# Lesson Plan

# Design and Draw for Production

## Unit 10 | Section 1 | Puzzle Cube Design | Day 6-8

### ITEEA Standards

5-8. Attributes of design 5-9. Engineering designs 5-10. The role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving

### Objectives [SWBATU]

* Create an finalized workable cube based on previous design parts

### Materials

* Laptops/computer lab access
* Drafting tools and materials
* 3D printer + filament

### Resources

* Unit 10 - Section 1 - Handout 2
* Unit 10 - Section 1 - Handout 3

### Instructional Outline

* Review design and engineering process
* Discuss the overall project and what we will be doing along with graded assignments
* Creating a 3D puzzle cube made of plastic via our 3D printer
* Each piece will need to be interlocking
* Technical drawings to start indicating ideas and understanding
* Approval of technical drawings in order to move into CAD of pieces
* 3D model and Layout of each piece and combined puzzle piece
* Review the isometric drawing paper and how each part is needed
* Explain how 30 part concept designs are needed to be communicated

### Assignment / Activities

|  |  |
| --- | --- |
| Assignment | Grade |
| 20 part brainstorm ideation | 100 points |

### Evaluation

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| --- | --- | --- | --- | --- | --- | --- |
| Category | Weight | 0 points | 25 points | 50 points | 75 points | 100 points |
| Organization | 20% | Unable to find assignments or not routinely saved | Able to demonstrate some organization by backing up files or use of folders | Both drawings and models are identifiable and can be found if needed | All drawings are in a folder and models organized by folders in Google Drive | All drawings are in a folder labeled correctly and models organized by folders in Google Drive labeled correctly |
| Class Participation | 20% | Showed no participation | Limited to no participation | Inconsistent day-to-day participation | Participated only when needed | Engaged daily and actively participated |
| Effort | 30% | No effort | limited to no effort | Inconsistent day-to-day effort | Showed effort only when needed or routinely directed | Continuous day-to-day effort with or without direction |
| Creativity/Originality | 15% | No creativity, copied designs | Minimal creativity based off past designs | Moderate improvements based off past designs | Complete overhaul of past or found designs | Completely new idea/design |
| Craftsmanship/Skill | 15% | Poor execution, no planning | Moderate end result, able to achieve an outcome | Good planning but poorly executed end result | Good planning and good end result although not what had been designed or communicated | Great planning & execution able to achieve what had been designed or communicated |

### Added Notes