

Pipes and Fittings



PURPOSE

To provide a simple and fun craft for the boys to complete, while helping them learn skills that may direct them to a vocation, or at least help them as future home owners.

LEARNING

1. Uses for different types of pipe:

PVC — a rigid plastic pipe commonly used for sewers; it can be used for cold water with correct fittings

CPVC — a rigid plastic pipe commonly used for water; it can be used for hot or cold lines.

PEX—flexible plastic tubing used for water; its flexibility allows for fewer fittings

Cast iron — commonly used for sewers before PVC; used above ground

Clay tile — commonly used for sewers before PVC; used underground

Galvanized — metal pipe primarily used for water (acceptable for drinking water)

Black iron — metal pipe primarily used for natural gas and propane (not permitted for drinking water)

2. Terms:

Pipe schedule — the thickness of pipe wall (this is only measured for certain types of pipe; for example, some sizes of PVC come in Sch 30 or Sch 40)

Working pressure — the maximum allowable continuous pressure to which a pipe should be exposed

Burst pressure — the pressure at which a pipe will break

Temperature range — the allowable range of temperature to which a pipe may be exposed depending on its material type

Sealant — a material or substance that is inserted in pipe threads to minimize leakage

PVC — polyvinyl chloride, a common piping material

3. Connection methods:

Solder — The solder material is melted at the joint of the pipe and fitting, and the connection is completed when the solder hardens.

Brazing — This is similar to soldering except the joining material is heated to higher temperatures when the strength of the connection is more critical.

Weld — The pipe is welded into the fitting.

Flare — The pipe end is bent at an angle. A flare nut is slid over the pipe, which presses the pipe against a flare connection when the nut is tightened.

Compression — The pipe is inserted into the hole of the fitting. The fitting is then tightened and the pipe is secured by a ferrule ring within the fitting.

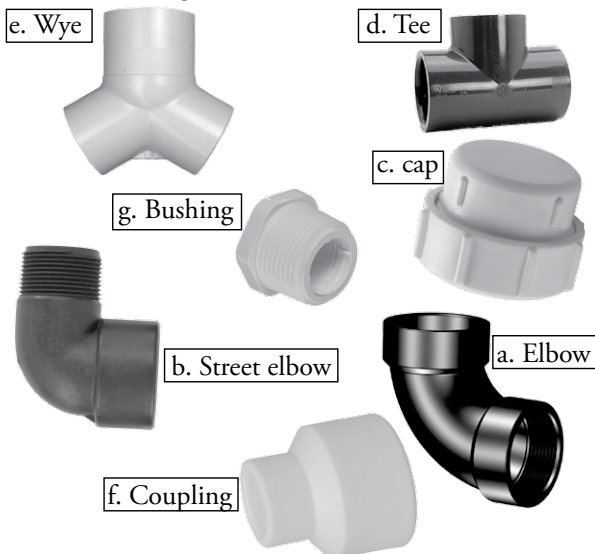
Clamp — The fitting is inserted into the inner diameter of a flexible pipe.

Barbed — A barbed fitting end is inserted into the inner diameter of a flexible pipe.

Threaded — The pipe is simply screwed into the fitting, with sealant applied to the threads of the pipe.

Glue and primer — The pipe is held in the fitting by using some form of glue.

4. Illustrated fittings:



DOING

Self-explanatory.