



# Project Lead the Way

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Elementary STEM at FCS



# Program Overview

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## Elementary (K-5): PLTW Launch

Four modules (or units) per grade level

Currently teaching three modules

## Middle School (6-8): PLTW Gateway

Taught as STEM elective classes

Ten high-interest courses (Medical Detectives, Automation & Robotics, App Creators, etc.)

## High School (9-12): PLTW Biomedical Engineering & Computer Science

# PLTW Launch

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## 3rd Grade

Stability & Motion: Science of Flight

## 4th Grade

Energy: Collisions

## 5th Grade

Robotics & Automation

# Canvas & APB

Energy: Collisions - Dashboard

## PLTW | Launch

Intro

Introduction

1

Activity 1:  
Energy

2

Activity 2:  
Potential and Kinetic Energy

3

Activity 3:  
Speed and Energy

4

Project 4:  
Energy Transfer in Collisions

5

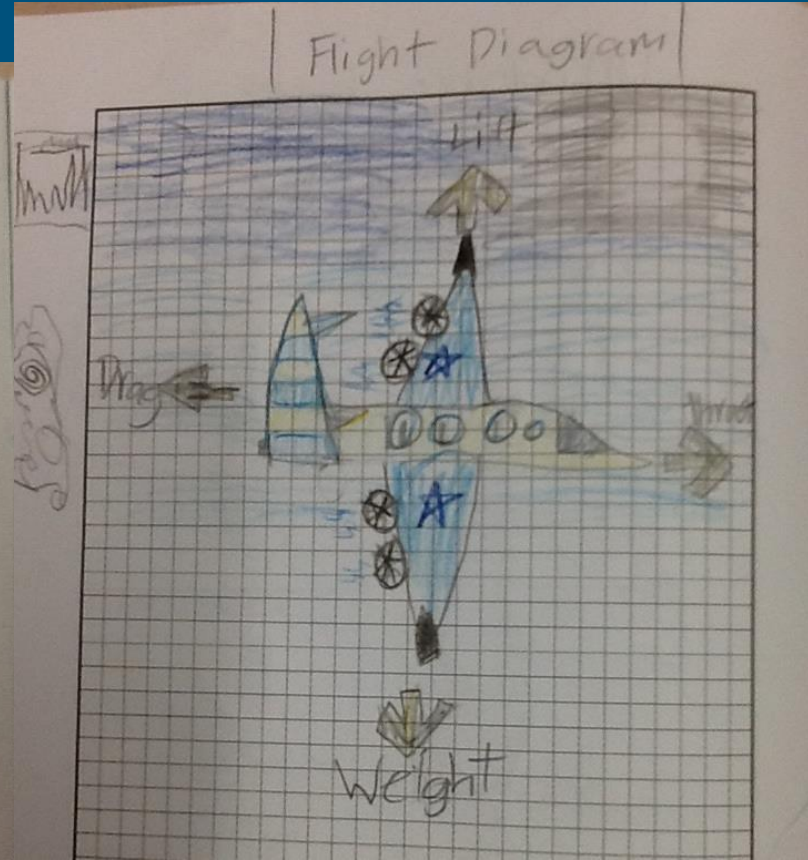
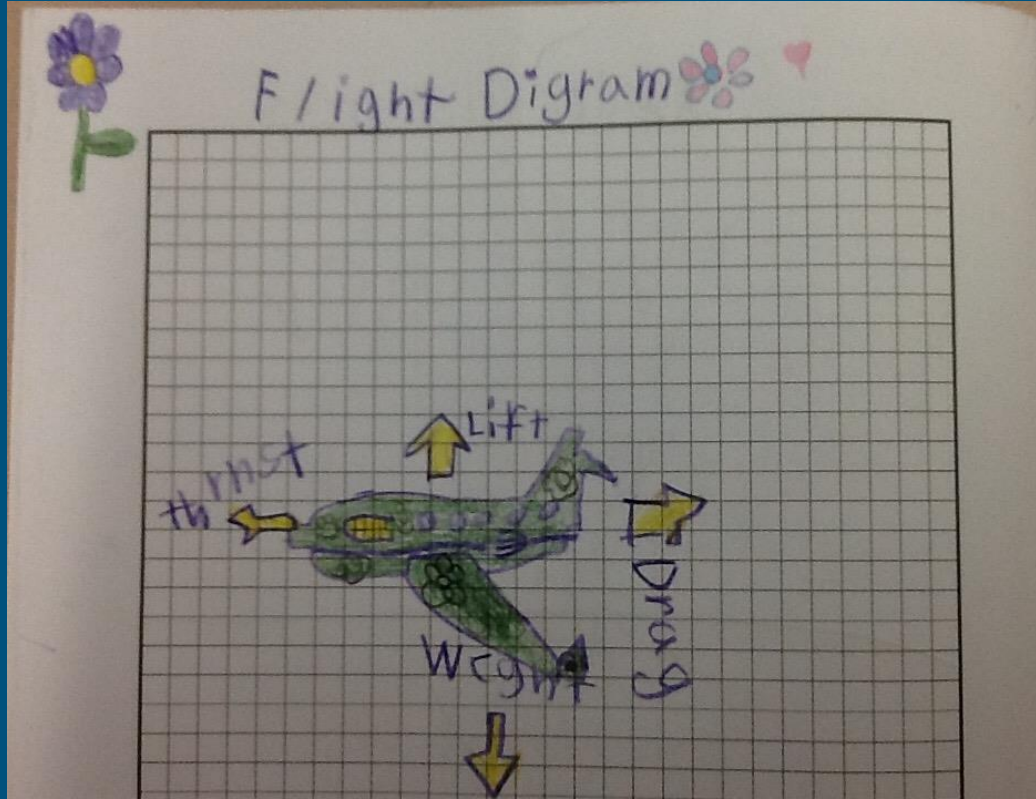
Problem 5:  
Vehicle Restraint Design

# 3rd Grade - Science of Flight

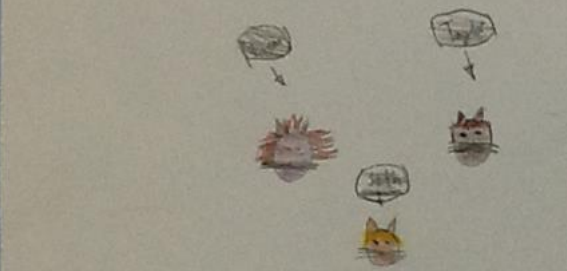
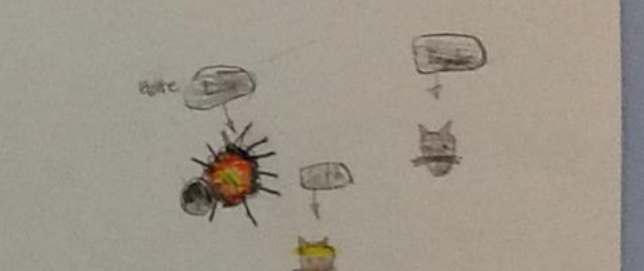
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# 3rd Grade - Science of Flight

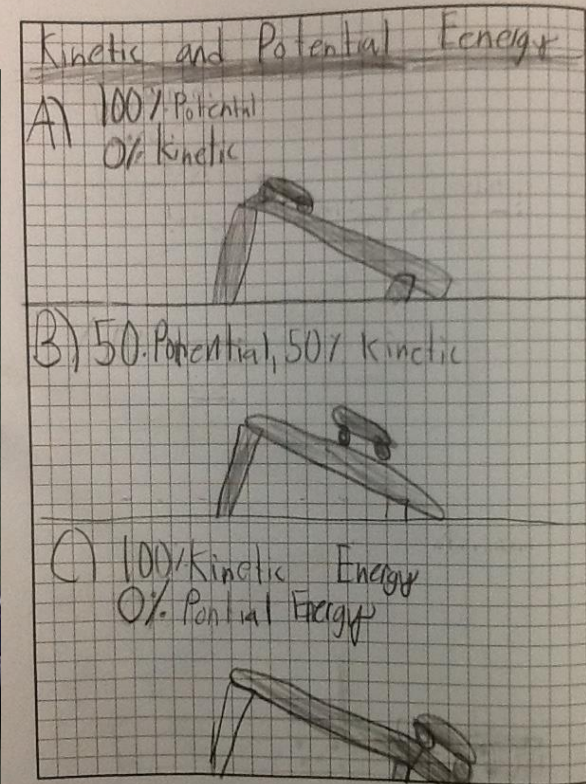
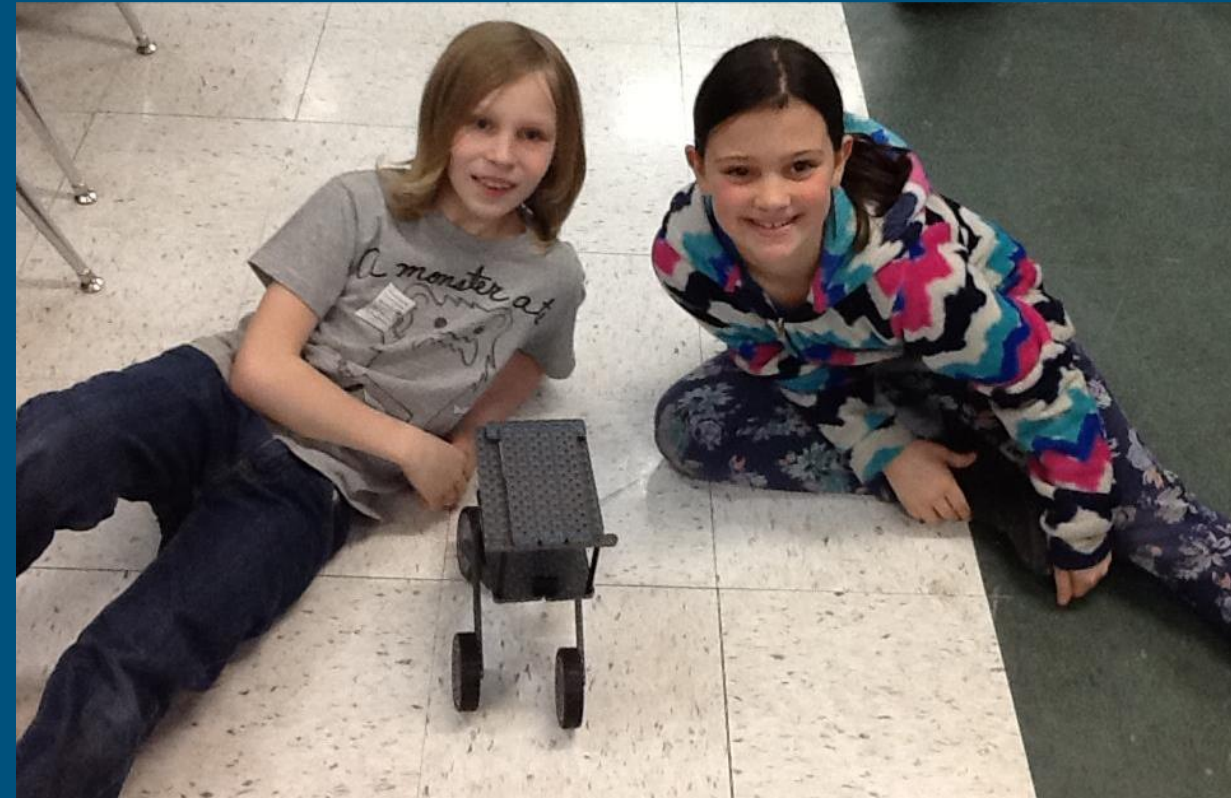


# 4th Grade - Energy: Collisions

<p>1) Describe an object in the app that has mostly potential energy.</p>	<p>2) Describe an object in the app that has mostly kinetic energy.</p>
 <p>Answer: We think when the mouse is holding it is all potential energy.</p>	 <p>Answer: We think when the mouse is letting go is all kinetic energy.</p>

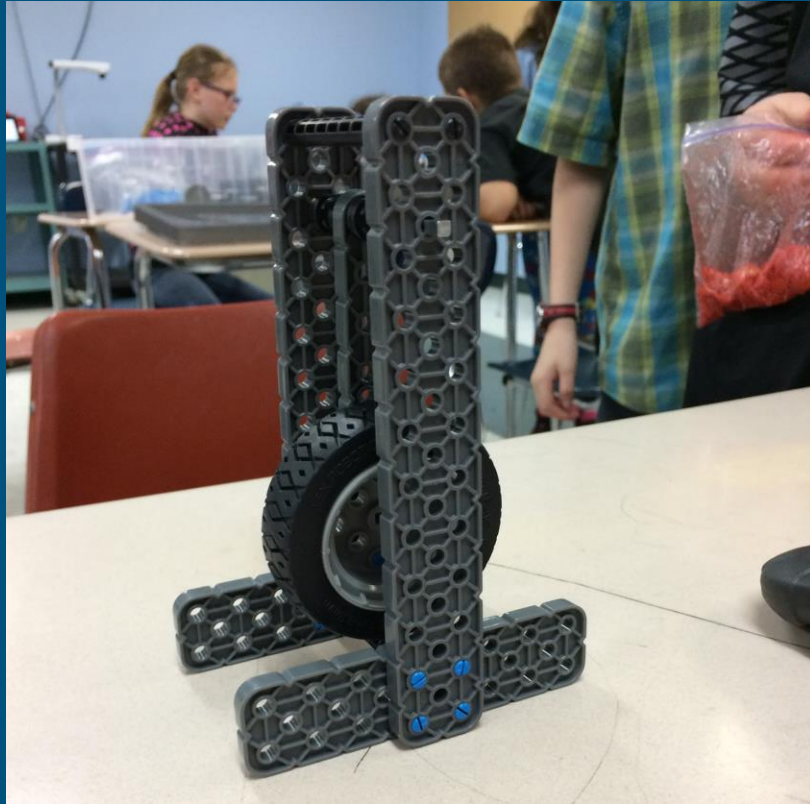


# 4th Grade - Energy: Collisions





# 4th Grade - Energy: Collisions



Pendulum Trials

Data Table

Height of the	Potential Energy
Highest	Most
Middle	Middle
Lowest	Least

Maximum Potential energy

PLTW Launch - Grades 3-5 Launch Log Page 6 © 2014 Project Lead The Way, Inc.

# 4th Grade - Energy: Collisions



Activity 3: Speed & Energy

All measurements are in inches

Starting Height (in)	Perpendicular (in)	Trial 1 (in)	Trial 2 (in)	Trial 3 (in)	Average (in)
6					
8					
10					
12					
14					

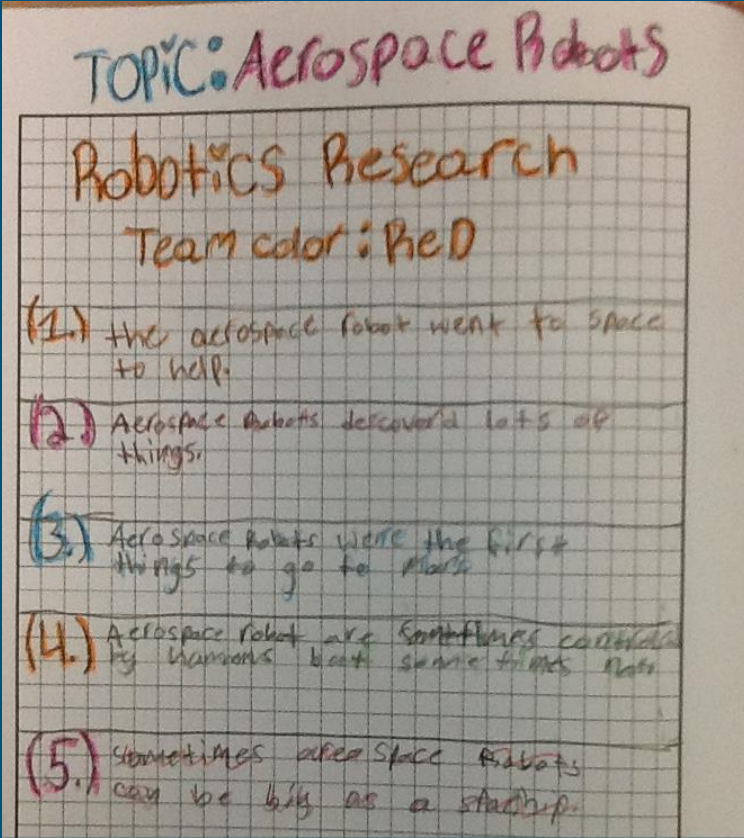
Distance from the end of the ramp.



# 4th Grade - Energy: Collisions



# 5th Grade - Robotics & Automation



## IEEE SPECTRUM ROBOTS

### ABOUT ROBOTS

What Is a Robot?

Types of Robots

Getting Started in Robotics

### LEARN MORE

The Uncanny Valley

Timeline of Robotics

Glossary of Robotics Terms

### TYPES OF ROBOTS

It's not easy to define what robots are, and it's not easy to categorize them either. Each robot has its own unique features, and as a whole robots vary hugely in size, shape, and capabilities. Still, many robots share a variety of features. Here are the nine categories the **ROBOTS** app uses to classify its 151 robots.



**Aerospace:** This is a broad category. It includes all sorts of flying robots—the Raven surveillance drone, the SmartBird robotic seagull, the RoboBee bio-inspired microrobot, for example—but also robots that can operate in space, such as NASA's Mars rovers and Robonaut, the humanoid on board the International Space Station.



# 5th Grade - Robotics & Automation

my popplet

view all clear all more popplets ? export

Blue Team


Humanoid robots are built to look like an actual human being!

Leonardo da Vinci created one of the first humanoid robots.

One of the uses for humanoid robots is for studying the human body.

The first humanoid robot was created in 1495

The most expensive robot is 2500000 dollars.





# 5th Grade - Robotics & Automation



## Humanoid robots



### Purpose:

- To build or create things humans normally do
- To help the elderly and sick
- Some are used for research on the human body
- Uses human tools

### Materials and looks:

- Normally smaller than humans
- Made of plastic and metal
- Does not always have full body
- Resembles a human





# 5th Grade - Robotics & Automation

