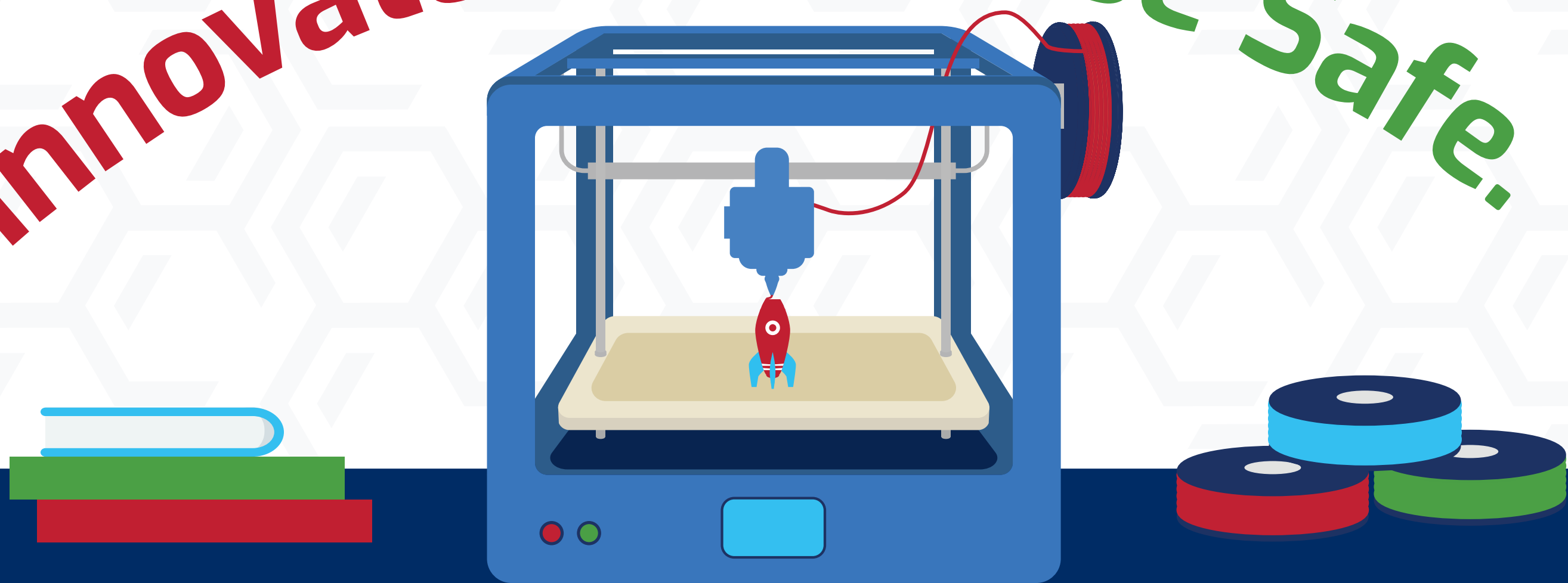


Innovate. Create. Be Safe.



3D printers bring concepts to life and inspire creativity and problem-solving. But they produce some unintended consequences that can negatively impact indoor air quality in the classroom. Specifically, when in use, 3D printers release a complex mixture of pollutants into the air. These emissions include volatile organic compounds (VOCs) and very small particles called ultrafine particles (UFPs), which can cause both occupant discomfort and health issues.

How to use 3D printers **safely** in schools:

Before Use

BRING IN THE AIR

Good air quality is critical. Dilute printer emissions by opening a nearby window to increase the air flow and turn on any vent hoods or exhaust systems. Keep printers away from return air vents to avoid recirculating pollutants.

PREP THE PRINTER

Clean the 3D printer extrusion nozzle and build plate to remove any existing filament build-up. This will minimize the airborne pollution produced during your print run.

PREP THE AREA

Post a sign to alert people that the printer is in use. This will minimize occupant exposure during your print run. If the room has a door, close it.

During Use

KEEP IT COOL

Operate the printer extrusion nozzle and base plate at the lowest possible temperature. Doing so will minimize VOC and particle emissions. But be sure to always follow manufacturer instructions.

DON'T HOVER

Being close to an operating 3D printer significantly increases personal exposure to emissions. Limit direct observation and rely on cameras or viewing windows instead.

PROTECT YOURSELF

If you need to check the printer, wear protective safety glasses. Keep in mind that basic dust masks do not protect you from VOCs and UFPs.

After Use

CLEAN THE PRINTER

After the print run is complete and the printer has cooled down, dust all surfaces around the printer frequently with a disposable wet cloth. Avoid the use of harsh cleaning products.

CLEAN THE AREA

Vacuum floors, surfaces and furniture with a vacuum with high efficiency particulate air (HEPA) filtration. These filters can collect small particles unlike other vacuums.

CLEAN YOURSELF

Thoroughly wash your hands with soap and water to avoid hand-to-mouth transfer of chemicals and particles, especially before eating.