You and your team trade information using hand signals. You quickly calculate that the sleeping gas container will have to land 10 m down the hall in order to knock out all the guards, since it only has a range of about 2 m in all directions. It’s the chemist’s turn to shine. They silently slide their bag off their shoulder and start riffling through the contents. They pull out the empty sphere where the gas will be created and a slew of small bottles and vials. Now they just need to select the correct compounds.

First compound: ionic

1. H2O
2. CH4
3. O2
4. Ca(OH)2

Second compound: molecular

1. Magnesium chloride
2. Carbon monoxide
3. Lead (II) nitrate
4. Sodium fluoride

Third compound: ionic

1. Low melting point
2. Soft
3. Conducts electricity when dissolved in water
4. Doesn’t dissolve in water

Fourth compound: carbon dioxide

Fifth compound: sodium hydroxide

Sixth compound: SF6

Seventh compound: MgO