model 2 the carbon cycle pogil answers

Model 2 The Carbon Cycle Pogil Answers Understanding Model 2 the Carbon Cycle Pogil Answers: A Comprehensive Guide When exploring the intricacies of Earth's carbon cycle, students and educators often turn to engaging educational tools such as the Model 2 the Carbon Cycle Pogil. This model serves as an interactive approach to understanding how carbon moves through different spheres of our planet — including the atmosphere, biosphere, lithosphere, and hydrosphere. The answers associated with this model are essential for grasping key concepts, reinforcing learning, and preparing for assessments. In this article, we delve into the details of the Model 2 the Carbon Cycle Pogil answers, providing clarity, explanations, and insights to enhance your understanding of the carbon cycle. What Is the Carbon Cycle and Why Is It Important? Definition of the Carbon Cycle The carbon cycle refers to the series of processes through which carbon atoms travel from one part of the Earth to another. It involves various natural mechanisms that exchange carbon among the atmosphere, oceans, land, and living organisms. Understanding this cycle is vital because carbon is a fundamental component of life and has significant implications for climate regulation and environmental health. The Significance of the Carbon Cycle Regulates Earth's temperature by controlling greenhouse gases. Supports photosynthesis in plants, which forms the foundation of most food webs. Influences ocean chemistry and marine life. Impacts climate change through the balance of carbon sources and sinks. Introduction to the Model 2 the Carbon Cycle Pogil What Is the Pogil Approach? POGIL, which stands for Process Oriented Guided Inquiry Learning, is an instructional strategy focusing on student engagement through guided inquiry. The Model 2 the Carbon Cycle Pogil involves visual models, diagrams, and questions designed to deepen understanding of how carbon moves through Earth's systems. 2 Purpose of the Model and Its Answers The primary goal is to guide students through the steps of the carbon cycle, helping them grasp complex interactions and processes. The answers serve as a key to check understanding and ensure students can correctly interpret diagrams and concepts. Key Components of the Model 2 the Carbon Cycle Pogil Major Reservoirs of Carbon The model identifies four main reservoirs where carbon is stored: Atmosphere: Carbon dioxide (CO_2) and methane (CH_4) gases.1. Terrestrial Biosphere: Living organisms, especially plants and animals.2. Oceans: Dissolved carbon, marine organisms, and sediments.3. Lithosphere: Fossil fuels, rocks, soil organic matter.4. Processes Involved in the Carbon Cycle Several processes facilitate the movement of carbon between reservoirs: Photosynthesis: Plants absorb CO_2 from the atmosphere and convert it into organic matter. Respiration: Organisms release CO_2 back into the atmosphere during metabolic processes. Decomposition: Breakdown of organic matter releases carbon into soil or water. Carbon Sequestration: Long-term storage of carbon in sediments or fossil fuels. Release of Carbon:

Combustion of fossil fuels and deforestation increase atmospheric CO₂. Diffusion and Dissolution: CO₂ dissolves into oceans, affecting marine chemistry. Deciphering the Model 2 the Carbon Cycle Pogil Answers Common Questions and Their Explanations The Pogil activity includes questions that test comprehension of the cycle's processes. Here's a breakdown of typical questions and their detailed answers: 1. How does carbon move from the atmosphere to the biosphere? Carbon moves through the process of photosynthesis, where plants, algae, and phytoplankton absorb atmospheric CO₂ and convert it into organic compounds like glucose. This process is vital for maintaining atmospheric balance and providing energy for the food chain. 3 2. What role do oceans play in the carbon cycle? Oceans act as both a sink and source of carbon. CO₂ dissolves in seawater, forming carbonic acid, which can be used by marine organisms to build shells and skeletons. Over time, some of this carbon gets stored as sediments, contributing to long-term sequestration. Conversely, oceanic release of CO₂ can occur during warming periods, adding to atmospheric levels. 3. How does human activity influence the carbon cycle? Human activities such as burning fossil fuels, deforestation, and land-use changes significantly increase atmospheric CO₂ levels. This disrupts the natural balance, leading to enhanced greenhouse effect and global warming. The answers highlight that understanding these impacts is crucial for developing strategies to mitigate climate change. 4. Describe the process of carbon sequestration in the lithosphere. Carbon sequestration in the lithosphere involves the burial of organic carbon into sediments, formation of fossil fuels, and mineralization of CO₂ into carbonate rocks. These processes store carbon for millions of years, effectively removing it from active cycling and influencing long-term climate regulation. Using the Answers to Enhance Learning Strategies for Effective Study Review Diagrams: Carefully examine the cycle diagrams provided in the Pogil activity and cross-reference your answers. Understand Key Processes: Focus on how each process contributes to the movement of carbon, not just memorizing answers. Relate to Real-World Examples: Connect concepts to current events, such as climate change reports or carbon mitigation efforts. Practice Questions: Use the Pogil answers as a guide to test your understanding by rephrasing questions or creating new ones. Common Mistakes to Avoid Assuming processes occur in isolation; always consider interconnectedness. Ignoring the role of human activities in altering the natural cycle. Confusing short-term fluxes with long-term sequestration processes. 4 Additional Resources for Mastering the Carbon Cycle Educational Websites and Tools EPA Carbon Footprint Calculator National Geographic: The Carbon Cycle Khan Academy: The Carbon Cycle Educational Videos and Animations NASA Climate Kids: Understanding the Carbon Cycle YouTube: The Carbon Cycle Explained — Search for reputable educational channels. Conclusion: Mastering the Model 2 the Carbon Cycle Pogil Answers Understanding Model 2 the Carbon Cycle Pogil answers is a vital step toward grasping the complex mechanisms that regulate Earth's climate and biological systems. By exploring the major reservoirs, processes, and human impacts, students gain a comprehensive perspective on how carbon moves and transforms within our planet. Remember, the answers serve as a guide to reinforce learning and ensure conceptual clarity. Combining this

knowledge with visuals, real-world examples, and active practice will empower learners to excel in environmental science and foster a deeper appreciation for Earth's dynamic systems. Whether you're a student preparing for an exam or an educator designing lesson plans, mastering the carbon cycle through tools like the Pogil activity enhances both understanding and engagement. Keep exploring, questioning, and connecting concepts to build a solid foundation in environmental science and sustainability efforts. QuestionAnswer What is the main purpose of the Model 2 Carbon Cycle Pogil activity? The main purpose is to help students understand the movement and exchange of carbon among the atmosphere, biosphere, oceans, and geosphere through a guided inquiry activity. How does the carbon cycle impact global climate change? The carbon cycle influences climate change by regulating atmospheric carbon dioxide levels; increased CO2 from human activities enhances greenhouse effects, leading to global warming. What role do plants play in the carbon cycle according to the Model 2 Pogil? Plants absorb CO2 during photosynthesis, acting as carbon sinks, and release it through respiration, thus playing a vital role in maintaining carbon balance. 5 How does the activity illustrate the concept of carbon reservoirs and fluxes? The activity demonstrates reservoirs like the atmosphere, oceans, and land, and shows fluxes such as photosynthesis, respiration, decomposition, and fossil fuel combustion that transfer carbon between these reservoirs. What are some human activities that disrupt the natural carbon cycle as discussed in the Pogil? Activities like burning fossil fuels, deforestation, and industrial processes increase atmospheric CO2, disrupting the natural balance of the carbon cycle. How can understanding the carbon cycle help in addressing climate change? By understanding the carbon cycle, we can identify ways to reduce carbon emissions, enhance carbon sequestration, and develop strategies to mitigate climate change impacts. What are some key takeaways students should learn from the Model 2 Pogil activity about the carbon cycle? Students should understand the interconnectedness of carbon reservoirs, the processes that transfer carbon, and the impact of human activities on the natural balance of the carbon cycle. Model 2: The Carbon Cycle POGIL Answers — An In-Depth Analysis and Review Understanding the intricate workings of the carbon cycle is fundamental for students, educators, and environmental enthusiasts alike. The Model 2: The Carbon Cycle POGIL Answers serves as an essential resource designed to facilitate comprehension of this complex natural process. In this detailed review, we will explore what the model offers, how it functions, its pedagogical strengths, and potential areas for improvement, all through an expert lens. --- Introduction to the Carbon Cycle POGIL Model The Process-Oriented Guided Inquiry Learning (POGIL) approach emphasizes active student engagement through guided inquiry, fostering critical thinking and collaborative learning. The "Model 2" version specifically targets the carbon cycle, providing visual and conceptual tools to decode its components and pathways. This model is typically used within science classrooms to help students visualize and internalize the flow of carbon among various Earth systems, including the atmosphere, biosphere, lithosphere, and hydrosphere. Its primary purpose is to promote understanding through structured activities, prompting learners to analyze, synthesize, and evaluate information. --- Overview of the

Carbon Cycle Components The model encompasses key components of the carbon cycle, which can be broadly categorized into reservoirs and processes: Model 2 The Carbon Cycle Pogil Answers 6 Major Reservoirs - Atmosphere: Contains CO_2 and other greenhouse gases. - Terrestrial Biosphere: Includes plants, animals, and soil organic matter. - Oceans: Act as both a sink and source of carbon through absorption and release. - Lithosphere: Comprises fossil fuels, sediments, and carbonate rocks. - Humans: Recent influences via fossil fuel combustion and land-use changes. Primary Processes - Photosynthesis: Plants convert atmospheric CO_2 into organic matter. - Respiration: Organisms release CO_2 back into the atmosphere. - Decomposition: Breakdown of organic matter releases CO_2 and other compounds. - Sedimentation and Burial: Transfer of carbon into sediments and rocks. - Volcanic Activity: Releases stored carbon back into the atmosphere. - Diffusion and Exchange: Movement of CO_2 between oceans and atmosphere. - Human Activities: Combustion and deforestation significantly alter natural fluxes. The model aims to illustrate these components and processes visually, often through diagrams, flowcharts, or interactive elements, supplemented by guided questions and answers. --- How "Model 2: The Carbon Cycle POGIL Answers" Enhances Learning One of the key strengths of this model lies in its ability to clarify complex feedback loops and the dynamic nature of the carbon cycle. Through detailed answers, it supports learners in multiple ways: 1. Visual Clarification of Pathways The model employs diagrams that depict carbon fluxes, allowing students to grasp the direction and magnitude of flows between reservoirs. This visual aid helps in understanding concepts like: - How carbon moves from the atmosphere to plants via photosynthesis. - The role of oceanic absorption and outgassing. - The long-term storage of carbon in sediments and fossil fuels. 2. Step-by-Step Guided Inquiry Answers provided are typically structured to lead students through the reasoning behind each process: - Explaining why certain processes are faster or slower. - Connecting human activities to changes in natural fluxes. - Analyzing the impact of disturbances like deforestation or fossil fuel combustion. Model 2 The Carbon Cycle Pogil Answers 7 3. Reinforcement of Key Concepts The answers reinforce essential ideas, such as: - The balance between carbon sources and sinks. - How carbon sequestration helps regulate climate. - The implications of increased atmospheric CO_2 on global warming. 4. Critical Thinking and Application Beyond rote memorization, the answers often include prompts that encourage students to: - Predict outcomes of increased emissions. - Evaluate the effectiveness of carbon mitigation strategies. - Connect the cycle to broader environmental issues. --- Detailed Breakdown of the POGIL Answers A thorough review of the answers reveals their educational depth. Here we dissect some typical questions and their corresponding explanations. Question 1: Describe the role of photosynthesis in the carbon cycle. Answer Summary: Photosynthesis removes CO_2 from the atmosphere and incorporates it into organic molecules within plants. This process is fundamental because it acts as the primary method of carbon sequestration in terrestrial ecosystems. The answer emphasizes the importance of sunlight, chlorophyll, and plant health in facilitating this process. Expert Insight: The answer correctly contextualizes photosynthesis as a carbon sink, highlighting its significance in

balancing atmospheric CO₂ levels. It also alludes to the importance of plant productivity, which can vary with climate conditions. --- Question 2: Explain how ocean currents influence carbon exchange between the ocean and atmosphere. Answer Summary: Ocean currents facilitate the movement of cold, CO₂-rich water to the surface, where CO₂ can be released into the atmosphere. Conversely, warm currents can promote the absorption of CO₂. The answer underscores the role of temperature gradients and physical mixing in regulating these fluxes. Expert Insight: This explanation captures the complexity of ocean-atmosphere interactions, emphasizing the importance of physical processes like upwelling and downwelling. It also hints at how climate change could disrupt these processes. --- Question 3: Discuss how human activities have altered the natural carbon cycle. Answer Summary: Human activities, especially burning fossil fuels, deforestation, and land-use change, have significantly increased atmospheric CO₂ concentrations. The Model 2 The Carbon Cycle Pogil Answers 8 answers detail how these actions add carbon to the atmosphere faster than natural processes can remove it, leading to enhanced greenhouse effect and climate change. Expert Insight: The answer effectively links anthropogenic impacts to cycle imbalance, providing a clear cause-and-effect relationship. It also opens the door for discussions on mitigation strategies. --- Strengths and Pedagogical Benefits of the Model and Answers The effectiveness of the Model 2 POGIL answers stems from several pedagogical strengths: - Clarity and Precision: Clear language helps students grasp complex scientific concepts without ambiguity. - Structured Responses: Answers follow logical sequences, aiding comprehension and retention. - Encouragement of Critical Thinking: Prompts within answers invite learners to analyze and synthesize information. - Integration of Real-World Contexts: Linking the cycle to climate change and human impacts makes learning relevant and motivating. - Visual Reinforcement: Diagrams and flowcharts complement textual answers, catering to visual learners. These features collectively foster an active learning environment, encouraging students to internalize and apply their knowledge effectively. --- Limitations and Areas for Improvement While the Model 2 answers provide substantial educational value, some limitations are worth noting: - Simplification of Complex Processes: To maintain clarity, some explanations may oversimplify nuanced processes like oceanic carbon chemistry or biological feedback mechanisms. - Lack of Interactive Elements: Static answers may not fully engage digital learners; integrating multimedia could enhance understanding. - Limited Coverage of Climate Feedback Loops: While the core processes are covered, the dynamic feedback effects (e.g., permafrost melting releasing methane) could be expanded. - Need for Updated Data: As scientific understanding evolves, updating answers with the latest research findings would ensure accuracy. --- Conclusion: Is the Model 2 the Carbon Cycle POGIL Answers a Valuable Resource? In conclusion, Model 2: The Carbon Cycle POGIL Answers stands out as an effective educational tool that demystifies a complex environmental process through guided inquiry and detailed explanations. Its strengths lie in visual clarity, structured reasoning, and relevance to current environmental issues. For educators seeking to foster active learning, critical thinking, and conceptual understanding of the carbon cycle, this resource provides a solid foundation. However, to maximize its impact,

integrating interactive tools, updating scientific content, and expanding coverage of feedback mechanisms would be beneficial. Ultimately, when used as part of a comprehensive teaching strategy, the Model Model 2 The Carbon Cycle Pogil Answers 9 2 POGIL answers can significantly enhance students' grasp of the carbon cycle, preparing them to understand and address pressing environmental challenges related to climate change, carbon management, and sustainability. --- Informed, engaging, and pedagogically sound — the Model 2: The Carbon Cycle POGIL Answers offers a detailed pathway to mastering one of Earth's most vital processes. carbon cycle, pogil activities, model 2, environmental science, ecology, photosynthesis, respiration, carbon reservoirs, carbon flux, climate change

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life on earth depends on carbon in fact about 18 5 percent of a human body s mass is carbon how carbon is taking in and given off through animals breathing the burning of fossil fuels and more can be shown in the model known as the carbon cycle though this concept can be confusing all readers have a chance to understand this concept through the text and simple diagrams in this book both struggling readers and those looking for review can find the most important components and vocabulary of the carbon cycle in low level accessible text

climate change is a hot topic but few readers understand exactly how it has disrupted earth s natural cycles this text offers a straightforward explanation of the carbon cycle including

what carbon is the places where it is found and how it is exchanged in addition readers will gain insight into how human activity affects the carbon cycle in nature each chapter features charts or photographic illustrations to enhance comprehension as well as vocabulary boxes and open ended questions that invite readers to think critically about the topic

while a number of gases are implicated in global warming carbon dioxide is the most important contributor and in one sense the entire phenomena can be seen as a human induced perturbation of the carbon cycle the global carbon cycle offers a scientific assessment of the state of current knowledge of the carbon cycle by the world s leading scientists sponsored by scope and the global carbon project and other international partners it gives an introductory over view of the carbon cycle with multidisciplinary contributions covering biological physical and social science aspects included are 29 chapters covering topics including an assessment of carbon climate human interactions a portfolio of carbon management options spatial and temporal distribution of sources and sinks of carbon dioxide socio economic driving forces of emissions scenarios throughout contributors emphasize that all parts of the carbon cycle are interrelated and only by developing a framework that considers the full set of feedbacks will we be able to achieve a thorough understanding and develop effective management strategies the global carbon cycle edited by christopher b field and michael r raupach is part of the rapid assessment publication series produced by the scientific committee on problems of the environment scope in an effort to quickly disseminate the collective knowledge of the world s leading experts on topics of pressing environmental concern

what do bubbles in a soft drink a bullet proof vest a plastic chair and our dna have in common carbon it is and forever has been the ubiquitous architect of life and civilization forming the chemical backbone of every living creature and yet when we hear the word today it is more often than not in a crisis situation carbon dioxide emissions are destroying the ozone layer and warming the planet the volatile middle east explodes atop its stores of hydrocarbons carbohydrates threaten obesity and diabetics carbon thus sustains us and threatens us in equal measure eric roston illuminates this essential element in all its forms cleverly recreating the intricate carbon cycle on the page by tracing its journey from the big bang to earth and its extraordinary infiltration of this planet and in time influence on humankind and civilization evoking its ubiquity more than 99 of all 31 million known substances contain carbon roston chronicles the ways we have used it often to surprising and sometimes to catastrophic effect having sped up the carbon cycle in the last two centuries we are now attempting to wrestle earth s geochemical cycle back from the brink blending the latest science with original reporting roston makes us aware as never before of the seminal impact carbon has and has had on our lives

the book deals with the problem of the interaction and interconditionality of the various processes occurring in both the earth s crust and the biosphere it proposes a model of the

global carbon cycle explaining the nature and mechanism of these interactions showing that the key element of this interaction is the photosynthesis controlled by periodic carbon dioxide injections caused by collision zones of lithospheric plates changes in the environment due to the evolution of photosynthesis cause alterations in the carbon cycle and lead to a stationary state when new features of the cycle are manifested the main instruments of the analysis here are the isotopic technique and physico chemical modeling conducted on the basis of the principle of actualism the model provides explanations of periodic mass extinctions of organisms the explosions of life the uneven distribution of organic matter in the sedimentary strata stratigraphic oil distribution and various other events in the biosphere in the course of geological history the book will appeal to geologists geochemists climatologists ecologists biologists and specialists in global change

this book is the outcome of a naill advanced study institute on the contemporary glo bal carbon cycle held in n ciocco italy september 8 20 1991 the motivation for this asi originated from recent controversial findings regarding the relative roles of the ocean and the land biota in the current global balance of atmospheric carbon dioxide consequently the pur pose of this institute was to review among leading experts in the field the multitude of known constraints on the present day global carbon cycle as identified by the fields of meteorology physical and biological oceanography geology and terrestrial biosphere sciences at the same time the form of an advanced study institute was chosen thus providing the opportunity to convey the information in tutorial form across disciplines and to young researchers entering the field the first three sections of this book contain the lectures held in ii ciocco the first sec tion reviews the atmospheric large scale global constraints on the present day carbon cycle including the emissions of carbon dioxide from fossil fuel use and it provides a brief look into the past the second section discusses the role of the terrestrial biosphere and the third the role of the ocean in the contemporary global carbon cycle

describes the jobs performed by carbon compounds and discusses the stops in its cycle throughout nature including air plants and animals

did you know that about 18 5 percent of a human body s mass is carbon all life on earth depends on carbon how carbon is taking in and given off through animals breathing the burning of fossil fuels and more can be shown in the model known as the carbon cycle in this informative and interesting book readers will discover how the carbon cycle works designed to appeal to struggling readers helpful diagrams are provided to clarify complex concepts and fascinating fact boxes add interest to the text

every living thing is made of carbon this title presents the basics of the carbon cycle including how plants pull carbon out of the air how animals get carbon from plants and how all living things eventually return their carbon to the air qr codes in the books give readers access to book specific resources to further their learning aligned to common core standards

and correlated to state standards discoverroo is an imprint of pop a division of abdo

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professor kondratyev and his team consider the concept of global warming due to the greenhouse effect and put forward a new approach to the problem of assessing the impact of anthropogenic processes considering data on both sources and sinks for atmospheric carbon and various conceptual schemes of the global carbon dioxide cycle they suggest a new approach to studies of the problem of the greenhouse effect they assess the role of different types of soil and vegetation in the assimilation of carbon dioxide from the atmosphere and discuss models of the atmosphere ocean gas exchange and its role in the carbon dioxide cycle paying special attention to the role of the arctic basin the authors also consider models of other global atmospheric cycles for a range of atmospheric constituents and conclude by drawing together a range of scenarios on modelling the global carbon cycle

our desire to understand the global carbon cycle and its link to the climate system represents a huge challenge these overarching questions have driven a great deal of scientific endeavour in recent years what are the basic oceanic mechanisms which control the oceanic carbon reservoirs and the partitioning of carbon between ocean and atmosphere how do these mechanisms depend on the state of the climate system and how does the carbon cycle feed back on climate what is the current rate at which fossil fuel carbon dioxide is absorbed by the oceans and how might this change in the future to begin to answer these questions we must first understand the distribution of carbon in the ocean its partitioning between different ocean reservoirs the solubility and biological pumps of carbon the mechanisms controlling these reservoirs and the relationship of the significant physical and biological processes to the physical environment the recent surveys from the jgofs and woce joint global ocean flux study and world ocean circulation ex periment programs have given us a first truly global survey of the physical and biogeochemical properties of the ocean these new high quality data provide the opportunity to better quantify the present oceans reservoirs of carbon and the changes due to fossil fuel burning in addition diverse process studies and time series observations have clearly revealed the complexity of interactions between nutrient cycles ecosystems the carbon cycle and the physical envi ronment

the main ways that humans add to much carbon in the earth s carbon cycle are burning fossil fuels and eruptions throughout much of human history volcanoes have been the largest producer of carbon dioxide in the earth s carbon cycle although in recent years humans burning fossil fuels have also added a great deal to much more carbon in the earth s carbon

cycle although it seems that volcanoes do not cause much change in global temperatures they can greatly affect global climate after a long period of time especially if the volcano has not erupted for a long time a eruption can take place spewing out a great amount of greenhouse gases into the atmosphere this is known as a shockwave this change in atmospheric pressure can significantly alter the earth s climate

eye catching photos informative captions and succinct yet engaging text introduce young readers to the carbon cycle

this partially annotated bibliography contains the first 1000 references from a computerized file of literature on the global ecological implications of carbon cycles and climatic changes many early citations originated from the biogeochemical ecological information center established at oak ridge national laboratory in 1968 and from profiles of computerized files such as government research abstracts gra and biological abstracts ba later citations have been extracted from the open literature through 1978 and early 1979 from government reports and impact statements and from profiles of gra ba and the energy data base of the department of energy technical information center oak ridge tennessee the subject categories covered by this bibliography may be divided into two main topics carbon cycling and climate system analysis volume i contains an introduction and overview volume 2 contains an alphabetical by author listing of citations volume 3 provides indexes for author organization corporate authority keywords or free index terms taxonomic category subject category chemical abstracts codes biological abstracts codes crosscode and cosati weekly government abstracts codes concentrated with permuted title words

a must have introduction to this fundamental driver of the climate system the global carbon cycle is a short introduction to this essential geochemical driver of the earth s climate system written by one of the world s leading climate science experts in this one of a kind primer david archer engages readers in clear and simple terms about the many ways the global carbon cycle is woven into our climate system he begins with a concise overview of the subject and then looks at the carbon cycle on three different time scales describing how the cycle interacts with climate in very distinct ways in each on million year time scales feedbacks in the carbon cycle stabilize earth s climate and oxygen concentrations archer explains how on hundred thousand year glacial interglacial time scales the carbon cycle in the ocean amplifies climate change and how on the human time scale of decades the carbon cycle has been dampening climate change by absorbing fossil fuel carbon dioxide into the oceans and land biosphere a central question of the book is whether the carbon cycle could once again act to amplify climate change in centuries to come for example through melting permafrost peatlands and methane hydrates the global carbon cycle features a glossary of terms suggestions for further reading and explanations of equations as well as a forward looking discussion of open questions about the global carbon cycle

the usgcrp s carbon cycle working group asked the national research council s committee on the human dimensions of global change to hold a workshop on human interactions with the carbon cycle the basic purpose of the workshop was to help build bridges between the research communities in the social sciences and the natural sciences that might eventually work together to produce the needed understanding of the carbon cycle an understanding that can inform public decisions that could among other things prevent disasters from resulting from the ways humanity has been altering the carbon cycle members of the working group hoped that a successful workshop would improve communication between the relevant research communities in the natural and social sciences leading eventually to an expansion of the carbon cycle program element in directions that would better integrate the two domains

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