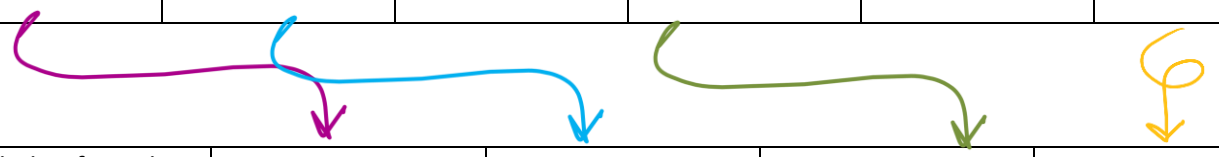
Air and its composition – worksheet

Air is a homogeneous …….. of gases.

The components of air:

Content does not change significantly			Content may change – depends on different factors		



Symbol or formula				
Colour				
Smell				
Combustion support				
Interesting information				

Composition of air – laboratory

What do you have to do? You will see few chemical experiments. Observe them very carefully and take notes. Fill in the blanks. There are some reactions – write down the symbols of the elements or formulas of the substances. Remember to balance your reactions!

Experiment1: Demonstrating the presence of water vapour in the air using a hygroscopic substance
Instructions: Place a few granules of sodium hydroxide (NaOH) on a watch glass. Leave it for 20-25 minutes. *Record your observations and draw a conclusion*.
Observations: Dry sodium hydroxide (NaOH), left in the air, becomes (*choose the words describing the change*: shiny, melts, hard, changes colour, occurs hissing sound, becomes warm)

……

Conclusions: Sodium hydroxide (NaOH) …….. water vapour from the air. It is a

…….. substance, i.e. capable of absorbing water (usually water vapour) from the environment.

Experiment 2: Obtaining …….. from potassium permanganate
Instructions: Pour 3% hydrogen peroxide (H_2O_2) into a test tube placed in a stand, then add potassium permanganate. After a while, hold a lit match to the outlet of the test tube. *Record your observations and draw a conclusion.*
Observations: A (*what colour?*) …….. and (*what smell?*)

…….. gas is released. A bright flame appears.

Conclusions: The gas produced supports combustion. The gas produced is ……..

Experiment 3: Detecting the presence of ……..
Instructions: Pour some lime water ($Ca(OH)_2$) into a test tube. Using a glass tube, blow air from your lungs into the test tube. *Record your observations and draw a conclusion.*
Observations: The air exhaled from the lungs causes significant (*what happened? Is there any change?*)

…….. in the lime water.

Conclusions: The lime water reacts with air exhaled from the lungs because it consists of ……..

The clouding of lime water when exposed to …….. is a reaction characteristic of

……., i.e. it allows its presence to be detected.

$$Ca(OH)_2 + \quad \rightarrow \quad CaCO_3 \downarrow + \quad H_2O$$

Experiment 4: Reaction of magnesium with hydrochloric acid
Instructions: Put magnesium particles into a test tube and add a diluted hydrochloric acid solution (HCl). After a while, hold a lit match to the outlet of the test tube. *Record your observations and draw a conclusion.*

Observations: The test tube (*is there a change of temperature?*) ……..

spontaneously. A (*what colour?*) …….. and (*what smell?*)

…….. gas is released. (When mixed with air), the gas ignites with a characteristic

sound.

Conclusions: The reaction produces a flammable gas - ……..

Reaction: ……. + hydrochloric acid → magnesium chloride + ……

$$+ \quad HCl \rightarrow \quad MgCl_2 + \quad \uparrow$$
