

## Green Hydrogen Worksheet High School Appropriate

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### Part 1: Building a Foundation

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**What is the primary process used to produce green hydrogen?**

*Hint: Think about the methods of hydrogen production.*

- A) CombustION
- A) Electrolysis
- A) Fermentation
- A) Distillation

**Which of the following are renewable energy sources used in the production of green hydrogen?**

*Hint: Consider energy sources that are sustainable.*

- A) Solar power
- A) Natural gas
- A) Wind power
- A) Coal

**Explain why green hydrogen is considered environmentally friendly.**

*Hint: Think about emissions and sustainability.*

**List two benefits of using green hydrogen over traditional fossil fuels.**

*Hint: Consider environmental and economic factors.*

1. Benefit 1

2. Benefit 2

**Which gas is released as a byproduct during the electrolysis process of producing green hydrogen?**

*Hint: Consider the chemical reactions involved.*

- A) Methane
- A) Oxygen
- A) Carbon Dioxide
- A) Nitrogen

## Part 2: Understanding and Interpretation

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**What distinguishes green hydrogen from grey hydrogen?**

*Hint: Think about the sources of energy used in production.*

- A) Green hydrogen is cheaper to produce.
- A) Green hydrogen uses renewable energy sources.
- A) Green hydrogen is produced from coal.
- A) Green hydrogen emits more CO<sub>2</sub>.

**Which of the following statements about green hydrogen are true?**

*Hint: Consider the applications and benefits of green hydrogen.*

- A) It can be used as a fuel for vehicles.
- A) It is always more efficient than fossil fuels.
- A) It requires renewable energy for production.
- A) It contributes to reducing greenhouse gas emissions.

**Describe how green hydrogen can contribute to energy independence.**

*Hint: Think about local energy production and sustainability.*

### Part 3: Application and Analysis

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**If a city wants to reduce its carbon footprint, which of the following actions involving green hydrogen would be most effective?**

*Hint: Consider actions that directly impact carbon emissions.*

- A) Building more coal power plants
- A) Investing in hydrogen fuel cell vehicles
- A) Increasing natural gas imports
- A) Expanding oil refineries

**How can industries integrate green hydrogen into their operations?**

*Hint: Think about the various applications of hydrogen in industry.*

- A) Use it as a raw material in chemical production.
- A) Replace natural gas with hydrogen in heating processes.
- A) Use it to power electric grids during peak demand.
- A) Continue using coal for energy.

**Propose a strategy for a local government to promote the use of green hydrogen in public transportation.**

*Hint: Consider policies, incentives, and public awareness.*

**Which factor is most likely to hinder the widespread adoption of green hydrogen?**

*Hint: Consider economic and technological barriers.*

- A) Lack of public interest
- A) High production costs
- A) Abundance of renewable energy
- A) Government incentives

**Analyze the challenges of using green hydrogen in the energy sector. Which of the following are valid challenges?**

*Hint: Think about infrastructure and technology.*

- A) High infrastructure costs
- A) Limited renewable energy sources
- A) Low energy density compared to fossil fuels
- A) Lack of technological advancement

**Examine the relationship between green hydrogen production and water resources. What are the potential impacts?**

*Hint: Consider water usage and sustainability.*

## Part 4: Evaluation and Creation

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**Which policy would most effectively support the growth of the green hydrogen industry?**

*Hint: Think about economic incentives and regulations.*

- A) Subsidizing fossil fuel industries
- A) ImplementING carbon taxes
- A) Reducing research funding for renewable energy

- A) Eliminating tariffs on oil imports

**Evaluate the potential benefits of a global shift to green hydrogen. Which of the following are likely outcomes?**

*Hint: Consider environmental and economic impacts.*

- A) Decreased global carbon emissions
- A) Increased reliance on fossil fuels
- A) Enhanced global energy security
- A) Improved air quality

**Design a campaign to educate the public about the benefits of green hydrogen. What key messages and strategies would you include?**

*Hint: Consider target audiences and communication methods.*