Monday, October 5, 2015

LT: I can use the scientific method to investigate a scientific question.

Entry Task: What is the difference between a criteria and a constraint?

Today: First Notebook Check
  Garden Soil Prompt
Tape in:

Conclusion Rubric - last page (P.3 & 6)

Application (Engineering) Rubric - 2nd to last page (P.3 & 6)

Procedure Rubric - 3rd to last page

Notebook Grading Instructions - 4th to last page
Design Process for Garden Soil
SCENARIO

- Paste scenario on the left side.
- Discuss each bullet item with your table group. Write answers for each of the bullets on your left side page.
- Look at the “Scoring Rubric for Application Items” to see how you’ll get points.
EXIT TASK: You want to enter the pinewood derby. What is an example of a possible criteria for the car you enter?
Tuesday, October 6, 2015

**LT:** I can engineer a solution to a problem with given criteria and constraints and I can evaluate unintended consequences of my solution.

**Entry Task:** What is the difference between a trade-off and an unintended consequence?

**Today:**

- Notebook Check
- Criteria & Constraints Podcast
- Finish & Debrief Garden Soil Prompt
- Intro Egg Drop
Egg Drop – tape or glue the handout on the right hand page of your comp book.

- **Problem**: Design a container that will keep an egg from breaking when dropped from the school roof.
- **Research the problem**: describe any scientific information needed to solve the problem and how to collect the information
- **Explore Ideas**: Describe several possible solutions to the problem, including any useful scientific concepts.
- **Circle your best solution**.
- **Draw and label a diagram of your container. Include scientific concepts for how this will protect the egg.**
- **Criteria for success**:
  - The container must be as low in mass and
  - As small in size as possible and
  - Made of biodegradable materials
- **NOTE: your research and solutions and diagram will go on the LEFT**
Background Information
Egg will be provided on the day of the drop
No parachutes, propellers, gliders
No glass or anything dangerous
No motors or engines of any kind
The egg must be returned in original condition for points
Biodegradable options include: string, glue, paper, cardboard, compostable plastics (such as rice-based foam or corn-based plastics), food products, real cotton or wool
Point Values for Container

• Size:
  – 10 cm X 10 cm = 4 points
  – 20 cm X 20 cm = 3 points
  – 30 cm X 30 cm = 2 points
  – Larger = 1 points

• Mass
  – Egg mass = 45 g.
  – Less than 300 g container = 4 points
  – 300 - 449 g container = 3 points
  – 450 - 599 g container = 2 points
  – 600 or larger = 1 points

• Biodegradable
  – Yes, completely = 4 points
  – Yes, except for tape = 3 points
  – No = 0 points
Due Friday, 10/9:

· Research and Explore completed (2 points)
· Labeled sketch of container with written description (+4)

Due Monday, 10/12:

   YOUR CONTAINER!!! You will fail if you don not bring something (12 points possible if light and small and biodegradable).

Due Tuesday, 10/13

· Constraints: Identify 2 constraints of your solution and how it was a limitation for you during the project.
· Unintended consequences: Describe 1 unintended consequence of your chosen solution.
· How would you redesign if given the opportunity to optimize your design?
EXIT TASK: What is one limitation in the Egg Drop problem?
Wednesday, October 7, 2015

LT: I can engineer a solution to a problem with given criteria and constraints and I can evaluate unintended consequences of my solution.

Entry Task: What do we call a person who designs and creates technology?

Today: Egg Drop Research
EXIT TASK: What is a human problem that might be solved by engineers?
Thursday, October 8, 2015

**LT:** I can engineer a solution to a problem with given criteria and constraints and I can evaluate unintended consequences of my solution.

Entry Task: What forces do you think are acting on the egg when you drop it?

Today:
- Analyze and Score "Garden Soil" Engineering Prompt
- Egg Drop Explore & Sketch
- Read Chapter 2
Read PP. 33-37

Answer Questions: P. 39 #2, 3, 5, 6

Read PP. 40-42

Answer Questions: P. 43 #2, 3, 5a-d

Read PP. 44-46

Answer Questions: P. 47 #3 & 4
EXIT TASK: What are two ways you can lessen the impact of the ground on the egg when the egg is dropped from the roof.
Friday, October 9, 2015

**LT:** I can engineer a solution to a problem with given criteria and constraints and I can evaluate unintended consequences of my solution.

Entry Task: What forces do you think are acting on the egg when you drop it?

Cool Friday Thing!

Today:
   Procedure Writing Notes & Practice
   Chapter 2 Reading & Questions
Contains 3 types of variables:

**Independent (Manipulated) Variable** – what you are changing. Ideally there should be at least 3 levels of change.

**Dependent (Responding) Variable** – what you are measuring. You must include how this will be measured with units.

**Controlled Variables** – at least 3 – what you are keeping the same. 3rd controlled variable counts for validity. Other validity pieces can be additional levels, statements about cleaning or resetting equipment, etc.

**Procedures**

A numbered list of logical steps - each step starts with a verb.
3 additional elements:

Experimental Control Condition (Control Group) – group not subjected to the independent variable, used to compare to experimental group.

Trials – each time you run the experiment
   Repeated Trials – at least 3

Recorded Measurements – be specific, include units
In your group, talk about how you would explain to a five year old how to tie their shoe.

Write a **numbered list** (at least 8 steps long) of **logical steps** that will result in successfully tied laces.