Ganado Unified School District
(PHYSICS/11-12)
PHYSICS Semester 1 Pacing Guide SY 2016-2017

QTR	WK	SUBJECT	STRAND	CONCEPT	PO	ACTIVITY	OBJECTIVE	LOCATION
1	1	Design and manufacturing				Guitar body style choice	I will choose a body design for my guitar	Library or computer lab
1	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	Science classroom
1	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	Science classroom
1	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.	Science classroom
1	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	Library or computer lab
1	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.	Science classroom
1	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.	Science classroom
1	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.	Science classroom
1	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.	Science classroom
1	2	Design and manufacturing				Headstock design	I will design the headstock shape for my guitar	Science classroom

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1	3	Design and manufacturing				Headstock design	I will design the headstock shape for my guitar	S
1	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.	Science classroom
1	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.	Science classroom
1	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.	Science classroom
1	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.	Science classroom
1	4	Design and manufacturing				Soldering Practice	I will create high-quality solder joints	Science classroom
1	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.	Science classroom
1	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	Science classroom

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1	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	Science classroom
1	4	Design and manufacturing				Soldering Practice	I will create hi-quality solder joints	Science classroom
1	5	Design and manufacturing				Soldering Practice	I will create hi-quality solder joints	Science classroom
1	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	Science classroom
1	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	Science classroom
1	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	Science classroom
1	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 Quiz	I will build series circuits and analyse them for voltage drops	Science classroom
1	6	Design and Manufacturing				Begin guitar body sculpting	I will carve, shape and smooth my guitar's body	Woodshop
1	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	Science classroom

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1	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	Science classroom
1	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	Science classroom
1	6	Design and Manufacturing				Body Sculpting	I will carve, shape and smooth my guitar's body	Woodshop
1	7	Design and manufacturing				Body Sculpting	I will carve, shape and smooth my guitar's body	Woodshop
1	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	Science classroom
1	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	Science classroom
1	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 Quiz.	I will build and measure parallel circuits	Science classroom
1	7	Design and manufacturing				Body Sculpting	I will carve, shape and smppth my guitar's body	Woodshop
1	8	Design and manufacturing				Body Sculpting	I will carve, shape and smppth my guitar's body	Woodshop
1	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.	Science classroom

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1	8	Math	CCMS Functions Overview	F-LE 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,	Science classroom
1	8	Math	CCMS Functions Overview	F-LE 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,	Science classroom
1	8	Design and manufacturing				Body Sculpting and Finishing	I will carve, shape and smooth and finish my guitar's body	Woodshop
1	9	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press & dress frets in my guitar's neck	Woodshop
1	9	Math	CCMS Functions Overview	F-IF Interpreting Functions	Analyze Functions using different representations.	Fret spacing calculation	I will use logarithmic funtcions to calculate the fret spacing for a guitar of odd scale	Science classroom
1	9	All Topics				Mid-term Prep		Science classroom
1	9	All Topics				Mid-term Exam		Science classroom
1	9	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press and dress frets in my guitar's neck	Woodshop
2	10	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press & dress frets in my guitar's neck	Woodshop
2	10	Math	CCMS Functions Overview	F-IF Interpreting Functions	Analyze Functions using different representations.	Fret spacing calculation	I will use logarithmic functions to calculate the fret spacing for a guitar of odd scale	Science classroom
2	10	Math	CCMS Functions Overview	F-IF Interpreting Functions	Analyze Functions using different representations.	Fret spacing calculation	I will use logarithmic functions to calculate the fret spacing for a guitar of odd scale	Science classroom

2	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.	Science classroom
2	10	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press & dress frets into my guitar's neck	Woodshop
2	11	Design and manufacturing				Fingerboard and Fret Installation	I will glue, shape, and press and dress frets in my guitar's neck	Woodshop
2	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	Science classroom
2	11	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.	Electricity and magnetism exploration	I will explore the relationship between electricity and magnetism using coils, magnets, and old speakers.	Science classroom
2	11	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.	Electricity and magnetism exploration	I will explore the relationship between electricity and magnetism using coils, magnets, and old speakers.	Science classroom
2	11	Design and manufacturing						
2	12	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.	Oscilloscope Exploration	I will explore AC ad DC signals as they appear on the oscilloscope	Science classroom

2	12	Science, Math	Science Strand 5 Physical Science. Math Functions Overview	Science: Concept 5: Interactions of Energy and Matter Math: Analyse Functions using different representations.	Science PO8: Describe the relationship among electric potential, current and resistance in an ohmic system. Math 7 Graph functions expressed symbolically; graphs trigonometric functions showing period, midline and amplitude.	Introduction to Alternating Current	I will explore alternating current and the ways it is generated	Science classroom
2	12	Science, Math	Science Strand 5 Physical Science. Math Functions Overview	Science: Concept 5: Interactions of Energy and Matter Math: Analyse Functions using different representations.	Science PO8: Describe the relationship among electric potential, current and resistance in an ohmic system. Math 7 Graph functions expressed symbolically; graphs trigonometric functions showing period, midline and amplitude.	Alternating current	I will calculate peak, rms and average voltages and read them off a graph.	Science classroom
2	12	Science, Math	Science Strand 5 Physical Science. Math Functions Overview	Science: Concept 5: Interactions of Energy and Matter Math: Analyse Functions using different representations.	Science PO8: Describe the relationship among electric potential, current and resistance in an ohmic system. Math 7 Graph functions expressed symbolically; graphs trigonometric functions showing period, midline and amplitude.	Quiz over Alternating Current	I will calculate peak, rms and average voltages and read them off a graph.	Science classroom
2	12	Design and manufacturing				Solder review	I will construct quality solder joints	Science classroom
2	13	Design and manufacturing				Solder Quiz	I will construct quality solder joints	Science classroom

2	13	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.	Inductance	I will calculate impedance of a coil given its inductance and the frequency of the signal through it.	Science classroom
2	13	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.	Inductance	I will calculate impedance of a coil given its inductance and the frequency of the signal through it.	Science classroom
2	13					Inductance Quiz	I will demonstrate by ability to calculate inpedance of a coil.	Science classroom
2	13	Design and manufacturing				Pickup assembly	I will assemle my guitar's pickups.	Science classroom
2	14	Design and manufacturing				Electronics assembly	I will assemble, solder, insulate and bundle my guitar's electronics.	Science classroom
2	14	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.	Capacitance	I will explore capacitance and calculate impedance of a capacitor given any frequency	Science classroom
2	14	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.	Capacitance	I will calculate impedance of a capacitor given it's capacitance and any frequncy.	Science classroom
2	14	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.	Capacitance Quiz	I will calculate impedance of a capacitor given it's capacitance and any frequncy.	Science classroom
2	14	Design and manufacturing				Hardware installation	I will install my guitar's hardware.	Science classroom
2	15	Design and manufacturing				Neck Installation	I will install my guitar's neck.	Science classroom

2	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: Identifying and explaining the basic concepts behind the scienc of sound Grade 4 PO3: Explain the relationship between note values and mathematics.	Origin of the musical scale from a mathematical perspective	I will explain where the musical scale came from.	Science classroom
2	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: Identifying and explaining the basic concepts behind the scienc of sound Grade 4 PO3: Explain the relationship between note values and mathematics.	Origin of the musical scale from a mathematical perspective	I will explain where the musical scale came from.	Science classroom
2	15	Music Theory, Math	Music Strand 2: Relate Math Functons Overview	Music Concept 1: Relationship between music and other disciplines Math: Interpreting Functions	Music: Grade 4 PO3 Explain and apply the relationship between note values and mathematics. Math: Analyze Functions using different representations.	Origin of the musical scale from a mathematical perspective	I will explain where the musical scale came from.	Science classroom
2	15	Design and manufacturing				String Installation	I will install my guitar's strings.	Science classroom
2	16	Design and manufacturing					I will set my guitar's bridge height	Science classroom
2	16	Music Theory	Strand 1: Create	Concept 5: Reading and Notating Music	Grade 6 PO4: Reading and notating music using standard notation	Introduction to the musical scale and cross-referencing to guitar tablature	I will decode musical notes using standard musical notation.	Science classroom
2	16	Music Theory	Strand 1: Create	Concept 5: Reading and Notating Music	Grade 7 PO2: Identifying the intervals within a diatonic scale.	Introduction to intervals	I will read common intervals using standard music notation	Science classroom
2	16	Music Theory	Strand 1: Create	Concept 5: Reading and Notating Music	Grade 8 PO4 Identifying major and minor chords	Introduction to 3-note chords	I will identify basic 3-note chords.	Science classroom

2	16	Design and manufacturing					I will set my guitar's bridge height	Science classroom
2	17	Design and manufacturing					I will use an oscilloscope to intonate my guitar.	Science classroom
2	17	Music Theory	Strand 1: Create	Concept 5: Reading and Notating Music	Grade 4 PO5: Identifying parts/symbols in a musical score (key signatures)	Introduction to different musical keys	I will render a "circle of fifths" diagram so I may use it to decode key signatures	Science classroom
2	17	Music Theory	Strand 1: Create	Concept 5: Reading and Notating Music	Grade 4 PO5: Identifying parts/symbols in a musical score (key signatures)	Musical keys	I will render a "circle of fifths" diagram so I may use it to decode key signatures	Science classroom
2	17	Music Theory	Strand 1: Create	Concept 5: Reading and Notating Music		Musical keys	I will render a "circle of fifths" diagram so I may use it to decode key signatures	Science classroom
2	17	Design and manufacturing					I will use an oscilloscope to intonate my guitar.	Science classroom
2	18	Design and manufacturing					I will use an oscilloscope to intonate my guitar.	Science classroom
2	18	Music Theory	Strand 1: Create	Concept 2: Playing instruments, alone and with others.	PO 309: playing exercises /music from memory at appropriate level		I WILL PLAY MY GUITAR	Science classroom
2	18	All Topics				Final Exam Prep		Science classroom
2	18	All Topics				Final Exam Prep		Science classroom
2	18	All Topics				Final Exam		Science classroom