JULY 2025

The Environment Magazine

Voices and Actions for a Greener Tomorrow

EnvironmentMagazine.earth

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Message from Editor in Chief

My name is Henry Yao. I am Founder and Editor-in-Chief of the Environment Magazine.

The purpose of this magazine is to provide a platform for students of all backgrounds to express their views on current environmental issues to a broad audience. I believe that every student has the ability to make a positive difference in the world, and through this magazine, we aspire to unleash their potential. The project is open to everyone, and there are unlimited spots available for participation. We welcome all students who want to be a part of this effort.

To contribute articles to The Environment Magazine, please contact playfndn.environment@gmail.com. A sample article can be found here. Volunteer hours will be recognized.

Monarch Butterflies

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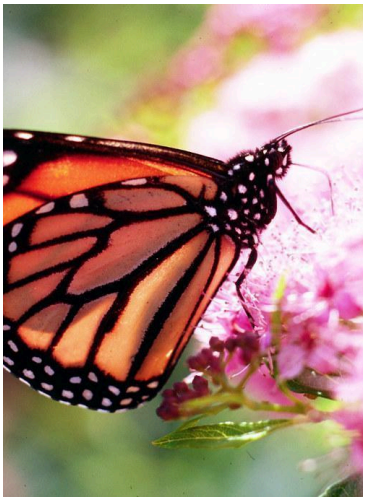
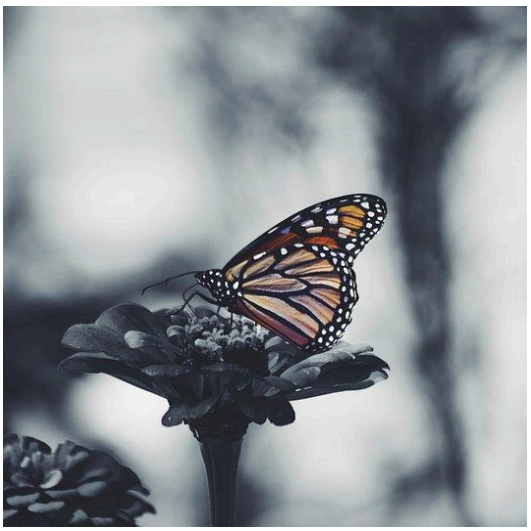
Monarch butterflies, also known as the Danaus plexippus, are among the most recognizable and well-known insects in the world, admired for their vibrant orange wings with black veins and white spots along the edges. They are best known for their migration patterns, in which millions of monarchs travel up to 3,000 miles from the United States and Canada to stay in the forests of central Mexico. This journey is one of nature's greatest wonders, as no single butterfly makes the round trip—each new generation continues the cycle. Monarchs undergo a complete metamorphosis with four distinct stages: egg, caterpillar, chrysalis, and adult butterfly. Their survival is closely tied to milkweed plants, which serve as the sole food source for their larvae and the primary site for females. Without milkweed, monarch populations would be unable to reproduce.



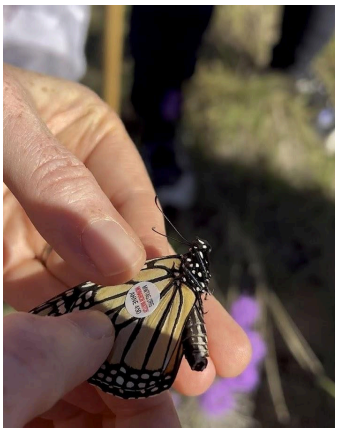
Monarch butterflies have remarkable navigational abilities, using the position of the sun and Earth's magnetic field to stay on course during migration. They rely on environmental cues to determine when to begin their journey south, usually triggered by cooler temperatures and shorter daylight hours. Another unique trait of monarchs is their chemical defense mechanism. As caterpillars, they feed exclusively on milkweed, which contains toxic compounds called cardenolides. These toxins make monarchs distasteful and even poisonous to many predators, helping them avoid being eaten. Despite their fragile appearance, monarchs are powerful fliers, capable of traveling as much as 100 miles in a single day, with some reaching speeds of up to 12 miles per hour.

Despite their resilience, monarch populations have been steadily declining due to human activities and environmental changes. Deforestation in Mexico is destroying their overwintering sites, forcing them into smaller and more vulnerable areas. In the United States, urbanization and agricultural expansion have significantly reduced the availability of milkweed, leaving monarchs without a place to lay their eggs. The widespread use of pesticides and herbicides is another major threat, as these chemicals not only kill milkweed but also harm adult butterflies. Additionally, climate change is altering weather patterns, leading to more extreme temperatures and storms that disrupt migration cycles and reduce survival rates. Monarch butterflies are an essential part of ecosystems, contributing to pollination and serving as a food source for birds,

insects, and other animals. Their decline could signal larger environmental problems, affecting biodiversity and the stability of natural habitats.



To help preserve monarch butterflies, individuals can plant native milkweed for caterpillars and nectar-rich flowers like goldenrods and coneflowers for adult butterflies. For over fifty years, the National Wildlife Federation has inspired a movement of millions, providing the fundamental elements of wildlife habitat—food, water, cover, and places to raise young monarchs and other wildlife. Gardeners can create a habitat right outside their homes by including specific garden features such as native milkweed for monarchs to breed and other native wildflowers to provide food. The National Wildlife Federation also engages schools, scouts, nature centers, places of worship, other community groups, and families to create habitats for monarchs. Reducing pesticide and herbicide use, supporting conservation organizations, and participating in citizen science projects can also make a difference. Creating butterfly-friendly gardens and habitat corridors ensures they have safe places to feed and breed. Advocating for habitat protection, such as preserving wildflower meadows and overwintering sites, is crucial. Educating others about monarch conservation through schools and community efforts can further raise awareness. By taking these steps, we can help monarchs thrive for future generations.



The survival of monarch butterflies is not just about saving a single species–it is about preserving the balance of ecosystems that support countless plants and animals. If monarch populations continue to decline, the effects could ripple through the food chain, weakening biodiversity and disrupting pollination networks. By making conscious efforts to protect their habitats, we can ensure that future generations will continue to witness the breathtaking sight of monarch butterflies fluttering across the sky. Taking action today can help secure the future of these incredible creatures and the many species that depend on them.

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Solar Energy

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As the planet we've known as home for the longest time is being ransacked of its valuable materials, Earth is no longer the home it used to be. Energy is an essential resource to humans, and the quicker we can get our hands on it, the better. However, the result isn't always ethical, as releasing carbon dioxide into the atmosphere deteriorates the planet's condition. Due to this, people around the globe seek renewable energy sources that are practical and useful. A common approach is solar energy, which is known as one of the most used and popular sources.

Solar energy is a renewable energy source that uses the sun's solar radiation. Solar technologies obtain this radiation and turn it into forms of energy that we use. Of course, the amount of energy produced is dependent on the amount of sun that day. There are mainly two types of solar energy: photovoltaics and concentrating solar power.

Photovoltaics technologies generate power by absorbing solar radiation and converting it into usable energy through solar cells. On the other hand, concentrating solar power uses mirrors to reflect sunlight on a receiver. The heat, also known as thermal energy, from the

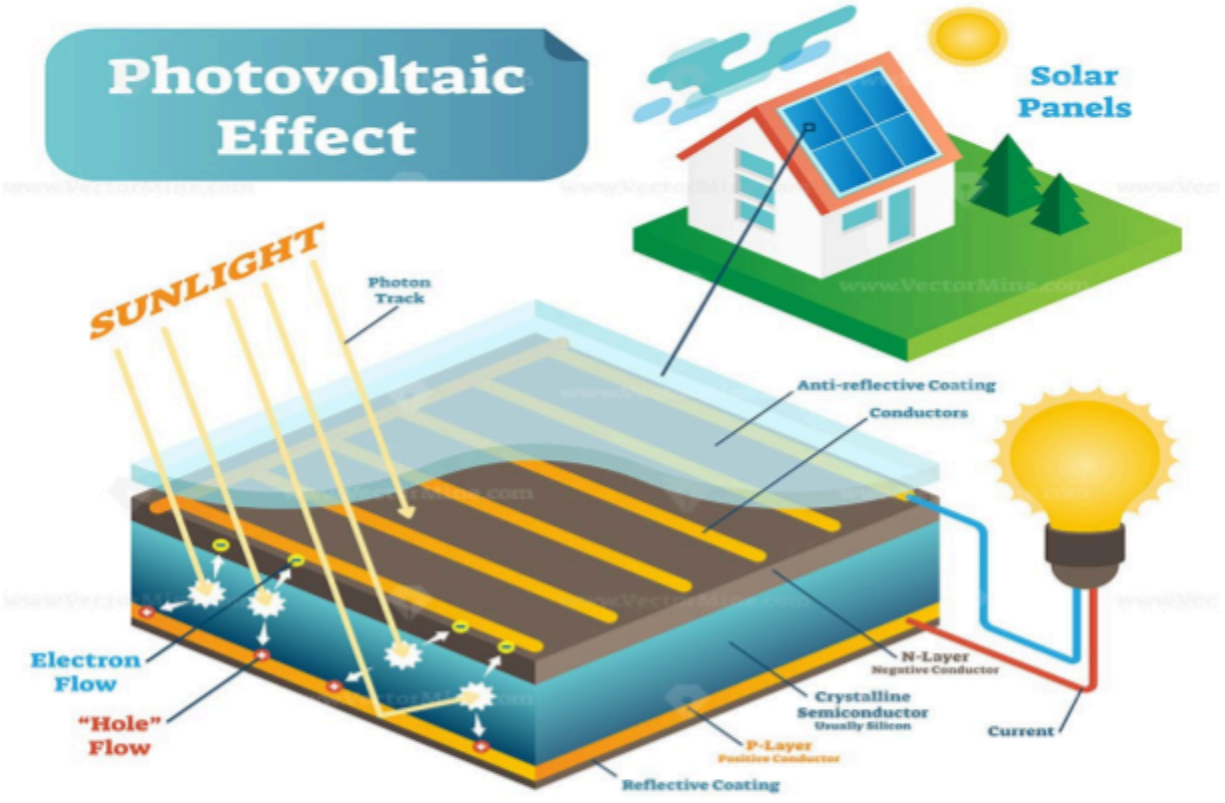

Figure 1. Photovoltaics (source: www.vectormine.com)

concentrated sunlight warms a fluid in the receiver. This powers an engine that generates energy.

Solar power is generally collected through solar panels. Solar panels are generally found on roofs of houses and buildings. Placed directly on the roof, the panels can receive maximum sunlight throughout the day. Another way is ground-mounted systems, which are structured frames built at certain angles on the ground and are used to support solar panels. These systems offer great stability and simple installations. In addition, they have built-in tracking systems that adjust to the direction of sunlight.

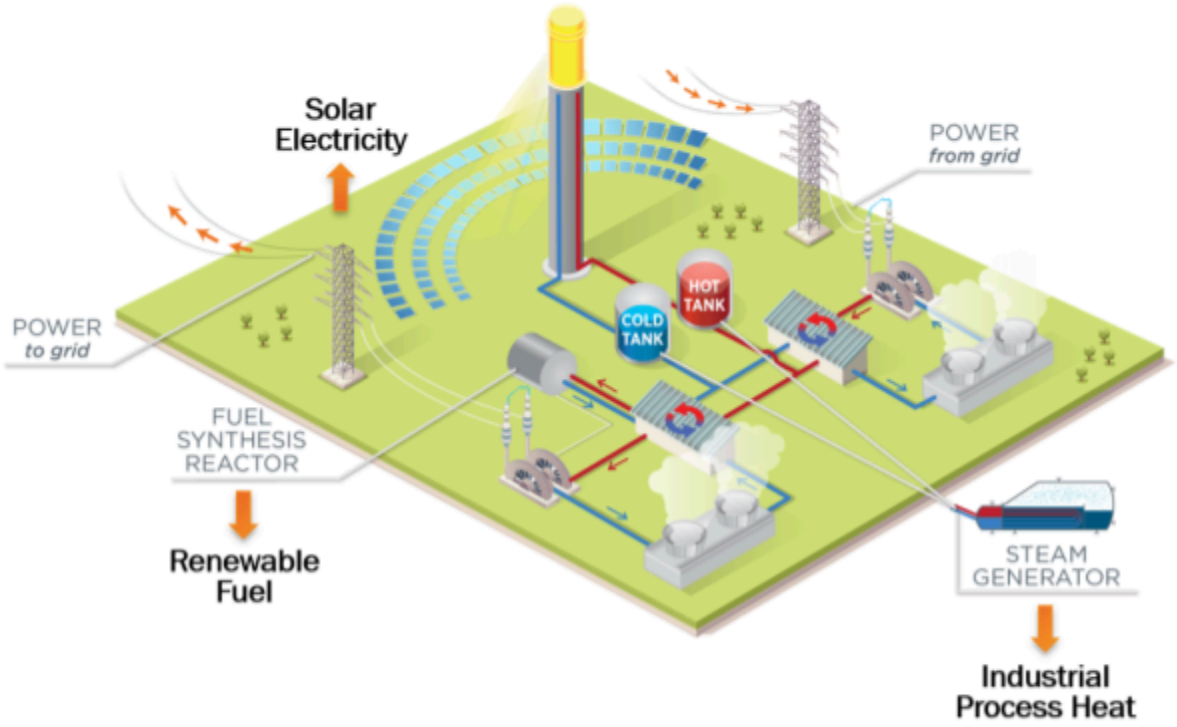

Figure 2. Concentrating Solar Energy (source: www.energy.gov)

Even though solar power is a great renewable energy source, there are a few downsides. For example, solar systems are rather expensive, as they include panels, wiring, and the overall structure. Another downside is that solar energy is completely dependent on the amount of available sunlight. In other words, the energy production decreases significantly during the night, on cloudy or rainy days, and in areas that don't receive as much sunlight. Additionally, solar farms require a significantly large area of land, which can lead to habitat loss and conflicts over land use for agriculture.

Despite the downsides, solar energy is an awesome technique for producing renewable energy. Even though solar energy only accounts for 4% of all energy produced, this method is rapidly growing in size and popularity. Solar energy offers many advantages, such as reduced electricity bills and no carbon dioxide or other gasses released into the atmosphere. Being

common and efficient, solar power is one of the most popular and simple methods for producing energy.

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Environmentalists in Action

In this issue, we would like to thank the following environmentalists.

May 4, 2025: Alex Tong, Encheng Zhang, Lucas Fong and Sophie Tong cleaned up Fallon Sport Park and the surrounding areas.

June 15, 2025: Alex Tong, Encheng Zhang, Lucas Fong, Nicolas Harford, Larissa, and Sophie Tong cleaned up Emerald Glen Park and the surrounding areas.

About

The Environment Magazine is published by the Environment Club. It collects introductory articles on environmental protection written by youth volunteers, with the goal of educating students and parents on how to protect the environment. It aims to provide a platform for all students to express their opinions and inspire change through activism. It also empowers students to become environmentalists and make a positive impact on the world.

The Environment Club is a group of passionate middle and high school students dedicated to environmental protection. We started by organizing youth volunteers to clean up the trails and streets in our local community, and now we're taking the next step by promoting awareness and change through our publication, The Environment Magazine. Our goal is to inspire others to take action and make a positive impact on the environment, both locally and globally. The Environment Club is a subdivision of the PLAY Foundation, a 501(c)(3) non-profit organization.