

Ecology Unit Planning Chart

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Anchor: How can we protect or restore ecosystems?

Lesson #	Lesson Title	# Days	Storyline	Main Activity	Vocabulary	Materials
1	What is an Ecosystem?	1	Ecosystems are defined by the living and non-living components and how these components interact.	Look at 4 ecosystems and identify their components.	abiotic factors biotic factors ecosystem system, system components (review) producers consumers species photosynthesis (review)	4 ecosystems photos and descriptions to project for students (provided); or color copies -- if using copies you might want to laminate these for future use. Word wall for the unit (recommended) 2 sheets of poster paper (optional, for sample KWL chart and concept map)
2	Observe an Ecosystem Project	1	Small, local ecosystems will be observed as a project.	Discuss our unit project where observations of an ecosystem are made.	none	Poster paper or white boards for the concept map activity. Lesson 2-19 "Observe an Ecosystem" Project Packet
3	Predator / Prey Activity (1-2 days)	2	Predators are important components of ecosystems.	A simulation of a predator interacting with 3 different prey species will be conducted.	population predator/predation reproduction camouflage	10 pieces of cloth, 30 vials each with 50 small pieces of colored paper (different colors)
4	Predator / Prey Cycles (1-2 days)	2	Predator and prey numbers cycle in a particular pattern; they depend on each other.	A simulation will be conducted of predator / prey cycles.	predator-prey cycle	same as in Lesson 3
5	Interactions Between Organisms	1	There are other interactions besides the most basic one of predator and prey.	Organisms interact in many different ways. Different flowers have different kinds of pollinators; students will predict the pollinator type / size / shape of different flowers.	interaction mutualism competition parasite-host predator-prey (review) pollination/ pollinator	Colored pencils are markers, plain paper

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6	Observing Interactions Between Organisms	1	Nature videos portray different kinds of interactions in ecosystems.	Interactions in ecosystems will be classified.	none	need a nature video that depicts a lot of different kinds of interactions between organisms.
7	Populations	1	Ecosystems have several populations interacting with each other.	Populations will be defined and population graphs will be analyzed.	population population size	none
8	Balance	1	Ecosystems have a balance	Natural and human - caused disturbances affect ecosystems in different ways.	balance invasive species	Disaster cards (see separate file). One set per group (recommended, or groups can pass around and share). Copy and cut out. Laminate these for more durability. Additional resources about the different types of Natural and human made disasters (optional)
9	Yellowstone Case Study	1	Wolves were hunted to near extinction in Yellowstone National Park. When they were re-introduced the ecosystem diversity returned.	The re-introduction of wolves into Yellowstone Park restored the diversity. Will this action work in other parks or ecosystems?	none	need a video on the re-introduction of wolves into Yellowstone
10	Ecology Mid-unit Review and Interim Assessment	1	Review about ecology concepts and termed learned so far.	Vocabulary and concepts in the first 9 Lessons are reviewed using a game.	none	copies of quiz for each student
11	Food Webs (2 days)	2	Food webs have a set of interacting components.	Food webs show the flow of energy and matter in an ecosystem.	food web producer consumer (herbivore) consumer (carnivore) decomposer biodiversity	none

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Lesson #	Lesson Title	# Days	Storyline	Main Activity	Vocabulary	Materials
12	Observe an Ecosystem Project Continued	1	Students will apply what they have learned in the first part of the unit to the ecosystem they are observing	Students will apply what they	none	none
13	Flow of Matter in an Ecosystem	1	Matter in ecosystems cycles; matter is conserved.	A diagram the flow of matter in an ecosystem will be drawn.	decomposer (review)	none
14	Flow of Energy in an Ecosystem	1	Energy in an ecosystem is one directional.	A diagram the flow of energy in an ecosystem will be drawn.	none	none
15	Energy and Matter Diagram	1	Diagrams can be made of energy and nutrients in an ecosystem.	Diagrams of both the flow of energy and nutrients in the ecosystem students are observing will be made	none	none
16	Design an Ecosystem (3 days)	3	Closed ecosystems have both living and non-living componenets that are essential for life.	Students will apply what they have learned by designing an artificial ecosystem that has all the necessary components.	sustainable	Large poster board (1 for each group of 4 students) Markers
17	Conservation Biology: Part 1 - Problems	1	Many threats exist to the world's biodiversity.	Threats to biodiversity will be discussed what individual actions might help to conserve species and diversity.	biodiversity hotspots invasive species biodiversity (review)	none
18	Conservation Biology: Part 2 - Actions (3 days)	3	Humans impacts on ecosystems are often more severe than natural disturbances to ecosystems.	Habitat restoration plans can repair a damaged ecosystem. Students will evaluate designs for restoration.	ecosystem services	Large poster board (1 for each group of 4 students) Markers Could look for a local non-profit group that is working on restoration where the students can go to participate in an active restoration project.

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19	Observe an Ecosystem Project continued	1	Local ecosystem projects are small, local examples of larger ecosystems.	Students will present what they have learned about their ecosystems.	none	none
	Review	1				
	Assessment	1				
	Total # days	28				