

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title		Environmental Field Studies				Course Code		[Office use only]	
Transcript Title:				Grades Levels:	12 th	Board Adoption Date:			
Content Area:	Science/CTE			GPA Scale:	4	Date Course Submitted:		3/18/2011	
Credential Req:			Graduation Subject Areas:		Applied Skills	Elective			
UC/CSU “A-G” Area Approvals:		G		School Site that wrote and submitted the course:			CMHS		
Prerequisite(s):	Environmental Research and Technology								
Next course(s):	None (this is the capstone course)								

COURSE DESCRIPTION (catalog summary): Environmental Field Studies is a highly relevant interdisciplinary course that provides a platform for students to investigate environmental problems under the mentorship of local environmental agencies and professionals. An emphasis will be placed on students using critical thinking and analytical skills to make a positive impact on the environment. Projects are real world and geared towards current local and global topics. A strong emphasis will be placed on successful completion of internships in relevant fields and finalization of a ten-year career/educational plan and professional portfolio.

GOALS (expected performance outcomes for students): Students will continue to develop an understanding of environmental issues, current research results and methods, how to perform their own "action" research, and the importance of environmental issues to Southern California, to our global economy, and to the students themselves. Students will conduct their own community-based research project and present their results to peers and to the public. Students will become involved with an agency or professional to investigate a local environmental problem. Students will develop the skills to transfer their science knowledge to new situations and applications, including the professional world. Students will understand environmental principles and be able to apply them to social, economic, and ethical issues; students will be responsible for making decisions about their own health and environment.

CALIFORNIA CONTENT STANDARDS (how the course aligns with California and/or national curriculum standards): CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4.

Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge and Skills, and Demonstration and Application.

CTE Standards for the Agriscience Pathway (C): 1.5, 2.0-2.5, 3.2-3.4, 4.3, 5.0-5.4, 6.0-6.2, 7.0-7.5, 10.0-10.4, 11.0-11.6, 12.0-12.3, 13.0-13.3.

CTE Standards for the Forestry and Natural Resources Pathway (E): 1.0-1.5, 2.0-2.6, 3.0-3.5, 4.2-4.3, 5.0-5.7, 6.0-6.6, 7.1-7.2, 7.4-7.5, 8.0-8.4, 9.1-9.3, 10.1-10.4, 11.2, 11.4, 13.0-13.4.

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	<i>[Office use only]</i>
---------------------	------------------------------------	--------------------	--------------------------

EVALUATION (how the effectiveness of the course will be monitored and assessed): Students will be evaluated based on individual and group formative and summative assessments. Examples include position papers, environmental impact reports, laboratory reports, formal and informal presentations, and internship evaluations. No state assessments exist for this course at this time.

Unit 1	Length of Unit: 4 weeks (this unit will focus on college applications at the start of the year to make sure all students meet UC and CSU application deadlines)			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
College and Career Preparation	Post-secondary Trade school Associate's degree Bachelor's degree Master's degree Doctorate Major Minor FAFSA Financial aid Grants Subsidized loans Unsubsidized loans Scholarships Personal statement Transcript SAT/SAT II ACT Note-taking skills Study skills	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4. Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge and Skills, and Demonstration and Application.	College Research Project Personal Statement Successful College Applications Scholarship Research Project Loans and Interest Activity	<u>Environmental Science</u> by Botkin and Keller <u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll <u>Introduction to Environmental Toxicology</u> by Landis, Sofield, & Yu <u>Green Jobs for a New Economy</u> by Peterson's <u>Positive Impact Forestry</u> by McEvoy & Jeffords <u>The Environmental Case</u> by Layzer Agricultural texts and manuals College guides Internet and library databases Microscopes Microsoft Office ArcGIS 10

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	[Office use only]
--------------	------------------------------------	-------------	-------------------

			PASCO Probes
Differentiation	Support -- for students who are struggling with the content	Content: Reading assignments will be modified to fit students' needs Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See "Model Tasks" – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students' needs	
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See "Model Tasks" – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects	
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks.		
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations.		

Unit 2	Length of Unit: 6 weeks			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
Conservation Biology	Conservation biology Species Biodiversity Genetic diversity Phylogenetic diversity	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l,	Journal Article Review Do-it-Yourself Habitat Protection Plan Multiple Use Decisions Debate Edge Habitat Activity	<u>Environmental Science</u> by Botkin and Keller <u>Principles of Conservation Biology</u> by Groom, Meffe &

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title		Environmental Field Studies		Course Code	[Office use only]
Biodiversity	Species diversity	1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA	Fairview Park Field Study		Carroll
Benefits of Biodiversity	Species richness	Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA	Get to Know the ESA		<u>Introduction to Environmental Toxicology</u> by Landis, Sofield, & Yu
Measures of Biodiversity	Critical habitat	Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA	Endangered Species Presentations		<u>Green Jobs for a New Economy</u> by Peterson's
Loss of Biodiversity	Biodiversity hotspot	Listening and Speaking 11th and 12th 1.8, 1.14, 2.4.			<u>Positive Impact Forestry</u> by McEvoy & Jeffords
Extinction	Natural selection				<u>The Environmental Case</u> by Layzer
Ecosystems and Services	Mutation				Agricultural texts and manuals
	Habitat degradation				College guides
	Habitat destruction				Internet and library databases
	Habitat fragmentation				Microscopes
	Edge habitat				Microsoft Office
	Wildlife migration corridors				ArcGIS 10
	Reproductive isolation				PASCO Probes
	K-strategist				
	R-strategist				
	Broadcast spawning				
	Endangered species				
	Commercial extinction				
	Ecological extinction				
	Biological extinction				
	Local extinction				
	Global extinction				
	Urban greening				
	Endangered Species Act				

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	[Office use only]
--------------	------------------------------------	-------------	-------------------

Differentiation	Support -- for students who are struggling with the content	Content: Reading assignments will be modified to fit students' needs Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See "Model Tasks" – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students' needs
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See "Model Tasks" – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks	
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations	

Unit 3	Length of Unit: 5 to 6 weeks			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
Forestry and Agriculture	Annual Biennial Perennial Dichotomous key	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0.	Plant Growth Experiments	<u>Environmental Science</u> by Botkin and Keller
Botany	Desertification	Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4,	"Are GMOs Better?" Lab Investigation	<u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll
Environmental Impacts	Salinization Over-extraction Overgrazing		Plant Identification Field Study Project	
			Soil Characteristics Lab Investigation	
			Angeles National Forest field work	<u>Introduction to</u>

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title		Environmental Field Studies		Course Code	[Office use only]
Natural Resource Management	Riparian	12.4.3. (Communications) ELA			<u>Environmental Toxicology</u> by Landis, Sofield, & Yu
Soil Science and Integrated Pest Management	High-input agriculture	Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4.			<u>Green Jobs for a New Economy</u> by Peterson's
Forestry Services	Low-input agriculture				<u>Positive Impact Forestry</u> by McEvoy & Jeffords
	GMOs				<u>The Environmental Case</u> by Layzer
	FIFRA				Agricultural texts and manuals
	Sustainable yield				College guides
	Watershed management				Internet and library databases
	Ecosystem management				Microscopes
	Multiple-use management				Microsoft Office
	Silviculture				ArcGIS 10
	Surface fire				PASCO Probes
	Crown fire				
	Ground fire				
	Mineral extraction				
	Open pit mine				
	Underground mine				
	Loam				
	Remediation				
	Water-holding capacity				
	Permeability				
	Mycorrhizae				
	Soil survey				
	Soil amendment				
	pH				
	Salinity				
	Biological control				
Differentiation	Support -- for	Content: Reading assignments will be modified to fit students' needs			

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	Environmental Field Studies			Course Code	[Office use only]
	students who are struggling with the content	Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See “Model Tasks” – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students’ needs			
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See “Model Tasks” – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects			
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks				
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations				
Unit 4	Length of Unit: 4 weeks				
	Key Vocabulary	Standards (referenced)	Model Tasks		Tools / Texts
Marine Conservation	Phytoplankton	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and	Oil Spill Clean-up simulation		<u>Environmental Science</u> by Botkin and Keller <u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll <u>Introduction to Environmental Toxicology</u> by Landis, Sofield, &
Overfishing and Bycatch	Zooplankton		Fishing Gear design project		
	Overfishing		Mapping Wetland and Mangrove Loss		
	Bycatch		Sustainable Seafood Banquet		
	Bottom trawling		Create-Your-Own-Solution presentations		
	Purse-seine fishing				
	Long line				
	Drift net				
	Gill net				
	Plastic resin pellets (nurdles)				

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	<i>[Office use only]</i>
Wetland Loss Tragedy of the Commons Ocean Acidification Whaling and Shark Finning Mercury, Toxins, and Spills El Nino Southern Oscillation	PCBs Pacific garbage patch Mangroves Nursery Ecosystem services Wetland Estuary Brackish Benthic Tragedy of the commons Quotas Moratorium IWC Top predator Ecosystem control Ocean acidification Calcium carbonate Energetic effects Mercury DDT El Nino La Nina Low pressure Upwelling	12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4. Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge and Skills, and Demonstration and Application. CTE Standards for the Agriscience Pathway (C): 4.3, 6.0-6.2, 13.0-13.3. CTE Standards for the Forestry and Natural Resources Pathway (E): 1.3, 2.2, 2.4, 5.4, 5.6, 6.0-6.6, 7.1, 8.1-8.2, 11.2, 11.4, 13.0-13.4.	Yu <u>Green Jobs for a New Economy</u> by Peterson's <u>Positive Impact Forestry</u> by McEvoy & Jeffords <u>The Environmental Case</u> by Layzer Agricultural texts and manuals College guides Internet and library databases Microscopes Microsoft Office ArcGIS 10 PASCO Probes
Differentiation	Support -- for students who are struggling with the content	Content: Reading assignments will be modified to fit students' needs Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See "Model Tasks" – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students' needs	

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	[Office use only]
--------------	------------------------------------	-------------	-------------------

		Content: Modified reading assignments, more in depth research into given topics
	Extension – for high achieving students.	Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See “Model Tasks” – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks	
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations	

Unit 5	Length of Unit: 3 weeks to begin, then ongoing throughout second semester			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
Community Action Research Topics are based on student choice and will vary from year to year	Key vocabulary will depend on the topic being pursued by each individual group.	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA	During this unit students will work in groups to choose a topic of interest, research their topic, and develop a plan of action for bringing about local awareness and change. The projects will include creating an ad campaign, interviewing experts in the field, and bringing about change in their communities via education and service. They will implement their action plans in several venues and reflect on their success after each attempt. Final presentations will be made to a panel of community experts.	<u>Environmental Science</u> by Botkin and Keller <u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll <u>Introduction to Environmental Toxicology</u> by Landis, Sofield, & Yu <u>Green Jobs for a New Economy</u> by Peterson's

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	Environmental Field Studies		Course Code	[Office use only]
		Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4. Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge and Skills, and Demonstration and Application. CTE Standards for the Agriscience Pathway (C): 1.5, 2.0-2.5, 3.2-3.4, 4.3, 5.0-5.4, 6.0-6.2, 7.0-7.5, 10.0-10.4, 11.0-11.6, 12.0-12.3, 13.0-13.3. CTE Standards for the Forestry and Natural Resources Pathway (E): 1.0-1.5, 2.0-2.6, 3.0-3.5, 4.2-4.3, 5.0-5.7, 6.0-6.6, 7.1-7.2, 7.4-7.5, 8.0-8.4, 9.1-9.3, 10.1-10.4, 11.2, 11.4, 13.0-13.4.		<u>Positive Impact Forestry</u> by McEvoy & Jeffords <u>The Environmental Case</u> by Layzer Agricultural texts and manuals College guides Internet and library databases Microscopes Microsoft Office ArcGIS 10 PASCO Probes
Differentiation	Support -- for students who are struggling with the content	Content: Reading assignments will be modified to fit students' needs Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See "Model Tasks" – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students' needs		
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See "Model Tasks" – many products inherently contain elements for building depth for high		

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	[Office use only]
--------------	------------------------------------	-------------	-------------------

		achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks	
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations	

Unit 6	Length of Unit: 5 weeks			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
Environmental Health	Risk	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0.	"What's My Risk?" project	<u>Environmental Science</u> by Botkin and Keller
Risk Assessment	Risk analysis		Toxic Substance Research Presentation	<u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll
Risk Management	Risk perception		LD50/LC50 toxicity study	<u>Introduction to Environmental Toxicology</u> by Landis, Sofield, & Yu
Toxicokinetics	Risk management		Reducing Toxic Exposure project	<u>Green Jobs for a New Economy</u> by Peterson's
Toxicodynamics	Route of exposure	Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4.		<u>Positive Impact Forestry</u> by McEvoy & Jeffords
Toxins and human health	Dose-response curve			<u>The Environmental</u>
Toxins and ecosystems	Degree of exposure			
	Absorption			
	Intravenous			
	Ingestion			
	Inhalation			
	Dermal absorption			
	Biotransformation			
	First-pass effect			
	Phase I			
	Phase II			
	Ionizing radiation			

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title		Environmental Field Studies	Course Code	[Office use only]
	Carcinogens Insecticides Herbicides Fungicides Additives Heavy metals Neurotoxin Hormone disruptor Estrogen mimic Feminization	Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge and Skills, and Demonstration and Application. CTE Standards for the Agriscience Pathway (C): 3.3-3.4, 12.2-12.3, 13.0-13.3. CTE Standards for the Forestry and Natural Resources Pathway (E): 11.2, 11.4.		<u>Case</u> by Layzer Agricultural texts and manuals College guides Internet and library databases Microscopes Microsoft Office ArcGIS 10 PASCO Probes
Differentiation	Support -- for students who are struggling with the content	Content: Reading assignments will be modified to fit students' needs Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See "Model Tasks" – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students' needs		
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See "Model Tasks" – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects		
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks			

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	<i>Environmental Field Studies</i>	Course Code	[Office use only]
--------------	------------------------------------	-------------	-------------------

	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations		
--	---	--	--

Unit 7	Length of Unit: 4 to 5 weeks			
	Key Vocabulary	Standards (referenced)	Model Tasks	Tools / Texts
Environmental History & Justice Equity Socioeconomic Factors Case Studies: Love Canal Bhopal, India Minimata Bay Chernobyl Great Lakes Superfund Sites Urban Greening & Community Gardens	LULUs NIMBY Recourse Grass-roots Superfund Benzene Hexanes Methyl isocyanate Methyl mercury Nuclear fission Agricultural runoff Greenery F.L. Olmsted Central Park Advocacy Compensation Justice Sufficiency Sustainability Stakeholders Fair treatment CDC ATSDR Environmental racism EPA Ethics	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4. Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge	Environmental Case Study seminar discussion and presentation “Tough Choices” Land Use Project Urban Greenery design project Mapping Superfund Sites	<u>Environmental Science</u> by Botkin and Keller <u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll <u>Introduction to Environmental Toxicology</u> by Landis, Sofield, & Yu <u>Green Jobs for a New Economy</u> by Peterson’s <u>Positive Impact Forestry</u> by McEvoy & Jeffords <u>The Environmental Case</u> by Layzer Agricultural texts and manuals College guides Internet and library databases Microscopes

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	Environmental Field Studies		Course Code	[Office use only]
		and Skills, and Demonstration and Application. CTE Standards for the Agriscience Pathway (C): 1.5, 2.0-2.5, 3.2-3.4, 4.3, 5.0-5.4, 6.0-6.2, 7.0-7.5, 10.0-10.4, 11.0-11.6, 12.0-12.3, 13.0-13.3. CTE Standards for the Forestry and Natural Resources Pathway (E): 1.0-1.5, 2.0-2.6, 3.0-3.5, 4.2-4.3, 5.0-5.7, 6.0-6.6, 7.1-7.2, 7.4-7.5, 8.0-8.4, 9.1-9.3, 10.1-10.4, 11.2, 11.4, 13.0-13.4.		Microsoft Office ArcGIS 10 PASCO Probes
Differentiation	Support -- for students who are struggling with the content	Content: Reading assignments will be modified to fit students' needs Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See "Model Tasks" – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students' needs		
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See "Model Tasks" – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects		
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks			
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations			

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title	Environmental Field Studies			Course Code	[Office use only]
Unit 8	Length of Unit: ongoing throughout course – April through June will be focused on Senior Exit Projects, final ePortfolio/medallion presentations, and community action research presentations				
	Key Vocabulary	Standards (referenced)	Model Tasks		Tools / Texts
Career Planning, Internship, and ePortfolio	Key vocabulary will be based on individual student needs. This unit is the final step in preparing them to successfully graduate and pursue the college and/or career path of their choice.	CTE Agriculture and Natural Resources Industry Sector Standards: (Academics) Algebra I 10.0, 12.0, 13.0, 15.0. Geometry 8.0, 10.0, 11.0, 12.0. Probability and Statistics 8.0. Science Investigation and Experimentation 1a, 1c, 1d, 1f, 1j, 1l, 1m. Economics 12.2, 12.2.2, 12.2.3, 12.2.5, 12.2.6, 12.2.7, 12.2.10, 12.4, 12.4.3. (Communications) ELA Reading 9th and 10th 2.1, 2.2, 2.3, 2.6, 2.7, 2.8. ELA Reading 11th and 12th 2.1, 2.3, 2.4. ELA Writing 9th and 10th 1.1, 1.2, 1.3, 1.5, 2.3, 2.5, 2.6. ELA Writing 11th and 12th 1.3, 1.6, 1.7, 1.8, 2.5, 2.6. ELA Conventions 9th and 10th 1.1, 1.2, 1.3. ELA Listening and Speaking 9th and 10th 1.1, 1.7, 2.2, 2.3. ELA Listening and Speaking 11th and 12th 1.8, 1.14, 2.4. Foundation standards for Career Planning and Management, Technology, Problem Solving and Critical Thinking, Health and Safety, Responsibility and Flexibility, Ethics and Legal Responsibilities, Leadership and Teamwork, Technical Knowledge and Skills, and Demonstration and Application.	ePortfolio final presentations Senior Exit Project mock and final presentations College Success Project		<u>Environmental Science</u> by Botkin and Keller <u>Principles of Conservation Biology</u> by Groom, Meffe & Carroll <u>Introduction to Environmental Toxicology</u> by Landis, Sofield, & Yu <u>Green Jobs for a New Economy</u> by Peterson's <u>Positive Impact Forestry</u> by McEvoy & Jeffords <u>The Environmental Case</u> by Layzer Agricultural texts and manuals College guides Internet and library databases Microscopes Microsoft Office ArcGIS 10 PASCO Probes
Differentiation		Content: Reading assignments will be modified to fit students' needs			

Newport-Mesa Unified School District
Office of Secondary Curriculum and Instruction
High School Course of Study

Course Title		Environmental Field Studies	Course Code	[Office use only]
	Support -- for students who are struggling with the content	Process: Extended time, scaffolded instructions, partner work, peer tutoring, modified assignments Product: See “Model Tasks” – many products include elements of student choice and personalization such as topic, artistic design, lab design, and mode of presentation. Students can study similar topics at varying degrees of depth and complexity. End products will also be modified to fit students’ needs		
	Extension – for high achieving students.	Content: Modified reading assignments, more in depth research into given topics Process: Extension activities, autonomous investigation, independent research, modified assignments Product: See “Model Tasks” – many products inherently contain elements for building depth for high achieving students, including more rigorous experimental design elements and greater detail and mastery of content for projects		
Evaluation	Formative Assessments (ongoing & mid-lesson): Periodic checking for understanding; progress checks for projects; review of laboratory set-up, purpose, and hypothesis prior to beginning experiments; worksheets; submission of research summaries; student surveys; ePortfolio progress checks; and internship progress checks			
	Summative Assessments (unit final evaluation): Project evaluations by peers and teacher; formal laboratory reports; formal presentations for peers, teacher, and community members; ePortfolio final evaluation; internship final evaluations			