

Equipment List

- 1. heatproof mat
- 2. Bunsen burner
- 3. tripod
- 4. gauze
- 5. measuring cylinder
- 6. beaker
- 7. conical flask
- 8. clamp stand, boss and clamp
- 9. evaporating basin
- 10. thermometer
- 11. boiling tube
- 12. funnel

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Finding Your Way Around a Laboratory Teaching Ideas

Learning Objective:

To find your way around the laboratory and recognise some of the equipment used in science lessons.

Success Criteria:

- To find equipment around the laboratory.
- To identify some pieces of scientific equipment.
- To draw and label scientific diagrams of different scientific equipment.

Context

This lesson is part of the Introduction to Science unit of work. Students get to know their way around the laboratory, identify some commonly used scientific equipment and learn how to draw scientific diagrams.

Resources

laboratory equipment, including heatproof mats, Bunsen burners, tripods, gauzes, measuring cylinders, beakers, conical flasks, clamp stands, bosses and clamps, evaporating basins, thermometers, boiling tubes and funnels (enough for one of each per group)
mini whiteboards and pens

Starter

Naming Laboratory Equipment

Students are shown some pictures of equipment that might be used in a scientific experiment. Some of these they may recognise from primary school and some may be new to them. Students are asked to name the pieces of equipment. This could be done in students' books or on mini whiteboards. The answers appear on the following slide one at a time on a click. As an extension, you could ask students to discuss what they think each piece of equipment is used for.

Main Activities

Finding Your Way Around the Lab

Students are given a list of items that they need to find around the laboratory. The **Equipment List** could be laminated for use in multiple lessons. This is a useful exercise to get students used to collecting the equipment that they will need for scientific investigations. This activity works best if students are in groups of three or four and take it in turns to find a piece of equipment on the list and bring it back to their group. This ensures that there are not too many students moving around the classroom at the same time. While the other students in the group are waiting for their turn, they could be thinking about what each piece of equipment could be used for. The equipment list is displayed on the following slide for you to go through each piece of equipment with the class should you wish to do so.

Setting Up an Experiment

Students are asked to set up an experiment that would allow them to find out the boiling point of water, using the equipment that they have collected. A hint appears on the slide on a click to tell students that they need to use six of the pieces of equipment. For any students that are struggling, you could tell them the first three pieces of equipment that are required and ask them to work out which other three they might need. An illustration of the practical set-up is displayed on the following slide. Labels for each piece of equipment appear on a click. You could call on students to tell you the name of each piece of equipment as a recap before showing the labels.

Scientific Diagrams

The slide shows an illustration of a beaker alongside a scientific diagram of a beaker. Students are asked to discuss why a scientific diagram might be useful. An answer appears on the slide on a click. Students are then given a set of **Scientific Diagram Cards** to match to the pieces of equipment on their desk. There is also a **Naming Scientific Diagrams Worksheet** which students can complete as a record of their learning. Following this, you could ask students to draw a scientific diagram of their boiling water practical set-up. They should do this in their book and label the pieces of equipment, using a ruler to draw straight lines. The correct scientific diagram appears on the slide on a click.

Note: There are two scientific diagrams for a Bunsen burner included on the **Scientific Diagram Cards** and **Naming Scientific Diagrams Worksheet**. The more detailed diagram is often used in exam questions so students should be able to recognise it, but it is generally easier for students to simply draw an arrow with the word 'heat' below it for their own diagrams.

Plenary

Scientific Diagrams

Each slide shows a scientific diagram. Students must name the piece of equipment from the diagram. This could be done on mini whiteboards or students could hold up the piece of equipment if they still have these in front of them from earlier in the lesson. The answers appear on each slide on a click.

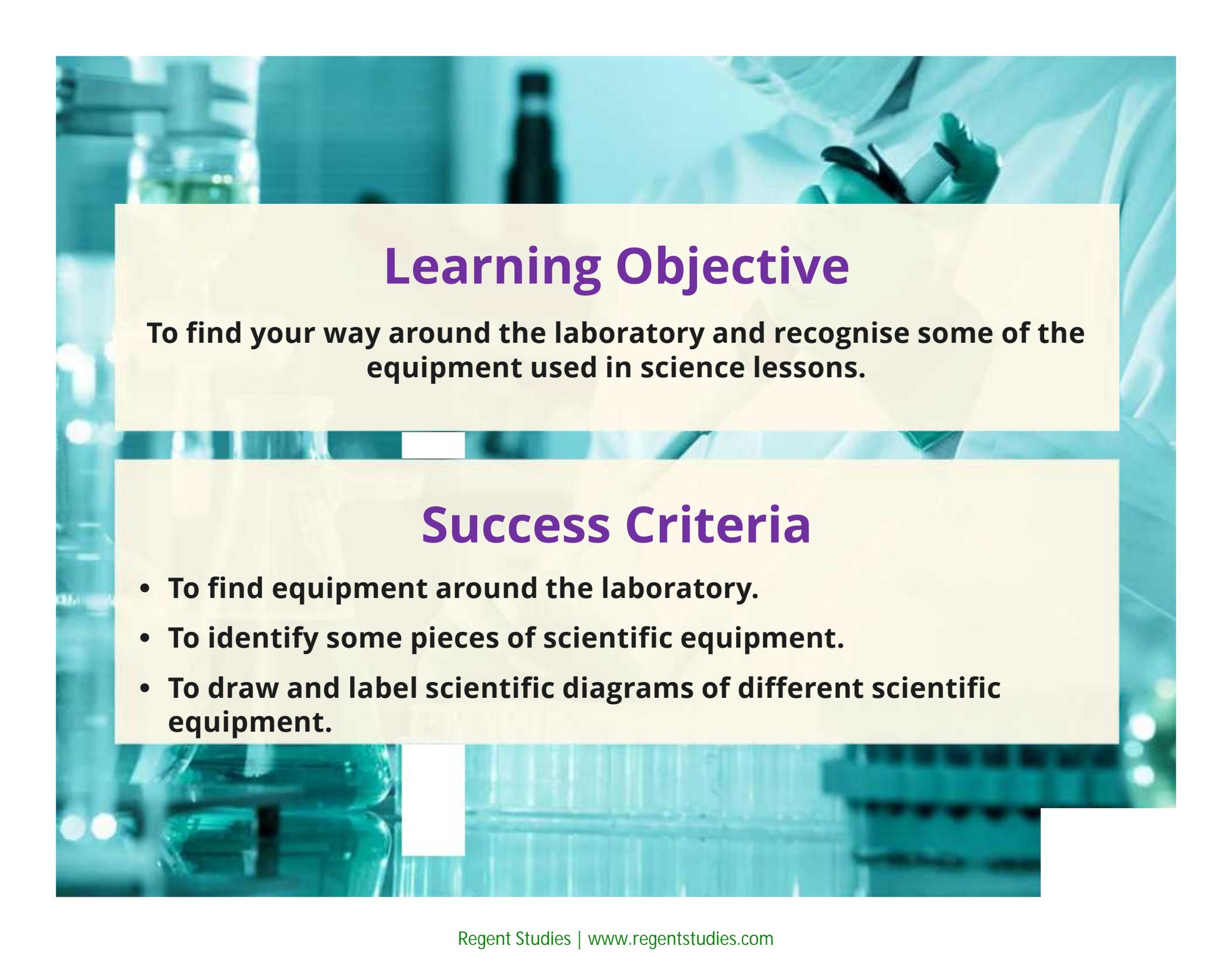
Home Learning

Uses of Scientific Equipment

Students can complete the [Scientific Equipment Homework Sheet](#) to recap their learning from the lesson and to record the uses of some pieces of equipment.



Finding Your Way Around a Laboratory



Learning Objective

To find your way around the laboratory and recognise some of the equipment used in science lessons.

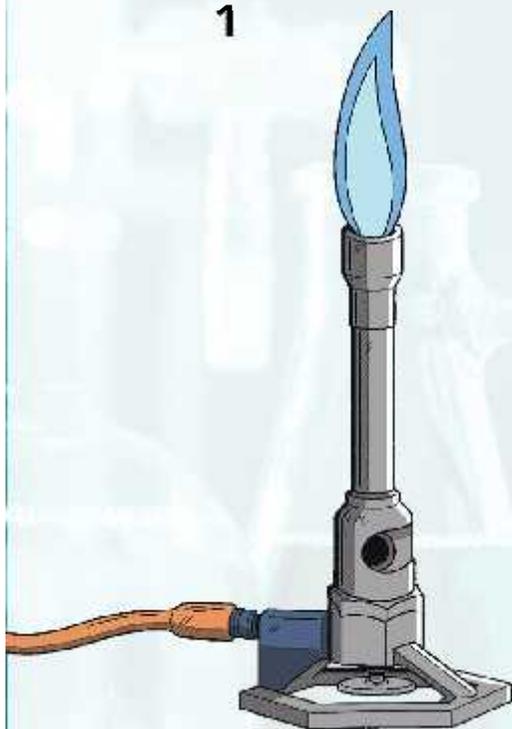
Success Criteria

- To find equipment around the laboratory.
- To identify some pieces of scientific equipment.
- To draw and label scientific diagrams of different scientific equipment.

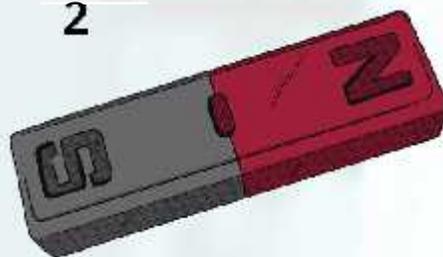
Laboratory Equipment

Can you name any of the pieces of scientific equipment below?

1



2



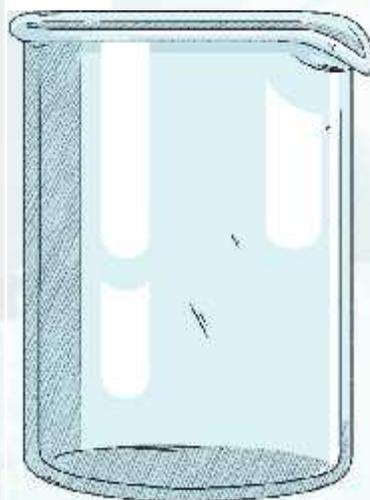
3



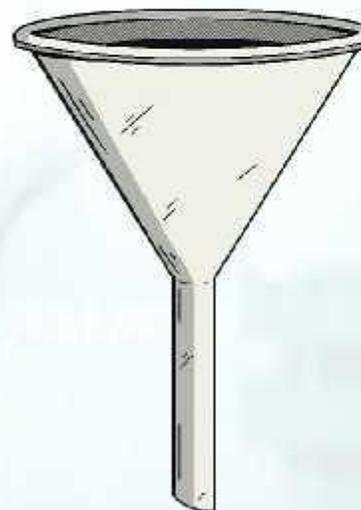
6



4



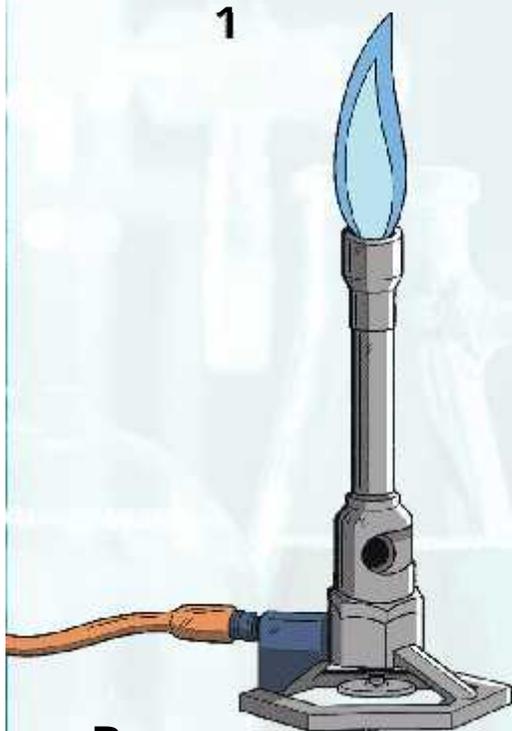
5



Laboratory Equipment

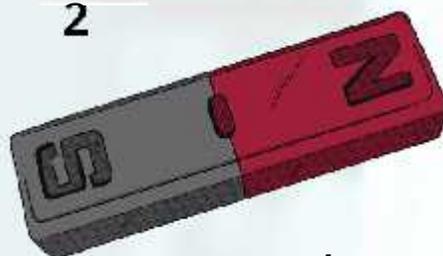
Can you name any of the pieces of scientific equipment below?

1



Bunsen burner

2



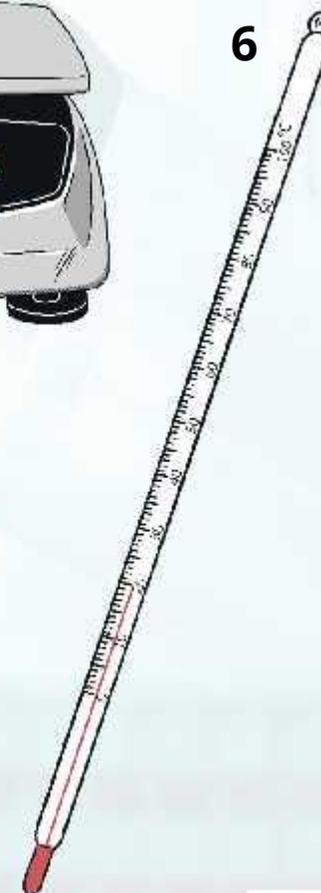
magnet

3



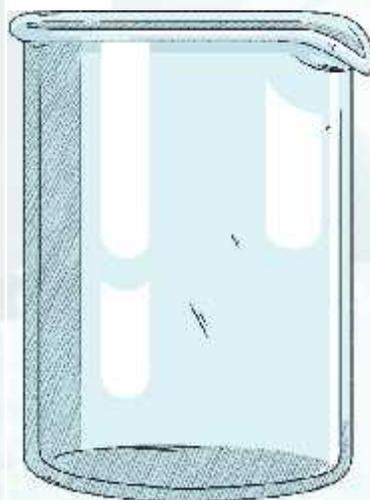
balance

6



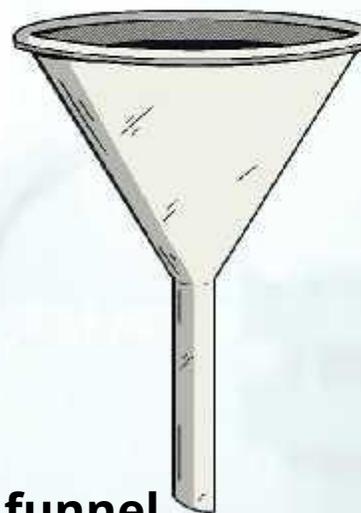
thermometer

4



beaker

5



funnel

Finding Your Way Around the Lab

When carrying out a scientific investigation, you need to be able to find all the equipment required.

In front of you is an equipment list. In your groups, take it in turns to go and find one of the pieces of equipment and bring it back to your desk. Tick the items off the list as you find them.

While you are waiting for your turn, see if you can figure out what each piece of equipment might be used for.

Finding Your Way Around the Lab

Equipment List

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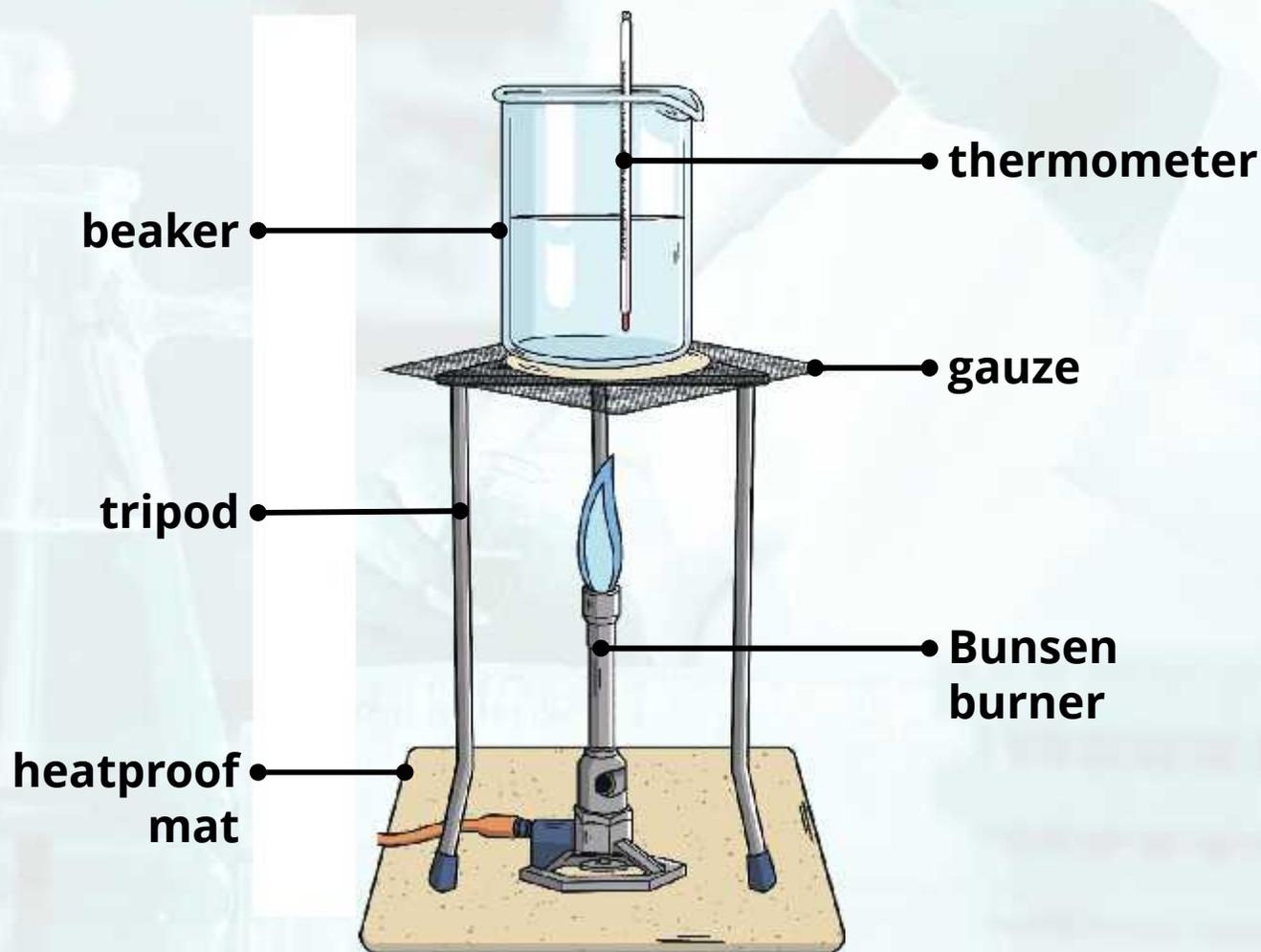
Setting Up an Experiment

Using the equipment that you have collected, set up an experiment that would allow you to find out the boiling point of water.

Hint: You will need to use six pieces of equipment.

Setting Up an Experiment

Using the equipment that you have collected, set up an experiment that would allow you to find out the boiling point of water.



Scientific Diagrams

Scientific diagrams can be used to represent scientific equipment.

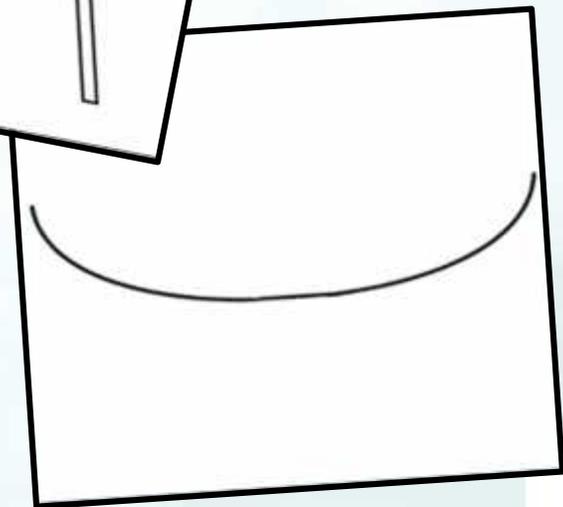
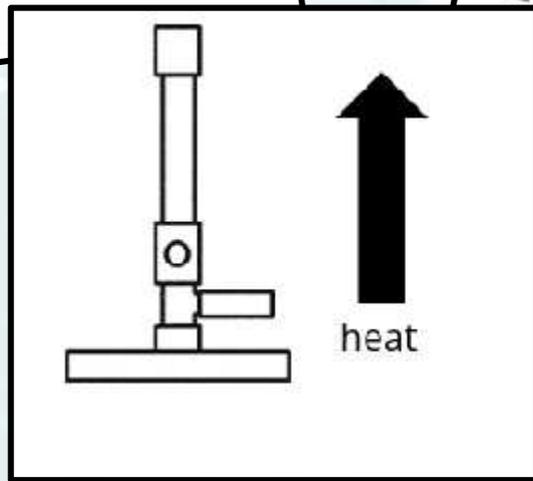
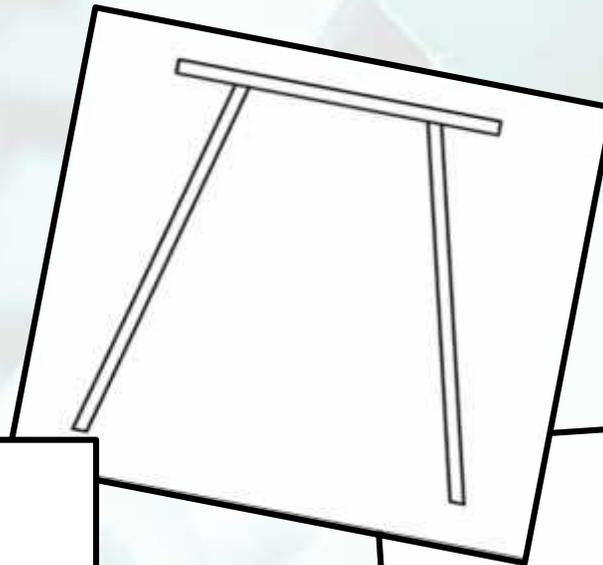
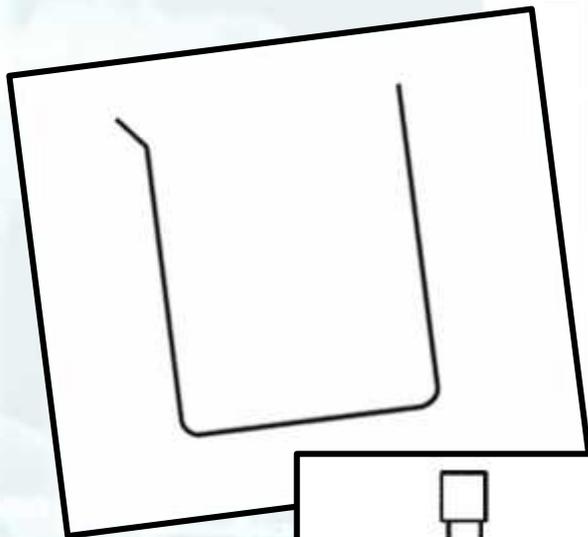


Why do you think a scientific diagram is useful?

To make it simpler to draw and easier to identify each piece of equipment.

Scientific Diagrams

Match each card with the correct piece of equipment in front of you.

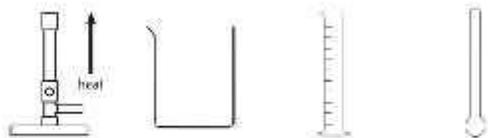


Scientific Diagrams

Complete the worksheet by giving the name of each piece of equipment from the scientific diagram.

Naming Scientific Diagrams

Give the name of each piece of equipment from the scientific diagrams.







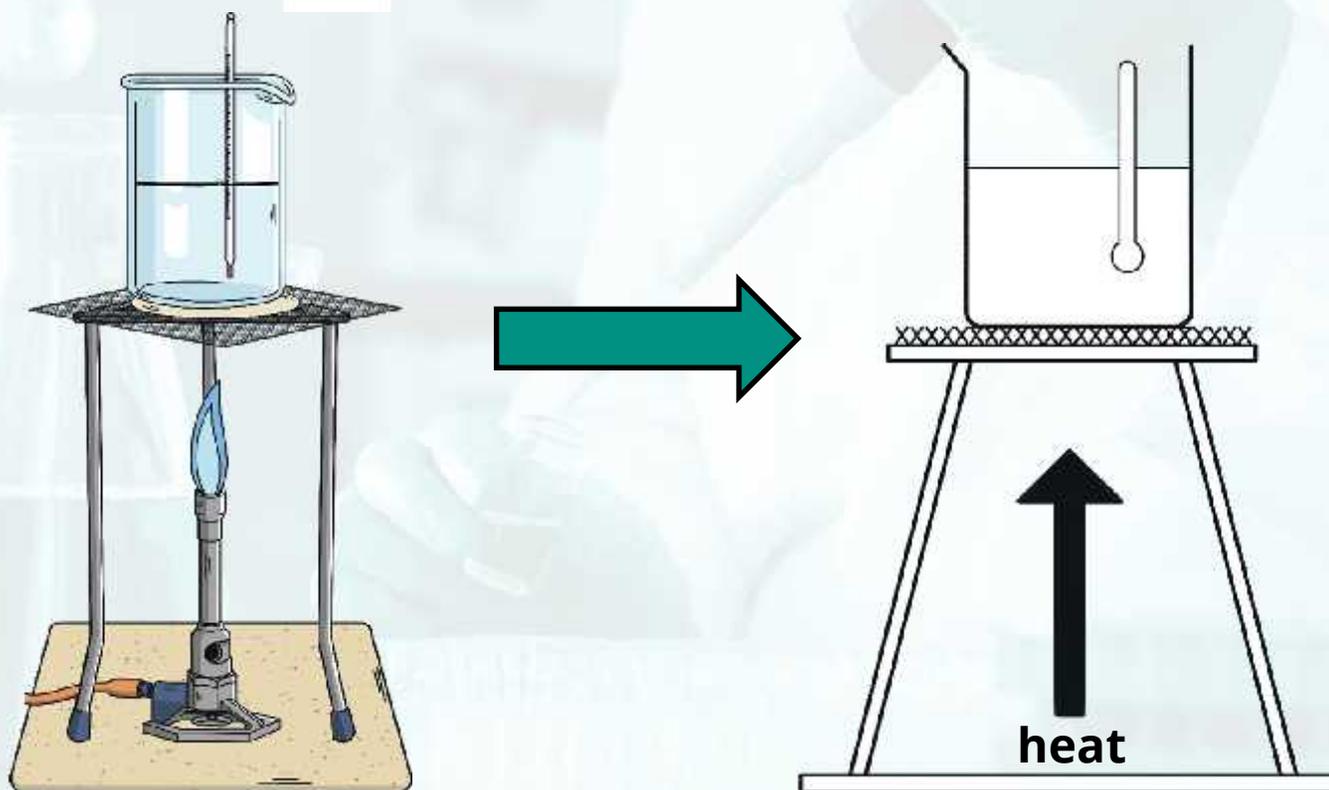
Drawing Scientific Diagrams

There are some rules to remember when drawing scientific diagrams:

- Use a sharp pencil.
- Use a ruler to draw straight lines.
- Do not include any shading or colour.
- Label each piece of equipment neatly with a straight line.

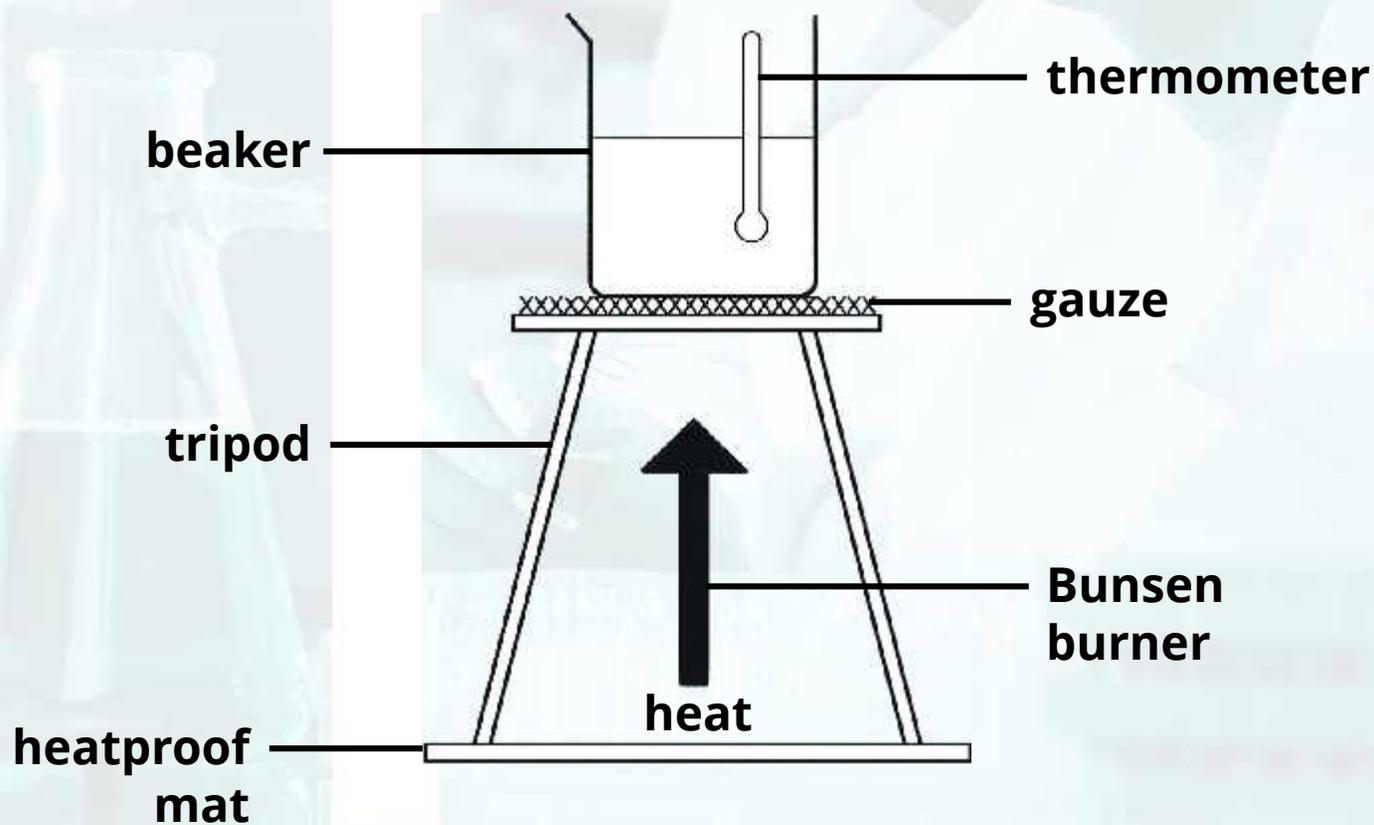
Drawing Scientific Diagrams

Draw a scientific diagram of the experiment that you set up to find the boiling point of water.



Drawing Scientific Diagrams

Draw a scientific diagram of the experiment that you set up to find the boiling point of water.



Quick Quiz

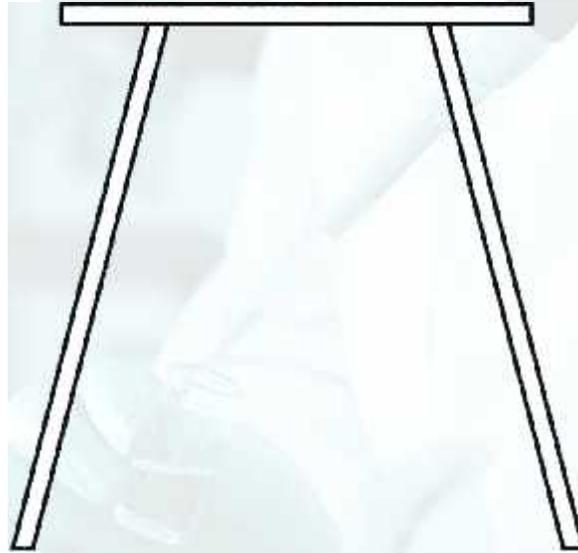
Identify the piece of equipment from the scientific drawing.



beaker

Quick Quiz

Identify the piece of equipment from the scientific drawing.



tripod

Quick Quiz

Identify the piece of equipment from the scientific drawing.

XXXXXXXXXXXXXXXXXXXX

gauze

Quick Quiz

Identify the piece of equipment from the scientific drawing.



conical flask

Quick Quiz

Identify the piece of equipment from the scientific drawing.



**measuring
cylinder**

Quick Quiz

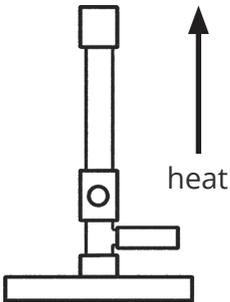
Identify the piece of equipment from the scientific drawing.



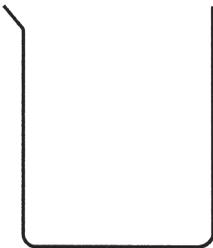
funnel



Naming Scientific Diagrams **Answers**



Bunsen burner



beaker



measuring cylinder



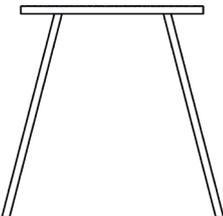
thermometer



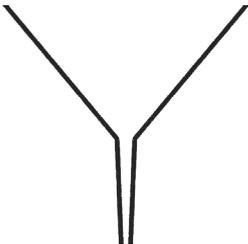
boiling tube



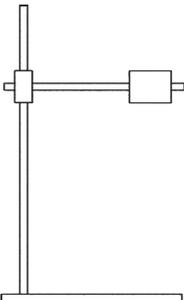
evaporating basin



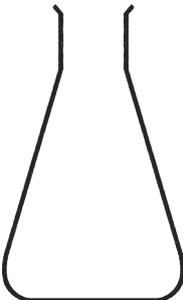
tripod



funnel



**clamp stand, boss
and clamp**



conical flask



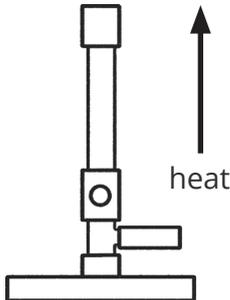
gauze

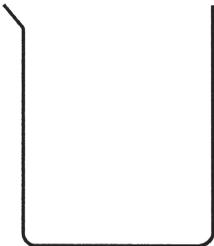


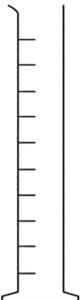
heatproof mat

Naming Scientific Diagrams

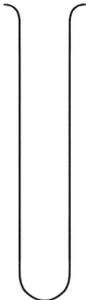
Give the name of each piece of equipment from the scientific diagram.



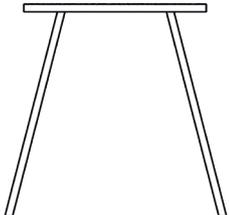


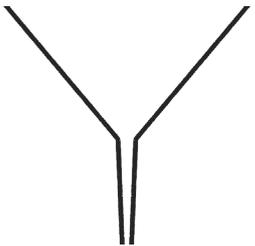


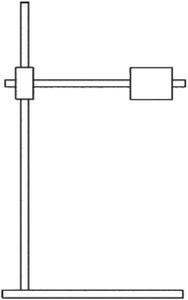


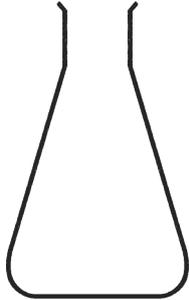






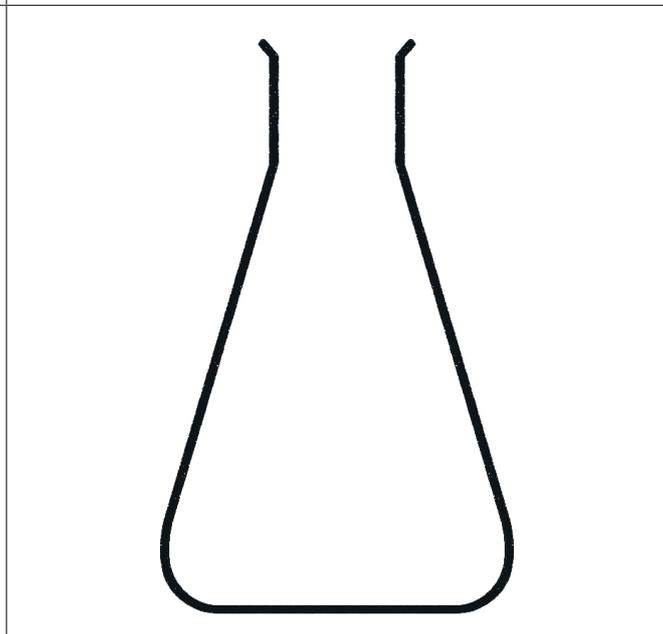
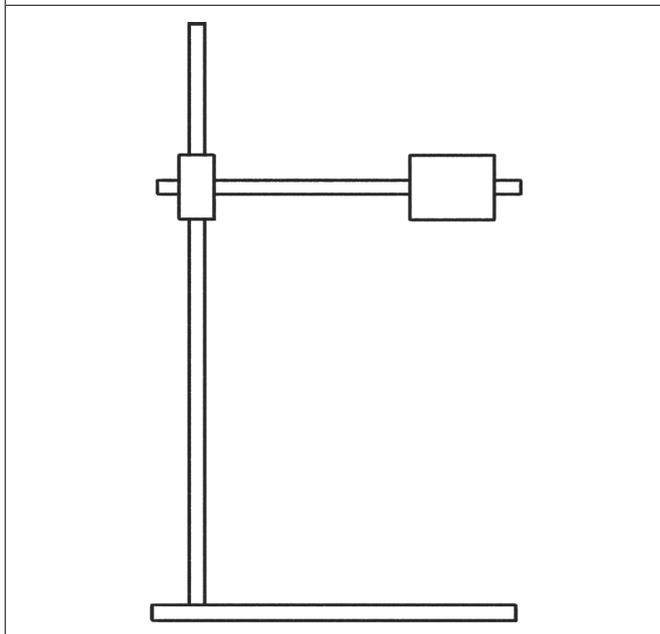
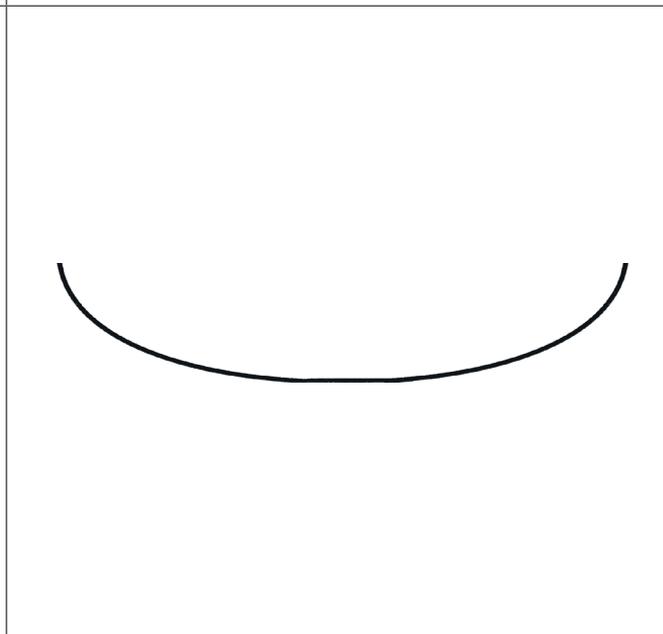
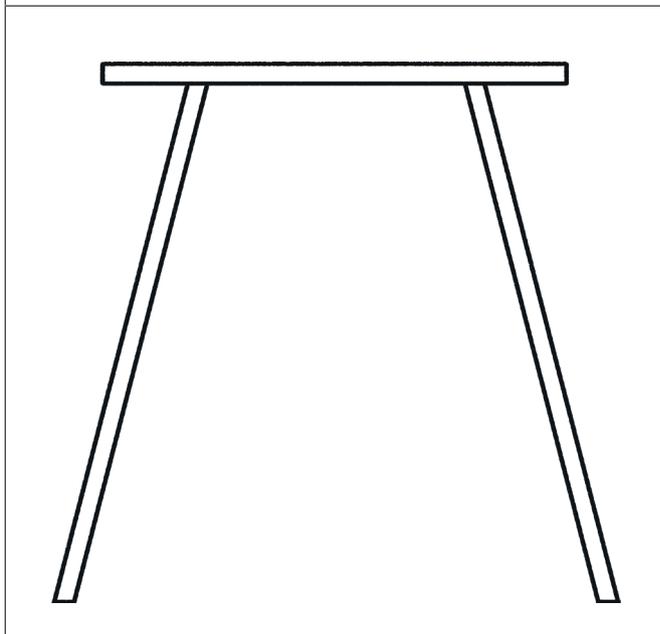
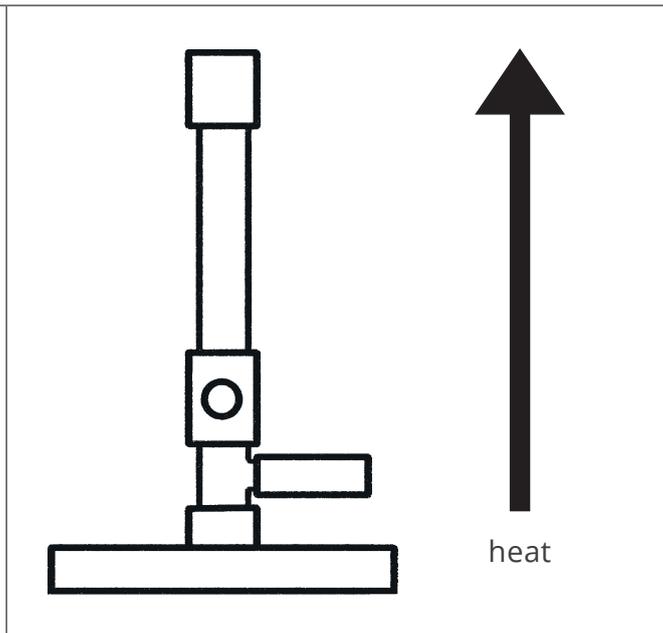
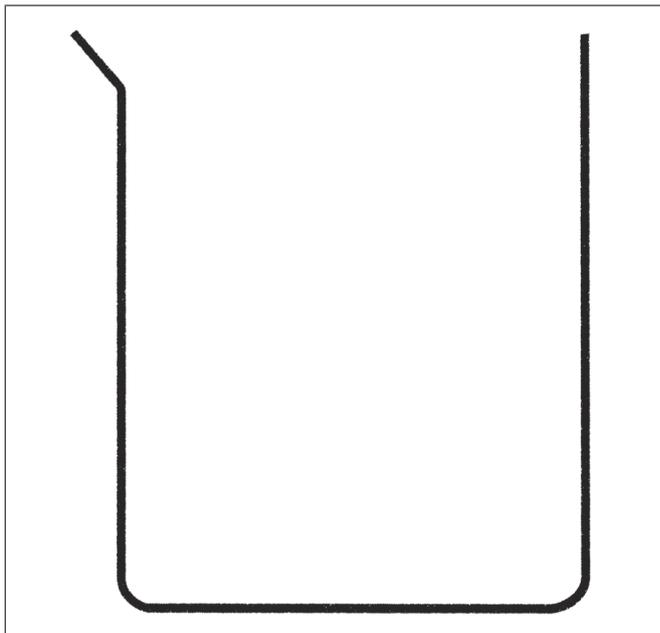


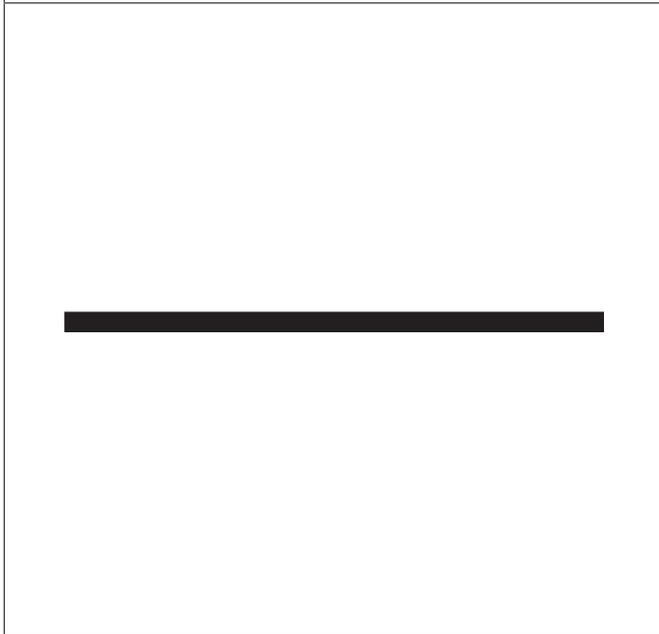
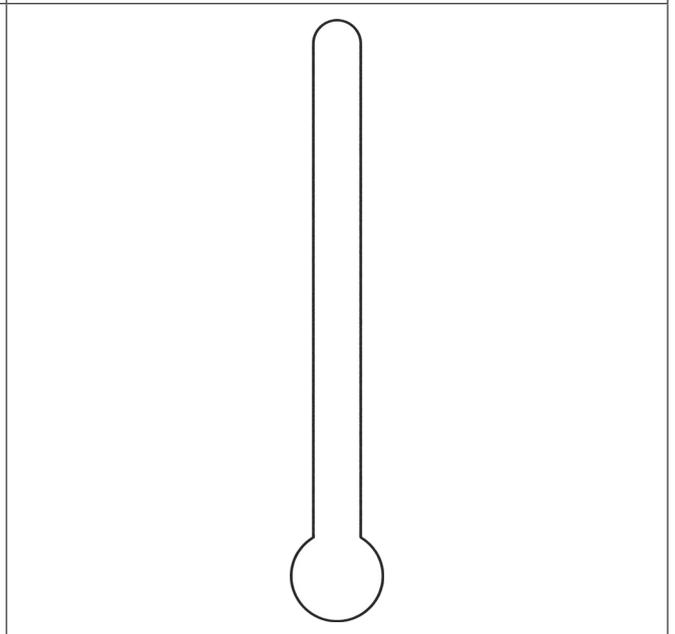
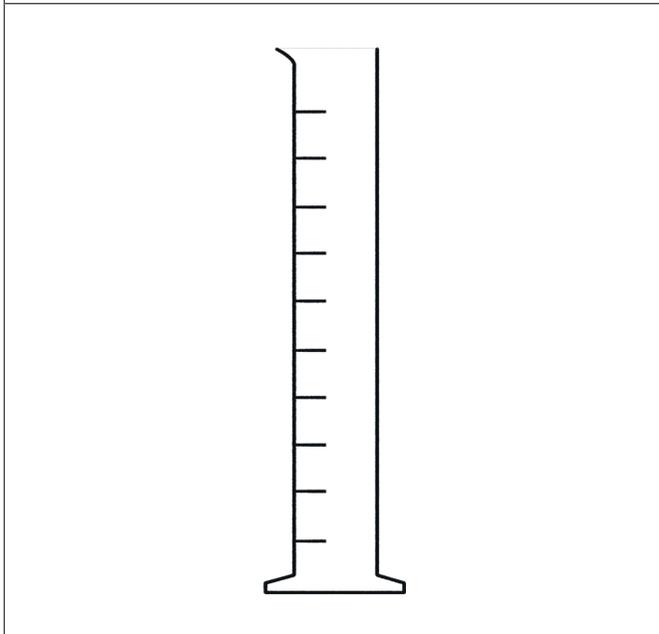
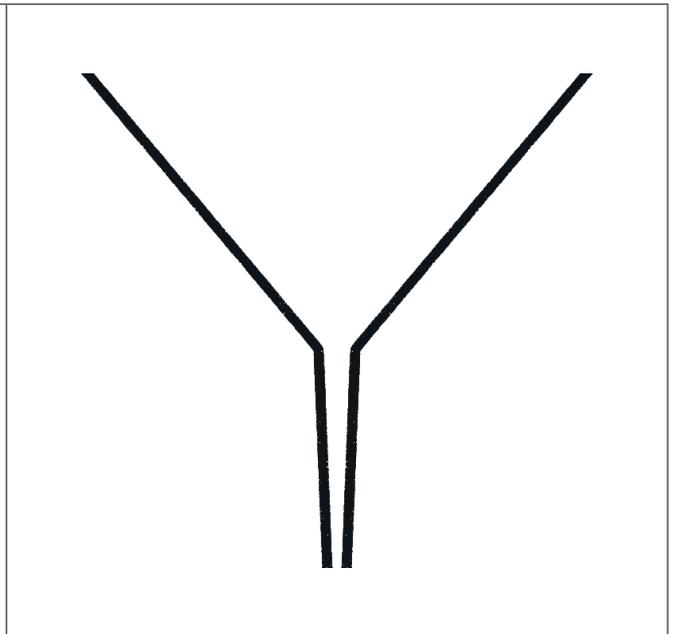
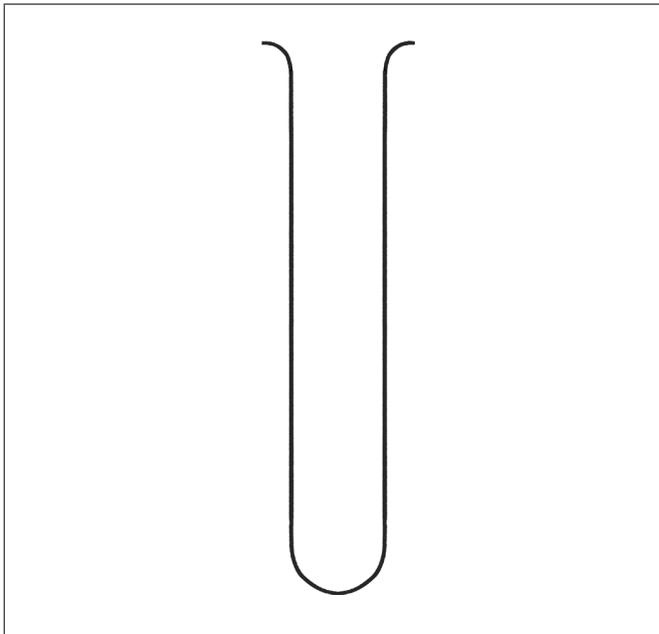




XXXXXXXXXXXXXXXXXX

Scientific Diagram Cards





Scientific Equipment

Name six pieces of scientific equipment. For each piece of equipment, draw a scientific diagram and describe what it is used for. An example has been included for you.

Equipment	Scientific Diagram	Use
thermometer		measuring temperature