

Prompt 1: Unguided Prompt Generation

Initial Prompt:

Write an article about climate change.

AI Response:

Climate change refers to long-term shifts in temperature, weather patterns, and environmental conditions. These changes are largely driven by human activities, particularly the burning of fossil fuels, which release greenhouse gases like carbon dioxide into the atmosphere. This has led to global warming, rising sea levels, and increased instances of extreme weather events such as hurricanes, droughts, and wildfires...

Evaluation:

While the response is generally accurate, it's quite generic and doesn't focus on any particular aspect of climate change. There is little depth, and the topic is approached too broadly.

Iteration 1: Adding Specific Constraints

To generate a more focused response, a revised prompt introduces a specific perspective to guide the AI.

Write an article about the impact of climate change on coastal cities.

AI Response:

Coastal cities around the world are particularly vulnerable to the effects of climate change, with rising sea levels being one of the most pressing concerns. As global temperatures increase, polar ice caps and glaciers melt, leading to an increase in ocean water levels. Cities like Miami, New York, and Jakarta are facing the possibility of regular flooding, with some areas already seeing saltwater intrusion into freshwater supplies. In addition to flooding, these cities also face the threat of stronger hurricanes and typhoons, driven by warmer ocean temperatures...

Evaluation:

The response is more targeted, focusing on the effect of climate change specifically on coastal cities. However, the prompt could further benefit from exploring potential solutions and mentioning specific examples.

Iteration 2: Adding Examples and a Call to Action

Write an article about the impact of climate change on coastal cities, using Miami and Jakarta as examples. Discuss possible solutions for these cities.

AI Response:

Coastal cities such as Miami and Jakarta are on the frontlines of the climate change crisis. In Miami, the combination of rising sea levels and stronger storm surges threatens to flood entire neighborhoods. The city has already invested in infrastructure projects such as raising streets and installing pumps, but experts argue that these measures might only buy time. Jakarta, facing similar challenges, has experienced sinking land due to groundwater extraction, worsening the effects of rising seas. The Indonesian government has proposed relocating the capital to a safer inland area as a drastic solution. However, experts agree that reducing carbon emissions on a global scale is essential to mitigate these risks...

Final Evaluation:

The final version successfully narrows the focus, incorporates specific examples (Miami and Jakarta), and provides potential solutions, resulting in a more engaging and informative response.

Prompt 2: Guided Prompt Generation

Initial Prompt:

Explain photosynthesis.

AI Response:

Photosynthesis is the process by which plants, algae, and some bacteria convert light energy into chemical energy in the form of glucose. During photosynthesis, plants take in carbon dioxide (CO₂) from the air and water (H₂O) from the soil, and use light energy, typically from the sun, to transform these inputs into glucose (C₆H₁₂O₆) and oxygen (O₂). The process occurs in two stages: the light-dependent reactions and the Calvin cycle...

Evaluation:

The response is factually correct but oversimplified for an advanced audience. It lacks technical detail and context about the importance of photosynthesis in ecological systems.

Iteration 1: Guided Prompt with Audience Context

To target a more advanced audience, the prompt is adjusted to specify the context of the explanation.

Explain photosynthesis in detail for an advanced biology class, emphasizing the role of chlorophyll and electron transport chain.

AI Response:

Photosynthesis occurs primarily in the chloroplasts of plant cells, with the pigment chlorophyll playing a critical role in capturing light energy. The process is divided into two main stages: the light-dependent reactions and the Calvin cycle. During the light-dependent reactions, chlorophyll absorbs photons, which excite electrons that are then transferred through the electron transport chain embedded in the thylakoid membrane. This electron flow creates a proton gradient across the membrane, driving the synthesis of ATP and NADPH, which are crucial for the subsequent stages of the process. The Calvin cycle, occurring in the stroma, uses ATP and NADPH to fix carbon dioxide into organic molecules...

Evaluation:

This response is more technical and suitable for the intended audience, but it still feels somewhat theoretical. Providing more context about the significance of photosynthesis in broader ecological terms could improve it.

Iteration 2: Further Guidance and Context

Explain photosynthesis in detail for an advanced biology class, with emphasis on chlorophyll and the electron transport chain. Also, discuss the importance of this process in global carbon cycles and its role in maintaining ecosystem balance.

AI Response:

Photosynthesis is an essential biological process that not only sustains plant life but also plays a pivotal role in maintaining the Earth's carbon cycle. Central to photosynthesis is chlorophyll, the pigment responsible for capturing light energy. In the light-dependent reactions, chlorophyll absorbs sunlight, exciting electrons that flow through the electron transport chain in the thylakoid membrane. This electron transfer drives the synthesis of ATP and NADPH, essential molecules used in the Calvin cycle to convert carbon dioxide into glucose. Beyond sustaining plants, photosynthesis regulates atmospheric CO₂ levels, acting as a carbon sink and stabilizing ecosystems by providing energy for nearly all living organisms...

Final Evaluation:

This iteration meets the requirements of an advanced biology audience and includes the requested explanation of photosynthesis' ecological significance.

Prompt 3: Hybrid of Guided and Unguided

Initial Prompt:

Generate a creative story set in a future where humans live underwater.

AI Response:

In the year 2150, humanity had finally made the leap to life beneath the ocean's surface. After centuries of polluting the land and warming the atmosphere, the Earth's surface had become inhospitable. Now, towering underwater cities stretched across the seabed, illuminated by bioluminescent creatures and powered by geothermal energy. Zoe, a young engineer, looked out of her apartment window and marveled at the shimmering schools of fish that drifted by. She knew something was wrong with the city's oxygen supply...

Evaluation:

The response offers an interesting setting, but the storyline lacks direction. It introduces a character and a problem (oxygen supply), but it doesn't develop the plot.

Iteration 1: Adding Plot and Conflict

To introduce more plot structure, the prompt is revised with more specific instructions.

Generate a creative story set in a future where humans live underwater. Introduce a character who must solve a critical problem to save their city.

AI Response:

In the year 2150, humanity had retreated to underwater cities, safe from the toxic atmosphere above. Zoe, a skilled engineer, had always loved her work maintaining the oxygen generators that sustained life beneath the waves. But today, as she inspected the latest sensor readouts, a chill ran down her spine. The oxygen levels were dropping across the city, and she couldn't figure out why. If she didn't act fast, the city would suffocate within days. She raced to the control center, her mind whirring with possibilities. Could it be a malfunction, or something more sinister? As she worked through the night, strange data began to surface...

Evaluation:

The plot is now more developed, with a clear conflict (failing oxygen systems) and the potential for resolution. However, it could be further enriched with details about the underwater world's challenges.

Iteration 2: Adding Environmental and World-Building Details

Generate a creative story set in a future where humans live underwater. Introduce a character who must solve a critical problem to save their city, with detailed descriptions of the underwater environment and the unique challenges of life beneath the ocean.

AI Response:

In the year 2150, the ocean had become humanity's last refuge. Vast cities, enclosed in transparent domes, stood anchored to the seabed. Outside, the deep waters teemed with life—whales drifted lazily through the currents, and schools of bioluminescent fish created swirling patterns in the darkness. Inside the city, Zoe, a skilled engineer, worked tirelessly to maintain the oxygen generators that kept everyone alive. But today, something was wrong. The oxygen levels were dropping rapidly, and no one knew why. Zoe scanned the data frantically, her hands shaking. Life underwater had always been precarious—rising water pressure, unpredictable seaquakes, and failing technology were constant threats. As she ventured into the deepest parts of the city to investigate, she began to suspect that this wasn't just a mechanical failure. Something—or someone—was sabotaging their only chance of survival...

Final Evaluation:

This final version successfully blends plot, character development, and world-building details. The underwater setting feels vivid, and the character's conflict is engaging and well-integrated into the environment.