Structure and bonding summary grid **Answers**

Substance	Properties	Structure	Bonding	Particles
Carbon (diamond)	Melting point /°C 3730 Boiling point /°C Electrical conductor No Hardness Extremely hard Density /g cm^{-3} 3.51	Giant molecular	Covalent	Giant molecules
Propanone	Melting point /°C -95 Boiling point /°C 54 Electrical conductor No Hardness Soft and brittle Density /g cm^{-3} 0.79	Simple molecular	Covalent, dipole - dipole, instantaneous dipole - induced dipole	Simple molecules
Iodine	Melting point /°C 114 Boiling point /°C 184 Electrical conductor No Hardness Soft and brittle Density /g cm^{-3} 4.93	Simple molecular	Covalent, instantaneous dipole - induced dipole	Simple molecules
Iron	Melting point /°C 1530 Boiling point /°C 3000 Electrical conductor Yes Hardness Very hard Density /g cm^{-3} 7.86	Giant lattice	Metallic	Ions, delocalised electrons
Water	Melting point /°C 0 Boiling point /°C 100 Electrical conductor No Hardness Soft and brittle Density /g cm^{-3} 1	Simple molecular	Covalent, hydrogen, instantaneous dipole - induced dipole,	Simple molecules

Substance	Properties	Structure	Bonding	Particles
Polyethene	Melting point /°C low, melts over range Boiling point /°C Electrical conductor No Hardness Soft Density /g cm^{-3} 0.92 to 0.96	Giant molecular	Covalent, , instantaneous dipole - induced dipole	Long chain molecules
Sodium chloride	Melting point /°C 801 Boiling point /°C 1697 Electrical conductor solid no, molten yes Hardness Medium and brittle Density /g cm^{-3} 2.17	Giant lattice	Ionic	Ions
Silicon(IV) oxide	Melting point /°C 1610 Boiling point /°C 2230 Electrical conductor No Hardness Very hard Density /g cm^{-3} 2.5	Giant lattice, Giant molecular	Covalent	Giant molecules
Benzene	Melting point /°C 5 Boiling point /°C 80 Electrical conductor No Hardness Soft and brittle Density /g cm^{-3} 0.88	Simple molecular	Covalent, instantaneous dipole - induced dipole	Simple molecules, delocalised electrons
methane	Melting point /°C -272 Boiling point /°C -162 Electrical conductor No Hardness Soft and brittle Density /g cm^{-3} 0.424	Simple molecular	Covalent, instantaneous dipole - induced dipole	Simple molecules