

10 CHEMICAL EXPERIMENT

1. Complete the vocabulary for lab equipment in the pictures:



1. F _ _ _ _



2. EVAPORATING D _ _ _



3. B _ _ _ _



4. BOTTLE



5. CALIBRATED C _ _ _ _ _



6. TEST-T _ _ _



7. MORTAR AND P _ _ _ _ _



8. THERMO _ _ _ _ _



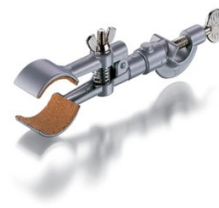
9. F _ _ _ _



10. FORCEPS



11. B _ _ _ _ _



12. CLAMP



13. G _ _ _ _ _



14. STIRRING R _ _



15. C _ _ _ _ _

2. Read about laboratory equipment and complete the gaps with the phrases below.

A common laboratory is provided 1 _____. The usual equipment includes also desiccators, used for drying materials and a balance for 2 _____. Other necessities are sinks for 3 _____ and good ventilation.

An important ventilation device that is designed 4 _____ is called fume cupboard or fume hood.

The indispensable equipment comprises also glass and porcelain vessels. These are test-tubes, beakers, various flasks and cylinders. Glassware is made 5 _____, such as Pyrex glass because it has to resist sudden changes of temperatures.

Porcelain vessels include different kinds of dishes and 6 _____. A grinding mortar with a pestle, desiccating dish and stirrers are generally made of porcelain.

At present, plastic materials are increasingly used in laboratories 7 _____, acid or alkali-proof and unbreakable.

Adapted from C. Doubravová, Angličtina pro posluchače VŠCHT

- | | |
|------------------------------------|--|
| A pouring out waste water | E with running water, gas and electricity |
| B of a special kind of glass | F since many of them are chemically resistant |
| C crucibles of different diameters | G to limit exposure to toxic fumes and vapours |
| D accurate weighing of samples | |

3. What are these things used for? Describe their purpose.

You can use one of these grammar structures:

... is used for doing something

... is used to do something

Example



Desiccator is a container with a drying agent that is used for removing moisture from specimens and protecting them from water vapour in the air.

OR ... to remove moisture from specimens and to protect them from water vapour in the air.

1.



2.



3.



1. The scales are used ...
2. The fume hood ...
3. The...

4. Read the lab memo below and identify in the picture the equipment written in bold.

Hi everyone,

Last week, I noticed some careless use of glassware. Remember our equipment safety practices:

- Some glassware cannot stand on its own. Keep **test tubes** and **burets** on their **racks**. Otherwise, they tip over or roll away.
- **Droppers** and **pipettes** are for transferring substances. Do not store materials in these containers for long periods.
- Avoid spillage. Pour carefully into narrow containers like **graduated cylinders**. Use a funnel when appropriate.
- Use equipment for its designated purpose. Only use a volumetric flask for particular volume and temperature precision. Otherwise, use a **beaker** or **Erlenmeyer flask** instead.
- Water is the only substance allowed in the wash bottles.

Tony

(from: Evans, Dooley & Norton, 2015, *Career Paths: Science*)



5. SHAPES (word formation):

a) Match the parts of sentences to make true statements.

A coin	is shaped like a	square	It is	rectangular	in shape.
A ruler		rectangle.		circular	
A set square		semi-circle.		square	
A protractor		triangle.		semi-circular	
A chess-board		circle.		triangular	



protractor



set square



ruler

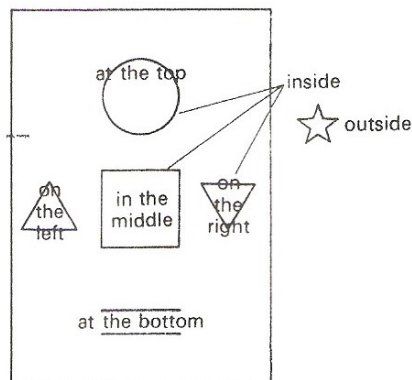
b) Complete the last word – an adjective describing a shape.

1. A volumetric flask is shaped like a sphere, it is
2. A test-tube is shaped like a cylinder, it is
3. A funnel is shaped like a cone, it is
4. A salt crystal is shaped like a cube, it is

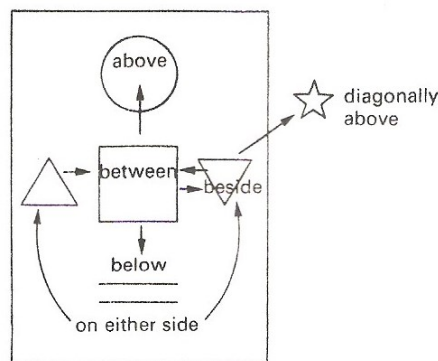
(from: Evans, Dooley & Norton, 2015, *Career Paths: Science*)

6. CHEMICAL APPARATUS [ˈæpəˌreɪtəs]

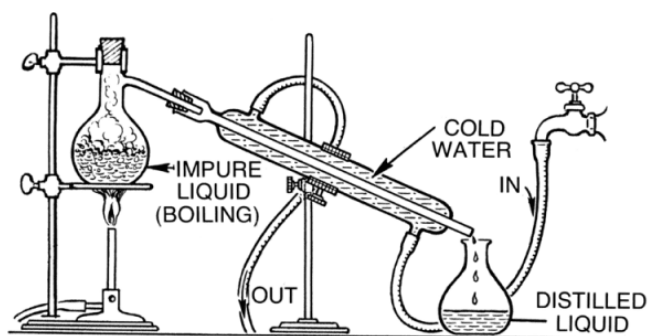
Study the prepositions and phrases in the two boxes below and then use some of them to complete the text describing the picture of the distillation apparatus.



the positions of the shapes *in relation to the rectangle*.



the positions of the shapes *in relation to one another*.



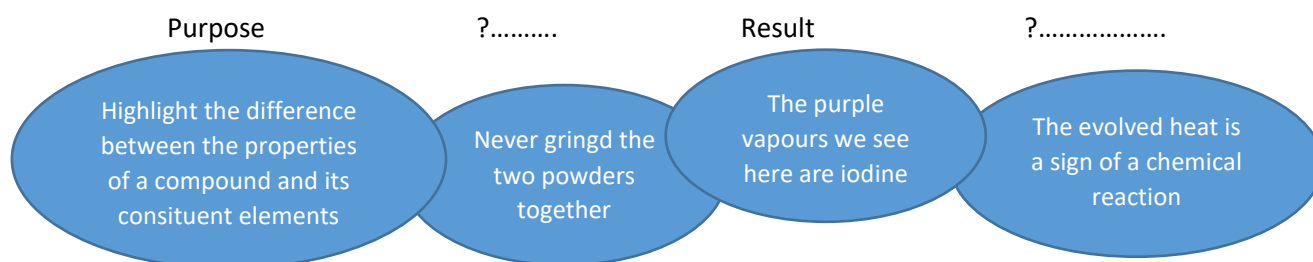
<https://www.thoughtco.com/how-to-set-up-distillation-apparatus-606046>

1..... there is a spherical flask placed on a gauze mat over the Bunsen burner. A condenser is placed diagonally 2..... of the apparatus. The flask for collecting the drops of the condensate is placed 3..... . The condenser is cooled by cold water from the tap. 4..... of the condenser there is an inlet of the cold water and 5..... there is the outlet of the cold water. The collecting flask stands right 6..... the bottom part of the condenser.

7. DESCRIBING AN EXPERIMENT

A) You will watch an experiment. What parts do you expect in the commentary?

Complete the missing headings for the these parts:



<https://www.youtube.com/watch?v=bsshuMxcRuc> The reaction of aluminium and iodine 0.20 – 2.22

B) Order the instructions correctly:

- A) the reaction starts, clouds of purple iodine vapour are released as heat is generated.
- B) Put one or two drops of warm water onto the top of the mound using the dropper.
- C) grind 0.4 g of iodine in the mortar.
- D) The mixture bursts into flame, producing a white smoke together with the iodine vapour, and leaving a glowing, white residue of aluminium iodide.
- E) mix the iodine with 0.1 g of aluminium powder and place the mixture in a small mound on the tin lid.
- F) the fume cupboard should be switched on, as iodine vapour is toxic.
- G) There can be an induction period the reaction starts but if there appears to be nothing happening, add another one or two drops of water.

Add the adverbs/ adverbial phrases into the text:

before at this point finely then carefully when

C) Use the headings to complete the gaps: *Result Purpose Steps Conclusion Materials*

1......

To show how the properties of a mixture differ from the properties of a compound.

2.

0.4 g of iodine, 0.1 g of aluminium powder, warm water
tin lid, dropper, mortar and pestle, eye protection, access to a fume cupboard

3.

Finely grind 0.4 g of iodine in the mortar.

Carefully mix the iodine with 0.1 g of aluminium powder and place the mixture in a small mound on the tin lid.

Put one or two drops of warm water onto the top of the mound. There can be an induction period before the reaction starts but if there appears to be nothing happening add another one or two drops of water. A little detergent in the water assists wetting.

When the reaction starts, clouds of purple iodine vapour are released as heat is generated. At this point the fume cupboard should be switched on, as iodine vapour is toxic.

5.

The mixture then bursts into flame, producing a white smoke together with the iodine vapour, and leaving a glowing, white residue of aluminium iodide.

6.

Oxidation of finely dispersed aluminium with iodine is initiated using drops of water. The reaction is strongly exothermic, producing the aluminium iodide. The excess iodine vaporises, forming a deep violet vapour. The reaction is $2\text{Al(s)} + 3\text{I}_2\text{(s)} \rightarrow \text{Al}_2\text{I}_6\text{(s)}$. It was demonstrated how the colour of the mixture of aluminium and iodine differs from the colour of the aluminium iodide compound.