# Unit 112: Construction operations and civil engineering operations

# Worksheet 11: Drainage components and joints (tutor)

**Jointing pipework:** The perfect joint for pipelines should be flexible, watertight, root-tight and be composed of materials which have a confirmed history of very long-term reliability. The joint should be easy to assemble, dismantle in times of repair, and should not duly stress the pipe.

**Rigid joints:** These are the traditional form of joint and were once the only method of connecting clayware or concrete pipes together. To form the joint a ring gasket of a type of hemp is loosely wrapped around the spigot end of the pipe. The end is in placed into the socket of the preceding pipe and is adjusted for correct alignment. Once the pipe is set in position, the gasket (the gasket of hemp) is tightly packed against collar of the pipe, and a stiff cement mortar is packed into the space between the spigot and the socket. The whole joint is then completed by forming a small cement fillet at about 45 degrees around the exposed end of the socket. Little used today.

**Flexible joints:** These are factory manufactured to suit the individual drainage system by a particular manufacturer. They have many advantages over the rigid types of joints.

**The Hepseal joint:** it has two polyester mouldings, one on the spigot and the other inside the socket. A rubber sealing ring is placed in the groove inside the polyester moulding. The pipes are then brought together, and the rubber ring is compressed to create a seal which will stand an angular movement of five degrees and very high pressures. This is an extremely good joint.

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| **Activity 1**  List as many advantages that you can think of for using a flexible joint.  Answers could include the following but the list is not exhaustive:   * Obviously flexible * Quick * Easy to use * Reusable * Can be backfilled straight away * No setting time required |

**Activity 2 Research and label the components**

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| --- | --- | --- |
|  |  |  |
| Name: Double socket bend | Name: Rest bend | Name: Double coupler |
|  |  |  |
| Name: Square gully | Name: Rodding eye point | Name: 45° Equal oblique junction |
|  |  |  |
| Name: Bend single socket | Name: Drain bung (stopper) | Name: Square hopper |

**Activity 3 Research and label the drainage run**

Diagram

Description automatically generated