



Engineering Virtual Learning

HS Introduction to
Engineering Design
Lesson #26

May 11, 2020



Objective/Learning Target:

Students will use Visual Design Elements
& the Design Process to Create a Child's Toy.

(Day 1 of a 4 Day activity)

Day 1 - Research and Design

Day 2 - Gather Materials & Construct

Day 3 - Evaluate and Redesign

Day 4 - Presentation of Product

Bell-Work:

Did you ever get a “Happy Meal” when you were a kid.
Do you remember what food was in the meal?
Do you remember what Toy was in the meal?



Most of the time it is the offer of a toy prize that sells a happy meal.

Visual Design Elements Introduction (read this!!)

Using the design process (see page 7) is an important step-by-step framework that needs to be followed during product design, but it does not guarantee an awe-inspiring product. Using a blend of visual design principles and elements like those we learned previously can greatly enhance your product's functionality, appearance, feel, and overall effectiveness.

What besides function, makes you really like a product? Is it the color? Is it the form or shape? Maybe it's the rhythm in its appearance. Maybe it's the product's proportion. Then again, maybe it's the formal balance of its design that grabs your attention. With some insight into these visual design principles and elements, you will be able to create products that capture the attention and imagination of the buyer. Artists, graphic designers, architects, and industrial designers make up only a handful of the professionals that utilize the vocabulary of visual design principles and elements on a daily basis.

You will need a Pen, Pencil, Colors and your Engineers Notebook to complete today's activity.

Learning Practice: Visual Design Principles and Elements

The purpose of this activity is to use the Visual Design Principles and Elements we learned previously to Design a Child's Toy.

Step 1: The visual design elements and principles should be in your engineers notebook.

These are listed on page 6 and in the videos in the resources link page 8.

Document each step of the research, design and creation of your product (see page 7 and this video on the design process: <https://www.youtube.com/watch?v=4Jait0YMwQE>)

Step 2: After watching the videos about visual design on the learning resources links; **Research and Decide** on a Child's Toy that you can create out of house hold materials such as cardboard, wood, glue, string, old cd's for wheels, etc.

Child's Toy Specifications: Your toy needs to follow these specifications as closely as possible

1. The toy must be made up of at least 5 parts.
2. The toy must have 1 separate moving parts.
3. The toy must have 1 additional feature that functions as an accessory.
4. The toy should be approximately 6" depth x 6" wide x 6" tall.
5. The toy must comply with U.S. Consumer Safety Commissions child safety regulations.

<https://www.cpsc.gov/Regulations-Laws--Standards/Voluntary-Standards/Topics/Toys>

<http://www.toyassociation.org/ta/advocacy/federal/standards/toys/advocacy/federal/us-safety-standards.aspx>

Visual Principles and Design Elements:

Visual Design Elements:

Eight integral components used in the creation of a design

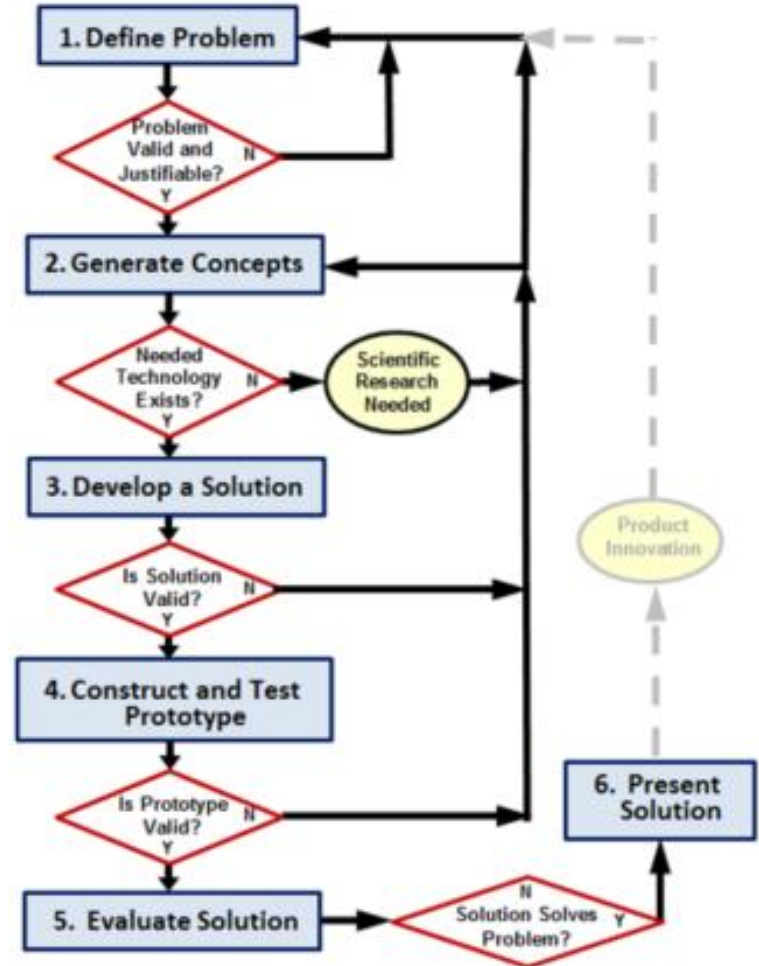
Point, Line, Color, Value, Shape, Form, Space, Texture,

Principles of Design: Many principles add to an interesting design

Balance, Emphasis, Contrast, Rhythm, Proportion, Unity, Economy

Make sure you follow the Design Process.

1. Define the Problem
2. Generate Concepts
3. Develop a Solution
4. Construct and Test a Prototype
5. Evaluate the Solution
6. Present the Solution



Learning Resource Links:

Design Elements:

<https://www.youtube.com/watch?v=JfViOv77pfQ> (PLTW)

https://www.youtube.com/watch?v=JZD_3zp7v2A

Toy Safety:

<http://www.toyassociation.org/ta/advocacy/federal/standards/toys/advocacy/federal/us-safety-standards.aspx>

<https://www.cpsc.gov/Business--Manufacturing/Business-Education/Toy-Safety-Business-Guidance-and-Small-Entity-Compliance-Guide>

<https://www.cpsc.gov/Regulations-Laws--Standards/Voluntary-Standards/Topics/Toys>