Ganado Unified School District
STEM Guitar

PACING Guide SY 2014-2015

WK	SUBJECT	STRAND	CONCEPT	PO	ACTIVITY	OBJECTIVE
1	Design and manufacturing				Guitar body style choice	I will choose a body design for my guitar
1	Science	6: Physical science	5: Interactions of Energy and Matter	2: Describe the following characteristics of a wave	Simple harmonic motion observation	I will observe simple harmonic motion and identify where it occurs in my life
1	Science	6: Physical science	5: Interactions of Energy and Matter	2: Describe the following characteristice of a wave	Wavelength, Period, Frequency and Amplitude Graphical Analysis	I will read and draw waves of various wavelengths, frequencies, periods, and amplitudes
1	English	CCSS ELA RST	Text Types and Purposes	2: Write informative/eplanatory texts to examin and convey complex ideas and information clearly and accurately through the effective selection, organaization and analysis of content.	Written paragraph on "Why I chose my guitar's body style"	I will write a paragraph describing why I chose my guitar's body style.
1	Math	CCMS Number and Quantity	N-Q: Quantities	2: Define appropriate quantities for purposes of descriptive modeling	Cost analysis	I will shop for and price all of the parts needed to build a guitar
2	Design and manufacturing				Finish choice	I will choose which finish I want for my guitar and if it is to be painted, choose colors and scheme.

2	Math	CCMS Number and Quantity	N-Q: Quantities	1: Use units as a way of to understand problems and to guide the solution of multi-stem problems.	Fraction-decimal equivalency exercise.	I will use a fraction-decimal equivalency table to correlate fractions and decimals of an inch.
2	Math	CCMS Number and Quantity	N-Q: Quantities	1: Use units as a way of to understand problems and to guide the solution of multi-stem problems.	Fraction-decimal measurement on a guitar lab activity	I will use a fraction-decimal equivalency table to correlate fractions and decimals of an inch.
2	Math	CCMS Number and Quantity	N-Q: Quantities	1: Use units as a way of to understand problems and to guide the solution of multi-stem problems.	Quiz on fraction-decimal equivalents	I will use a fraction-decimal equivalency table to correlate fractions and decimals of an inch.
2	Design and manufacturing				Headstock design	I will design the headstock shape for my guitar
3	Design and manufacturing					
3	Science	Strand 5: Physical Science	Concept 1: Structure and Properties of Matter	PO6: Describe the following features of the atom: protons, neutrons, electrons. PO5: Describe the properties of electric charge and the conservation of electric charge	Static charge demostration and exploration	I will explore characteristics of static charge.
3	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Basic circuits exploration	I will explore some basic circuits using lamps and motors as resistant loads.

3	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Voltage, current, and resistance demonstration.	I will be introduced to the relationships between voltage, current and resistance.
3	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Quiz over voltage, current and resistance	I will demonstrate my mastery of the concept of voltage, current and resistance on a summative assessment.
4	Design and manufacturing				Soldering Practice	I will create high-quality solder joints
4	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Ohm's Law for simple circuits	I will use Ohm's Law to calculate voltage, currents and resistances for simple circuits.
4	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Practical Ohm's Law for simple circuits	I will build and measure circuits to verify Ohm's Law
4	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Practical Ohm's Law for simple circuits (quiz)	I will build and measure circuits to verify Ohm's Law
4	Design and manufacturing				Soldering Practice	I will create hi-quality solder joints
5	Design and manufacturing				Soldering Practice	I will create hi-quality solder joints
5	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Series circuits and series voltage drops theory	I will analyse series circuits for voltage drops

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5	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Practical series circuits	I will build series circuits and analyse them for voltage drops
5	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Practical Series Circuits	I will build series circuits and analyse them for voltage drops
6	Design and Manufacturing				Begin guitar body sculpting	I will carve, shape and smooth my guitar's body
6	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Parallel Circuit Theory	I will analyze parallel circuits for voltage current and resistance
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6	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Parallel Circuit Theory (quiz)	I will analyze parallel circuits for voltage current and resistance
6	Design and Manufacturing				Body Sculpting	I will carve, shape and smooth my guitar's body
7	Design and manufacturing				Body Sculpting	I will carve, shape and smooth my guitar's body

7	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Practical Parallel Circcuit Building	I will build and measure parallel circuits
7	Science	Strand 5: Physical Science	Concept 5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Practical Parallel Circcuit Building	I will build and measure parallel circuits
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7	Design and manufacturing				Body Sculpting	I will carve, shape and smppth my guitar's body
8	Design and manufacturing				Body Sculpting	I will carve, shape and smppth my guitar's body
8	English	CCSS ELA RST	Text Types and Purposes	3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well structured event sequences.	Written 3-paragraph paper: "How to sculpt a guitar body."	I will write a 3 paragraph narrative on how to sculpt a guitar body.
8	Math	CCMS Functions Overview	Linear, Quadratic and Exponential Models	2: Construct linear and exponential functions given a graph, a description of a relationship or two input-output pairs	Fret Spacing Measurement and Graphing	I will use a ruler to measure and graph the fret spacing on a typical guitar neck,

8	Math	CCMS Functions Overview	Linear, Quadratic and Exponential Models	2: Construct linear and exponential functions given a graph, a description of a relationship or two input-output pairs	Fret Spacing Measurement and Graphing	I will use a ruler to measure and graph the fret spacing on a typical guitar neck,
8	Design and manufacturing				Body Sculpting and Finishing	I will carve, shape and smooth and finish my guitar's body
9	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press & dress frets in my guitar's neck
9	Math				Fret spacing calculation	I will use logarithmic funtcions to calculate the fret spacing for a guitar of odd scale
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9	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press and dress frets in my guitar's neck
10	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press & dress frets in my guitar's neck
10						
10						
10	English	RST	Text Types and Purposes	3: Write narratives to develop real or imagined experiences or events using effective technique, well-chosen details and well structured event sequences.	Written 3-Paragraph Paper: How to Shape a Guitar Fingerboard and Press and Dress Frets	I will write a 3-paragraph narrative on how to finish ar guitar neck and fretboard.
10	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press & dress frets into my guitar's

						neck
11	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press and dress frets in my guitar's neck
11	Science	Strand 5: Physical Science	5: Interactions of Energy and Matter	PO8: Describe the relationship among electric potential, current and resistance in an ohmic system.	Potentiometer lab	I will measure the resistance of a potentiometer at various positions and graph the results
11	Science				Electricity and magnetism exploration	I will explore the relationship between electricity and magnetism using coils, magnets, and old speakers.
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11	Design and manufacturing					
12					Oscilloscope Exploration	I will explore AC ad DC signals as they appear on the oscilloscope
12					Introduction to Alternating Current	I will explore alternating current and the ways it is generated
12					Alternating current	I will calculate peak, rms and average voltages and read them off a graph.
12					Quiz over Alternating Current	I will calculate peak, rms and average voltages and read them off a graph.
12	Design and manufacturing				Solder review	I will construct quality solder joints
13	Design and manufacturing				Solder Quiz	I will construct quality solder joints

13					Inductance	I will calculate impedance of a coil given its inductance and the frequency of the signal through it.
13					Inductance	I will calculate impedance of a coil given its inductance and the frequency of the signal through it.
13					Inductance Quiz	I will demonstrate by ability to calculate inpedance of a coil.
13	Design and manufacturing				Pickup assembly	I will assemle my guitar's pickups.
14	Design and manufacturing				Electronics assembly	I will assemble, solder, insulate and bundle my guitar's electronics.
14					Capacitance	I will explore capacitance and calculate impedance of a capacitor given any frequency
14					Capacitance	I will calculate impedance of a capacitor given it's capacitance and any frequncy.
14					Capacitance Quiz	I will calculate impedance of a capacitor given it's capacitance and any frequncy.
14	Design and manufacturing				Hardware installation	I will install my guitar's hardware.
15	Design and manufacturing				Neck Installation	I will install my guitar's neck.

15	Music Theory	Strand 2: Relate	Concept 1: Understanding the relationship among music, the arts and other disciplines outside of the arts	Grade 7 PO2 Grade 4 PO3	Origin of the musical scale from a mathematical perspective	I will explain where the musical scale came from.
15	Music Theory	Strand 2: Relate	Concept 1: Understanding the relationship among music, the arts and other disciplines outside of the arts	Grade 7 PO2 Grade 4 PO3	Origin of the musical scale from a mathematical perspective	I will explain where the musical scale came from.
15	Music Theory					
15	Design and manufacturing				String Installation	I will install my guitar's strings.
16	Design and manufacturing					
16	Music Theory					
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17	Design and manufacturing					
18	Design and manufacturing					
18	Music Theory					
18	All Topics				Final Exam Prep	
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