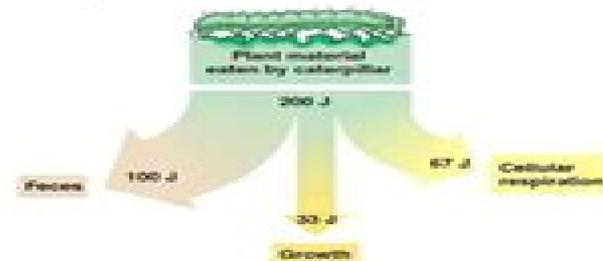
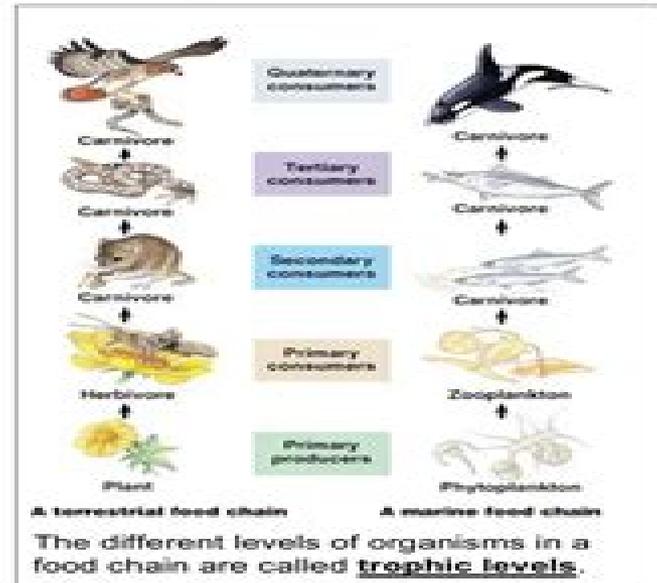


LAB _____ FOOD CHAINS AND ENERGY IN ECOSYSTEMS

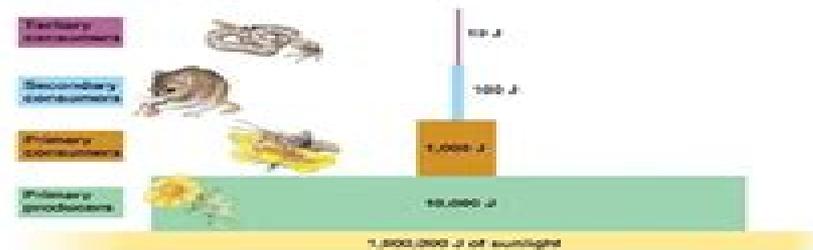
All organisms need an input of energy and nutrients to live. For animals, both of these come from the food they eat. For plants the source of energy is the sun — they produce their own food through photosynthesis — and their source of nutrients is the soil.

The feeding relationships between organisms forms a food chain. **Producers** (plants, or **autotrophs**) capture the sun's energy and absorb nutrients from the soil to make their own food. **Primary consumers** (animals, **heterotrophs**, or **herbivores**) eat the plants and capture their energy and nutrients. **Secondary consumers** (animals, **heterotrophs**, or **carnivores**) eat the herbivores and capture their energy and nutrients. Third and fourth level consumers continue this chain by eating the lower level carnivores. Then finally **decomposers** breakdown waste and dead organisms recycling the nutrients back into the ecosystem, so they are available for another generation of plants and animals.

When a consumer eats another organism, only a small fraction of the energy taken in is used for growth. About 50% of the food is not digested or absorbed and is passed out as waste. About 40% of the energy of the food is lost from as heat or used by the organism for cellular respiration — making energy for daily life. Only about 10% of the food eaten is used for growth and is therefore available as energy to the next **trophic level** in the food chain. This produces a pyramid of energy and a pyramid of numbers in an ecosystem. The greatest amount of energy and the largest population is at the base of the pyramid with the producers. The least amount of energy and the smallest population is at the top of the pyramid in the top level consumers.



Only about 10% of the energy from the food eaten is used for growth.



Because of the loss of energy moving up the food chain, each trophic level can support fewer organisms.

Regents Biology Lab Food Chains And Energy In Ecosystems Answers

Baby Professor



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El-Hi Textbooks and Serials in Print, 1996 R R Bowker Publishing, Bowker, 1996-02 **Producers, Consumers, and Decomposers** Dava Pressberg, 2016-12-15 How do animals interact within an ecosystem What is an animal's role within their food chain This life science guide introduces readers to familiar and exotic producers consumers and decomposers to give them a well rounded look at the flow of energy through the food chain This important life science concept is illustrated by color photographs of each animal and fascinating facts about their place in their ecosystem **Food Chains & Food Webs Science Learning Guide** NewPath Learning, 2014-03-01 The Food Chains Producers Types of Consumers Food Chains Food Webs Owl Food Web Owl Pellets Energy Pyramid and Food Web Balance Aligned to Next Generation Science Standards NGSS and other state standards **Food Webs** Gary A. Polis, Kirk O. Winemiller, 1996 In depth overview of the most recent advancements in food web research Integrates theory basic empirical research and applications to resource problems

Dynamics of Nutrient Cycling and Food Webs Donald L. DeAngelis, 2012-12-06 In all fields of science today data are collected and theories are developed and published faster than scientists can keep up with let alone thoroughly digest In ecology the fact that practitioners tend to be divided between such subdisciplines as aquatic and terrestrial ecology as well as between population community and ecosystem ecology makes it even harder for them to keep up with all relevant research Ecologists specializing in one sub discipline are not always aware of progress in another subdiscipline that relates to their own Syntheses are frequently needed that pull together large bodies of information and organize them in ways that makes them more coherent and thus more understandable I have tried to perform this task of integration for the subject area that encompasses the interrelationships between the dynamics of ecological food webs and the cycling of nutrients I believe this area cuts across many of the subdisciplines of ecology and is pivotal to our progress in understanding ecosystems and in dealing with human impacts on the environment Many current ecological problems involve human disturbances of both food webs and the nutrients that cycle through them Little progress can be made towards elucidating the complex feedback relations inherent in the study of nutrient cycles in ecological systems without the tools of mathematics and computer modelling These tools are therefore liberally used throughout the book **Food Webs** S. Pimm, 2012-12-06 Often the meanings of words are changed subtly for interesting reasons The implication of the word community has changed from including all the organisms in an area to only those species at a particular trophic level and often a taxonomically restricted group for example bird community If this observation is correct its probable cause is the dramatic growth in our knowledge of the ecological patterns along trophic levels I call these horizontal patterns and the processes that generate them This book deals with vertical patterns those across trophic levels and tries to compensate for their relative neglect In cataloging a dozen vertical patterns I hope to convince the reader that species interactions across trophic levels are as patterned as those along trophic levels and demand explanations equally forcefully But this is not the only objective A limited number of

processes shape the patterns of species interaction to demonstrate their existence is an essential step in understanding why ecosystems are the way they are To achieve these aims I must resort to both mathematical techniques to develop theories and statistical techniques to decide between rival hypotheses The level of mathematics is likely to offend nearly everyone Some will find any mathematics too much while others will consider the material to be old familiar ground and probably explained with a poor regard for rigour and generality *Food Chains and Ecosystems* George I. Schwartz, Bernice S. Schwartz, 1974 Experiments demonstrating ecological relationships using soil water and living plants and animals

Ecosystems and Food Chains Francene Sabin, 1985 Explains the natural patterns by which plants and animals depend upon each other and the environment for food and emphasizes the dangers of pesticides and other human interference with the ecosystem *Food Chains* Alvin Silverstein, Virginia B. Silverstein, Laura Silverstein Nunn, 1998 You've probably heard the saying You are what you eat Of course you don't become a cow when you eat a hamburger but you do draw your energy from the energy in the food you consume All organisms are linked together by the food chain which illustrates the transfer of energy from one organism to another A bird gains strength from devouring a frog which may have eaten a fly which may have eaten rotten fruit Science writers Alvin and Virginia Silverstein and Laura Silverstein Nunn describe the many sources of energy we often take for granted every time we eat The authors also explore relationships in nature and what happens when a part of the food chain is affected by outside factors Finally they offer ways we can protect each level of the food chain Book jacket **Food Chains and Webs** Louise Spilsbury, Richard Spilsbury, 2004 Describes what a food chain and web is

what kinds are found in grasslands who eats whom in oceans rivers and lakes and some activities that the reader can research about food chains Food Production and Consumption Alec Narraway Duckham, John Gareth Watkin Jones, Eric Hywel Roberts, 1976 Abstract Specialists in numerous disciplines show how human food chains and nutrient cycles currently work and can be altered to meet the biological and economic food demands of increasing populations The nutrient cycle is traced from initial photosynthesis to sewage disposal political social economic and environmental constraints are explored and a systems approach is suggested in dealing with the complexity of the human food chain and nutrient cycle in order to satisfy current and future biological food needs Intended for scientists and technologists who have interests in the fields of food and nutrition this book should also be useful to the policy maker and the administrator **Stuck in a Web! Food**

Webs vs Food Chains | Consumers, Producers and Decomposers | Grade 6-8 Life Science Baby Professor, 2024-04-15 Discover the intricate dance of energy through ecosystems with *Stuck in a Web Food Webs vs Food Chains* This captivating read delves into the roles of producers consumers and decomposers illustrating the vital energy transfer that sustains life From photosynthesis to food webs complexities and energy pyramids efficiency students and educators are invited to explore the fundamental principles that govern our natural world A must have for any science curriculum this book ensures a comprehensive understanding of ecological interactions It is ideal for school libraries and science teachers **Food Chains**

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Energetic Food Webs John C. Moore, Peter C. de Ruiter, 2012-05-31 Food webs describe biological communities in terms of feeding interactions. This book integrates the latest work on community dynamics, ecosystems energetics, and stability to dispel categorisation of the field into separate subdisciplines of population, community, and ecosystem ecology. *What Is the Food Web? Understanding Energy Transfers From One Organism to Another | Science for Grade 2 | Children's Science & Nature Books* Baby Professor, 2022-12-01 It is a fact that all living things need energy to survive. However, energy cannot be created nor destroyed, so how do you get it? The topic of this book is the food web. It describes how energy from one organism is transferred to another organism. More importantly, it highlights the interconnectedness of all life on Earth. **Food Chains and Webs** Holly Wallace, 2006 Did you know that all food chains start with a green plant? Discover how plants and animals in a particular habitat are linked together by what they eat. Explore the fascinating world of living things, including the processes that keep animals and plants alive and how people study them. Fact boxes that introduce the most amazing plants and animals are featured in this book, along with colorful photographs that show the incredible diversity of life. This book includes a glossary and resources for further research. **Ecosystems** Kate Boehm Jerome, 2007-11-01 Ecosystems include all the living and nonliving things in an area, such as a desert. Living things need nonliving things to survive. Producers get energy by making their own food. Consumers get energy by eating producers or other consumers. Food chains show how energy moves through an ecosystem. Food webs show how different food chains are connected. [What Are Food Chains & Food Webs?](#) Louise A Spilbury, 2013-12-30 This book explains the transfer of energy between living things, which is known as the food chain, in a way that allows any reader to grasp the scientific principles behind food chains and food webs. The diets of herbivores, carnivores, and omnivores are explained, as well as other types of diets and the flow of energy between these groups. It is made clear with arrowed diagrams and colorful pictures that show where different species derive their energy. Also examined are the effects different habitats have on the food chain and how food chains in different environmental regions can be contrasted. **A Concise Introduction to the Food Chain | Ecology Books Grade 3 | Children's Environment Books** Baby Professor, 2021-11-01 Nature sure is amazing! Plants produce their own food and they feed animals too. Animals in turn nourish the soil when they die. This process is called the food chain, and you will read about it in the pages of this book.

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