

# Combustion

Level Primary, Elementary

## Concept

It is understood that heat is necessary for burning. It is understood that the candle and alcohol change into the gas by heat and burn.

## Experiment 1

### Split flame

#### Materials

candle, wire gauze (2), and match

#### Procedure

- (1) Heat is lost when the wire gauze is put in the flame of the candle and the paraffin gas is not able to be burnt.
- (2) It seems that the flame separates when another wire gauze is brought up and ignites the gas.



The flame is separated

## Experiment 2

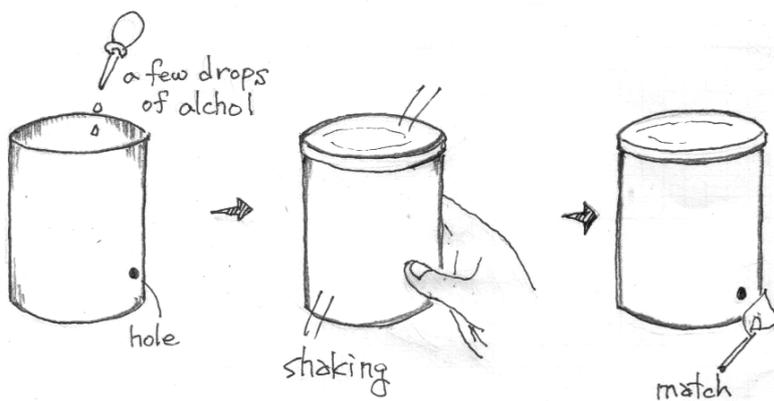
### Alcohol explosion

#### Materials

can with a lid, match and alcohol

#### Procedure

- (1) The hole like entering of the match in about 1cm under the side of the can is made.
- (2) Alcohol is put in the can by several drops.
- (3) Put on the lid. The hole is suppressed by the finger and the can is shaken.
- (4) The flame of a match is brought close from the hole on the side.



#### Science

Alcohol gradually becomes a gas in the spirit lamp and it burns.

Alcohol is evaporated in the sealed container. It mixes with air and explodes if you ignite it.



The spirit lamp is safe, but the mixture of alcohol and air can explode.

## Experiment 3

### Combustion in water

#### Concept

Combustion can happen even in water if the oxygen is given. Let's make firework, and burn it in water.

#### Materials

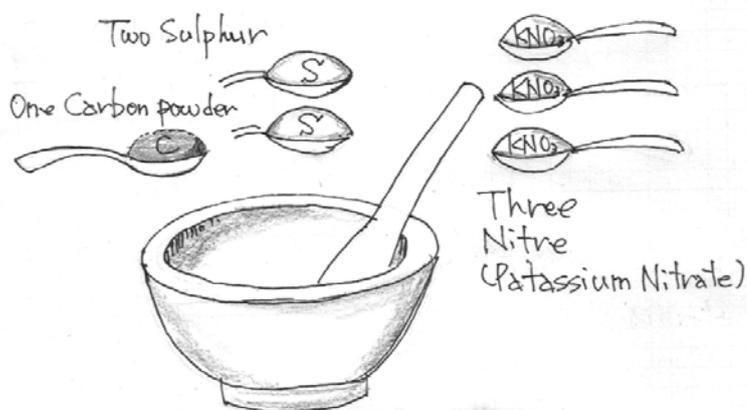
gunpowder (nitre, carbon powder, and sulphur), water tank, water, mortar, pestle, spoon, adhesive tape, paper, bamboo skewer, plastic food wrap, and match



#### Procedure

Making fireworks.

(1) One spoon of carbon powder and two spoons of sulphur are put in the mortar and mix it.

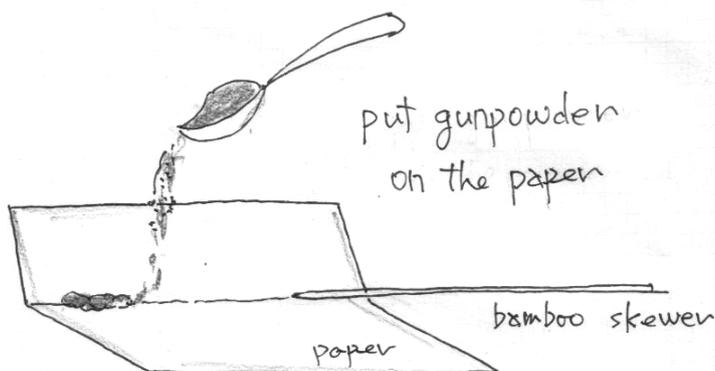


(2) Three spoons of nitre are added to this and mix it well. It is gunpowder.

(3) Gunpowder is put on paper like shape of cylinder.

A part of the bamboo skewer is placed on the paper. Roll the paper, and attach it with the adhesive tape.

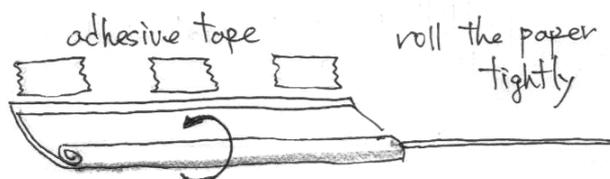
Firework is made. Ignite and the combustion is confirmed.



Another firework is made.

(4) The plastic wrap is rolled in surroundings of paper.

(5) Water is put in the water tank. Ignite it and put it in water.



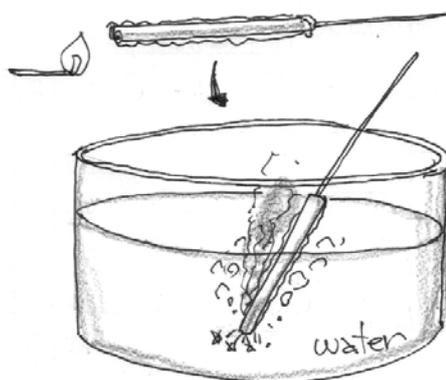
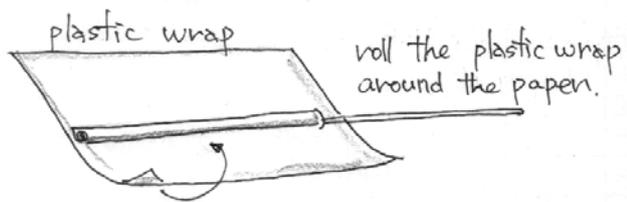
## Science

Paper is damp and the fire goes out at once if the plastic wrap is not rolled tightly.

Not only oxygen but also the temperature is a necessary condition for combustion.

## Caution

Don't ignite the gunpowder in the shield container. It's very dangerous.



The firework can burn even in water.