

3D Bioprinting Parameters Worksheet

As you complete the activity, keep track of the different parameters affecting the printing process and, ultimately, the final tissue printed. By the end of the activity, make sure you are ready to explain to the class how you chose your parameters.

1. **Pressure:** How much did you have to squeeze the bag? Did you apply different pressure for different kinds of materials?
2. **Speed:** How quickly were you able to print your tissue? Did the process improve if you printed faster or slower?
3. **Nozzle Diameter:** Did you try using different nozzles when printing your tissue? How did this affect the overall design of your tissue? Was it more difficult to print with a larger or smaller nozzle?
4. **Height of the Nozzle from the Base:** Was printing easier or more difficult when the nozzle was farther from the stage? Did you make any changes to this throughout the printing process? If so, how do you think these changes helped you?
5. **Nozzle Path:** In what orientation did you print your tissue? Did you use a specific pattern? Explain.
6. **Icing Viscosity:** Did you make any modifications to your biomaterials to change the viscosity? How did this help your final tissue design?
7. **Troubleshooting:** *On the back of this worksheet*, log and describe all the **difficulties** your team ran into when printing your tissue. Be prepared to discuss these with the class!