



# Fab Lab Essentials

## CNC Mill - iPhone Stand



Name	Period	Score
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### Introduction

There are many ways to solve a problem. Sometimes it is as simple as applying a piece of duct tape. Other times it takes months or years for a product to progress from an idea into full-scale production. Often engineers and designers use a specific set of steps (sometimes called a design process) to find the best solution to a problem.

In this activity your team will act as designers in a company that markets and sells personal convenience products. Your task is to create an attractive iPhone stand that will be tailored to a variety of cell phone styles (e.g. your phone). A design process that progresses from brainstorming to presenting a final design will be used and documented. Each member of the team will have a product to present to the company executives for final approval.

### Equipment

- Laptop computer with Inventor
- CNC Mill
- Fab Lab Notebook
- Pencil
- Pen

### Materials

- 1 2" x 4" piece of wood
- Double stick tape

### Procedure

In a team of three or four, using only the materials provided, design and CNC mill an attractive cell phone stand that includes your initials for each member that can be used as a sample product line. You also need to create a fictional name and logo for your company to be part of your design that will be milled on the back.

Brainstorm-Each member of the team will draw a minimum three brainstorming ideas for your phone stand in your Fab Lab notebook. The more ideas you generate the better. You may handle and inspect the materials and research examples from the internet but you cannot copy anything directly or down load any copy written or trademarked material from the internet.

Design- Sketch an annotated solution in your Fab Lab notebook. The design needs to be such that it can be transferred into Inventor and made into a STL file. All changes from your design idea to the actual phone stand prototype need to be documented.

Load your files into the appropriate software on the computer attached to the CNC mill you are using and run the file.

Once your phone stand has been CNC milled add a clear coat finish with a brush.

When all phone stand from your team are complete you will present your design for approval of the large group.

## **Scoring**

Your members in your team will receive points for the following.

Creativity: Up to 15 points for creativity in the design and use of each individuals materials

Teamwork: Up to 10 points for how well your team works together

Performance: Up to 5 points for creating a functional key chain.

## **Conclusion**

1. How do natural materials such as wood affect the milling process?
2. If your final design can't be manufactured which step in the design process needs to be repeated? Why?
3. What are other night stand items that could be milled with the CNC Mill.
4. What other materials would be acceptable for the CNC mill to process?