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.

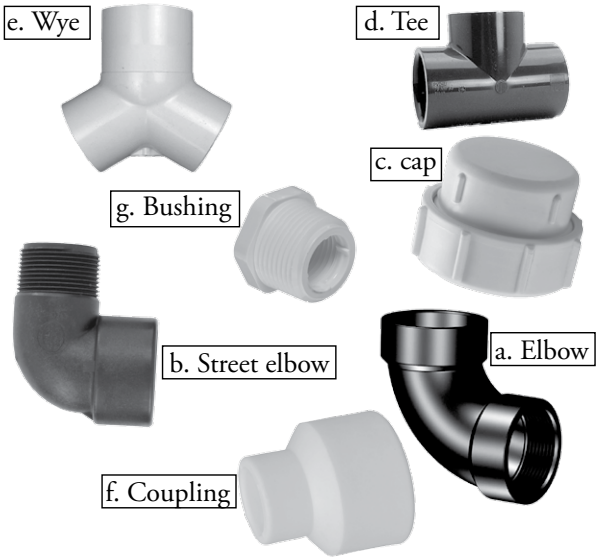
   Clamp — The fitting is inserted into the inner diameter of a flexible pipe.

   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.