

Milford Public Schools Curriculum Map

Department: Technology Education

Grade: 11-12

Course Name: Computers, Electronics & Programing

Course Description: Using Arduinos and Raspberry Pi hardware, students will explore electronics, computers, and programming to complete desired tasks with the use of coding. Students will use these platforms to develop software that interacts with the world beyond the computer through a combination of hardware and software. This is a project based course that will culminate in students completing a project of their own design. Examples may be remote controls, light switches, a talking clock, or even a Twitter enabled coffee pot! Prerequisite: Successful completion of *Algebra I*. Not required but recommended: *Robotics 1 and 2*.

STANDARDS	Computers, Programing and Electronics - Curriculum Map	DURATION	SCHOOL WEEK
Module 0: Welcome Week			1
UNIT 0:	Welcome		
CONTENT STANDARD 1.0 : DEMONSTRATE UNDERSTANDING OF THE Mapping Fields	CAREERS in Mapping (BASELINE ASSESSMENT)	2 DAYS	
	Learn about the course structure and content		
	Sign up for email and discussion groups Use the discussion board and hangouts		
	Complete tasks on the student site: Learn about Mobile CSP		
	Complete a sample programming task Create a Google account and setup a portfolio site		
	Setup laptop and mobile devices to use App Inventor		
	Review the textbook, Blown to Bits		
	Learn about advocating for computing in your school and recruiting students for computing courses Understand the 7 Big Ideas in CS Principles and the backwards design philosophy Review background readings and other		

	resources		
Module 1: Preview and Setup			
UNIT 1:	NXT Bluetooth Controller		2
		5 DAYS	
UNIT 2:	Ohm's Law & Metric Prefixes		
		2 DAYS	
UNIT 3	Electricity Fundamentals		
		3 DAYS	
UNIT 4:	Resistors		
		2 DAYS	
UNIT 5:	Capacitors		
		1 DAY	
UNIT 6:	Schematics		
		3 DAYS	
UNIT 7:	AC vs. DC		
		3 DAYS	
UNIT 8:	Exploring the Arduino Board and the IDE		
		2 DAYS	

UNIT 9:	Blinking an LED *Build Project 1		4
		2 DAYS	
UNIT 10:	Potentiometer *Build Project 2		
		2 DAYS	
UNIT 11:	RGB LED's *Build Project 3		
		2 DAYS	
UNIT 12:	Multiple LED's * Build Project 4		5
		3 DAYS	
UNIT 13:	Digital Inputs "Push Buttons" *Build Project 5		
		3 DAYS	
UNIT 14:	Sensing Light *Build Project 6		
		3 DAYS	7
UNIT 15:	Temperature Sensor *Build Project 7		
		3 DAYS	
UNIT 16:	Servo Motors *Build Project 8		
		3 DAYS	8
UNIT 17:	Exploring Sounds *Build Project 9		
		4 DAYS	
UNIT 18:	DC Motors *Build Project 10		
		3 DAYS	
UNIT 19:	Relays *Build Project 11		
		3 DAYS	8
UNIT 20:	Shift Register *BuildProject 12		
		3 DAYS	
UNIT 21:	MIDTERM		8
		2 DAYS	