SOLIDWORKS

DESIGN PROJECTS

STUDENT GUIDE

3DEXPERIENCE



SPINNING TOPS

DASSAULT SYSTEMES

DESCRIPTION

Welcome to the Design Projects Student Guide! The focus of this project is a spinning top. Spinning tops are considered one of the oldest known toys and have been found on every continent except Antarctica.

This guide contains information regarding Design Intent, DFAM (Design for Additive Manufacturing) and Design Tips to keep in mind for each part.

You will use CAD to design the part, print the part on a 3D printer and compete against other students.

For a video demonstrating the design approach, detailed dimensions and step by step instructions, see the links in the **Additional Resources** section below.

PROJECT TASKS

1.Create one or more tops in CAD.

2.Print one or more tops on a 3D printer.

3.Test the balance and spin time of the top.

4.Compete against other students for longest spin time.

ADDITIONAL RESOURCES

LINK TO DOCUMENTS
LINK TO YOUTUBE VIDEO
LINK TO STEP-BY-STEP

SPINNING TOP

DESIGN INTENT

- Each Top style contains a stem.
- Each Top style has a rounded bottom to spin on a flat surface.
- Each Top should not exceed 2" in diameter or 3" in height.

DFAM

- 3D Printed either upside down or at an angle to minimize support material.

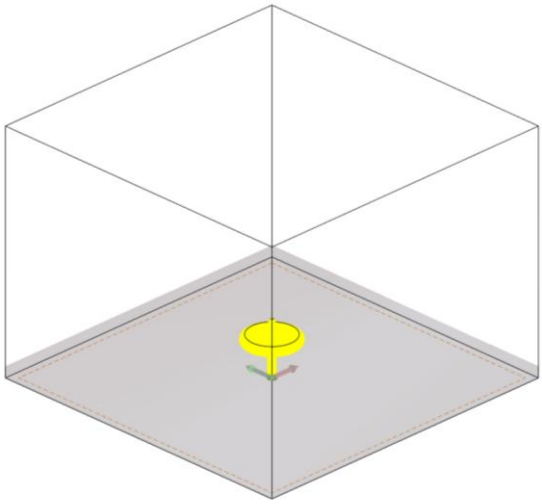
DESIGN TIPS:

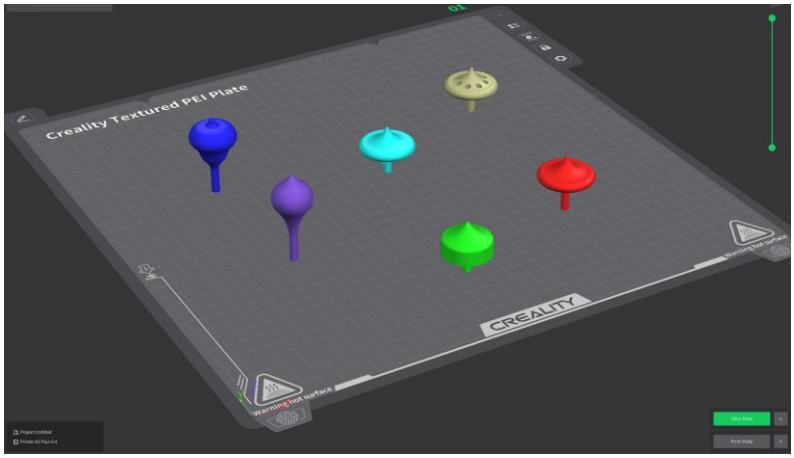
- Auto transition between a line and arc by returning the cursor to the endpoint and moving away in a different direction, or by pressing the A key on the keyboard.
- After drawing the profile, add relations then dimensions.
- Multiple design approaches can be taken to achieve the desired outcome (single sketch/revolve, multiple features, etc.)



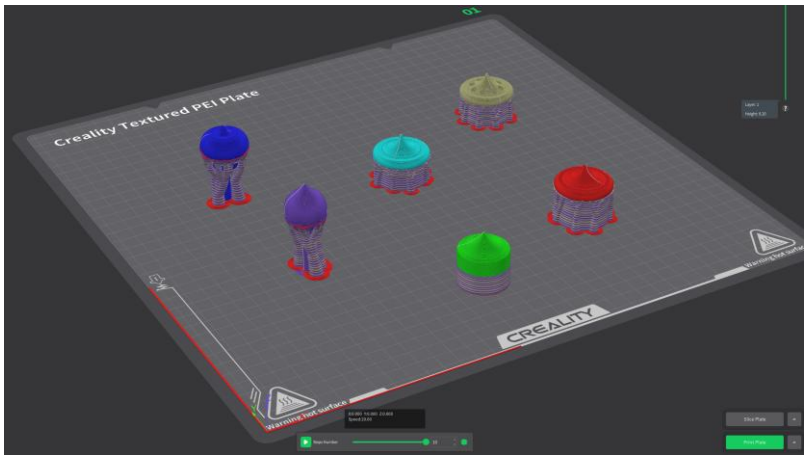
3D PRINTING

- Save the parts as an STL file.
- Nest your parts to print many at one time.
- Orient the parts to minimize the use of support material (see image below)





NESTING



ORGANIC SUPPORT STRUCTURES