

Chapter 1 : Diversity Activities and Ice-Breakers

The Exploring Biodiversity project is designed so that students will learn about the importance of biodiversity, research a specific habitat, and ultimately create an argument, supported by evidence, for preserving biodiversity.

It gets students out of their seats and talking to others about their similarities. It is located at the end of the chapter in the printed text and is available as a supplement to the online edition. This is a great way to show the harmful effects of discrimination and the detrimental effects on learning when people are told that they are inferior. Have students underline their best sentences. Ask for volunteers to share their best sentence. Usually a good discussion follows. This video is now available online at: [Students can also be asked to create a family tree that shows their ethnic or cultural background.](#) If your students are sharing the poster with the class and you are not collecting them, give students the freedom to be creative and use any size paper. One student brought a guitar with pictures taped on it to share with the class. Another student brought a paper bag with items to discuss and show the class. Caution students to use positive thinking and to show what they are proud of in their lives. I ask students not to have any pictures or references to drugs, alcohol, violence or guns. Pictures should be in good taste. They should not have pictures of nude men or women, for example. Ask students to give the common stereotype portrayed in the movies. At first students are hesitant to share stereotypes, so stress that these stereotypes are commonly presented in the movies. This leads to interesting discussion as students contribute the stereotypes that they have observed. Finish this exercise by asking about the sources of these stereotypes, the prejudices that can result and the harm that can result from prejudice.

My Groups The purpose of this exercise is to help students become more aware of the groups with which they identify and how they are affected by stereotypes. Begin with a diagram that has one circle in the middle and four circles surrounding it. Write your name in the middle circle. In the surrounding circles, list the groups with which you identify. Turn to the person next to you. Tell of a time you felt especially proud to be a member of this group. Share a time it felt particularly painful to be a member of this group. Which stereotype have you heard about one of your groups, but it fails to describe you? At the end of this exercise, give students a few minutes to write 3 discovery statements. Ask for volunteers to share their discovery statements.

Sandee Bonura, Instructor, Cuyamaca College Culture Walk The purpose of this exercise is to help students become more aware of the many types of diversity that exist and to find students who share the same experiences. For this exercise, students form a line across the classroom. Students are asked to step forward and then back into the line based on questions asked by the instructor. Start with questions that are non-threatening to get students comfortable with the exercise. Vary the questions to suit your group of students. Walk across the line if your favorite color is blue. Look into the eyes of those you brought with you. Look at those you left behind. Allow yourself to feel whatever you are feeling. Walk back across the line. Here are some additional questions: At the conclusion of this exercise, ask students what they learned from it. The usual comment is that students are not aware that so many share the same experiences. Students form a straight line in the classroom. After each question, participants are asked to take a step forward or back. Here are the questions: If you have forty or more books in your house, take a step forward. If you received a free lunch at school or had a lunch card, take a step back. If your parents read to you when you were young, take two steps forward. If you went to an alternative or adult education school, take one step back. If you attended a private school, take one step forward. If you parents speak English, take one step forward. If you are a US citizen, take one step forward. If you are an undocumented resident, take two steps back. If you know someone who died because of gang violence, take a step back. If you have a family member who has been in prison, take a step back. If you have a computer in your home, take a step forward. If someone in your family receives government assistance, take a step back. If someone in your family is dependent on drugs or alcohol, take a step back. If your parents graduated from high school, take a step forward. If one of your parents did not graduate from high school, take a step back. If you live in a single parent home, take a step back. If you have been discriminated against because of your ethnicity, take a step back. If your family owns the home where you live, take a step forward. If you have seen violence in your house, take a step back. If you are bilingual, take a step forward. If you have

ever been discriminated against because of your sexual identity, take a step back. If you are a man, take two steps forward. If you are a woman, take two steps back. Here are some questions for discussion: What did you think of this activity? How did you feel about your position in the line? What is the best way to overcome disadvantage? To play this game, place a piece of tape across the floor. Ask students to step on the line if the questions pertain to them. Students can opt not to step on the line if they feel uncomfortable doing so, but emphasize that this is a safe place to share. You can use the same questions as the Line of Inequity above.

The Privilege Walk Workshop: Attaching a Story In this exercise, students are given labels: upper class, lesbian, Goth, activist, Jew, gay, alcoholic, deaf, religious, convict, white, straight, black, disabled, working class and asked to list characteristics about themselves and two other people in the group. Then they are asked to open an envelope which contains a description of the person which is often very different from the label.

Self-esteem Exercise In order to appreciate diversity, it is first necessary to have good self-esteem. This exercise gets students to smile and think some positive thoughts about themselves and others. Do a chain of compliments around the room. Begin by giving a compliment to the first student in the row. For example, "You have a nice smile." Each student in turn gives a compliment to the next student. No compliment can be repeated twice and compliments should be sincere.

Examining Our Own Prejudices This exercise helps students to become aware of their own prejudices. Start by distributing 3 X 5 cards to the class. Ask students to write a couple of sentences about a group that they have the most difficulty with because of their ethnic background, religious beliefs, gender, sexual orientation or political beliefs. Tell students not to put their names on the cards. Collect the cards and read them aloud anonymously. A classroom discussion follows. Congratulate students for their honesty. Ask the students the following: Some students will turn in blank cards because they do not want to write down negative ideas about any group or because this exercise is too threatening for them. We all have some biases and prejudices that are learned as we are growing up. We generally learn these prejudices from our parents, friends, church, the media, etc. We all need to become aware of our biases and be careful not to generalize. This discrimination could result from any kind of difference such as hair length, style of dressing, political affiliation, religion, skin color, hair color, age, weight, language, accent, or disability.

Chapter 2 : Biodiversity: A Project Based Learning Implementation Plan

In this Project Learning Tree high school module, students learn that decisions about growth and development, energy use and water quality, and even human health, all rest to some extent on perspectives about biodiversity.

Give students approximately ten minutes to browse the list of vanishing species at Bagheera. Define the following terms, or have students define them: To demonstrate their understanding of these terms, ask students to write or state sentences that use all three of these words. What happens if one member of an ecosystem no longer exists? For example, what might happen if a certain type of fish dies out of a lake ecosystem, leaving its predators without a food source and its prey without a predator? Discuss potential impacts for animal and plant members of the ecosystem and for people who live near or make use of the ecosystem e. Divide the class into groups of about three students each. Ask the groups to discuss and list the reasons why they think biodiversity is important and why endangered animals and habitats should be protected. Why should ecosystems be kept healthy, with every member of the ecosystem protected? Groups should list all their ideas. Inform students that, as they may have already realized from making their lists, there is more than one argument in favor of preserving biodiversity and maintaining healthy ecosystems. Five major arguments are: Tell them that many people who believe biodiversity should be preserved will use more than one of these arguments to make his or her point. Have the students visit the following Web sites to read some of the arguments in favour of preserving biodiversity. Why It Matters Closing: After students have looked at the above Web sites, ask them to write one to three sentences for each of the five types of arguments. Their sentences should provide specific examples of these pro-biodiversity arguments. Suggested Student Assessment Have each student write a two-paragraph essay about preserving biodiversity. The first paragraph should explain which arguments they found the most compelling and why. The second paragraph should explain which of the arguments they read about on the Internet seems the most likely to convince people that biodiversity should be preserved. You can pose the following questions as guidelines for writing the paragraphs: Which of these reasons do you find the most convincing, and why? Choose one or two. Which of the reasons for preserving biodiversity do you think would be the most likely to convince people that biodiversity should be preserved? Extending the Lesson Have students write letters to the director of the World Wildlife Fund or another conservation organization in which they recommend the angle they think that organization should take when trying to convince the public to support biodiversity protection. Which of the five pro-biodiversity arguments do they think would be the most productive and convincing, and why? They can suggest that the organization use all five arguments, just one, or a few. Have students search the Internet or print materials to find examples of conservation programs. Ask each student to choose one program. For example, how might the success of this conservation program help indigenous people? It provides posters in both official languages, such as the St. Lawrence Seaway map, as well as short geography related news items suitable for current events. In addition, the June issue each year is devoted to environmental issues such as wind energy.

Chapter 3 : Education - Activities & Lesson Plans

Project scientists from four institutions, including the University of Minnesota, the University of Wisconsin, the University of Nebraska-Lincoln and Appalachian State University are investigating the nature of linkages between plant biodiversity, soil microbe diversity and ecosystem function.

To introduce students to the amazing variety of life around them. Context In this lesson, biodiversity is introduced by having students identify and talk about what they know about the various habitats around them, including the amazing variety of life. Using online resources, they identify the basic components necessary for biodiversity, the critical and countless benefits of habitats, as well as the serious present and future threats to their ongoing existence. It is not difficult for students to grasp the general notion that species depend on one another and on the environment for survival. But their awareness must be supported by knowledge of the kinds of relationships that exist among organisms, the kinds of physical conditions that organisms must cope with, the kinds of environments created by the interaction of organisms with one another and their physical surroundings, and the complexity of such systems. Students should become acquainted with many different examples of ecosystems, starting with those near at hand. Benchmarks for Science Literacy, p. At this level, students should explore how various organisms satisfy their needs in the environments in which they are typically found. They can examine the survival needs of different organisms and consider how the conditions in particular habitats can limit what kinds of living things can survive. In addition, students should look for ways in which organisms in one habitat differ from those in another and consider how some of those differences are helpful for survival. The study of biodiversity involves elements of natural history, ecology, and environmental science. To be best understood, biodiversity should be experienced firsthand in the local environment from a range of views, including the scientific, the aesthetic, and the ethical. This lesson, therefore, should follow more direct experiences with biodiversity. Students also will begin to explore the benefits of the wide diversity of living things. An important goal of this lesson is for students to understand that biodiversity is necessary for life and that species preservation is important to all of us. Every species is linked with a multitude of others in an ecosystem. All animals are part of food webs that include plants and animals of other species. Minor disruptions in a particular ecosystem tend to lead to changes that eventually restore the system. But large disturbances of living populations or their environments may result in irreversible changes. Maintaining diversity increases the likelihood that some varieties will have characteristics suitable to survival under changed conditions. Science for All Americans, pp. Planning Ahead Important Note: Classification Scheme and Classification 2: A Touch of Class cover species identification and classification and are prerequisites for this lesson. In the Motivation section, students will be expected to answer review questions based on these lessons. For some background information on biodiversity, you may want to visit What Is Biodiversity? Motivation Conduct a basic review of what students have already learned about species classification based on the two classification lessons that are prerequisites for this lesson. If your class has not already completed the lessons, you may choose to complete them at this time. Include these questions in your discussion and review of this material: What is an organism? What are some examples of animals? An organism is an individual living thing that carries on the activities of life by means of organs which have separate functions but are dependent on each other. Answers may vary for the examples of animals, plants, and insects. How are animals and plants alike? Some similarities are that they are both organisms that are multicellular [made of more than one cell] and they both have a life cycle. Some differences are that most plants use photosynthesis [use of sunlight] as their mode of nutrition whereas animals use ingestion as their mode of nutrition; plants and animals have different ways of reproduction; and animals have sensory and nervous systems whereas plants do not. What are some ways that we classify different animals, plants, and other organisms? We can classify living organisms by size, shape, or color. What kinds of features are commonly used to classify them? They can be classified by where they live, by what they eat, and by their body structure. What kinds of features do mammals have? They are a group of animals that usually have hair, fur, and nurse their babies with their own milk. What is the benefit of putting organisms into different groups?

Classification is useful because it enables one to make decisions about things [e. It is also useful because it allows us to identify similarities and differences among living things. Give an example of an animal or plant that can be put into more than one group based on its features. A bird is a good example. Development Having looked closer at one aspect of biodiversityâ€”species classificationâ€”the class is now better prepared to learn about biodiversity in general. Using the Introducing Biodiversity student esheet, students should visit Biodiversity is the rich variety of life on Earth , where they will gain a basic understanding of biodiversity, why it is important, and the problems that threaten our ecosystems and the quality of life on earth. Encourage students to take notes as they read. Throughout this resource, there are many red asterisks next to difficult terms and points of interest. These are interactive Ology Cards. They take a few seconds to load. Instead, direct them to click on the arrows at the lower right side of each card. After reading, include in your discussion questions such as these: What does biodiversity mean? It means variety of life. How are poodles, beagles, and rottweilers alike? How are they different? They are all dogs. They are different, though, because their genes are different. What is an ecosystem? Coral reefs, wetlands, and tropical rain forests are all ecosystems. Why is biodiversity important? What are some of the benefits of biodiversity? Biodiversity is important because it affects the air we breathe, the food we eat, how clean our drinking water is, and is the source of products that come from the earth. Biodiversity helps control disease, provides us with things we need, and can make us happy just by providing us with natural beauty. What is causing it today? Extinction is when a species disappears, or is extinguished, from earth. Loss of habitat is the largest cause of extinction today. How are we losing our ecosystems today? Ecosystems get lost as we take over land for homes, factories, and farms. What is the Endangered Species Act? What is it meant to do? It is a law that is meant to protect endangered species - animals or plants that are in danger of becoming extinct. What are some ways that you could help to protect biodiversity? Learn everything you can about animals and plants in your neighborhood, and share what you learn with others. Join a project to plant trees, clean local rivers, or tidy highways. Shop at a local farmers market. You also could reduce, reuse, and recycle the items you buy. Among other things, emphasize how human beings also are living organisms who interact with and benefit greatly from the ecosystems around them. To give students real-life examples of biodiversity and the delicate balance between species within their ecosystems, have them visit Welcome to the Dzangha Sangha and play the Connect the Dots game. Here they will be asked to identify links between different plant, animal, and insect species in a forest, bai marshy clearing , and river at Dzangha Sangha in the Central African Republic. Encourage them to move their mouse over the yellow dots so they can read more about these living creatures and their interdependence. When the webs of interdependence appear at the end of each ecosystem activity, ask review questions to check and ensure student understanding. These questions also are found on the Introducing Biodiversity student sheet. Questions about the forest web: In what ways do the BaAka people use trees? How does the African pied hornbill use them? The BaAka people rely on the forest for food, medicine, and building materials. The pied hornbill uses them to nest and for fruit to eat. What are the different birds shown in this ecosystem? How are they alike? There are the pied hornbill and the African harrier hawk. They are alike in that they both eat fruit and they are birds. They are different in that one has a large beak and also likes to eat insects along with the fruit. How do leopards both give and take away life in this ecosystem? The take away life because they are meat eaters and feed on animals in the forest. If the leopards become extinct, how might this affect the other species that are connected to it?

Chapter 4 : Classroom Activities - Why preserve biodiversity? : Can Geo Education

An activity about biodiversity is also linked closely to Earth Day, Green Team activities, and helps promote a strong environmental ethic in students. Learning Objectives: Hear about the concept of biodiversity, what it means and why it is important.

Divide the students into teams. Have each team decide where to do their habitat diversity study. Possible sites include woods, a forest, a meadow, a lawn of three-year-old grass cover not chemically treated, a marsh, or an edge of a pond or lake. If they focus on smaller areas, you may need to decrease the sizes of their plots and transects. Depending on the habitat chosen, students should decide the size and design of their study. Have students keep in mind the size of the plants they plan to count and study as they decide on the area to observe. Larger plant specimens, such as trees, need a larger plot or transect area than do short grasses. If sufficient space exists, have students choose plots or transects that do not touch or intersect. Also, if a range of habitats is available for study, have each team work in different habitats. This will provide the class with more data for comparison. Students should record their results in the Classroom Activity Sheet: If students are conducting a transect study, they should follow the steps below: Have students measure 20 meters of string. Tie one end of the string to a stake so the string stays in place. Using a permanent marker, students should measure and mark the 5-meter, meter, and meter locations on the string. Have students observe and identify all plants along the meter transect. The width of the transect should be 2 meters, with all plants 1 meter from the string on both sides counted. Have students identify the species of plants along the transect, measure the height of each plant, count the number of plants, and map all plants along the transect. If students are doing a plot study, they should follow the steps below: Measure a square area of sufficient size for a team study. Students should use a meter stick to measure each of the four sides of the plot, and they should put a stake at each of the four corners. This plot size is determined by the size of the plants that the students will be observing. Have students outline the plot study area with string or flagging tape. After the plot has been laid out, have the team spread out to cover the entire plot area. Students should survey the area and identify the species of plants that are present. Then students should count the number of plants, measure the height of each plant, and map where the plants are found on the plot. Have students complete a study of their entire plot or transect area for at least a week. If time permits, students could work on this project throughout the school year. What do the data tell them about their habitats of study? Was more plant diversity found in one particular area? Did the students observe this area as being healthier? Was a large population of a specific plant species found? Suggest that students write paragraph describing their results. After students have completed their school-based biodiversity study, assign the Take Home Activity Sheet: Have students study a completely different area than the one completed for the first project, such as a habitat in their neighborhoods or even in their own backyards. Have students count both plants and animals in this study. At the end of this activity, return to your definition of biodiversity—the variety of living organisms in a given area. Look back at the biodiversity studies students completed at home and school. Point out that some areas have a greater number of species than others: They have more biodiversity. Explain that on a global scale, some areas are more diverse than others. Tropical rain forests have the greatest number of species than any other biome. Ask students to consider why tropical rain forests have so much biodiversity? Adaptations Perform this same activity using a smaller area. Before introducing the activity, provide students with pictures or diagrams of the plants they will most likely find in a local habitat. Young students may identify plants by size, shape, or flower color instead of actual names. Then discuss with students how many different plants were found. Did they have different leaf shapes? How many different blooming flowers were found? Have students identify animal organisms and ask them to think about how the animals are helped by greater plant diversity. True biodiversity studies identify all the organisms that live together in an ecosystem. Have students complete their plot study or transect by identifying and counting all organisms. If students do not know the names of some, have them sketch and briefly describe them. Students should develop a data chart and record their data, as well as sketches on an outline of a transect or plot study grid. Compare and contrast the habitats studied. Which area had the greatest

diversity of life? Which area had the highest population number? Why were some areas more diverse than others? Genetic, species, and ecosystem diversity are three aspects of biodiversity important to living organisms. Are all three aspects present in your community? How are humans threatening each aspect of biodiversity? Explain some problems that scientists face when they try to count entire populations. What methods can they use to deal with some of these problems? Do they need exact numbers of all populations? What happens when new plants are introduced to a habitat? Do they have a negative impact on the native plants growing there? Give examples to support your ideas. Discuss environmental stresses that could affect your habitat of study. What would happen if a hurricane or tornado struck your study area? Do you think your plant habitat could survive such natural disasters? Should humans take measures to ensure biodiversity?

Chapter 5 : Looking For Biodiversity | Free Lesson Plans | Teachers

Check out these 10 Cultural Diversity Activities for Elementary Students to teach children about children of the world. The world is so large that it can be tough to teach children about places that exist outside of their own immediate physical world.

Go into your backyard with a journal, sketchpad, wildlife books, magnifying glass and optional gloves and camera. If you have a large backyard, you may want to limit your observations to one area of it. If you do, make sure that you return to the same area each time. It is possible to complete a biodiversity survey in a square meter, though if you do you most of your observations will be on plants and insects. In your notebook, record the date and time. Take notes on everything you observe. Describe colors, markings, size, shape, sounds and smells you notice about each specimen. Begin by observing some of the larger plants you see. You could collect leaves or just make sketches of them. If you have a camera, you can take pictures as well. Birds may fly in and out of the yard. Take notes, sketches and pictures of them when they do. Insects will be crawling on plants or in the soil just below the top layer. Find and take notes, sketches and pictures of these. Mammals may also be present in your yard. Be sure to take notes, sketches and pictures of domestic visitors such as cats and dogs as well as wild specimens. There may also be fungi in the yard. Take notes, sketches and pictures of them as well. Identify the specimens you have observed using books or the internet. Your sketches and pictures will help you identify the animals and plants correctly once you leave the field. Taking detailed notes on the specimens you see, such as the examples below, will also help you correctly identify the specimens. Return to the same area at different times of day. Your study will show more accurate results the more you observe. Sample Observation Notes Color: In addition, your access to Education. Warning is hereby given that not all Project Ideas are appropriate for all individuals or in all circumstances. Implementation of any Science Project Idea should be undertaken only in appropriate settings and with appropriate parental or other supervision. Reading and following the safety precautions of all materials used in a project is the sole responsibility of each individual.

Chapter 6 : Diversity Activities | BYU McKay School of Education

This publication is a continuation of Diversity Discussion Starters, with a selection of different activities to promote discussion about diversity.

Here is a proposal that was accepted by my local elementary school last year. This proposal is about an inexpensive and effective way to make biodiversity science accessible and fun for a LOT of children. Please use this approach at your local school! All it requires is a few hours of your time, and most anyone that works in the field of biodiversity science can pull this together without much difficulty. A small investment with potentially huge payoffs for our planet. What is below is text that was used for part of formal proposal to my local elementary school – it needed to be approved through a number of pathways – please take this text, and modify it to meet your needs. In part, because such field guides were very influential in my own life, and helped to draw me into a life-long passion for biodiversity. Biodiversity can be discovered by anyone at any age, and I would like to propose a school-wide activity about discovering biodiversity in your own backyard. An activity about biodiversity is also linked closely to Earth Day, Green Team activities, and helps promote a strong environmental ethic in students. The activity will have two components. First, Chris Buddle, a Professor at McGill University, who works in the field of Biodiversity Science, will deliver a school-wide minutes presentation about Biodiversity. This presentation will help define the concept in an accessible manner, and will illustrate why biodiversity is important to all of us, and to the well-being of the planet. The presentation will include a photographic journey about biodiversity, from the rainforests of Panama to the high Arctic tundra. At the end of the presentation, Chris Buddle will outline the second component: The challenge will be an individual-based activity in which students will produce a natural history card about a species of interest. There are many different options, from birds they see in the schoolyard, to trees, to butterflies passing through, to grass on the playground. Another example of a Natural History card, this one done by a Grade 3 student. Different grades can adopt different approaches to the index cards: If teachers are willing and interested, the challenge can be adopted as a classroom project. For example, within a class, each student can be challenged to find and describe a different species so the class will have its own diversity of species. The activity will conclude several weeks after the challenge is initiated. Each index card from each student can be taped to a visible and accessible wall in the school; they can be arranged by obvious groups e. In this way, all students can see the wall and the diversity of species can be easily viewed. It will be visually stunning, and will allow students to make a direct link between the individual species they discovered compared to what others have discovered. It will be important to have the start of spring align with the challenge. Again, this activity could be linked directly to other parts of the curriculum. One set will be for the library; the second set will be housed with the Green Team. Students can access these field guides to help them discover biodiversity. Many biologists trace the root of their career to flipping through field guides when they were young. This activity may also draw positive press from the local media; it will be visually appealing, and has the benefit of student engagement at all grades and ages.

Chapter 7 : WyoBio :: Middle School Biodiversity Unit

Find and save ideas about Diversity activities on Pinterest. | See more ideas about Infant bulletin board, Diversity display and Anti bullying month.

A PowerPoint presentation is provided to aid the teacher in introducing the concept of biodiversity. Students will then be provided a dichotomous key help sheet that will explain how they are created and used. A dichotomous key pre-lab will then be administered to the students to assess what they have learned prior to laboratory activity. Once the prerequisites are completed, students will then be given a set of organisms to observe and develop a dichotomous key. After completing the activity the class will discuss what they have learned and the challenges associated. A PowerPoint presentation is provided to aid the teacher in introducing the concept of biomes and biogeography. Students will then be provided with a biomes computer laboratory activity and accompanying handout. Due to differences in period length teachers will decide the amount of material that must be completed prior to the end of class. Additional unfinished work may be given as homework. A PowerPoint presentation is provided to aid the teacher in introducing what a kelp forest is and why they are considered by many to be an important ecosystem. Students will then be provided the kelp laboratory activity and live material. Students will dissect the kelp holdfast and collect organisms found within. After completing the activity the class will discuss what they have learned and the challenges associated, emphasizing what they believe to be the importance of kelp forests. Lesson Plan Presentation The daily objective introduces students to global fisheries and the techniques used. A PowerPoint presentation is provided to aid the teacher in discussing the methods used for collecting large amounts of fish, the damage these methods can cause to our ocean ecosystem, and how our demand for seafood can and has led to the collapse of fisheries worldwide. Lesson Plan Presentation Lab Lab Images The daily objective combines all of what they have learned about biodiversity into an activity that introduces the difficulties associated with natural resource management. Organisms will be discussed and presented according to their perceived importance and economic value. Students will then be placed into groups and provided with a conservation lab activity. During this activity student groups will be asked to first determine the importance of organisms presented by dividing up conservation funds. After completing their initial valuation student groups will be assigned an organism to research and determine its perceived value using online resources. After the allotted time, determined by the teacher, students will discuss their findings and compile an argument as to why their organism is important and warrants conservation. After all of the groups have presented their findings a final poll will be taken to see if any groups were persuaded to change their initial disbursement of conservation funds, emphasizing what they have learned and why they have changed their minds. Boreal also known as Taiga Ice Grade Level:

Chapter 8 : Diversity Lesson Plans: Elementary

Diversity Resources for Holidays. Enhance students' understanding of the various holidays different from their own with our teaching guides, worksheets, activities, crafts and more!

WyoBio A Middle School Unit A composite of lessons directed towards th grade students to dive into the subject of biodiversity. Students will participate in the scientific process, go on field trips and gain a depth of information on local biodiversity. Essential Question How do interactions between abiotic and biotic factors in ecosystems affect the biodiversity of those ecosystems? Processes and Skills At the end of this unit: Students will understand how the cycling of materials such as carbon, water and nitrogen affect populations of organisms. Students will investigate predatory relationships, competitive relationships, dispersal, disturbance, organism identification, food webs and human impacts on biodiversity. Students will have gone through the scientific process of asking questions, making a hypothesis, collecting and analyzing data to present their information on a specific species and a local ecosystem. Students will create a prairie poster. Students will reflect on their field trip and be able to define biodiversity. Students will complete a field guide entry through a detailed species account. Students will enter observations into a citizen science database, such as WyoBio website. Next Generation Science Standards MS-LS Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. MS-LS Construct and explanation that predicts patterns of interactions among organsims across multiple ecocystems. MS-LS Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. MS-LS Construct an argument supported by emperical evidence that changes to physical or biological components of an ecosystem affect populations. MS-LS Evaluate competing design solutions for maintaining biodviersity and ecosystem services. MS-LS In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, access to which consequently constraints their growth and reproduction. MS-LS Growth of organisms and population increases are limited by access to resource. MS-LS Similarly, predatory interactions may reduce the number of organisms or eliminate whole populations of organisms. Mutually beneficial interactions, in contrast, may become so interdependent that each organism requires the other for survival. Although the species involved in these competitive, predatory, and mutually beneficial interactions vary across ecosystems, the patterns of interactions of organisms with their environments, both living and nonliving, are shared. B Cycle of Matter and Energy Transformation in Ecosystems Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. Developing Possible Solutions There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.

Chapter 9 : Steam Curriculum

The purpose of this exercise is to help students become more aware of the many types of diversity that exist and to find students who share the same experiences. For this exercise, students form a line across the classroom.

What our teachers are saying about this lesson In what type of classes did you use this? We then used it later in the course as a scaffolding for further inquiry-based projects. Students went on to compare biodiversity between an old-field site and a managed field. They later compared biodiversity of soil macroinvertebrates in various land management sites. I wanted to make big graphs that could be used more as a classroom discussion to see how much they knew about biodiversity. It would have been difficult to have the students go to the computer lab and then make graphs and still try to have a classroom discussion. It was great to be able to walk around and interact with groups. I was also able to talk about data manipulation. I gave very little instruction about how the graph had to be made so we talked about the ways the graph looked as to what the data was actually telling us. It was also a good opportunity to talk about the basics of graphing which students struggle with especially in the beginning of the year. It was an introductory lesson on species diversity and habitat. I used this as an extension of the state required Beaks of Finches Lab, and as a lead-in for the state required Biodiversity and Relationships Lab. This lesson opened the floor for conversation about biodiversity and the many facets that make up biodiversity. The map was simple and the students made excellent observations and predictions as to the environment of each ecoregion. The discussions about similarities and differences once they had made their bar graphs were the best part of the activity. It is a whole lot more engaging to have students arrive at their own definitions rather than providing that even with the most exciting of accompanying images. Could be used for differentiated learning. Do you recommend this lesson to other teachers? This lesson is interactive as well as cooperative. It promotes group discussion and student thinking when comparing the regions. The technology is great because it is easy to use, and something a little different for the students to use. They enjoyed clicking the different birds species to see the different distributions. Group activity and student centered learning are used throughout. She had success with the lesson as well, showing that it is easily adjusted to numerous age levels and skill levels. I think that this is an excellent starting point for a discussion about biodiversity where students are developing their own opinions and supporting them with evidence. Its easy to implement. Allows students to work together to construct meaning for themselves. Allows them to apply critical thinking skills.