

House of Cards

Outcomes

PP4 - Plan a set of steps to solve a practical problem

AE4 - Applications of Learning (Evaluating the usefulness of a constructed design)

Overview

This lesson focusses on the process of inventing and the perspective that failure is an *opportunity* to persevere until successful completion.

During this process student may find that the idea generated on their first, second or even their try in stn necessarily going to be effective. It may take consultation, further research, and much experimentation to finally create a successful product.

Pre-Lesson

As a class, discuss the idea of “perseverance”

What does this term mean, and what does it suggest?

“Persistence is doing something despite difficulty or delay in achieving success.” Oxford

—> Discussion should lead to the suggestion that during the invention or innovation process a group may need to re-design or even abandon and re-think their inventions or innovations.

Activity

Purpose - To build a building as tall as possible using playing card

1. Before groups are formed. Have each student design their idea of how to build a tall house of cards.
2. Form Groups (Assign one person the role of recorder)
3. Allow 5 min for group to discuss and share and brainstorm their group plan
4. Give 10 min for students to complete the task
5. Present to the class what their design was (show sketch) and how they built it
6. Evaluate your design based on your end results and new things learned from discussions and create a new plan (5 min)
7. Give 10 min to RE-do the task based on new plans
8. Present to the class what their design was (show sketch) and how they built it
9. Evaluate your design based on your end results

Assessment

Informal Formative Assessment

PP4 - Ensure that each student has contributed to the group in terms of developing a plan to build a tall house of cards

AE4 - Ensure that each student has contributed to the group in terms of evaluating their design and creating a new plan based on discovery.

House of Cards - Worksheet

1. Planning Your Design

Sketch initial design of your prototype or your device or invention

2. Testing Your Design

- Does your prototype look that way you sketched it?
 - Is your sketch a better design than what you built?
 - Is the device you built better than you designed? How?

- Does the prototype of your device meet the purpose
 - Does your prototype perform how you expected? YES NO
 - If not, what adjustments do you have to make?

3. Evaluating The Results of Your Design

The biggest challenge to being an innovator and designer is that your first (maybe second, third...) designs of your prototype never seem to accomplish the task as you thought they would.

- What specific design changes are you going to make to help your prototype device accomplish its purpose?

4. RE-Planning Your Design

A. Sketch the re-design(s) of the prototype of your device

5. Re-Testing Your Design.

- Does your prototype look that way you sketched it?
 - Is your sketch a better design than what you built?
 - Is the device you built better than you designed? How?

- Does the prototype of your device meet the purpose (#1) (PP5)
 - Does your prototype perform how you expected? YES NO
 - If not, what adjustments do you have to make?

6. Re-Evaluating The Results of Your Design

This may be the Second, Third, or ... version of your design.

- What specific design changes are you going to make to help your prototype device accomplish its purpose?