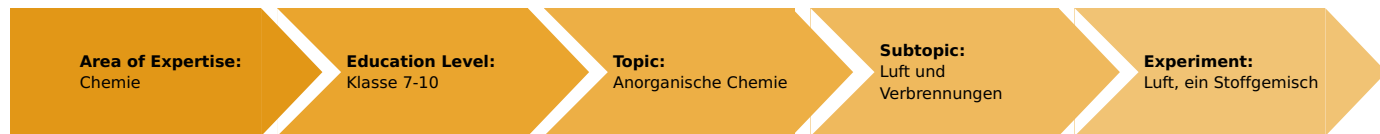


Air, a mixture (Item No.: P7153400)

Curricular Relevance



Difficulty



Easy

Preparation Time



10 Minutes

Execution Time



10 Minutes

Recommended Group Size



2 Students

Additional Requirements:

Experiment Variations:

Keywords:

Air, mixture of substances

Task and equipment

Information for teachers

Learning objectives

- Only a part of the air is consumed by combustion.
- Therefore, air must be a mixture.

Notes on set-up and procedure

Preparation

Normal candles having an appropriate size can also be used; they should be fixed to the bottom of the dish before the class. Subsequently, the water can be cautiously poured in.

Remarks on the students' experiments

The inward flow of the water during the combustion process is facilitated if the glass beaker is not set directly on the bottom of the dish, but rather on slight elevations, e.g. on two microscopic slides.



Hazards

- The beaker becomes hot during the experiment. Pick it up cautiously with the rubber gloves!
- Wear protective glasses!

Remarks on the method

This experiment is directly connected with the previous one and should be performed together with it if possible.

The treatment of Exercise 3 can also be conducted in a problem-oriented class discussion, which leads to planning the next experiment.

Air, a mixture (Item No.: P7153400)

Task and equipment

Task

What role does air play in combustion? (2)

Determine whether air as a whole is required for combustion.



Equipment



Position No.	Material	Order No.	Quantity
1	Protecting glasses, clear glass	39316-00	1
2	Rubber gloves, size S (7)	39325-00	1
3	Dish, plastic, 150x150x65 mm	33928-00	1
3	Labor pen, waterproof	38711-00	1
4	Glass beaker DURAN®, short, 250 ml	36013-00	1
Additional material			
	Lighter or matches		
	Warming candle		
	Water		

Set-up and procedure

Set-up

Hazards

- The beaker becomes hot during the experiment. Pick it up cautiously with the rubber gloves!
- Wear protective glasses!



Procedure

Procedure

Fill the plastic dish approximately one-third full with water (Fig. 1).



Fig. 1

Place the warming candle on the water's surface so that the wick does not become moist (Fig. 2). Turn the beaker over and lower it slowly over the warming candle (Fig. 3). Mark the water level in the glass beaker on its outside surface (Fig. 4).



Fig. 2



Fig. 3



Fig. 4

Lift the beaker slowly without getting the warming candle wet (Fig. 5). Light the candle and wait until a uniform flame has formed (Fig. 6). Now lower the upside-down beaker over the burning candle (Fig. 7).



Fig. 5

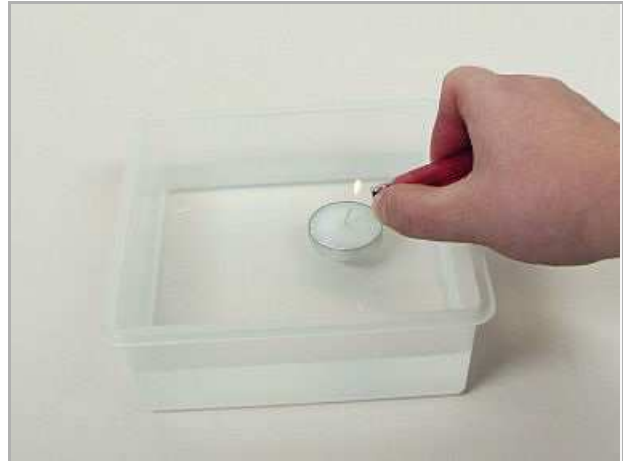


Fig. 6

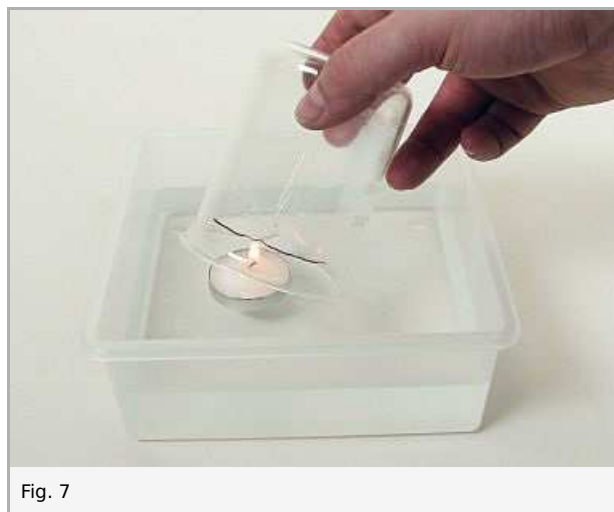


Fig. 7

Mark the water level that has become established in the glass beaker at the end of the experiment on the outside of the beaker with the laboratory pencil.

Report: Air, a mixture

Result - Observations

Note your observations. In the process, record the water level before and after the experiment.

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Evaluation - Question 1

Draw a diagram of the experimental result before and after the combustion process according to the experiment's figure.

Evaluation - Question 2

What conclusions can be made based on the experiment?

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Evaluation - Question 3

Plan an experiment that shows the exact amount of the air fraction consumed by the combustion.

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