

3D Printer Operations – Safe Work Procedure

Purpose: To provide SD 64 staff, with a list of procedures to ensure they are protected against potential hazards associated with 3D Printer operations.

Hazards: Work involving heated plastic filament, high temperatures, and moving mechanical parts. Hazards include inhalation, burns, pinch, crush, electrical and fire risks, and exposure to airborne contaminants.

WARNING: DO NOT use this machine unless you have been trained in its safe use and operation. Untrained use could result in injury.

General Safety

- Never start work without proper authorization & training.
- Personal Protective Equipment (PPE): safety glasses as appropriate.
- Tie back hair, no loose clothing and no jewelry should be worn.
- Do not touch nozzle or heated bed during or immediately after operation.
- Do not operate damaged equipment.
- Use of 3D printers must be supervised by staff when students are present.
- Open-frame printers (no enclosure) require additional attention to ventilation and supervision due to exposed hot and moving parts.
- Enclosed printers reduce contact risk but must still be used in well-ventilated areas.

Before 3D Printer Operations

- Ensure workspace and walkways are free of clutter.
- Ensure printer is located in a well-ventilated area.
- Where ventilation is limited, avoid continuous operation in occupied classrooms.
- Confirm printer is in good condition.
- Ensure ventilation or filtration systems are operating if present.
- Review manufacturer instructions and Safety Data Sheets (SDS).
- As a general safety measure, where possible, schools should prioritize the use of PLA filament over ABS, as it produces lower emissions during printing.
- Verify proper electrical connection and avoid overloading circuits.
- Locate and be aware of the ON/OFF switch.

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During 3D Printer Operations

- Do not leave machine running while unattended.
- Keep hands and fingers clear of moving parts.
- Do not adjust or repair while operating.
- Monitor for unusual smells, smoke or malfunction.
- Ensure ventilation remains active.
- Maintain safe distance and prevent crowding around the printer.

After 3D Printer Operations have been completed

- Allow components to cool before handling.
- Remove printed materials carefully.
- Turn off printer when not in use.
- Clean workspace and dispose of waste appropriately.
- Inspect equipment and report any damage.
- If equipment is damaged or inoperable follow lockout procedures.

Emergency Procedures

- If ventilation fails, stop printing immediately.
- Disconnect power in case of overheating or fire if safe to do so.
- Use fire extinguisher if necessary.
- Seek fresh air if exposure symptoms occur.
- Report all incidents as per district procedures.

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