

# Chemistry Merit Badge Worksheet



## Requirement 1

Explain the meaning of chemistry.

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Discuss the branches of chemistry.

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
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\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Discuss how chemistry is different from other fields of natural science.

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## Requirement 2

- Show that a candle flame uses up oxygen from the air and produces carbon dioxide.
- Demonstrate that heating sawdust or wood chips produces a gas that burns.

Sketch the carbon dioxide – oxygen cycle.

## Requirement 3

Explain how the following gases are produced industrially.

- Oxygen

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- Hydrogen

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- Chlorine

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- Ammonia

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### Requirement 4

Differentiate the following.

- Carbonates

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- Sulfides

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- Chlorides

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- Acids

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- Gases

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### Requirement 5

Write the formulas for two compounds that make water hard.

Provide the Name of Compound # 1: \_\_\_\_\_

Formula for Compound # 1

Provide the Name of Compound # 2: \_\_\_\_\_

Formula for Compound # 2

Write an equation describing how a home water softener works.

## Requirement 6

Explain what oxygen does in the animal body.

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Tell how the following are carried in the body.

- Oxygen

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- Carbon Dioxide

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- Carbon Monoxide

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Describe the chemical reaction that take place when the following happens.

- Vegetables Cook

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- Meats Cook

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- Bread Dough Rises

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- Bread Bakes

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- Bread is Chewed

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### Requirement 7

- Carry out an experiment to show the different ways of protecting iron or steel from rusting.
- Give examples using Scouting utensils.

Why aluminum does not rust?

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Why iron does rust?

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### Requirement 8

Do any two of the following:

- Visit a plant that makes chemical products, and uses chemical processes.

What plant did you visit? \_\_\_\_\_

Describe the chemical processes used.

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- Visit a laboratory or place of business that uses chemicals.

What laboratory did you visit? \_\_\_\_\_

Write down how and why the chemicals are stored.

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- Learn how chemistry is meeting farm problems of soil fertility and crop pests.

What did you learn about soil fertility?

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What did you learn about crop pests?

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- Explain the differences in university courses for training the following:

Chemical Technicians

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Scout Name \_\_\_\_\_ Unit # \_\_\_\_\_ Date \_\_\_\_\_

Chemists

Chemical Engineers

Describe two (2) different kinds of work done by:

Chemical Technicians: (1) \_\_\_\_\_

(2) \_\_\_\_\_

Chemists: (1) \_\_\_\_\_

(2) \_\_\_\_\_

Chemical Engineers: (1) \_\_\_\_\_

(2) \_\_\_\_\_