

# Green Hydrogen Worksheet High School Appropriate Questions and Answers PDF

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### Part 1: Building a Foundation

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

Hint: Think about the methods of hydrogen production.

○ A) CombustION

○ A) Electrolysis ✓

- A) Fermentation
- O A) Distillation
- The primary process used to produce green hydrogen is electrolysis.

#### 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

Renewable energy sources for green hydrogen production include solar and wind power.

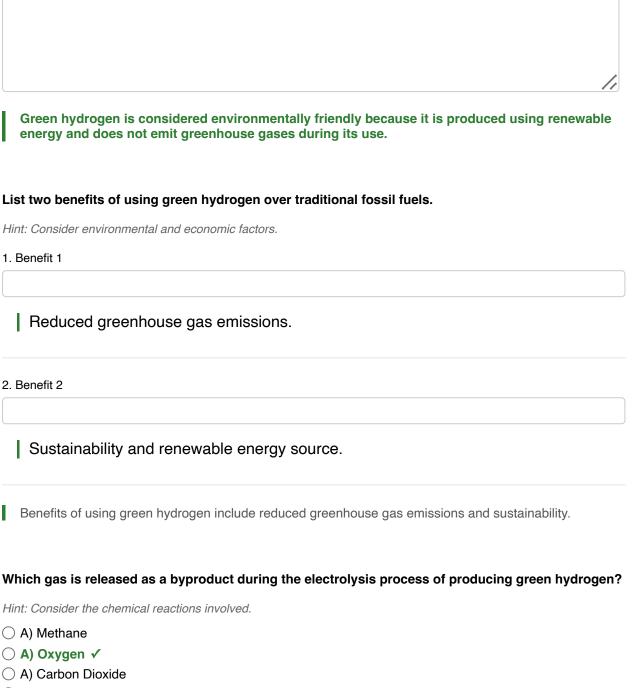
#### Explain why green hydrogen is considered environmentally friendly.

Hint: Think about emissions and sustainability.

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A) Nitrogen

Oxygen is released as a byproduct during the electrolysis process.



### Part 2: Understanding and Interpretation

### What distinguishes green hydrogen from grey hydrogen?

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

- $\bigcirc$  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 CO2.

Green hydrogen is distinguished from grey hydrogen by its use of renewable energy sources for production.

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

Hint: Consider the applications and benefits of green hydrogen.

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

True statements about green hydrogen include its use as a fuel for vehicles, its requirement for renewable energy, and its contribution to reducing greenhouse gas emissions.

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

Hint: Think about local energy production and sustainability.

Green hydrogen can contribute to energy independence by enabling local production of energy from renewable sources, reducing reliance on imported fossil fuels.



### Part 3: Application and Analysis

# 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

Investments in hydrogen fuel cell vehicles would be the most effective action for reducing carbon footprints.

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

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

 $\square$  A) Use it as a raw material in chemical production.  $\checkmark$ 

□ 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.

Industries can integrate green hydrogen by using it as a raw material in chemical production, replacing natural gas in heating processes, and powering electric grids during peak demand.

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

Hint: Consider policies, incentives, and public awareness.

A strategy could include implementing incentives for hydrogen fuel cell buses, investing in hydrogen refueling infrastructure, and launching public awareness campaigns.



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

Hint: Consider economic and technological barriers.

- A) Lack of public interest
- $\bigcirc$  A) High production costs  $\checkmark$
- A) Abundance of renewable energy
- A) Government incentives

High production costs are the most likely factor to hinder the widespread adoption of green hydrogen.

# 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 ✓

Valid challenges include high infrastructure costs, low energy density compared to fossil fuels, and 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.

The production of green hydrogen requires significant water resources, which can impact local water availability and sustainability.

### Part 4: Evaluation and Creation



### 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
- $\bigcirc$  A) Eliminating tariffs on oil imports

ImplementING carbon taxes would most effectively support the growth of the green hydrogen industry.

# 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 ✓

Likely outcomes of a global shift to green hydrogen include decreased global carbon emissions, enhanced global energy security, and 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.

A campaign could focus on the environmental benefits, economic opportunities, and energy independence provided by green hydrogen, using social media and community events for outreach.