ensure Electrical Safety Guidelines are adhered to, if relevant.
• Ensure that a naked flame is not used to melt wax.
• Ensure wax is not placed directly into an electric frypan, or saucepan which is in contact with a hot plate. Wax used in batik has a low flashpoint and overheating results in copious smoke and fumes prior to combustion. It can be safely heated/melted in a saucepan immersed in water contained in another vessel which is in contact with the heat source.
• To avoid ignition when melting wax, a lid should be kept on the wax and the level of wax should not be allowed to get too low (do not allow the wax to smoke).
• Ensure care is taken when moving frypans containing hot melted wax. As the wax cools, the surface will harden but the wax beneath may still be molten. When moved, it could spill and burn the person carrying the pan or another person.
• Ensure staff are aware that a wax fire should be smothered rather than doused with water, as it will explode.
• Remove wax by ironing the fabric between several layers of absorbent paper. Using sufficient layers of paper reduces fumes and keeps the base of the iron wax-free.
• If knives are being used, provide training and instruction in safe handling, and ensure equipment is stored safely when not in use. Consider whether additional supervision is required.
• Note: it is advisable to work with very small groups.

Useful activity-specific links

• Chemical Hazards in the Curriculum – Curriculum Activity Risk Assessment guideline
• Chemical Hazards Guidance Notes
• Electrical Safety Guidelines

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