PROJECT OVERVIEW

Name of Project:	Biome adventures		Duration: 4 weeks
Subject/Course: life science		Teacher(s): Moyer	Grade Level: sixth
Other subject areas to be included, if any:	Social Studies, Math,		

Project Idea Summary of the issue, challenge, investigation, scenario, or problem:	Through a scenario and investigation, students will develop an understanding of various biomes of the world and apply that knowledge in a multimedia presentation. The students will be able to create their own biome with all the needs to support all lives functions. (designing a zoo for animals and plants)
Driving Question	Should we live in this biome, or can we design a better one?
Content and Skills Standards to be addressed:	**LIFE SCIENCE Organization of Living Things** * Revised expectations marked by an asterisk. 6 7 S I X T H G R ADE S C I E N C E v.1 . 0 9 MI CHIGAN DE PAR TMENT OF EDUCAT ION **L.OL.M.5 Producers, Consumers, and Decomposers – Producers are mainly green plants that obtain energy from the sun by the process of photosynthesis. All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products. Consumers break down the structures of the organisms they eat to make the materials they need to grow and function. Decomposers, including bacteria and fungi, use dead organisms or their products to meet their energy needs. *** **L.OL.06.51** Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials). * **L.OL.06.52** Distinguish between the ways in which consumers and decomposers obtain energy. **Ecosystems** **L.EC.M.1 Interactions of Organisms- Organisms of one species form a population. Populations of different organisms interact and form communities. Living communities and nonliving factors that interact with them form ecosystems.** **L.EC.06.11** Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region. * **L.EC.M.2 Relationships of Organisms- Two types of organisms may interact with one another in several ways: they may be in a producer/consumer, predator/ prey, or parasite/host relationship. Some organisms may scavenge or decompose another. Relationships may be competitive or mutually beneficial.**

Some species have become so adapted to each other that neither could survive without the other.
L.EC.06.21 Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).
L.EC.06.22 Explain how two populations of organisms can be mutually beneficial and how that can lead to interdependency.
L.EC.06.23 Predict how changes in one population might affect other populations based upon their relationships in the food web.
* Revised expectations marked by an asterisk.
L.EC.M.3 Biotic and Abiotic Factors- The number of organisms and populations an ecosystem can support depends on the biotic (living) resources available and abiotic (nonliving) factors, such as quality of light and water, range of temperatures, and soil composition.
L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.
L.EC.06.32 Identify the factors in an ecosystem that influence changes in population size.
L.EC.M.4 Environmental Impact of Organisms- All organisms (including humans) cause change in the environment where they live. Some of the changes are harmful to the organism or other organisms, whereas others are helpful.
L.EC.06.41 Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.
L.EC.06.42 Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).

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			T+A	E		T+A	E
21st Century Skills to be explicitly *taught and assessed* (T+A) or that will be *encouraged* (E) by project work, but not taught or assessed:		Collaboration	X		Other:		
		Presentation	x				
		Critical Thinking:		x			

				Presentation Audience:	
Culminating Products and Performances	**Group:**	Group presentation of biome to class Construction of a biome with correct abiotic components and biotic components, with examples of standards, predator/prey, populations, ect.		Class:	X
				School:	
				Community:	
	Individual:	Peer review, group work review, teacher review Unit Meap like tests, study island tests		Experts:	
				Web:	

			Other:	

P R O J E C T   O V E R V I E W

Entry event to launch inquiry, engage students:	**Is this biome right for us? Students will talk about clothing in each biome, we can talk about food found in each biome and living conditions in each biomes. Survival skills for organisms in each biome.** **We can relate the topic back to the students own environment and ways to live in each biome.**				

Assessments	**Formative Assessments (During Project)**	Quizzes/Tests	x	Practice Presentations	
		Journal/Learning Log	x	Notes	
		Preliminary Plans/Outlines/Prototypes	x	Checklists	x
		Rough Drafts		Concept Maps	
		Online Tests/Exams	x	Other:	x
	Summative Assessments (End of Project)	Written Product(s), with rubric:		Other Product(s) or Performance(s), with rubric:	x
		Oral Presentation, with rubric	x	Peer Evaluation rubric	x
		Multiple Choice/Short Answer Test	x	Self-Evaluation	x
		Essay Test		Other:	

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Resources Needed	**On-site people, facilities:**	Computer teacher, classroom teacher, science lab
	Equipment:	Computer lab, smart board
	Materials:	materials to build biome model or computer powerpoint
	Community resources:	

Reflection Methods	**(Individual, Group, and/or Whole Class)**	Journal/Learning Log	x	Focus Group	
		Whole-Class Discussion	x	Fishbowl Discussion	x
		Survey		Other: smart board interaction	x

PROJECT TEACHING AND LEARNING GUIDE

Project: biomes	Course/Semester:

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
Understand Food chain ,food web construction	➔	Model construction of a food web food chain. Play game with student's on food web, food chain
Vocabulary Development	➔	Provide and use vocabulary in action
Videos on different biomes so students can see different biomes with discussions on them as a group	➔	Smart board travel to different biomes (discovery Education web site)
Computer lab research skills taught by computer teacher	➔	Research on group biome, construct presentation on computer
Construction of a group terrarium	➔	Biology in a bottle (terrarium construction
Symbiotic and parasitic relationships	➔	Activity with students on different relationships
Activity fish survival. Activity starts week one of project with students observing fish each day and writing in journal. What is happening in bottle.	➔	Introduce activity

P R O J E C T   C A L E N D A R

Project: biomes | **Start Date: Oct**

M O N D A Y	T U E S D A Y	W E D N E S D A Y	T H U R S D A Y	F R I D A Y
P R O J E C T W E E K O N E				
Travel with discovery education videos around to different biomes looking at them with class discussion about each one. Introduction of vocabulary terms for unit	Group expectations What is needed in the final product, go over sample rubric, what is needed in student journals Teach vocabulary words each day of unit, do a short lesson on words as needed by students Whole group or in small groups	Students start research in computer lab, review different biomes in class looking for vocabulary terms to show as examples. Students have computer class each day with computer teacher Vocabulary quiz check for understanding of terms	Students start activity biology in a bottle record information in student journal, short observations are done each day.	Student observation of biology in a bottle, record data in journal Activity flow chart of food chain resources
P R O J E C T W E E K T W O				
Travel to a biome and work with class looking at food webs and food chains in biomes and relationships of different organisms, done as a class Teacher modeling Food chain and food web introduced in fourth grade,	Finish activity on flow chart food chain and food web resources, review activity as class go over different food chains and food webs for different biomes.	Activity on relationships within your biomes and how this effects organisms relationships for survival. Vocabulary quiz check for understanding of terms	*Continue activity in groups making sure students are progressing toward unit outcome*	With same groups check for understand of activity on relationships in groups biomes and show how they can use it in final project.

Project week three				
Check on progress of group project in computer lab view some models to check for correct progress if share as a group review rubric with group, answer all questions with group, help model share as needed	*Activitydone a class with teacher modeling people change environments look at your biome and see how people have changed it, share as a group positive and negative impacts*	*Continue activity and research Vocabulary quiz*	*Finish activity share results with class*	*Project work in class helping groups with ideas, sharing, modeling, group interaction,*
PROJECT WEEK FOUR Same as Friday, Project work in class helping groups with ideas, sharing, modeling, group interaction	*PROJECT WEEK FOUR PEER REVIEW OF GROUPS WORK, CLASSROOM PRESENATIONS TO CLASS*	*PROJECT WEEK FOUR Final assessment of unit outcomes clicker test smart board*	*PROJECT WEEK FOUR Classroom presentations*	*PROJECT WEEK FOUR Classroom discussion of driving question should we live in this biome or did we create a better one?*

Lesson Design: Careful construction of lessons to remove barriers and provide assess for all students.	Checkpoints: Includes
Students will choose biome of interest and work in small groups. Vocabulary development with take place through out the unit to check for understanding of terms used in activities and final project. Pictures can be used in place of text at all times	✓ Multiple ways to represent information ✓ Alternatives to text ✓ Support provided for text comprehension
Computer lab each day with time and help to work on projects, computer skills and tools taught by computer teacher. Oral and written presentations along with drawings and pictures to show knowledge of outcome.	✓ Flexible technology-based materials, strategies and tools ✓ Multiple ways for students show what they know
Modeling by teacher and small groups review of work (presentation) with feed back on progress Rubric so students can check progress for final grade	✓ Conspicuous supports for learning new strategies ✓ Mechanism for rapid feedback to learners
	✓ Active student-centered methods ✓ Choice, Challenge, Novelty
	✓ Connected, relevant learning

PRESENTATION RUBRIC
(for secondary and upper elementary grades)

	Below Standard	Approaching Standard	At Standard	Above Standard
Eye Contact & Physical Presence	▶ does not look at audience; reads notes or slides ▶ holds things in hands nervously or keeps hands in pockets ▶ posture does not show confidence; (fidgets, slouches) ▶ clothes are not appropriate for the occasion	▶ makes some eye contact, or scans the room quickly, but reads notes or slides most of the time ▶ uses a few gestures but they do not look natural, or keeps hands too still to look natural ▶ posture shows some confidence, with only a little fidgeting or nervous movement ▶ some attempt to wear appropriate clothing for the occasion	▶ keeps eye contact with audience most of the time; only reads notes or slides sometimes ▶ uses hands naturally, making some gestures ▶ confident posture ▶ clothes are appropriate for the occasion	*In addition to* **At Standard** *criteria:* ✚ keeps eye contact all the time, slowly scanning all of the audience; does not read notes or slides ✚ uses gestures smoothly, naturally to emphasize or illustrate points ✚ moves with purpose
Speaking	▶ mumbles or goes too fast or slow ▶ speaks too softly to be heard ▶ frequently uses "filler" words ("uh, um, so, and, like") ▶ pronounces several words incorrectly ▶ speaks in a style that is not appropriate for the occasion	▶ speaks clearly some of the time; sometimes too fast or slow ▶ speaks loudly enough for some of the audience to hear, but may speak in a monotone ▶ occasionally uses filler words ▶ pronounces a few words incorrectly ▶ speaks in a style that is appropriate for the occasion, most of the time	▶ speaks clearly; not too fast or slow ▶ speaks loudly enough for everyone to hear; changes tone to maintain interest ▶ rarely uses filler words ▶ pronounces words correctly ▶ speaks in a style that is appropriate for the occasion	*In addition to* **At Standard** *criteria:* ✚ adds variety to speaking style (lower or higher volume, change of pace, use of character voices) ✚ uses pauses for dramatic effect or to let ideas sink in
Organization	▶ does not meet requirements for what should be included in the presentation ▶ selects too much or too little information or the wrong kind of information ▶ gets ideas mixed up ▶ time is not used well; the whole presentation, or several parts of it, are too short or too long ▶ does not have an introduction and/or conclusion	▶ meets most requirements for what should be included in the presentation ▶ sometimes selects too much or too little information, or the wrong kind, about some topics ▶ some ideas are connected, but not all ▶ some parts feel too short or too long; too much or too little time is spent on one topic, slide, or idea ▶ has an introduction and conclusion, but they are not clear or interesting	▶ meets all requirements for what should be included in the presentation ▶ selects the right amount and kind of information to present ▶ states main idea & moves from one idea to the next clearly, in an order that makes sense ▶ time is well spent; no part feels too short of too long ▶ has a clear and interesting introduction and conclusion	*In addition to* **At Standard** *criteria:* ✚ has a memorable introduction and conclusion ✚ connects introduction and conclusion (returns to a story, theme, or metaphor) ✚ effectively uses humor, stories, or metaphors
Audio/Visual Aids	▶ does not use aids (pictures, drawings, objects, posters, maps, recordings, slides, other electronic media, etc.)	▶ uses aids but they do not add much to, and may distract from, the presentation ▶ aids are hard to read or hear, or are messy (writing or graphics are not neat or sound is not clear) ▶ aids are not ready to use and are not smoothly brought into the presentation	▶ aids add to the presentation ▶ aids are easy to see and/or hear, and are neat ▶ aids are ready to use and included smoothly into the presentation	*In addition to* **At Standard** *criteria:* ✚ aids are especially creative and/or powerful ✚ shows skill in creating aids and/or using technology ✚ smoothly handles problems with aids and technological glitches, if they occur
Response to Audience Questions	▶ does not address the audience's questions; says little or goes off the topic	▶ may answer some of the audience's questions, but not clearly and/or completely ▶ may try to answer a challenging question by faking it	▶ answers audience's questions clearly and completely ▶ when asked a question he or she does not know the answer to, says "I don't know" or explains how the answer could be found	*In addition to* **At Standard** *criteria:* ✚ answers questions in a way that adds details, examples, or new points to the presentation ✚ smoothly handles questions that are unclear, off the topic, distracting, or challenging

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COLLABORATION RUBRIC
(for secondary and upper elementary grades)

	Below Standard	Approaching Standard	At Standard	Above Standard
Responsibility for Oneself	▸ is not prepared and ready to work with the team ▸ does not do project tasks ▸ does not complete tasks on time ▸ does not use feedback from others to improve his/her work	▸ is sometimes prepared and ready to work with the team ▸ does some project tasks, but needs to be reminded ▸ competes some tasks on time ▸ sometimes uses feedback from others	▸ is prepared and ready to work with the team; is available for meetings and uses the team's communication system ▸ does what he or she is supposed to do without having to be reminded ▸ completes tasks on time ▸ uses feedback from others to improve his or her work	*In addition to* **At Standard** *criteria:* ✚ does more than what he or she has to do ✚ asks for additional feedback to improve his or her work, beyond what everyone has been given
Helping the Team	▸ does not help the team solve problems; may cause problems ▸ does not share ideas with other team members ▸ does not give useful feedback to others ▸ does not offer to help others	▸ cooperates with the team but does not actively help it ▸ makes some effort to share ideas with the team ▸ sometimes gives useful feedback to others ▸ sometimes offers to help others	▸ helps the team solve problems, manage conflicts, and stay focused and organized ▸ shares ideas that help the team improve its work ▸ gives useful feedback (specific and supportive) to others so they can improve their work ▸ offers to help others do their work if they need it	*In addition to* **At Standard** *criteria:* ✚ steps in to help the team when another member is absent ✚ encourages others to share ideas, helps to make them clear, and connects them to the team's work ✚ notices if a team member does not understand something and takes action to help
Respect for Others	▸ does not pay attention to what teammates are talking about ▸ does not show respect for teammates (may interrupt, ignore ideas, hurt feelings)	▸ usually listens to teammates, but not always ▸ is polite and kind to teammates most of the time, but not always	▸ listens carefully to teammates ▸ is polite and kind to teammates	*In addition to* **At Standard** *criteria:* ✚ encourages the team to be respectful to each other ✚ recognizes everyone's strengths and encourages the team to use them