



Engineering Virtual Learning

HS Introduction to  
Engineering Design  
Lesson #27

May 12, 2020

## Objective/Learning Target:

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

(Day 2 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:

After Watching these videos of “Pull Toys,” reflect on your research and design for the Child’s Toy you plan on building.

<https://www.youtube.com/watch?v=MgsBr2qz6Es>

<https://www.youtube.com/watch?v=R51-koMRQ5A>

What movement does your toy have?

Does it make any noise?

Is it colorful?

How could you improve it?

# Learning Practice: Child's Toy Creation

**Create a Child's Toy** with the specifications given below.

- Utilize the Visual Design Principles and Elements (p4) to make your toy appealing.
- Document each step of the Design Process (p5) in your engineers notebook.
- Utilize your research notes and design options from yesterday in planning your build.
- Use materials from around your home to create/build your 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

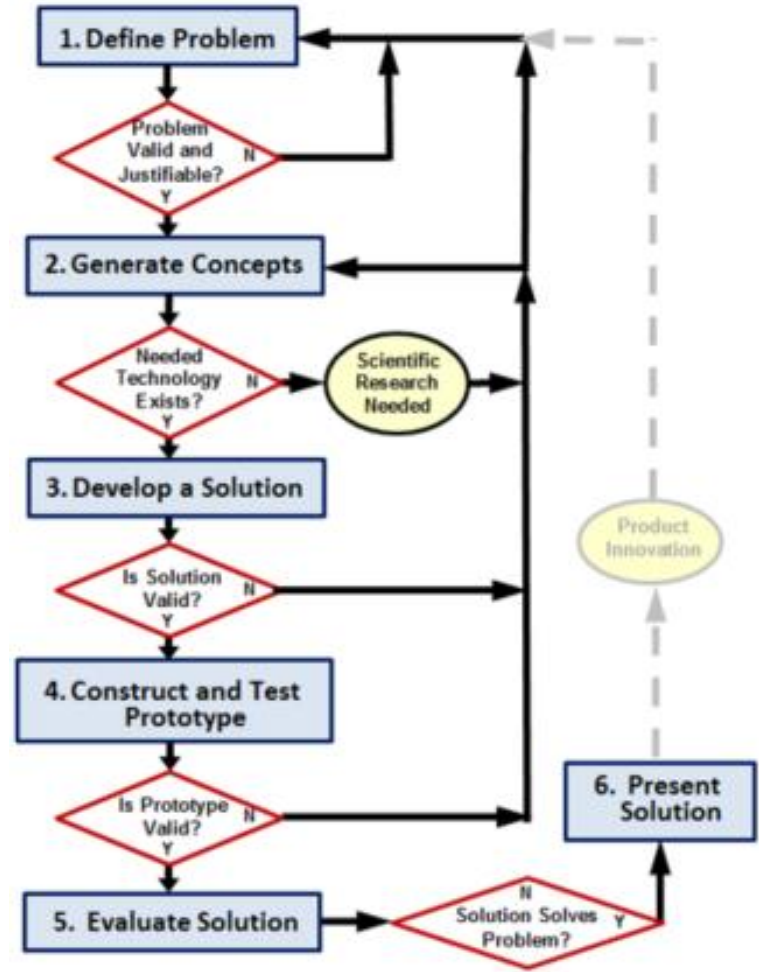
Point, Line, Color, Value, Shape, Form, Space, Texture,

**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](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>