Cardboard Arcade Project Guide

intel FUTURE SKILLS

PROJECT OVERVIEW:

Design and build a brand-new arcade game, using your creative thinking skills and cardboard as your main material.

Project Intro Video: Cardboard Arcade

Inspirational Video: Caine's Arcade

PROJECT CATEGORY:
Tinkering

DIFFICULTY LEVEL:
Intermediate

TIME RANGE:
60 - 90 minutes

ESSENTIAL SKILLS/ MINDSETS THAT YOU MAY LEARN:
Design Thinking
Game Design
User Archetype
Systems and Complexities
Mechanical Interaction
Prototyping
Collaboration

TOOLS AND MATERIALS:
- Cardboard: boxes, sheets, etc.
- Scissors or cutting blade
- Tape, stick, or hot glue
- Craft materials
- Paper, markers, ruler

AT HOME SUBSTITUTIONS:
- This is a perfect activity for home, so simply use what you find around the house. Old shipping boxes work best since they are corrugated and sturdy—but empty cereal or packaging boxes can also be used in a pinch.

MATERIAL PURCHASE LINK:
http://tiny.cc/Intelbuylist

Project Steps

Dream it!

Cardboard is a magical substance that can be transformed into so many different forms. Your challenge is to turn this humble material into something amazing. Will it be a pinball machine, or maybe a tossing game? The world is your oyster while you design and build a new game of chance or skill.

1. Watch the introduction and inspiration videos to see how magical cardboard can be. [:07]

2. Brainstorm a list of games you might find at a carnival, arcade, or in another setting. Write down the reasons people enjoy these games. [:03]

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Draw It!

3. Sketch a couple of game ideas. Indicate how these games will work, including any mechanisms involved. [:10]

4. Label the parts of your final idea and think about what you will need to build first. [:02]

Build It!

5. Collect the materials you need to start building your new arcade game. [:15]

6. Test, iterate, and make your cardboard contraption a masterpiece! [:10]

Share It!

7. It is now time to let others experience your arcade game. See what they like and what could be improved upon. [:05]

8. Clean up your area, and put away any tools and scrap materials, so that you can start designing new things. [:05]

Expand it!

- You may want to challenge yourself to make other things out of cardboard. Can you make a model plane—one that can fly? How about a cardboard marble maze?
- Interested in electronics? Then, consider adding sound and lights to your game by hooking in a Makey Makey, or a tinfoil switch and LEDs. See what a Makey Makey can do here: **makeymakey.com**

DASH OF DESIGN:

Design thinking helps people begin with the users' needs in minds. Watch our video to learn how you can use design thinking to make a better end product and really get your creative juices flowing!

PRO TIPS:

Engineered items typically have parts and systems that work together to solve a problem. As you create your device, think about the questions below to better understand the parts, purposes, and complexities involved.

- What are the object's parts?
- What are its purposes?
- What are its complexities?
- How will your device's parts work together to create an amazing game?

To really dig in, download the Parts, Purposes, and Complexities guide from Harvard's Project Zero: **http://tiny.cc/partspurposes**

ADVANCED CARDBOARD TECHNIQUES:

- Roll it: Make a strong tube by rolling the cardboard in the direction the corrugated ribs run.
- Notch it: Mechanically fasten the two notches together for a strong joint.
- Score it: Cut partway through, in line with the corrugation, to make the cardboard hinge.
- Flange it: Roll a tube and then cut a flange on the bottom for a strong, stable cylinder.
- Dowel it: Join two pieces' end-to-end by using the corrugation to hold small dowels.
- Tab it: Cut a slit and table like a cereal box, and you'll have a nice mechanical connector.

For pictures and other cardboard ideas, visit **http://tiny.cc/cardboardtech**

HELPFUL RESOURCES

- Klever Kutters are ingenious back-cut safety knives.
- Canary Scissors are levered and perfect for cutting thicker materials.
- Corrugated cardboard saws have little teeth on the blades that work just great. (Be careful, though—they are very sharp!)
- MakeDos allow you to connect cardboard with plastic screws instead of tape.
- Worx ZipSnips and Dremel Moto Saws are great options for powered cardboard cutting.

NEED MORE HELP AND INFORMATION?

Contact us at: **intelfutureskills@intel.com**

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