Unit 113: Plumbing, heating and ventilation

# Worksheet 12: Hydronic heating part 1 (tutor)

Complete the tasks in this worksheet as directed by your tutor:

1. In the space below, describe the main difference between an open vented and a sealed heating system:

A sealed heating system does not have the F&E cistern and open vent pipe, unlike the open vented system. Instead, it is fitted with other controls, including an expansion vessel and temporary filling loop and is filled directly from the mains cold water.

1. Complete the passages below by adding the type of boiler they describe from the three types given:

**Options: Combination boiler – Traditional boiler – System boiler**

a: System boiler

This type of boiler does **not** contain a second heat exchanger used to produce hot water on demand. It is a heat only type boiler and is often coupled with a cylinder to produce hot water storage. Within the boiler, all boiler controls are fitted including a pump.

b: Combination boiler

A compact boiler that contains all components required to produce heating and hot water. This boiler is mains fed and is the most common boiler fitted today in dwellings.

C: Traditional boiler

This appliance is still found in some older properties, but is less common than others. This appliance is simply a heat exchanger and burner with the other system controls and components fitted externally.

1. In the space below, sketch a simple one-pipe heating system including three or four radiators. If that is too easy, try adding a hot water cylinder. Label your drawing to identify the names of the components you know.



15mm cold feed pipe

22mm vent pipe

Central heating circulating pump



Time clock

Feed and expansion cistern

Boiler

28mm primary flow

28mm primary return

1. These days it is unusual that anyone would install a one-pipe system, but you may come across one in an older building. Use the space below to list at least three (try to get more if you can) reasons why a one-pipe system is now avoided:

* Radiators get cooler as they get further from the boiler
* Larger pipe sizes required
* Inefficient
* Not compliant with Building Regulations
* Poor flow through radiators
* Can’t be used with modern condensing boilers
* Uncontrolled heating of the primary circuit