Bioaccumulation worksheet ks3

I'm not robot!

Last updated2 October 2020Relationships in an ecosystem, the interdependence of organisms in an ecosystem, including food webs. How organisms affect, and are affected by, their environment, including the accumulation of toxic materials. Describe how a species' population changes as its predator or prey population changes. Explain effects of environmental changes and toxic materials on a species' population. Combine food chains to form a food web. Develop an argument about how toxic substances can accumulate in human food. Creative Commons "Sharealike"Select overall rating(no rating)Your rating is required to reflect your happiness.Write a reviewUpdate existing reviewIt's good to leave some feedback.Something went wrong, please try again later.This resource hasn't been reviewed yetTo ensure quality for our reviews, only customers who have downloaded this resource can review itReport this resourceto let us know if it violates our terms and conditions. Our customer service team will review your report and will be in touch. Last updated20 June 2019Worksheet and slides for a brief 30 min lesson quickly covering bioaccumulation of DDT for KS3 Science. Print the worksheet doublesided and you only have a single sheet to give out containing an extension comprehension task. Could be easily adapted or extended to fill a longer lesson. Enjoy! (Thank-you for the feedback, I've uploaded the worksheet as a PDF for those without access to Publisher.) Creative Commons "Attribution"Select overall rating(no rating)Your rating is required to reflect your happiness.Write a reviewUpdate existing reviewIt's good to leave some feedback.Something went wrong, please try again later.Really good sets of questions with differentiation that promotes deep thinking! Thank you!Empty reply does not make any sense for the end userGood lesson plan thanks for sharing
Empty reply does not make any sense for the end userexcellent complete lesson. Thanks for sharingEmpty reply does not make any sense for the end userEmpty reply does not make any sense for the end userEmpty reply does not make any sense for the end userReport this resourceto let us know if it violates our terms and conditions. Our customer service team will review your report and will be in touch. DISTANT VOICE: Food comes from space! NARRATOR: Well, sort of. Pizza doesn't come from Mars it originally comes from Italy, but if we look at something called a food chain we can see that all the energy animals get from their food originally comes from around 93 million miles away.Is that possible? Can you guess where that could be? Yes, it's the Sun.So what happens to the Sun's energy when it reaches Earth?Well, green plants convert the Sun's rays into energy through a process called photosynthesis. Almost all food chains begin with a green plant. Here in the sea, seaweed and plankton do the job. A plant that converts the Sun's rays into energy is called a producer. They are the start of a food chain. Animals get all the energy and nutrients they need to live from eating other plants and animals. The animals that eat the producers are called primary consumers. These little guys munch on the plankton like a caterpillar eating grass or leaves. Animals that eat the primary consumers are secondary consumers. The primary consumer is prey and the secondary consumer is the predator. But predator can become prey. This is the strange but amazing frogfish. Nothing else eats frogfish apart from sometimes other frogfish!An animal that isn't eaten by anything else is the top predator in a food chain. So we can see how the energy from the Sun is converted by plants then moves up the food chain to the top predator. These are some plants and animals you might be more familiar with. How would they fit into a food chain? What eats what and where does the energy come from to start with?You can see how the energy from the Sun moves up through the food chain to the top predator. The eggs laid by this Peregrin falcon are weak and damaged. But what's caused it?Amazingly, it was a pesticide called DDT used around 50 years ago to kill insect pests and protect crops. But how did this happen?A food chain can show us. The DDT was taken in by plants or insects. These were then eaten by birds who in turn were eaten by Peregrin falcons which caused their eggs not to grow properly and have thin shells. So, just like energy, if a poison enters a food chain it is passed along and has knock-on effects on all the animals up the chain.What do you think would happen if one plant or animal in a food chain was removed?If there is nothing to eat a consumer its population can grow out of control. In many parts of Britain this is happening to the deer population.We don't have wolves in Britain anymore so the deer have no natural predator that eats them. Deer eat woodland shrubs and undergrowth. So if there are too many of them it can cause a lot of damage to the habitat of other animals like woodland birds. They are also destroying important woodland plants. When one population is out of control, it can effect many others. Most animals don't just eat one thing. In any ecosystem there are lots of food chains that all link together. This is called a food web.A food web is all the food chains that make up an ecosystem from producers to consumers to top predators. But here's a question. What happens to the energy and minerals in the top predator? Is it the end of the story? Well no. As always, someone is left to tidy up. In a food chain these are the decomposers. They consume dead animals decaying plant material and waste products from other members of the ecosystem and return the nutrients to the soil which helps the green plants to grow and the whole food chain to begin again.With a little help from 93 million miles away. This short activity is designed to demonstrate to students how toxins can accumulate in the food chain, affecting organisms far removed from the original source of the pesticide. Each pair of students needs twenty small slips of paper to represent a dose of toxin. The PowerPoint leads the class through the bioaccumulation activity. The activity ends with students considering the implications for human food chains. When the activity has been completed, students can design and produce a large flow diagram demonstrating how toxins can build up in a food chain. This is a powerpoint presentation with 8 slides covering grassroots movements, NIMBY, persistent organic pollutants, bioaccumulation, The Basel and Stockholm Convention Treaties, waste fees, biomimicry, and eco industrial parks as methods to reduce waste production.Page 2This exam covers the topic of Humans and the Environment. There are 25 questions which include multiple choice, matching, short answer and and essay question on the following topics: Recycling, Biodegradable, Smog, Pesticide, Bioaccumulation, Global Warming, Herbicide, Ozone Depletion, Biocide, Acid Rain, Human Requirements, Human Population Growth, Pollutant, Water Pollution, Air Pollution, Soil Pollution, Endangered Species, Extinct Species, Air Quality, 'The Lorax', Importation of Alien SpePage 3Throughout this three-week, low-prep long unit, students investigate the concept of environmental health, how chemicals in our environmental affect our health, and how an outbreak of specific diseases can begin and then spread. Key concepts and ideas from these lessons include DDT, pathogens, different types of hazards (biological, social, chemical and physical), epidemiology, toxicology, dose-response relationships, risk assessments, pollution, carcinogens, chemical mutagens, teratogens, neurotPage 4These high school (AP or general) environmental science crosswords make wonderful vocabulary reviews for students. This pack consists of six crossword puzzles highlighting humans, agriculture, waste management, toxicology and urbanization, plus an answer key. The crossword puzzles are: 1) Human Populations (affluence, fertility, industrial demographic transition, mortality, reproductive window, transitional phase, family planning, life expectancy, sensitivity, Thomas Malthus, post-industrial,Page 5This comprehensive set of lessons and activities will introduce your students to the topics of land use and sustainability in regard to urbanization, agriculture, and forestry. Human impacts on the environment are interwoven through each lesson to provide students with a good basis for any environmental science or APES course. A PowerPoint, guided notes, web-quests, doodle notes, activities, extension pages, and assessments are all included in this lesson. All student pages come in both PRINT an Food chains teacher brief Overview: the sun is the ultimate source of energy for most living organisms. Plants harness the solar energy through photosynthesis and use this energy to make glucose. This glucose is then used in respiration or to make other cellular structures. This biomass is then transferred through an ecosystem when one organism eats another e.g. grass → rabbit → fox. The arrow shows the direction in which energy/biomass is transferred and all food chains begin with a producer, so called because they produce their own food. As biomass is transferred between trophic levels (trophic comes from Greek 'to feed') most biomass is lost (about 90%) through excretion of urine and faeces and waste gases from respiration. Only some of this biomass (about 10%) is incorporated into new tissue. Key concept: energy from the sun is captured by plants through photosynthesis and used to make glucose which is then used in respiration or to make new cells (biomass). Some of this biomass is passed along a food chain when one organism eats another. The majority of this biomass though (~90%) is wasted at each step. From big idea: organisms require a supply of energy and materials for which they often depend on, or compete with, other organisms Linked knowledge: carbon cycle, photosynthesis, respiration, cell structure, energy Misconception [scientific idea]: anthropocentric ideas e.g. there are more herbivores than carnivores because people breed them; energy adds up through a food chain e.g. a top predator has all the energy from producers and consumers [energy is actually lost through a food chain]; food that is eaten is not incorporated into body tissues but is stored separately [digested food is incorporated into new cells and is available to the next trophic level] Before we get stuck into food chains and food webs, it's important that students have time to explore habitats and organisms first. Videos or setting homework to explore the animals of the Serengeti work well. Click here to download the video Building and understanding food chains and webs GCSE activity and worksheet to help students understand food chains. Students work in groups to think deeply about a series of questions. For example, why don't humans eat grass? Why are big, fierce creatures rarer than small cuddly ones? It allows students to develop a better understanding of how biomass flows through a food chain. Alternatively, use these questions as homework. (PDF) Biomass transfer through food chains GCSE worksheet on biomass transfer in food chains. This is a hard activity that gets students to think deeply about the transfer of biomass between trophic levels. We casually say when teaching food chains that only 10 % of the biomass from each trophic level is transferred to the level above. What we should say is that only 10% of the biomass from each trophic level is transferred into the biomass of the trophic level above; otherwise, we risk introducing a misconception. (PDF) Bioaccumulation Bioaccumulation of plastics in food chains provides an excellent context to introduce bioaccumulation but also illustrates how humans impact ecosystems. The video below explores microplastics in oceans. Click here to download the video Going deeper If biomass is lost through a food chain, why are secondary consumers generally bigger than primary consumers? Why can a vegetarian diet support more people per tonne of producer? Does a food chain have to start with a living organism? ↵ Back to Biology teaching resources

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