



Cleverly Contrived Contraptions (C3)

3d printers club



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Overview

“You have to have courage to be a creator.” (Rube Goldberg)

What do you get when you combine the creativity behind Rube Goldberg’s “quirky” machines with the logical steps of the engineering and design process, simple machines, and 3D printing? An engaging, challenging brand-new 3d Printers Club unit entitled **Cleverly Contrived Contraptions (C3)**!

Students will consider what it means to exhibit courage as they navigate this unit and use the EDP to create their own individual cleverly contrived contraption that accomplishes a specific designated task. At least one part of the C3 (cleverly contrived contraption) must be a 3D printed part that will be functional (not merely aesthetic) and designed by the student engineer. Other materials will be used to create the amazing contraptions.

Additionally, students will draw a detailed, labeled cartoon depicting their contraptions as well as write a “Hawker’s Pitch” that they will present at the culminating “Tradeshow” Event in the spring.

Get ready to be creative, to be scientific, to be engineers, and to be COURAGEOUS!

Time Frame

Class Number	Activity
1	<ul style="list-style-type: none"> *Unit Pre-Assessment *The Mission *EDP Challenge *EDP Overview *Courage Activity Introduction
2	<ul style="list-style-type: none"> *Symbol of Courage Activity *Tinkercad *Mini Design Challenge (courage symbol)
3	<p>EDP STEP 1: ASK</p> <ul style="list-style-type: none"> *Research Rube Goldberg/ machines and record findings *View videos *Possible kit demonstrations *Continue/finish Mini Design Challenge from class number 2

Time Frame - continued

4	<ul style="list-style-type: none"> *Simple Machines Labs *The Task
5	<p>EDP STEP 2: IMAGINE</p> <ul style="list-style-type: none"> *Brainstorming *SCAMPER *Hands on experimentation *Revisit The Task
6	<p>EDP STEP 3: PLAN</p> <ul style="list-style-type: none"> *Create a picture and write the steps for a cleverly contrived contraption *Begin blueprint for a functional 3D printed component for C3
7	<p>EDP STEP 4: CREATE</p> <ul style="list-style-type: none"> *Begin to design, build and also use Tinkercad for C3 creation
8	<p>Continue CREATE</p> <ul style="list-style-type: none"> *Time for building and creating C3 *Work on contraption mat/base
9	<p>EDP STEP 5: IMPROVE</p> <ul style="list-style-type: none"> *Engineers test their own contraptions *Improve/Modify *Contraption demonstrations/ Club feedback *Time to improve/modify
10	<p>EDP STEP 6: COMMUNICATE</p> <ul style="list-style-type: none"> *Begin cartoon *Begin "Tradeshow Hawker's Pitch" *Take Unit Post-Assessment
11	<ul style="list-style-type: none"> *Finish cartoon *Finish "Hawker's Pitch" *Tie up loose ends
12	<p>Tradeshow Preparation:</p> <ul style="list-style-type: none"> *Finishing touches on contraptions, cartoons, and pitches
13	Trade Show Event

