## Doodling with 3D Pen

3-Dimensional (3D) Technology is transforming the educational landscape. Now-a-days, it is not uncommon to see 3D printers and 3D pens on the wish-list of many schools, as part of their tinkering laboratories.

Adding a new dimension to doodling, drawing with 3D pens can be an enjoyable and creative exercise for students (and teachers!), as it provides an opportunity to create a model of the design they have imagined.



It can also help in developing a range of skills like motor dexterity, visualization, spatial thinking, creativity and imagination. One needs patience, planning, organization skills, and steady hand-eye coordination when creating these 3D models. In HBCSE's D&T laboratory, students use 3D pen:

- to doodle or practice making 3D models (e.g. creating a 3D alphabet)
- to create some imaginary object (e.g. a new car design)
- to translate their (2D) technical drawings to a 3D model, in a given design problem task.

## References

Imeri, A., Russell, N., Rust, J. R., Sahin, S., & Fidan, I. (2017). MAKER: 3D pen utilization in 3D printing practices. US: American Society for Engineering Education.

Gogoi, N. J., & Jeyapoovan, T. (2016). Design and analysis of 3D printing pen. *International Journal Of Engineering Sciences & Research Technology* 5(8), 753-760.

http://www.joycrafty.com/3d-pens-benefit-classroom-teaching/

https://scribbler3dpen.com/3d-printing-pen/

http://mobilesiri.com/best-3d-pens/

https://garyhall.org.uk/3d-pens-classroom.html

http://edtechreview.in/trends-insights/trends/1313-amazing-technology-use-of-3d-pen-in-classrooms

Design and Technology Education Group, Homi Bhabha Centre for Science Education