PROJECT LEAD THE WAY

PLTW

Igniting imagination and innovation through learning.
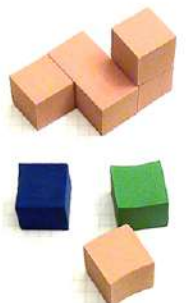
Decision Matrix

Develop a Decision Matrix

A decision matrix is used to compare design solutions against one another, using specific criteria that are often based on project requirements.

	cost	complexity	Development Time	Total
Idea #1	3	2	1	6
Idea #2	1	1	2	4
Idea #3	4	2	4	10
Idea #4	2	3	4	9
Idea #5	4	1	3	8
Idea #6	3	4	4	11

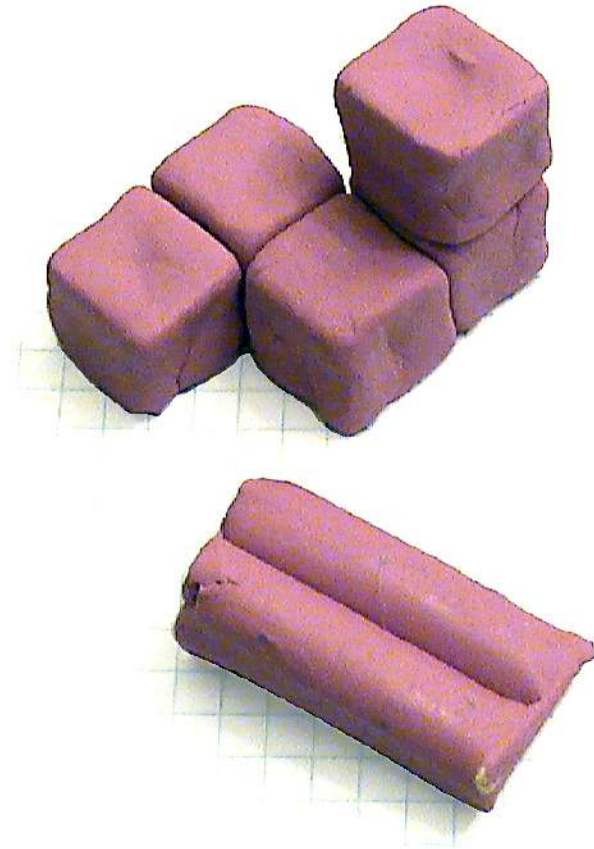| 4	3	2	1	2	1
Best			Worst	Yes	No

Identifying Ideas or Alternatives

What material would be best for creating models of puzzle pieces?

Idea #1

Modeling Clay
- – Reusable
- – Readily available
- – Requires forming
- – Sticky
- – Imprecise geometry

Idea #2

Caramel Cubes

- – Cheap
- – Readily available
- – Pre-shaped
- – Sticky
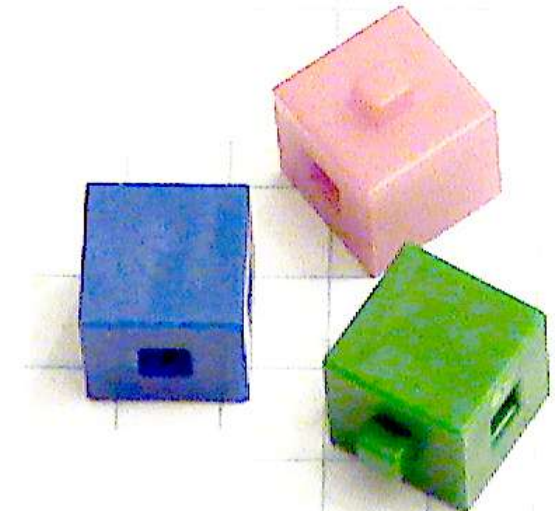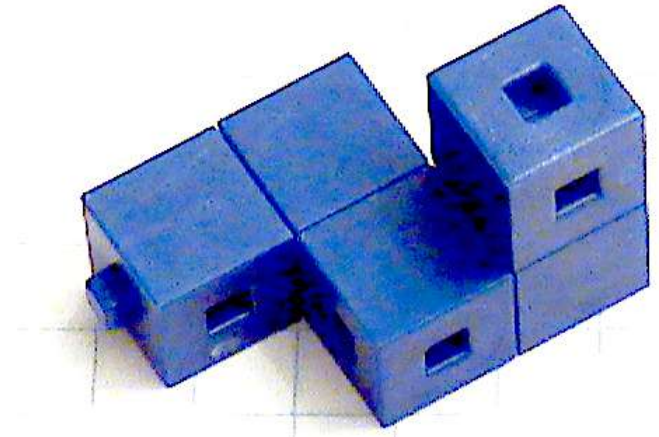- – Imprecise geometry

Idea #3

Dice

- Expensive
- Reusable
- Require two-sided tape
- Moderately stable
- Precise geometry
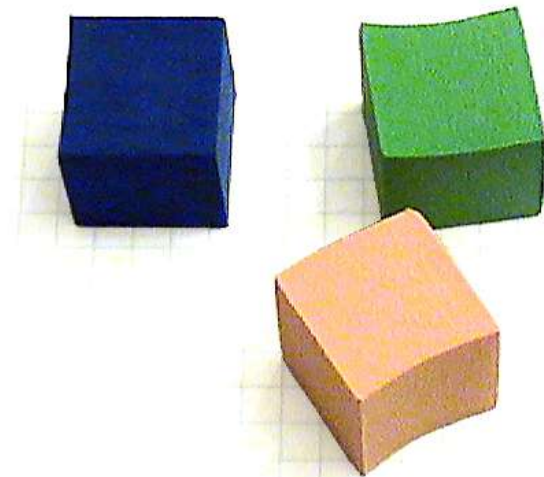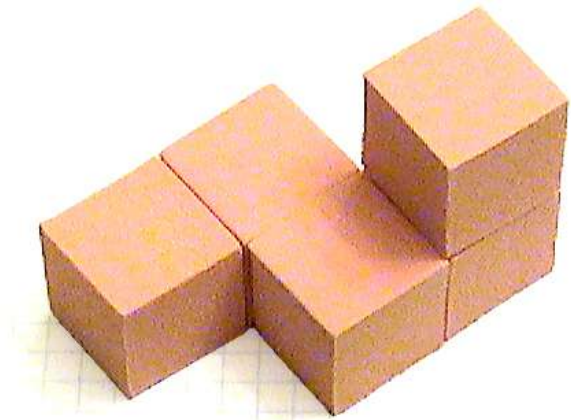
Idea #4

Centimeter Cubes
- Cheap
- Reusable
- Interlocking
- Protrusions
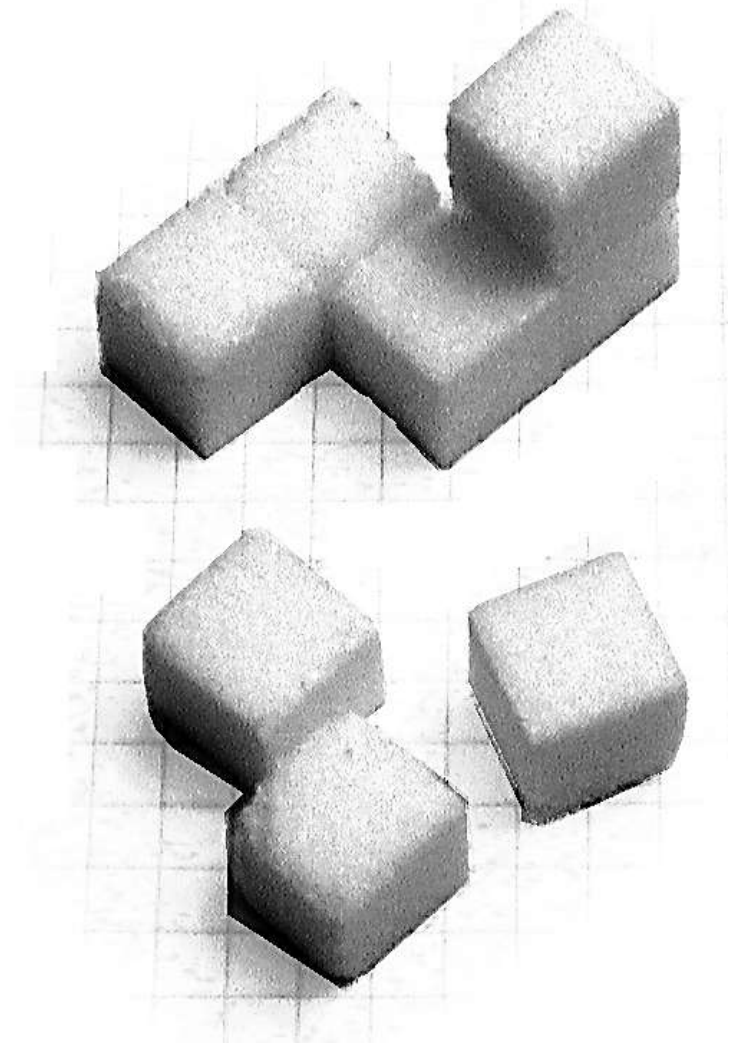- Precise geometry

Idea #5

Foam Blocks

- Expensive
- Reusable
- Require two-sided tape
- Fall apart easily
- Imprecise geometry

Idea #6

Sugar Cubes

- Cheap
- Readily available
- Require glue
- Have messy granules
- Fairly uniform geometry

Identifying Criteria

- Cost
- Reusability
- Geometry
- Connections
- Cleanliness
- Resilience
- Testability

Other Criteria

- Function
- Product life span
- Development time
- Size
- Material costs
- Development costs

- Manufacturing costs
- Company standards
- Manufacturing capabilities
- Safety

Develop a Decision Matrix

A grading scale must be developed to assign values for each criteria category

Rank Scale

Question Scale

4	3	2	1		2	1
Best			Worst		Yes	No

Ranking The Alternatives

Ideas	Criteria							Totals
	Cost	Reusable?	Uniform Geometry?	Self Adhering?	Clean-up Needed?	Model Resilience?	Testibility with other Parts?	
#1 Modeing Clay	2	2	1	2	1	1	1	10
#2 Carmel Cubes	3	1	2	2	2	1	1	12
#3 Dice	1	2	4	1	3	2	4	17
#4 Interlocking Centimeter Cubes	4	2	4	2	4	4	2	22
#5 Foam Cubes	1	2	3	1	3	2	2	14
#6 Sugar Cubes	4	1	3	1	2	3	3	17

4	3	2	1		2	1
Best			Worst		Yes	No

Idea #4 Is Right Decision

- Design decisions should be based on analysis and logic; not personal opinion

- Decision matrix is a tool that may be used multiple times throughout a design process