

# Pumpkin Chunkin PBL

## Justin Worboys and Caitlin Bowen

### **Driving Question:**

How can we, as engineers, create a pumpkin projectile trebuchet that launches for both GREAT distance and GREAT accuracy?

### **Summarize theme / "big ideas":**

Design, Engineering, Physics of Projectile motion

### **Content Standards:**

NYS Core Curriculum

Key Idea 5: Energy and matter interact through forces that result in changes in motion. 5.1 Explain and predict different patterns of motion of objects (e.g., linear and uniform circular motion, velocity and acceleration, momentum and inertia).

Standard 1: Analysis, Inquiry, and Design Students will use mathematical analysis, scientific inquiry, and engineering design, as appropriate, to pose questions, seek answers, and develop solutions.

(space for technology standards)

### **Identify key skills students will learn (assessed):**

- 1) Creating a product that is designed to fit requirements and rules (as laid out by Great Pumpkin Farm)
- 2) Establishing justification of the design features
- 3) "Scrapbook" showing off team work and community connection
- 4) Establish team roles and following them
- 5) Physics of a projectile content concepts

### **Identify the habits of mind that students will practice in this project:**

- 1) Team work
- 2) Design -> Evaluation -> redesign/re-engineer
- 3) Access of information to follow rules and criteria
- 4) Logistics of details (transporting trebuchet)
- 5) Safety in mind

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## District outcomes:

- 1) STEAM – Cross curricular
- 2) Connection to community at large

## Plan the Assessment:

Early in the project – Design Brief – they’ve written out the objectives of the project, they’ve established roles and a timeline.

During the project – Drawings – Rough and Technical drawings which are then presented to class for final critique and final decision to determine 1 final design as a class

End of the project – Product/Trebuchet and Reflection – The creation of a working trebuchet. A scrapbook of the work completed during the project. A reflection and advice for next year’s students.

## Map the Project:

Product: Trebuchet

Knowledge and Skills Needed	Already have learned	Taught before the project	Taught During the project
Calendar		x	
Summary of rules (access Great Pumpkin Farm rules)		x	
Design drawings	x		x
Building Prototype	x		x
Construction/ Manufacturing	x		x
Scrapbook	x		x
Physics concepts and Mathematics	X		x

## Manage the Process:

Preparations and needs to be determined when final class list is given.

# Pumpkin Chunkin PBL Calendar Justin Worboys and Caitlin Bowen

## SEPTEMBER

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6 First day of school: Syllabus & intro	7 Intro and safety	8 Intro and safety	9 Intro and safety	10
11	12 Intro Pumpkin PBL. Begin Design	13 Design Brief Rules & Constrai	14 Design Brief Need to know & Calendar	15 Design	16 Design	17
18	19 Design	20 Prototyp e	21 Prototyp e	22 Class present of design and prototyp	23 Determin e of final design and	24
25	26 Construct / publicist s / safety	27 Construct / publicist s / safety	28 Construct / publicist s / safety	29 Construct / publicist s / safety	30 Construct / publicist s / safety	

## OCTOBER

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3 Construct / publicist s / safety	4 Construct / publicist s / safety	5 Test and Eval for Re-engineer	6 Re-engineer / publicist / safety	7 Re-engineer / publicist / safety	8
9	10 Re-engineer / publicist / safety	11 Re-engineer / publicist / safety	12 Re-engineer / publicist / safety	13 Final Test Day	14 Prep for Transport	15 Competit ion Day
16	17 Possible board meeting to show Or 11/14	18 Tear Down and Clear shop	19 (NO SCHOOL for students )	20 Reflectio n, scrapboo k and advice	21 Final day wrap up	22
23	24	25	26	27	28	29