

PROJECT OVERVIEW

Name of Project:	Vibrobots				Duration: 31 Lessons	
Subject/Course: Science	Teacher(s): Susan Shepard			Grade Level: 6		
Other subject areas to be included, if any:	Writing, math, reading					
Project Idea Summary of the issue, challenge, investigation, scenario, or problem:	After learning about the movement of electrons, dynamic electricity and circuits, students will design a robot that moves, improving their design after initial testing.					
Driving Question	How can we build a device using electric circuits for East Elementary School?					
Content and Skills Standards to be addressed:	MS-PS2 Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. MS-ET5 Engineering design: evaluate competing design solutions and collect and analyze the data RI.6.10 Read and understand grade level text W6.1 write expository text G.6.2,3 find the surface area of polygons					
		T+A	E		T+A	E
21st Century Skills to be explicitly <i>taught and assessed</i> (T+A) or that will be <i>encouraged</i> (E) by project work, but not taught or assessed:	Collaboration	T+A		Other: Speaking		
	Presentation	T+A				
	Critical Thinking:		E			
					Presentation Audience:	
Group:	Design Proposal, Display Board, Vibrobot,				Class:	x

Culminating Products and Performances			School:	x
			Community:	x
	Individual:	Oral presentation, formative and summative assessment	Experts:	
			Web:	
			Other:	

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Entry event to launch inquiry, engage students:	Activity: Homemade batteries, students learn how batteries work and make a wet cell, test it with an amp meter Video: tigttag electricity Pretest: Which circuit is right?
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Assessments	Formative Assessments (During Project)	Quizzes/Tests		Practice Presentations	
		Journal/Learning Log	X	Notes	
		Preliminary Plans/Outlines/Prototypes	X	Checklists	
		Rough Drafts	X	Concept Maps	
		Online Tests/Exams		Other: short essay, poster of circuitry	
	Summative Assessments (End of Project)	Written Product(s), with rubric: Display board _____		Other Product(s) or Performance(s), with rubric: _____	
		Oral Presentation, with rubric	X	Peer Evaluation	
		Multiple Choice/Short Answer Test	X	Self-Evaluation	
		Essay Test	X	Other:	

Resources Needed	On-site people, facilities:	Clair Thomas, gym for presentation
	Equipment:	wire clippers, glue gun, saw,
	Materials:	wood, batteries, wire, bulbs, dowels, wire clippers, glue gun, saw, rheostats, potentiometers, motors, buzzers, wheels

	Community resources:	science coaches on design day			
Reflection Methods	(Individual, Group, and/or Whole Class)	Journal/Learning Log	X	Focus Group/Expert Groups	
		Whole-Class Discussion/Socratic Seminar	X	Fishbowl Discussion	
		Survey		Other:	

PROJECT TEACHING AND LEARNING GUIDE

Project: Vibrobot	Course/Semester: Winter
Knowledge and Skills Needed by Students to successfully complete culminating products and performances, and do well on summative assessments	Scaffolding / Materials / Lessons to be Provided by the project teacher, other teachers, experts, mentors, community members
types of energy	→ Observation charts, input chart, video, making a wet cell battery with Clair Thomas
What is an atom	→ model of an atom, intro to periodic table
types of electricity	→ static and dynamic experiment
types of circuits	→ building circuits to light bulbs using simple, parallel, and series circuits
open and closed circuits	→ building a switch
electromagnets and motors	→ build an electromagnet, video on their use and make, with Clair Thomas

building a prototype of a vibrobot



vibrobot prototype boxes with Clair Thomas

PROJECT CALENDAR

Project: Vibrobots

Start Date: January 2015

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

PROJECT WEEK ONE

PROJECT WEEK TWO

PROJECT WEEK THREE