

14–16 years

Chemical misconceptions II: Spot the bonding

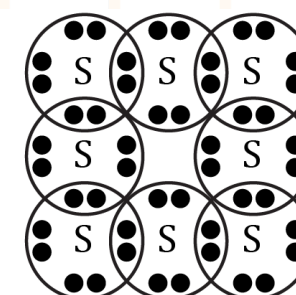
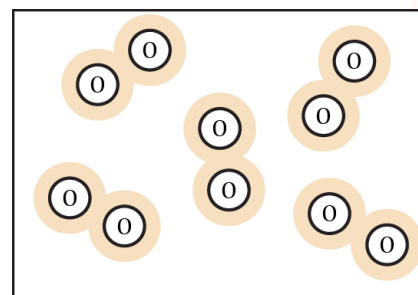
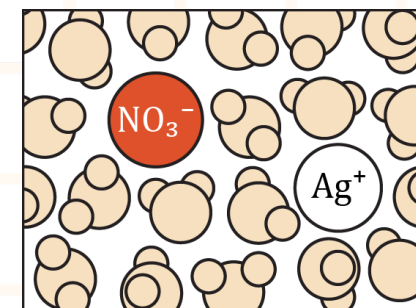
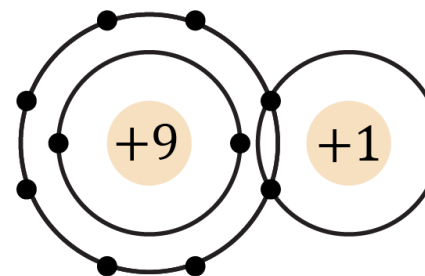
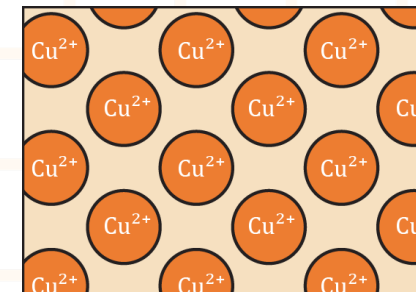
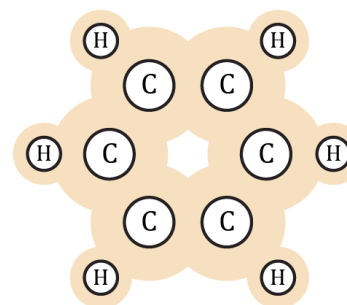
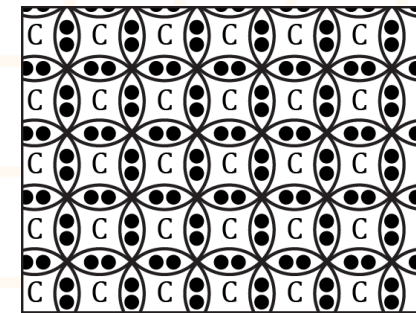
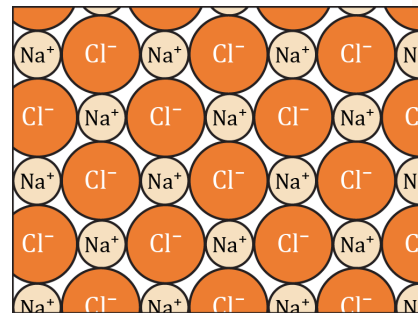


Instructions

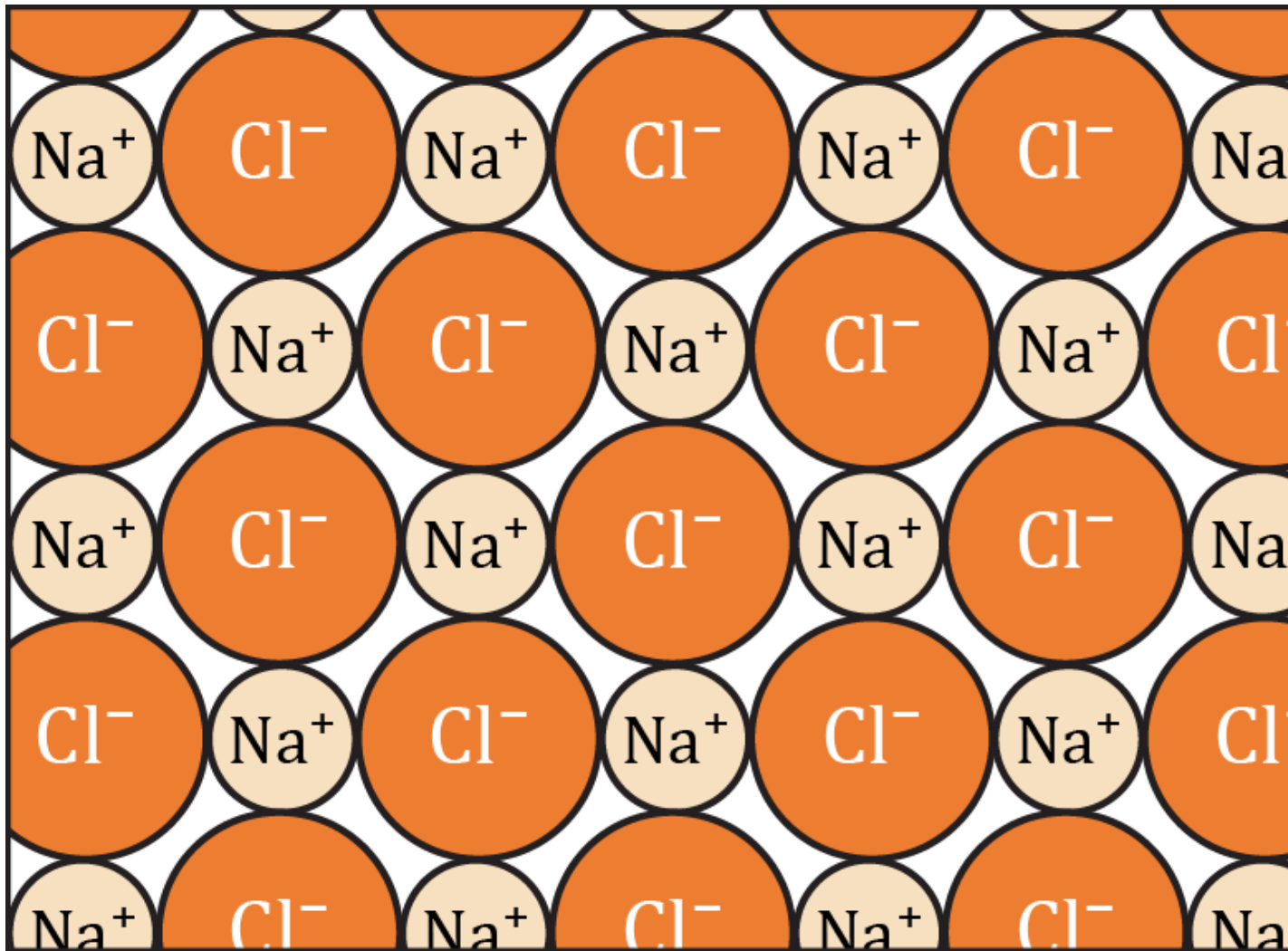
The diagrams in this lesson show different chemical substances and a range of models.

For each diagram either write:

- The name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)



Sodium chloride lattice

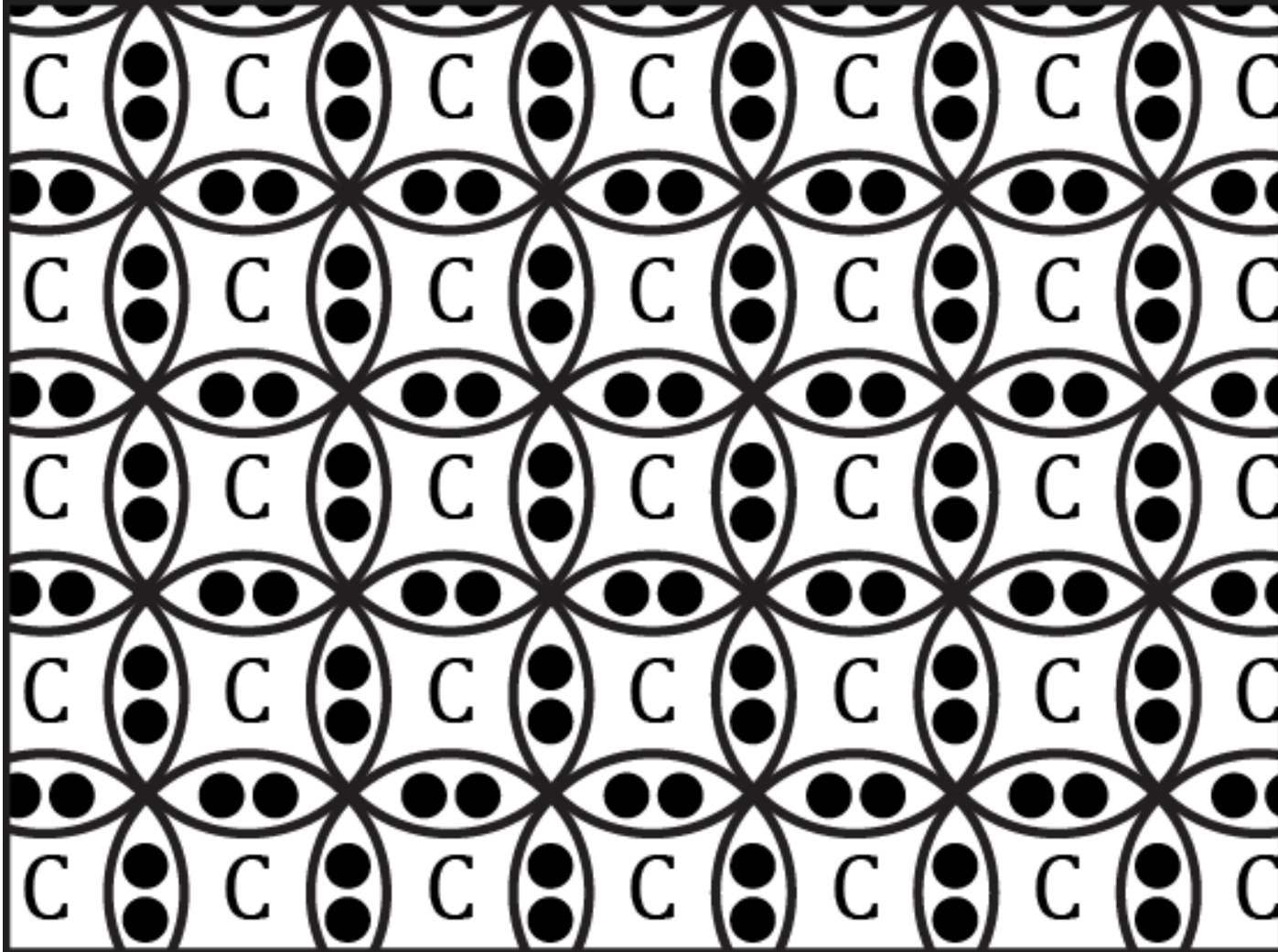


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Diamond lattice

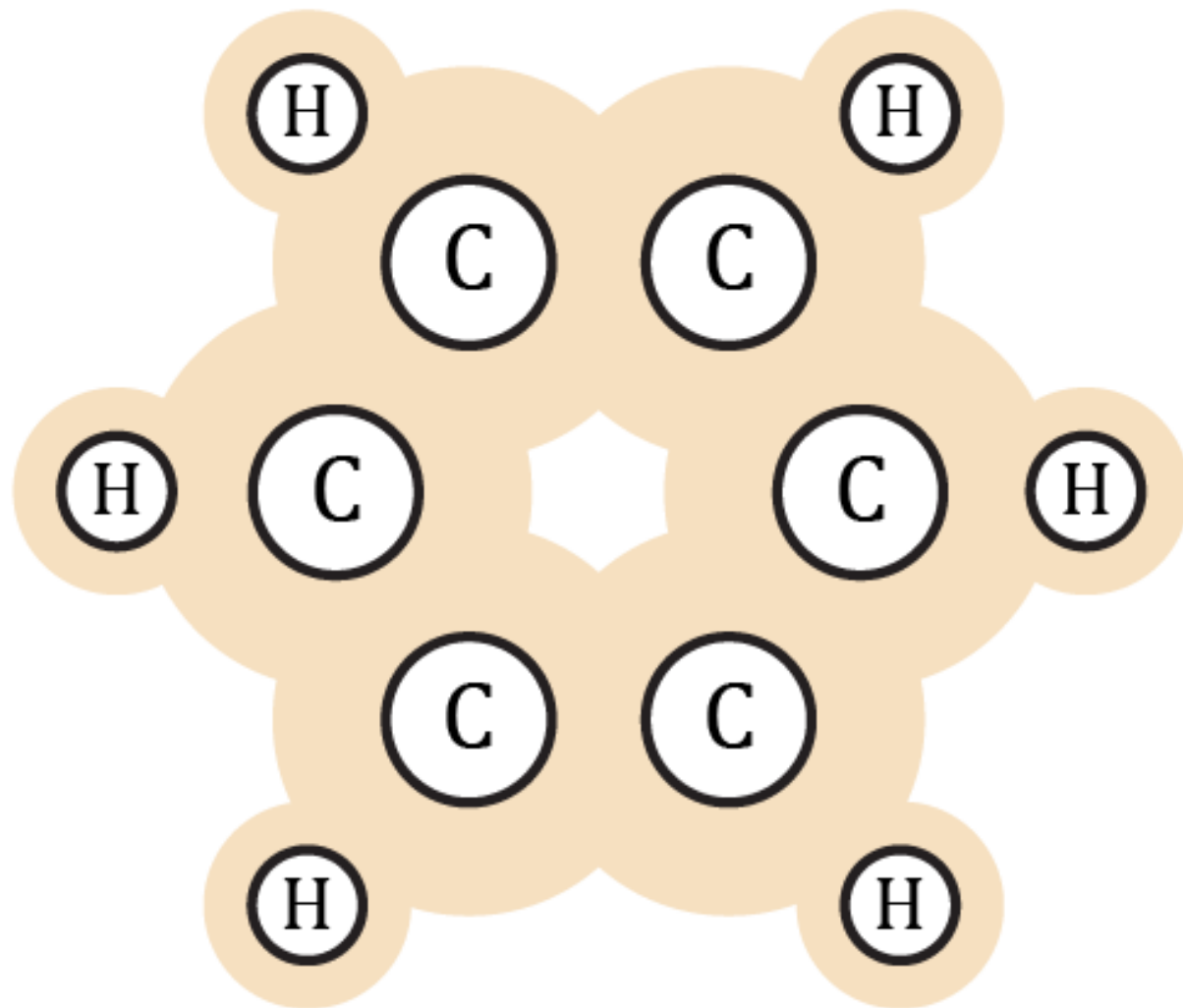


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Benzene molecule

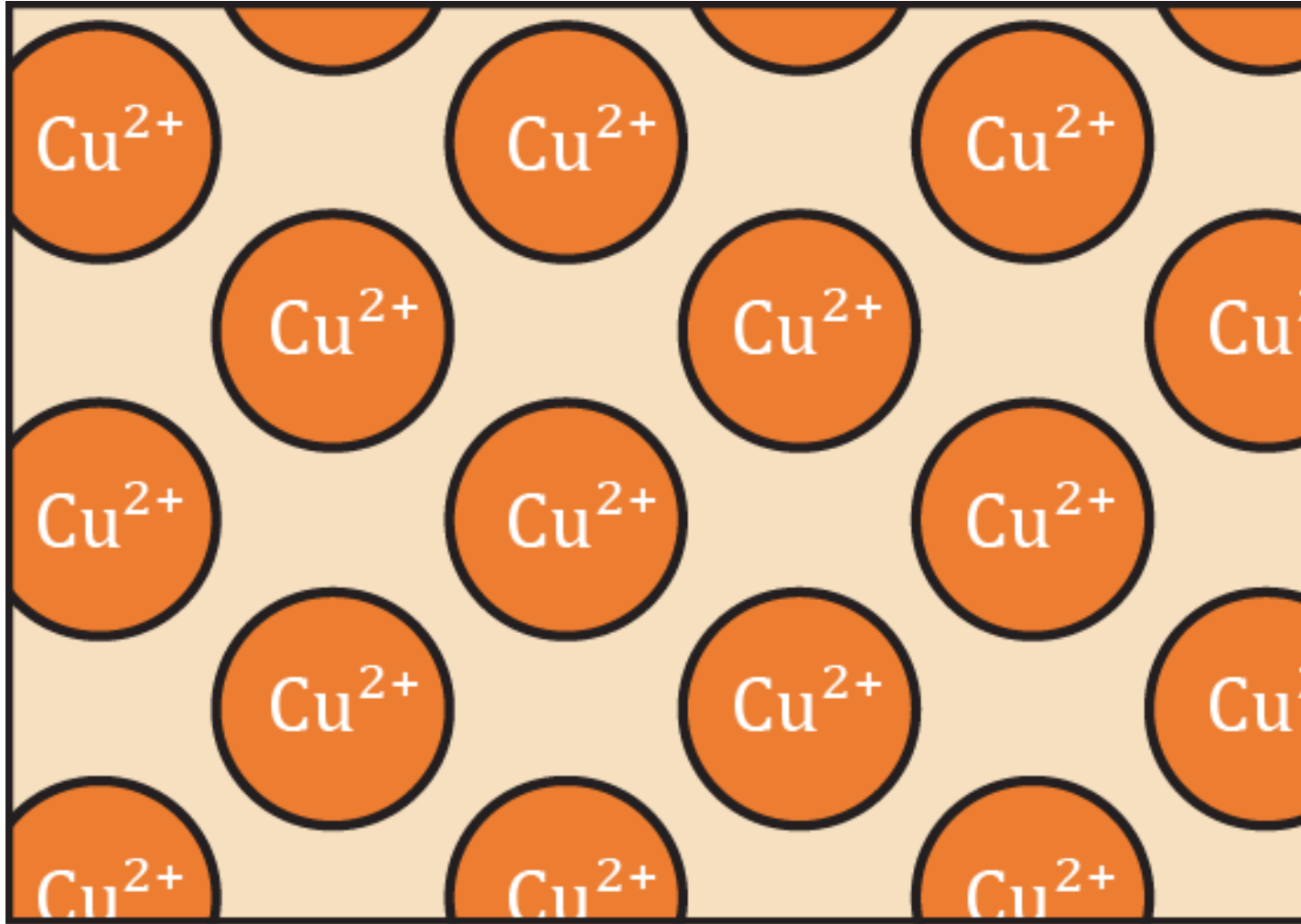


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Copper lattice

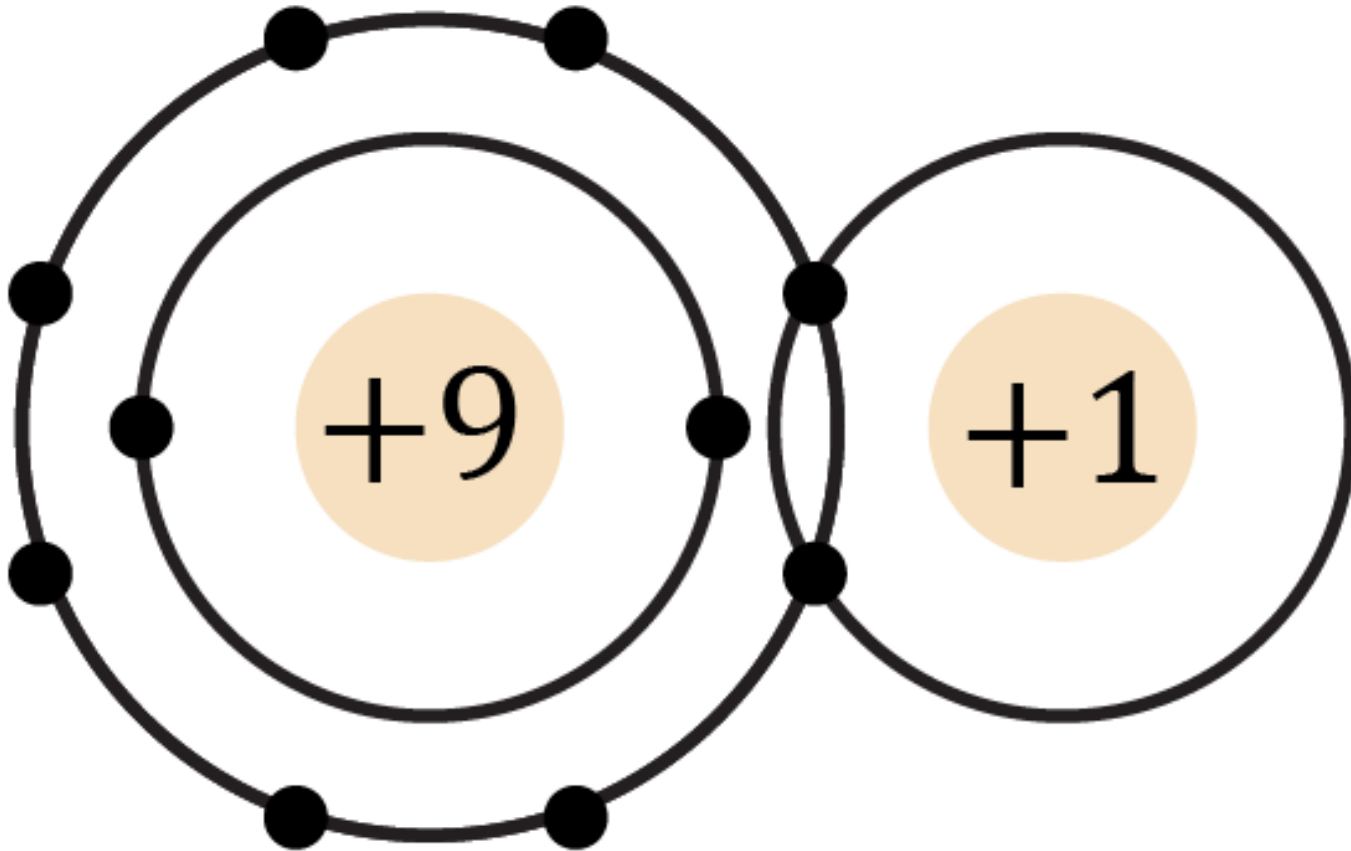


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Hydrogen fluoride molecule

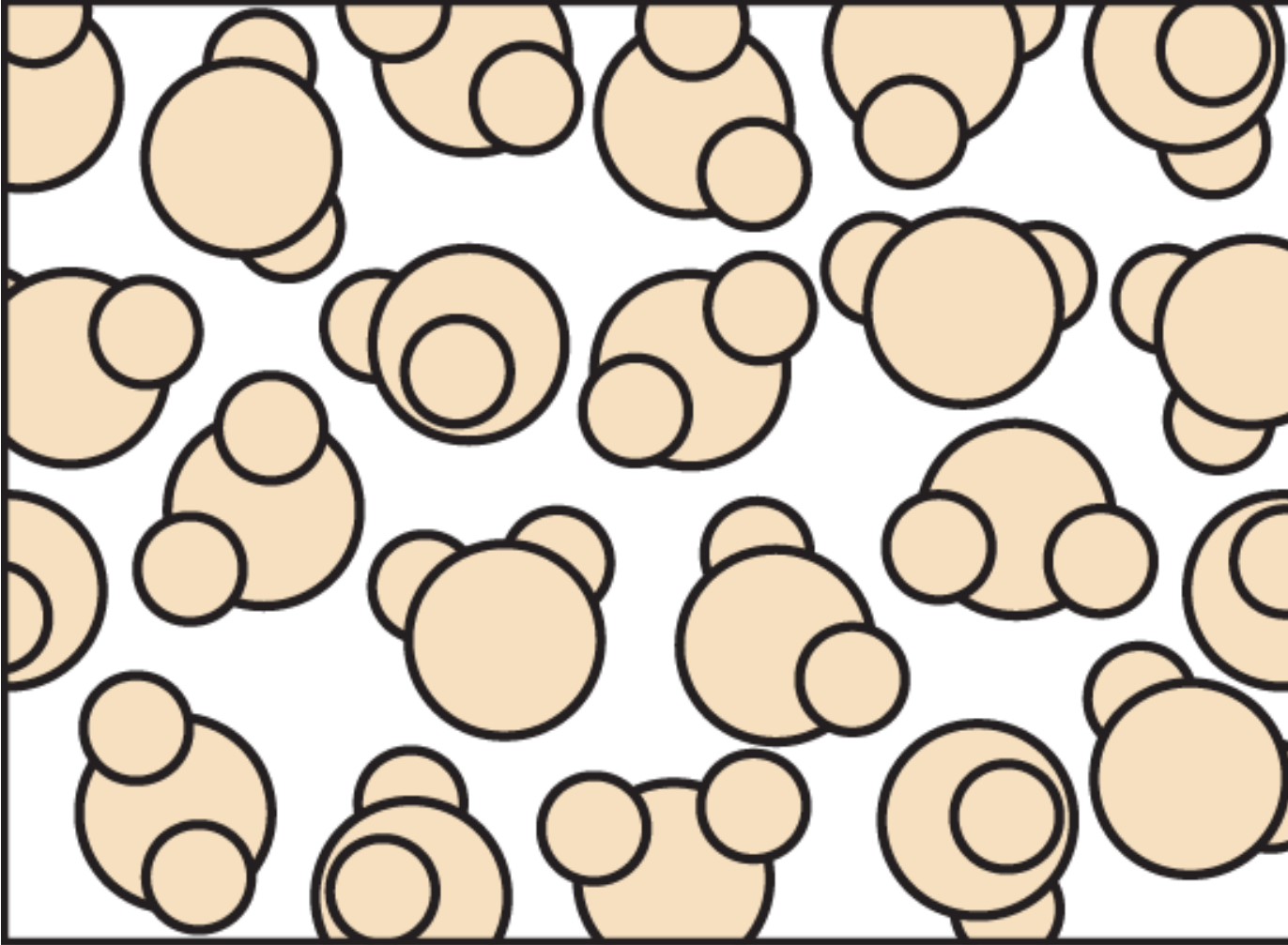


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Liquid water

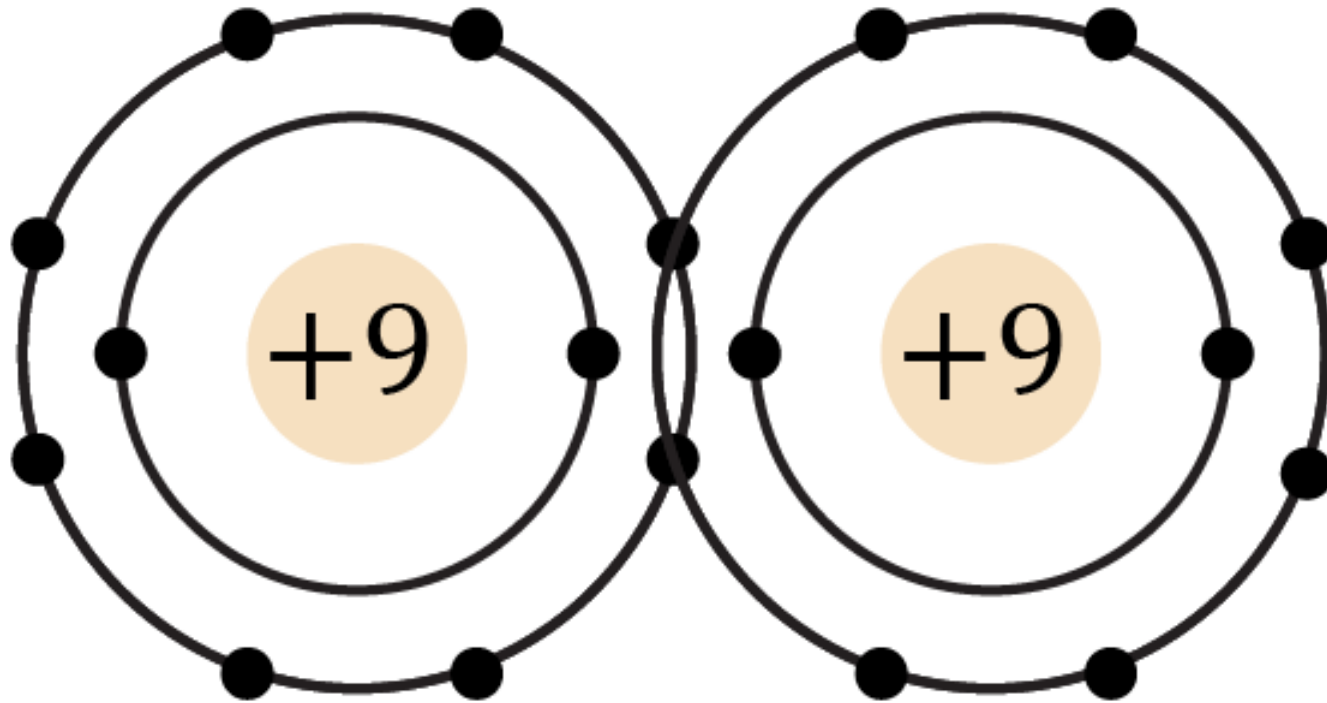


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Fluorine molecule

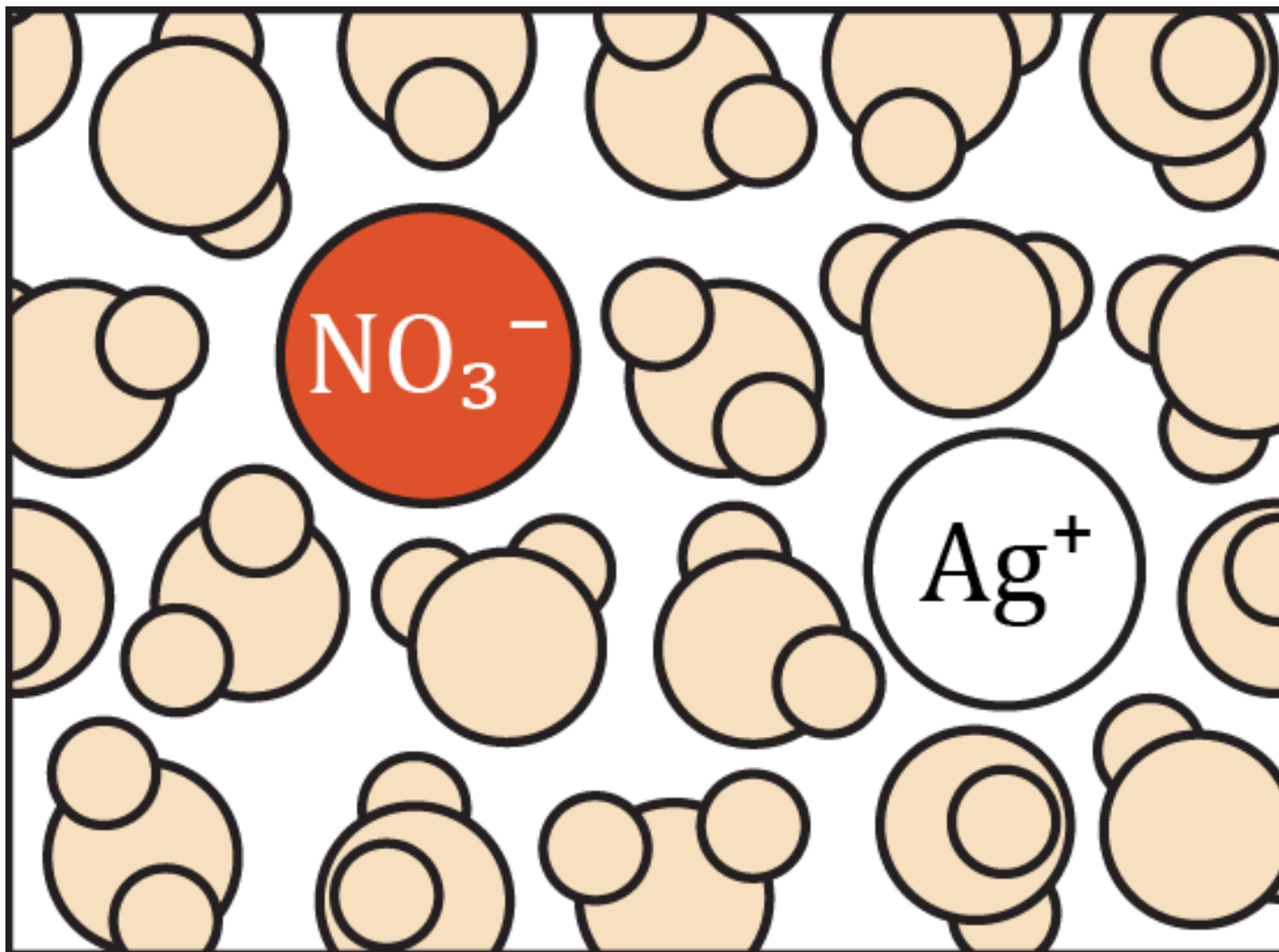


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Silver nitrate solution

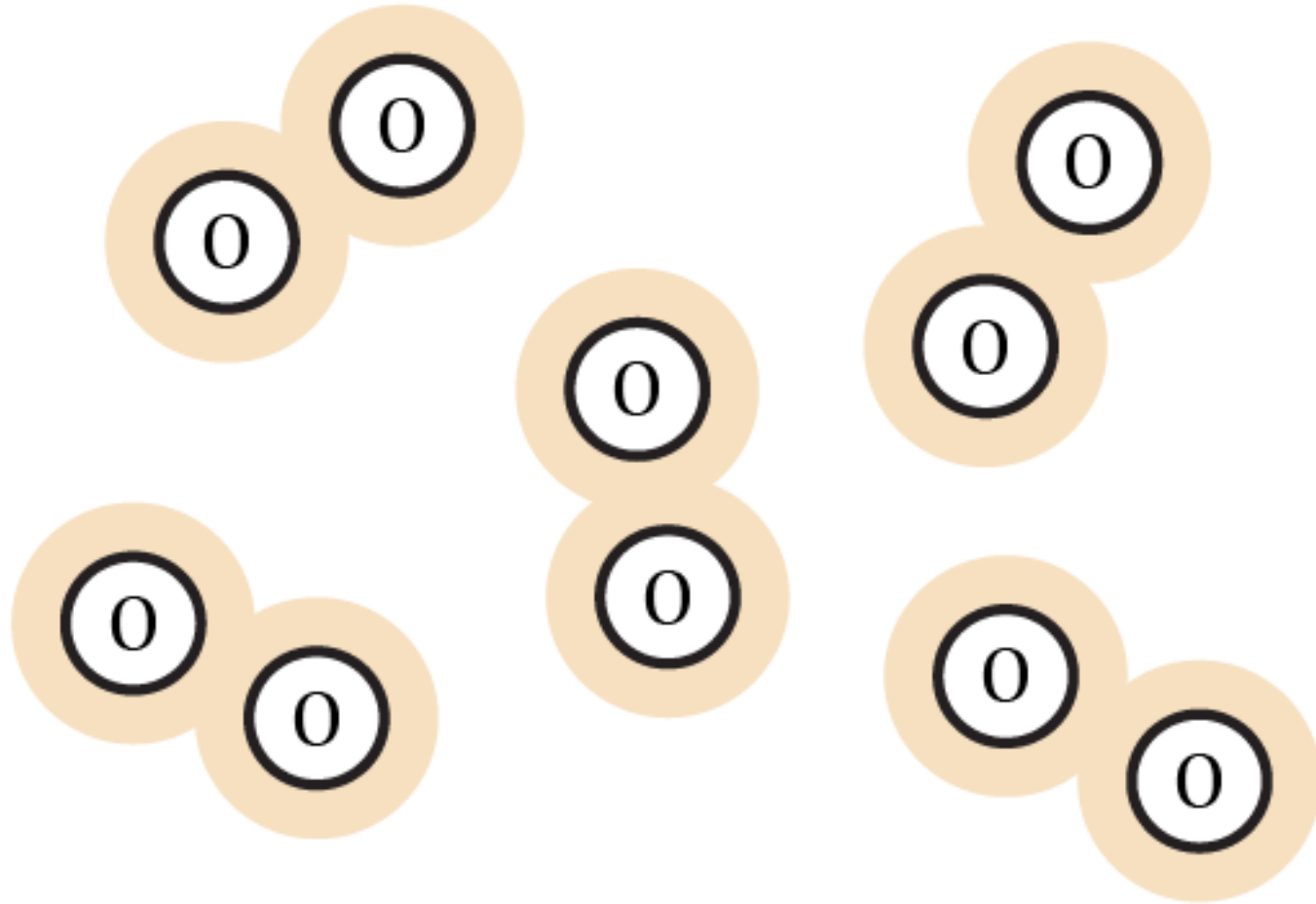


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Oxygen gas

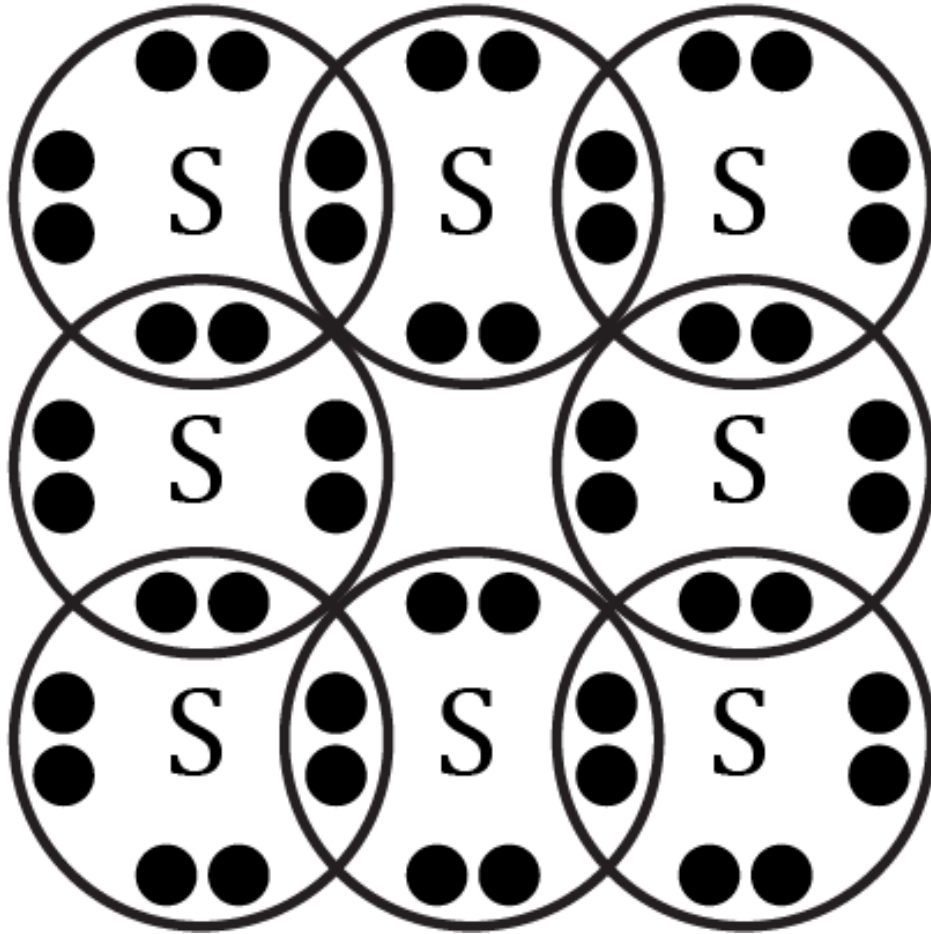


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Sulfur molecule

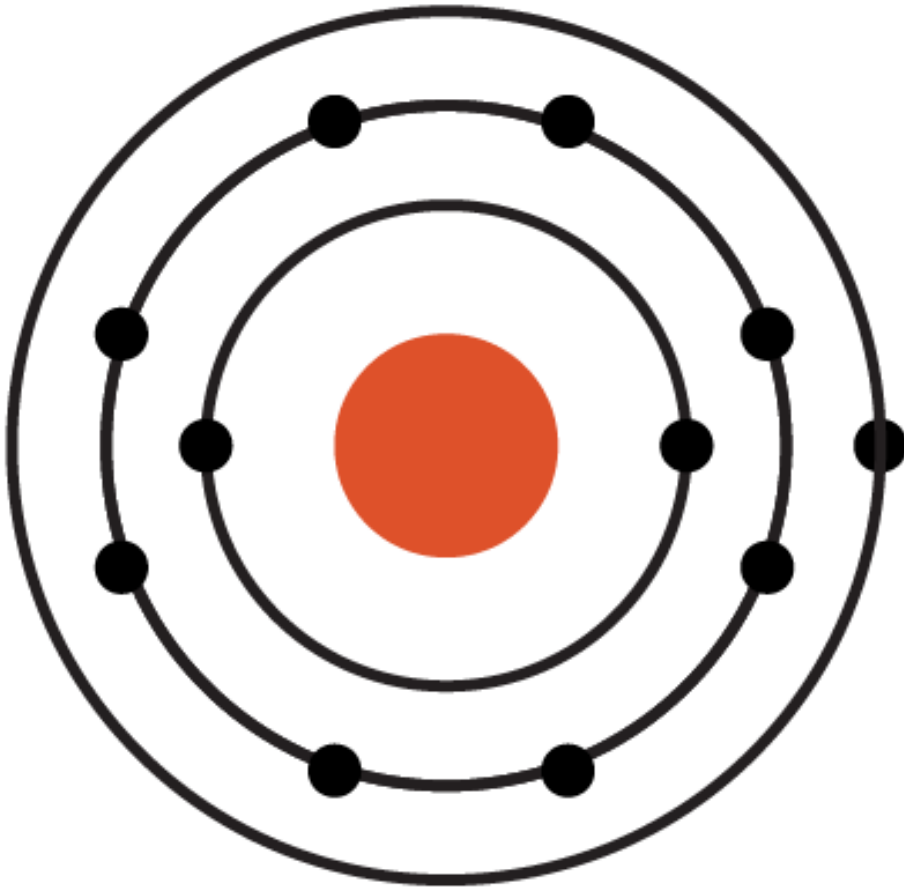


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Sodium atom

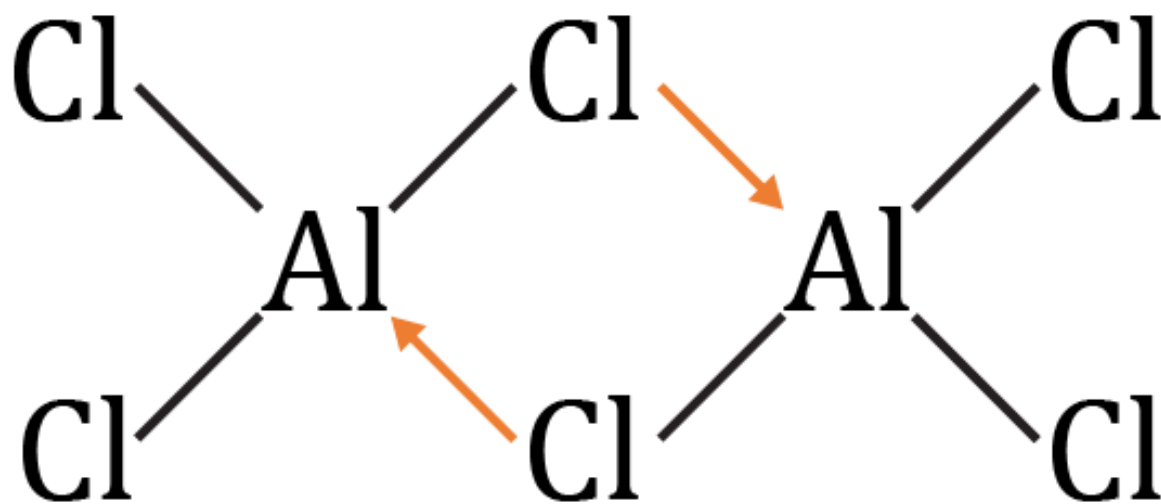


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Aluminium chloride dimer



Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Carbon dioxide molecule

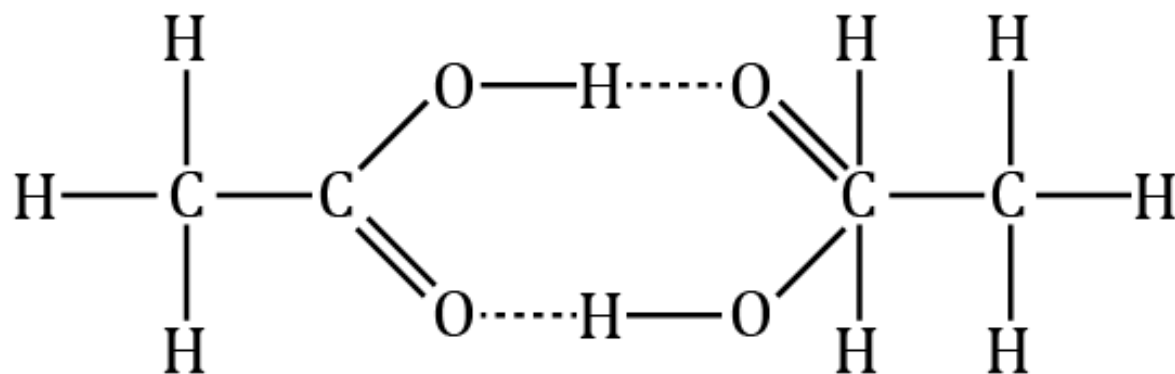


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Ethanoic acid dimer

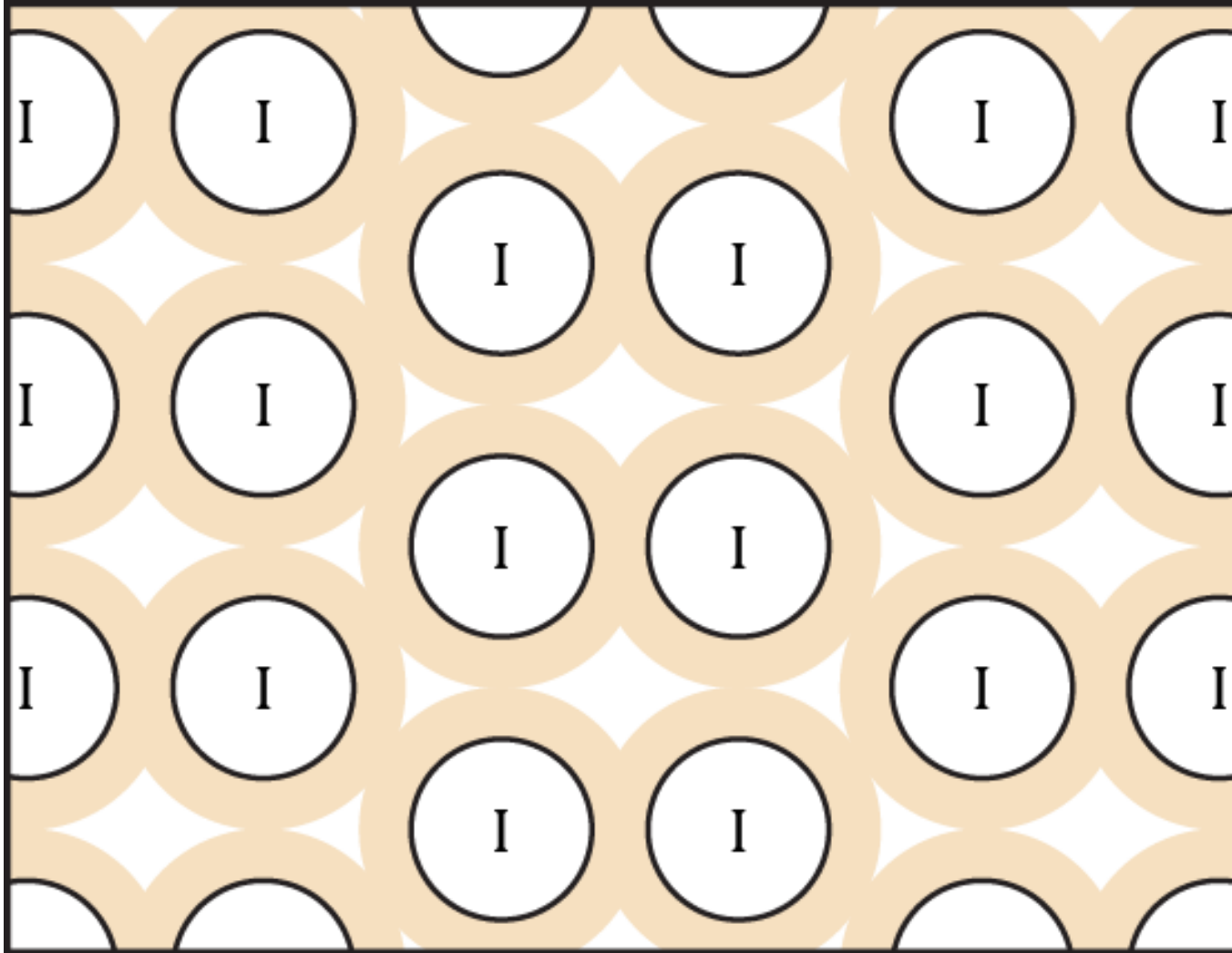


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Iodine lattice

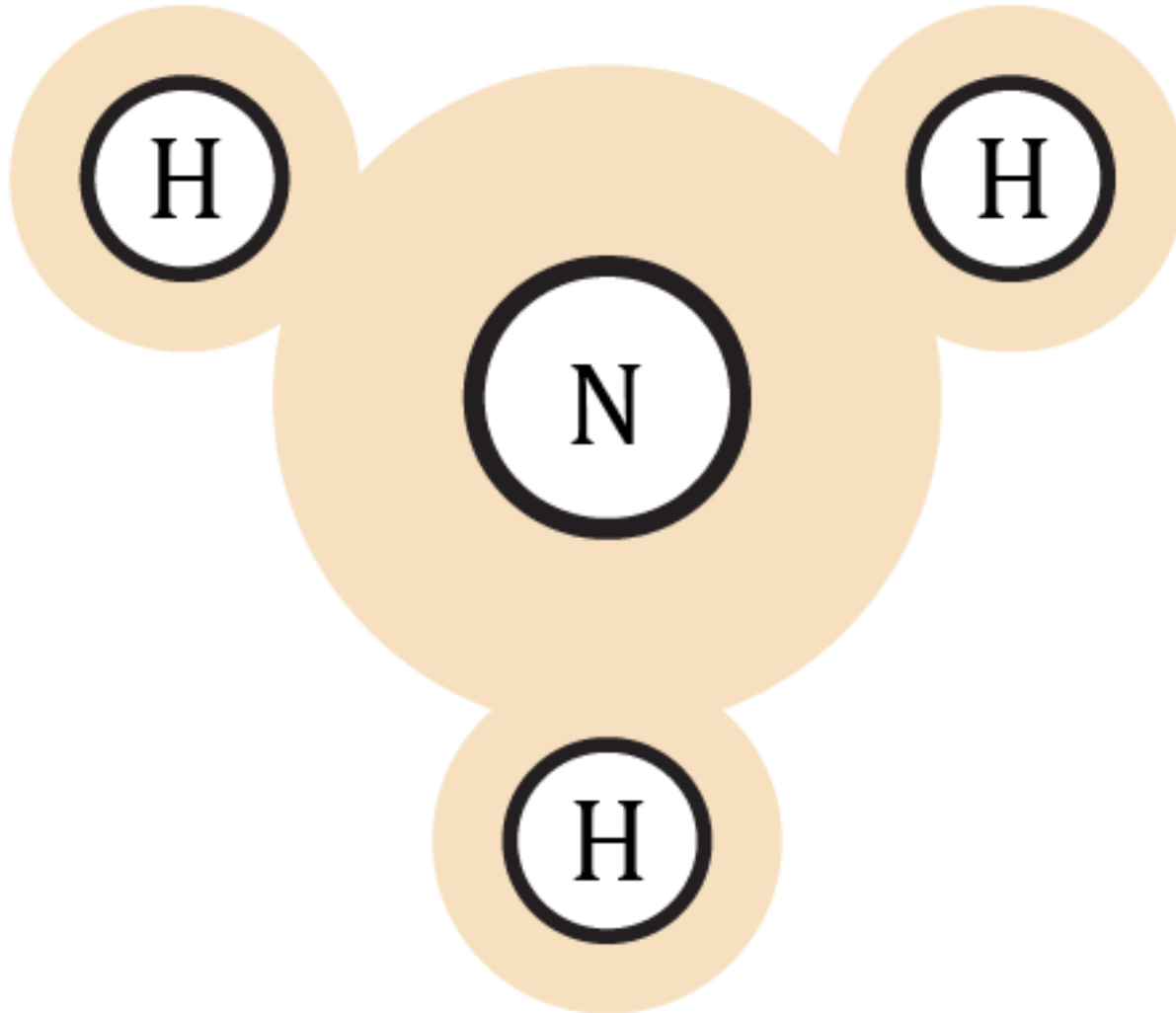


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Ammonia molecule

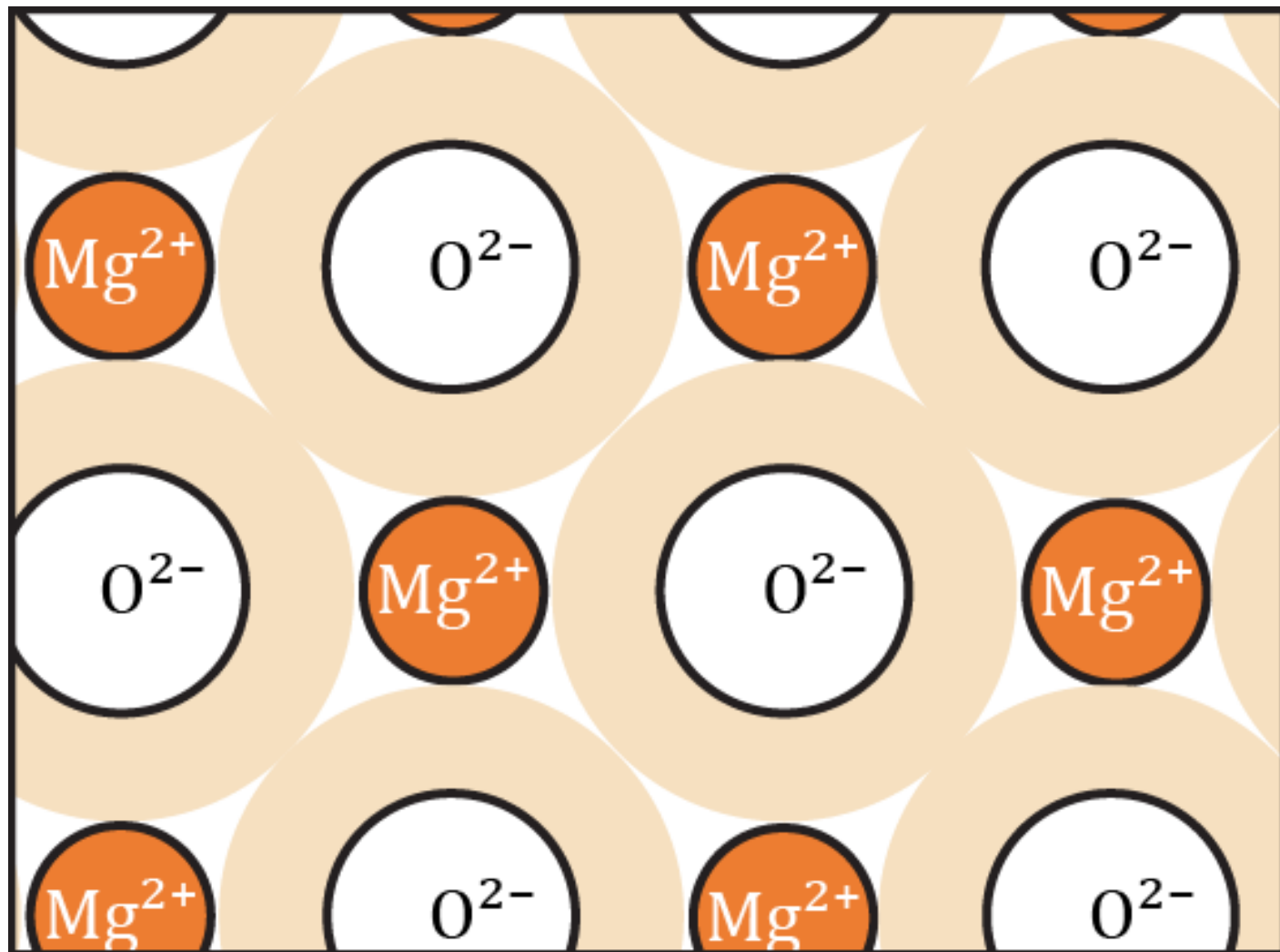


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Magnesium oxide lattice

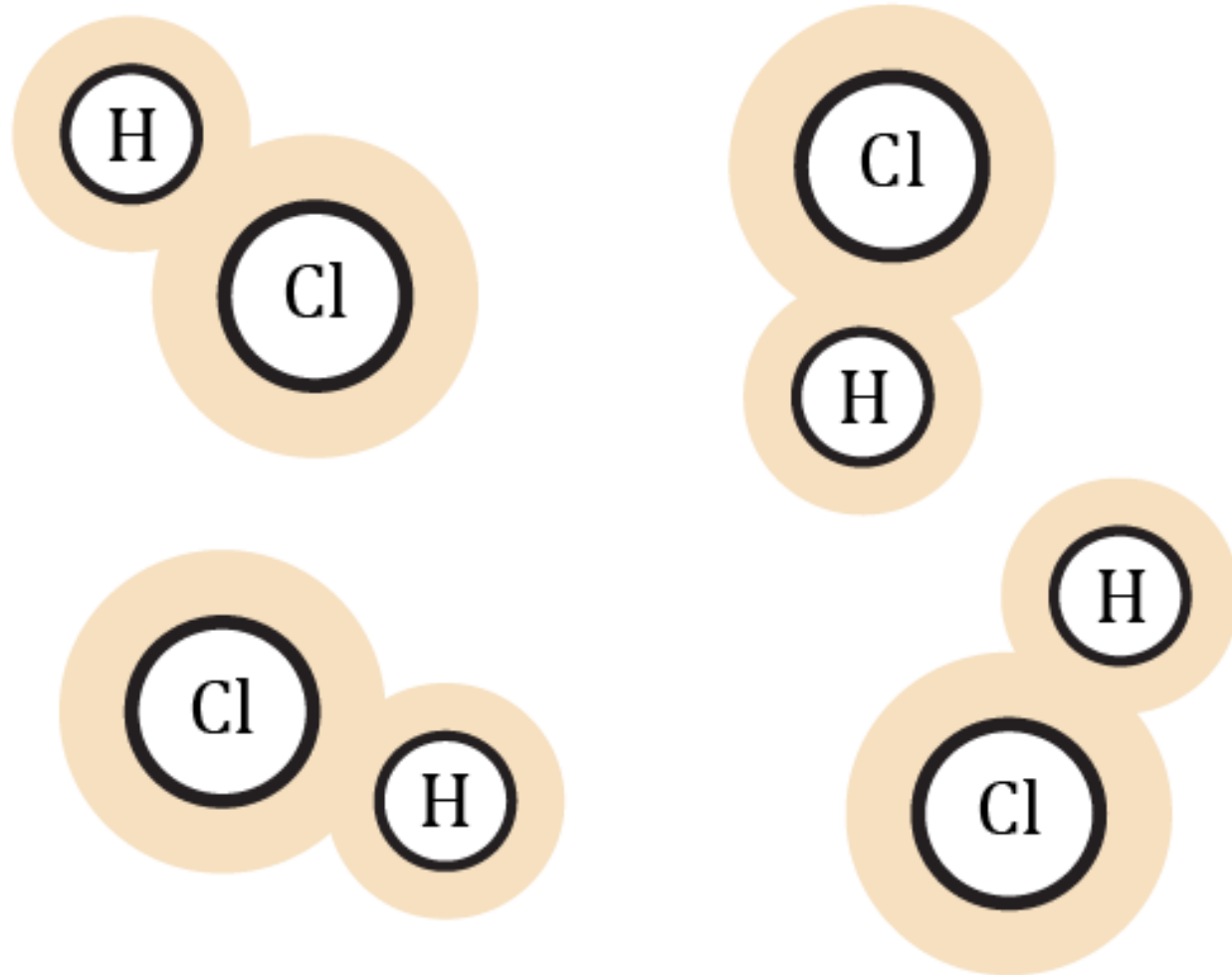


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

Liquid hydrogen chloride

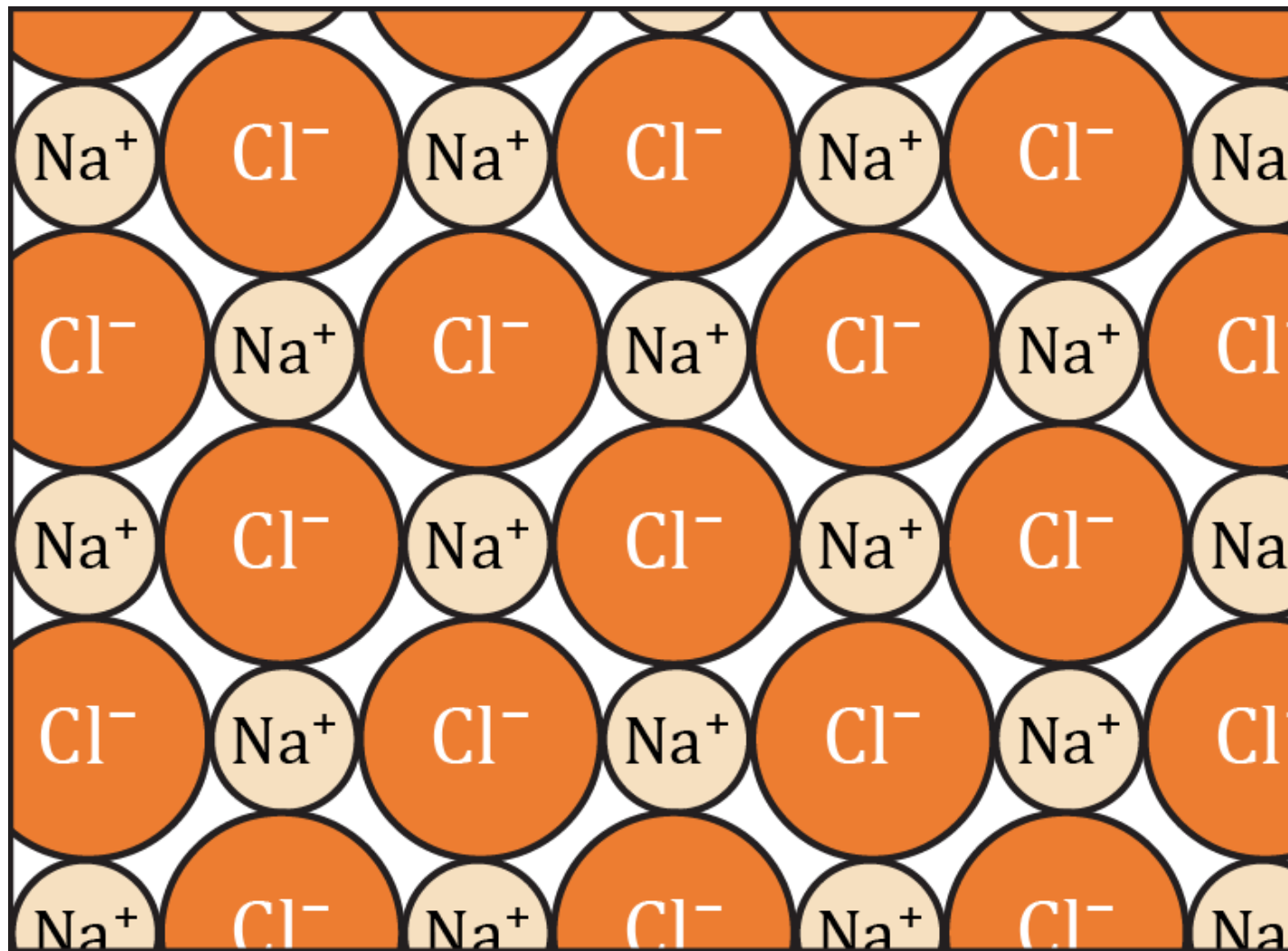


Spot the bonding:

Write:

- the name(s) of the type(s) of bonding present
- 'none' (if there is no chemical bonding)
- 'don't know' (if you are unsure)

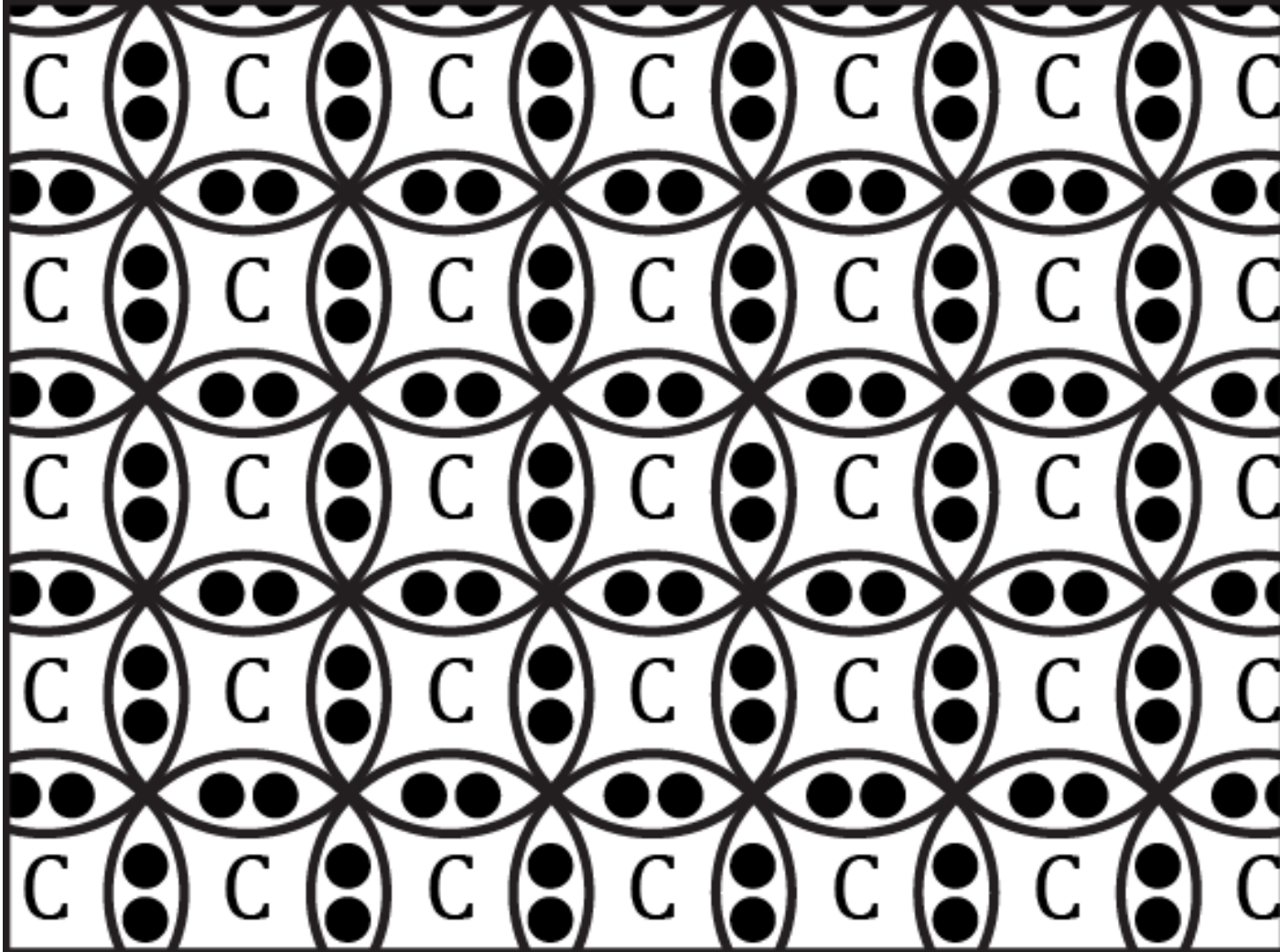
Sodium chloride lattice: answer



Spot the bonding:

ionic

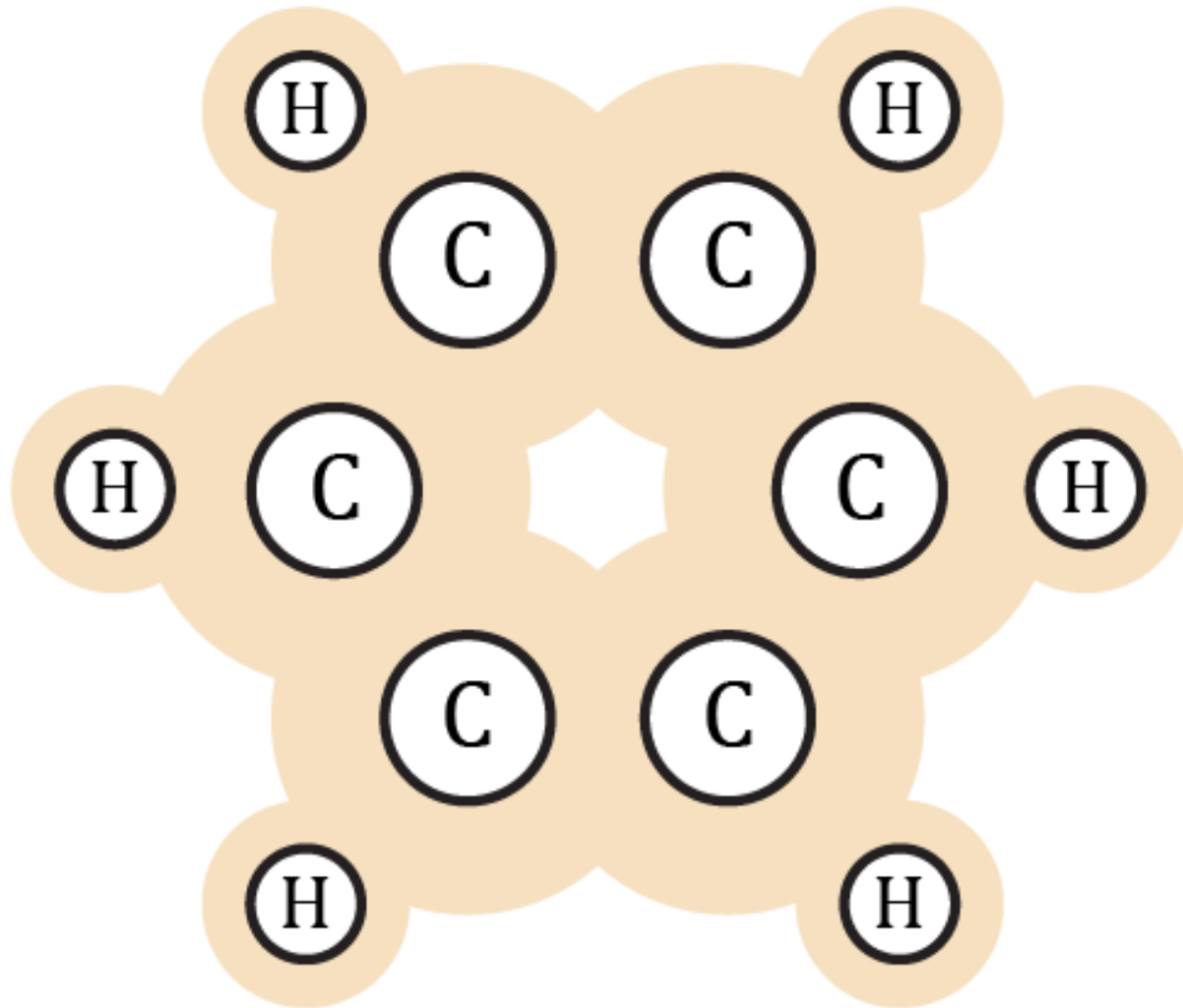
Diamond lattice: answer



Spot the bonding:

covalent

Benzene molecule: answer



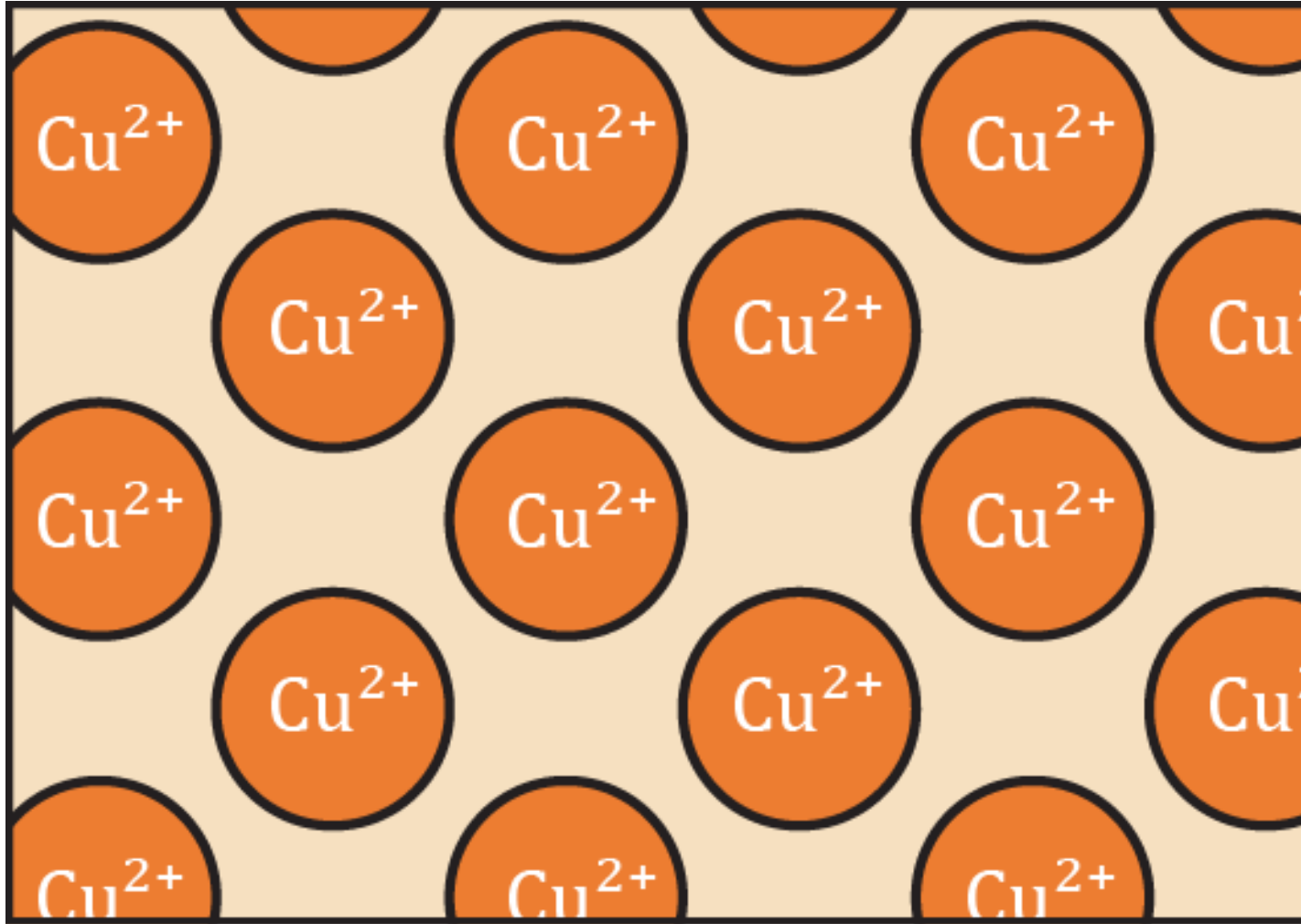
Spot the bonding:

covalent

**More types of bonding
to spot:**

delocalised

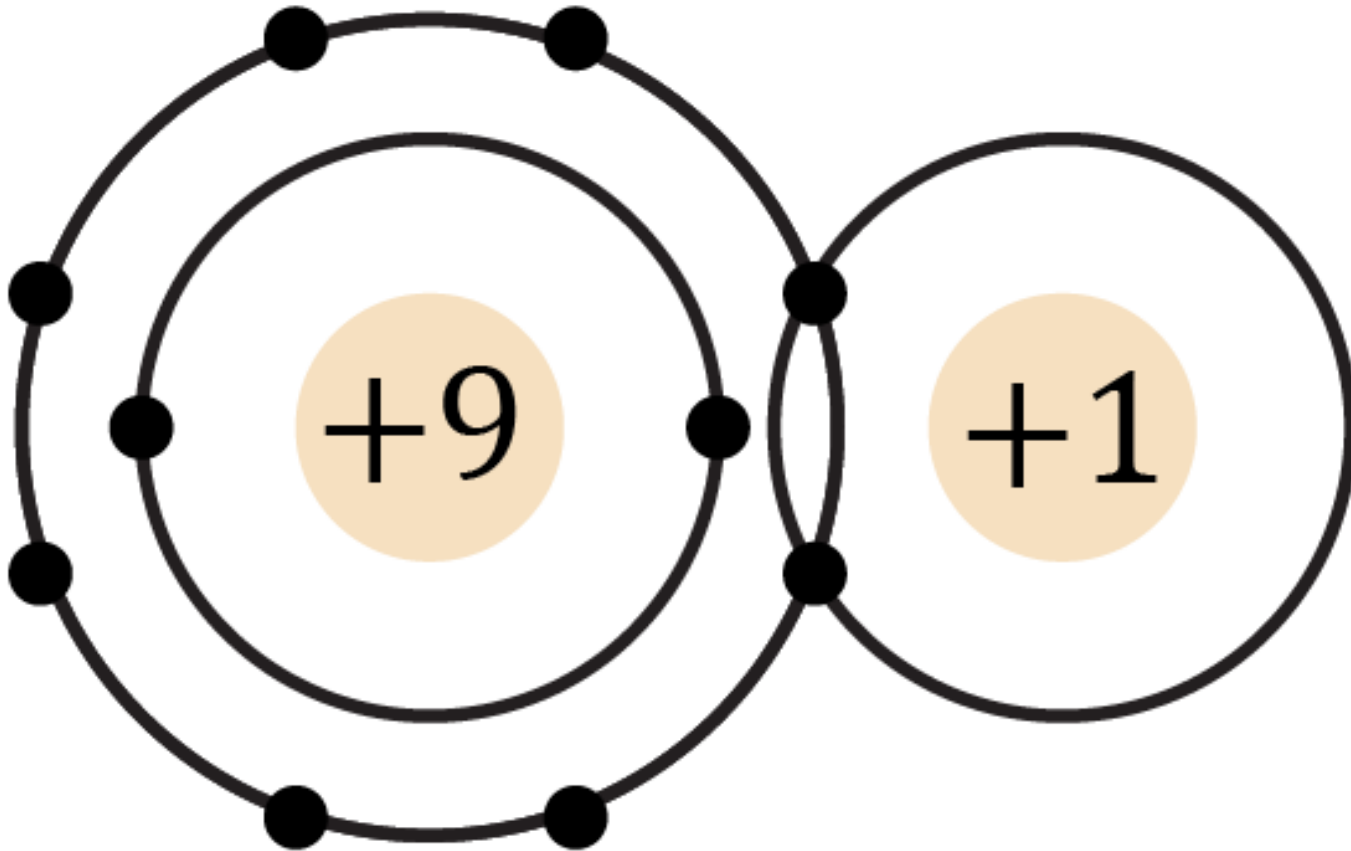
Copper lattice: answer



Spot the bonding:

metallic

Hydrogen fluoride molecule: answer



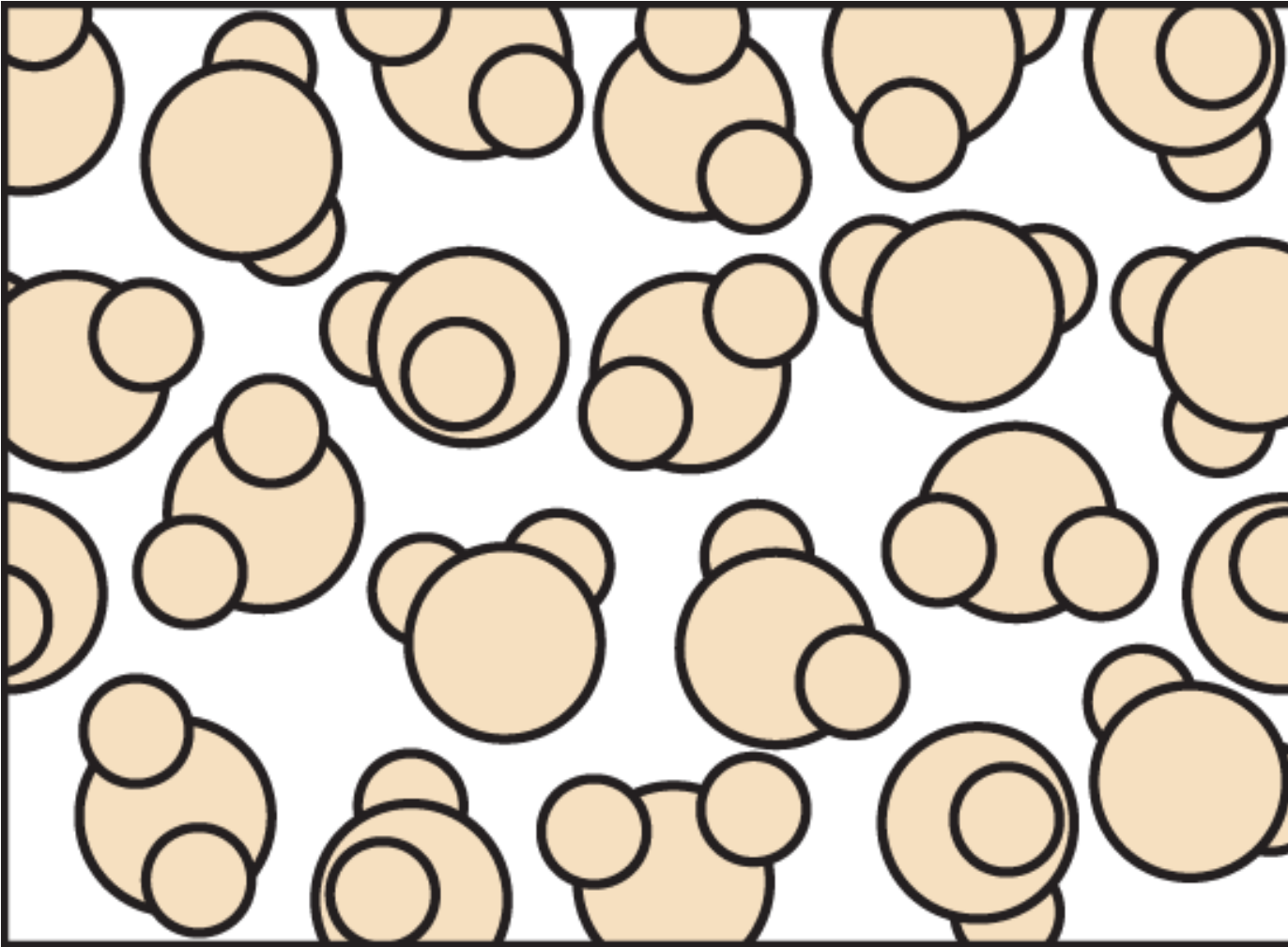
Spot the bonding:

covalent

More types of bonding
to spot:

polar

Liquid water: answer

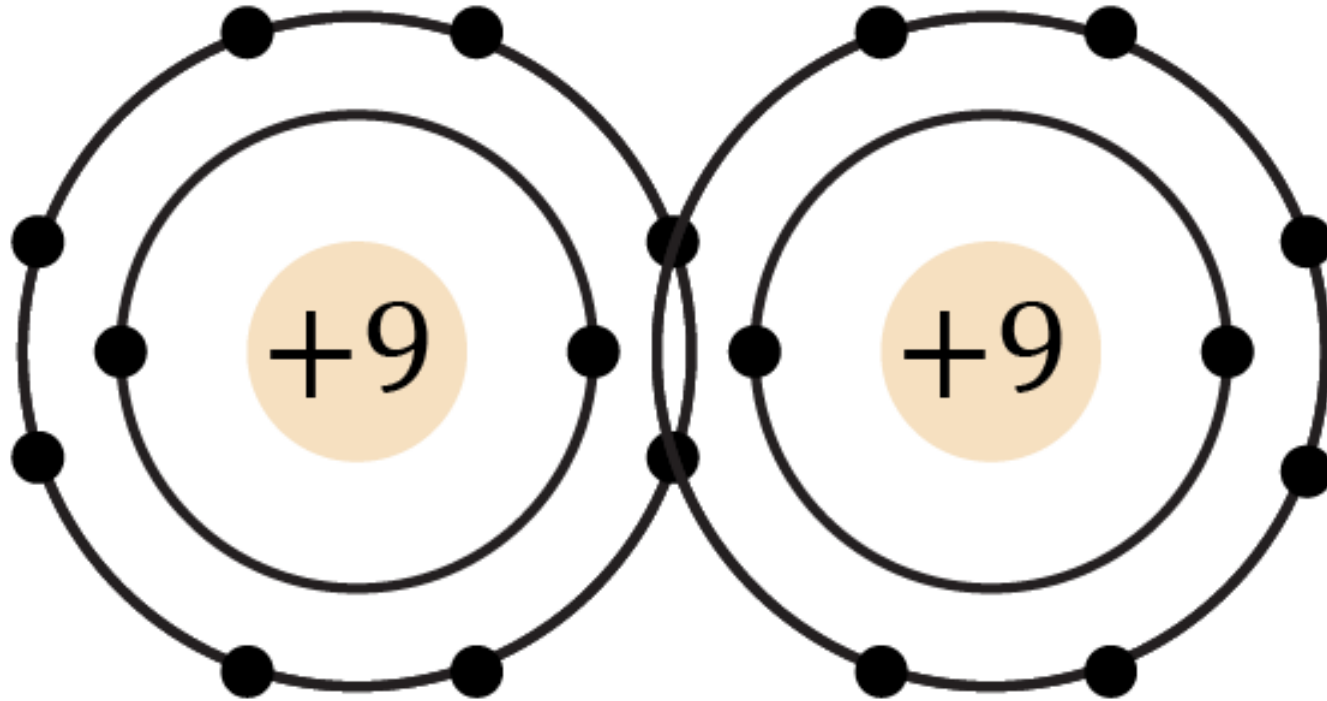


Spot the bonding:
covalent

More types of bonding to spot:

polar
hydrogen
van der Waals
forces
dipole-dipole
forces

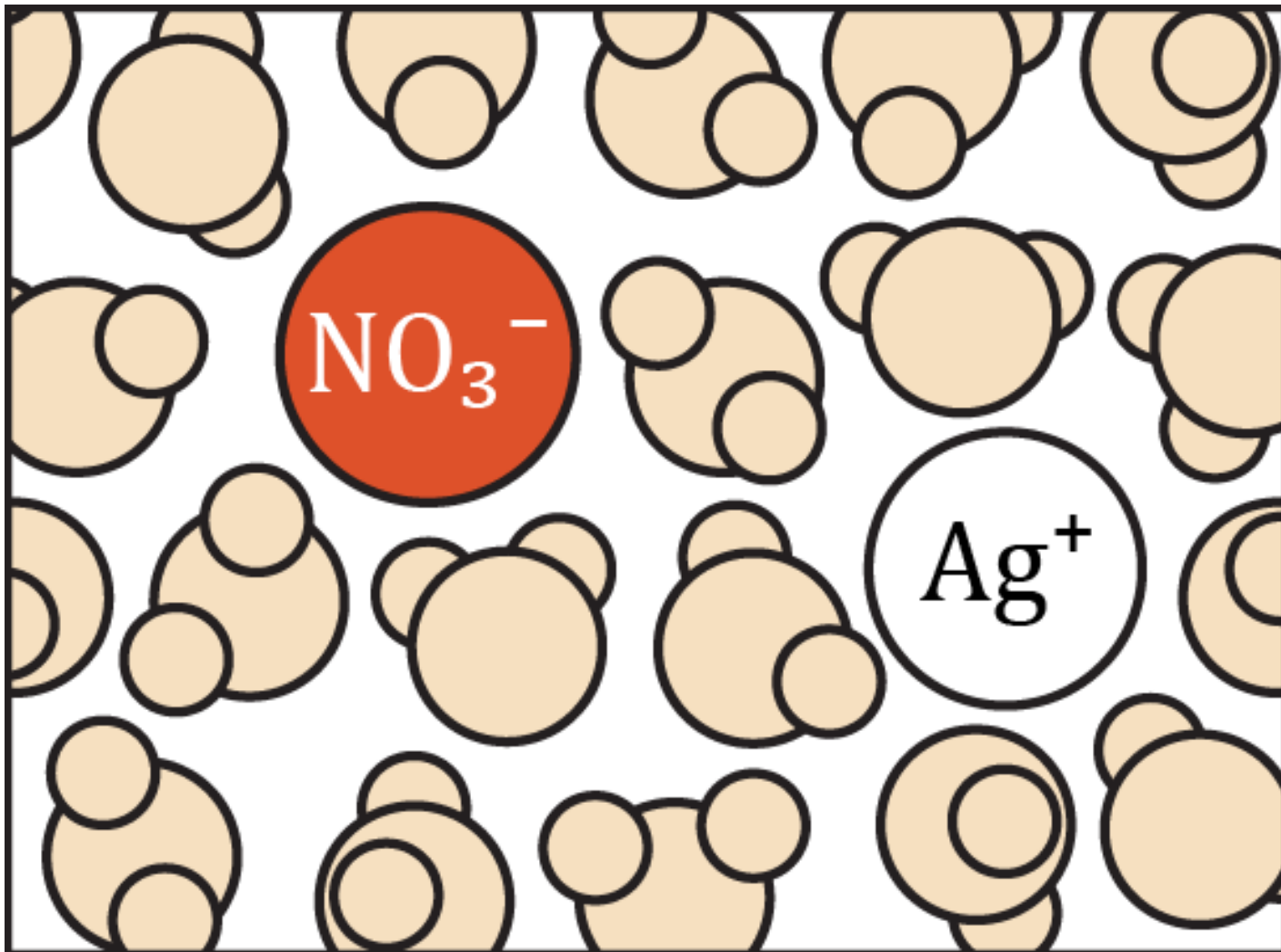
Fluorine molecule: answer



Spot the bonding:

covalent

Silver nitrate solution: answer



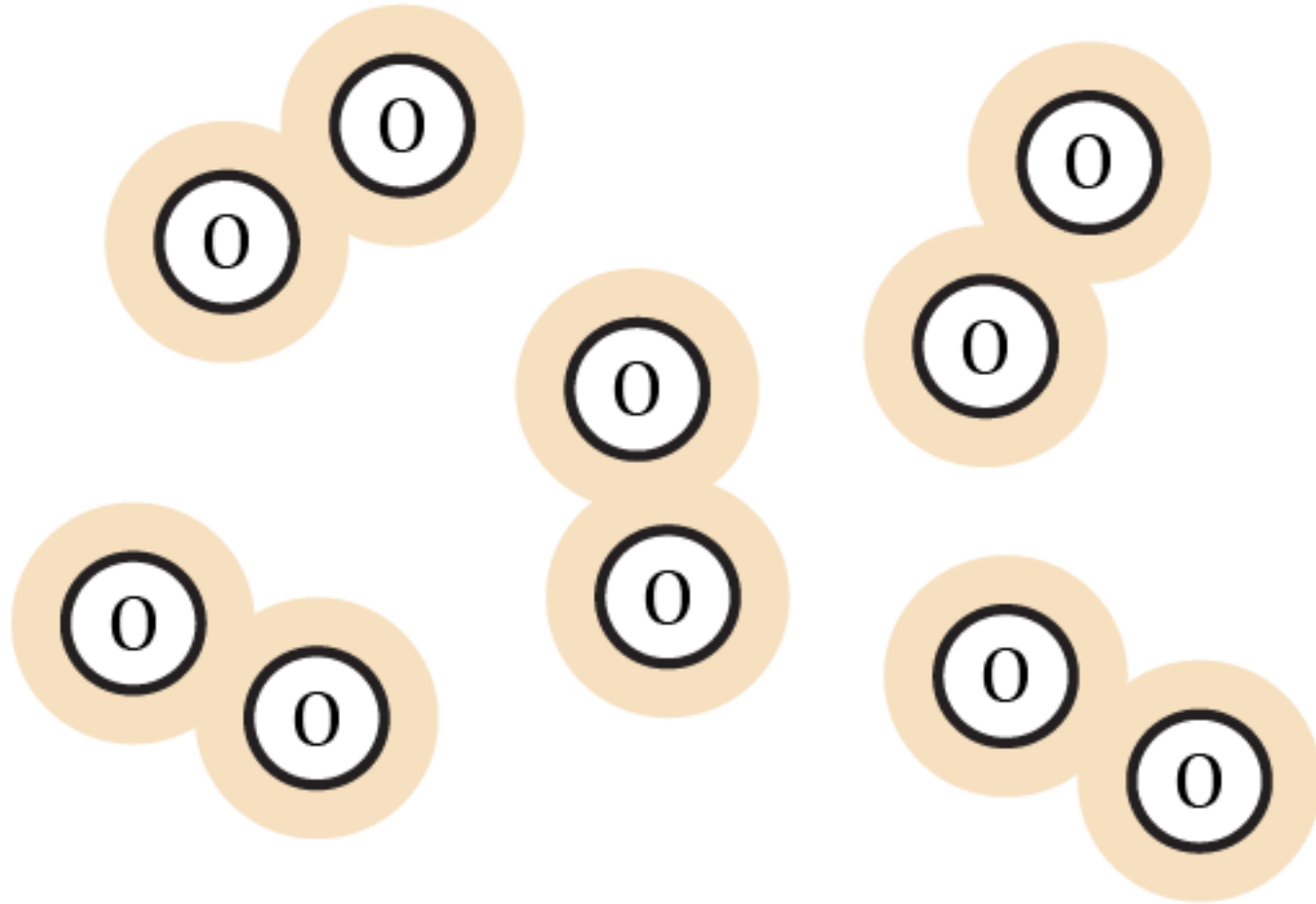
Spot the bonding:

covalent (water)
ionic (silver nitrate)

More types of bonding to spot:

polar
hydrogen
van der Waals
forces
dipole-dipole
forces
solvent-solute
interactions

Oxygen gas: answer



Spot the bonding:

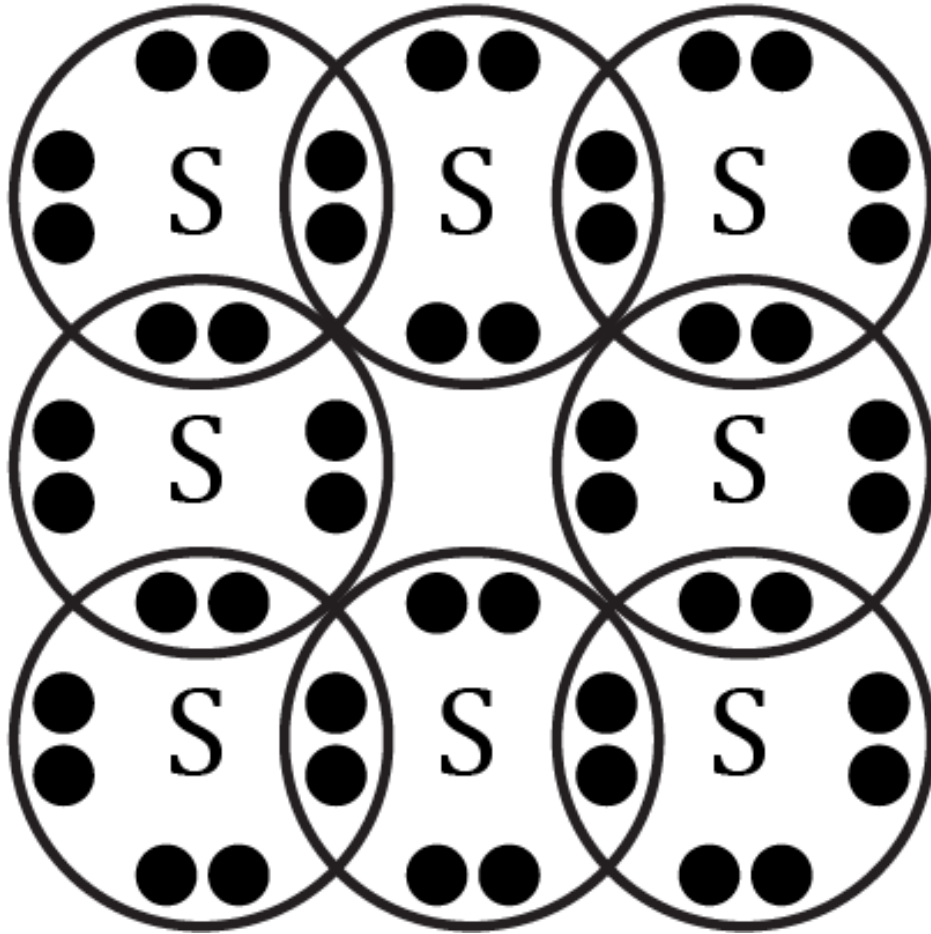
(double) covalent

More types of bonding to spot:

van der Waals
forces

sigma + pi

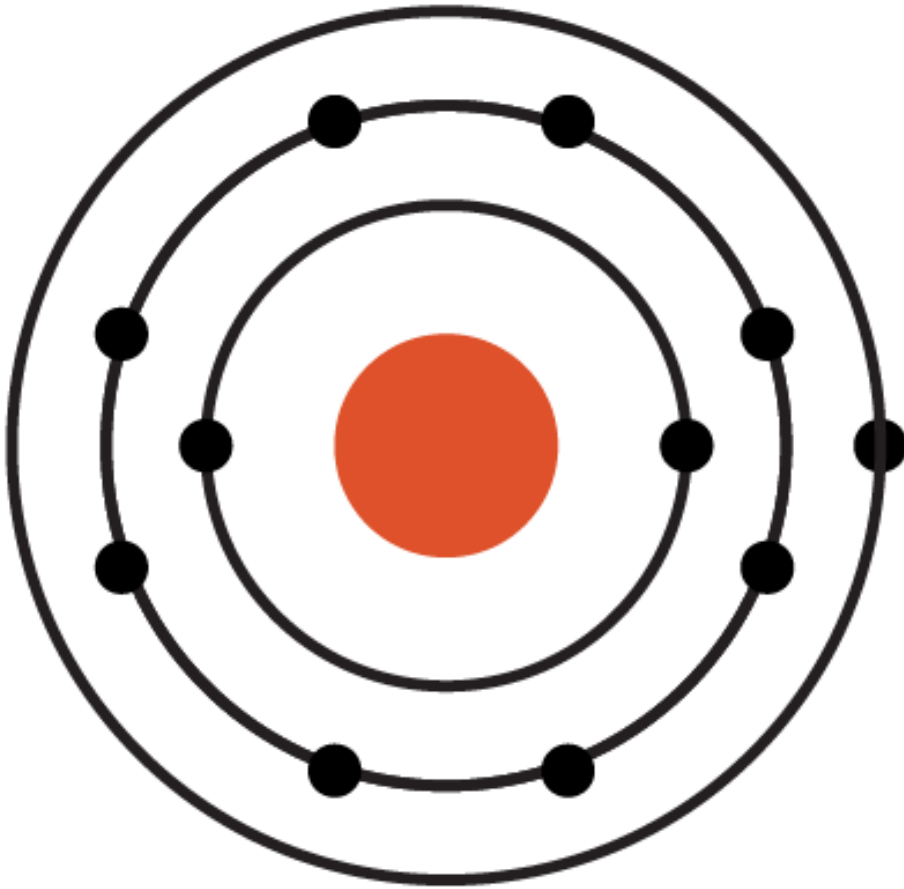
Sulfur molecule: answer



Spot the bonding:

covalent

Sodium atom: answer

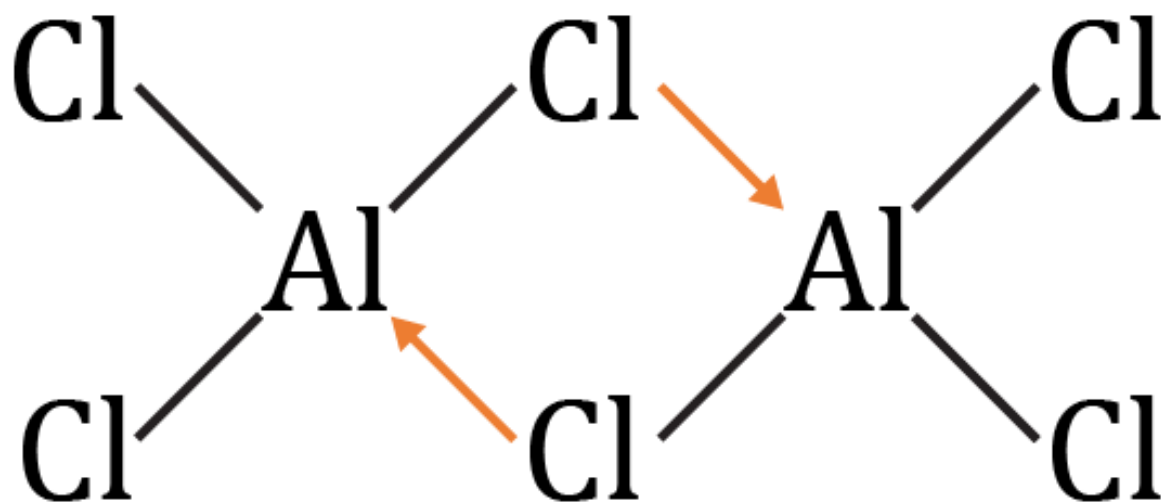


Spot the bonding:

no chemical
bonding

(although intra-
atomic forces of a
similar nature)

Aluminium chloride dimer: answer



Spot the bonding:
covalent

More types of bonding to spot:
polar

including dative
(coordinate) covalent

Carbon dioxide molecule: answer



Spot the bonding:

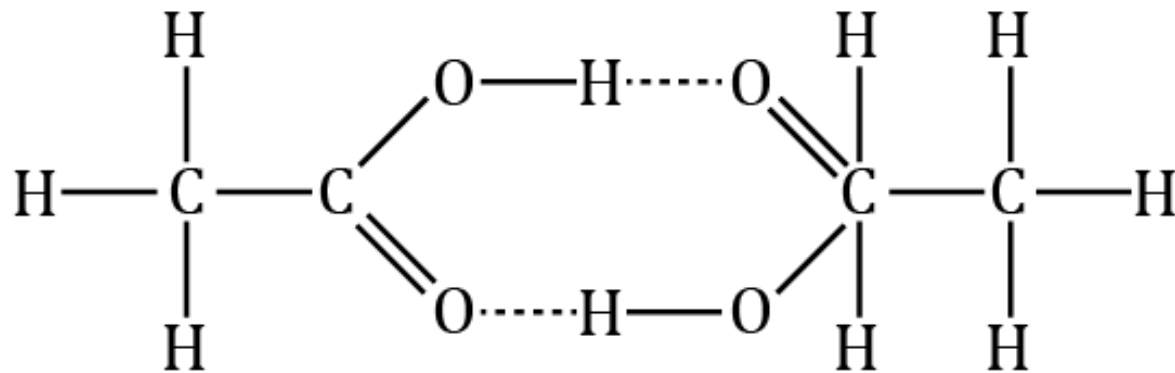
(double) covalent

**More types of bonding
to spot:**

polar

double/sigma + pi

Ethanoic acid dimer: answer



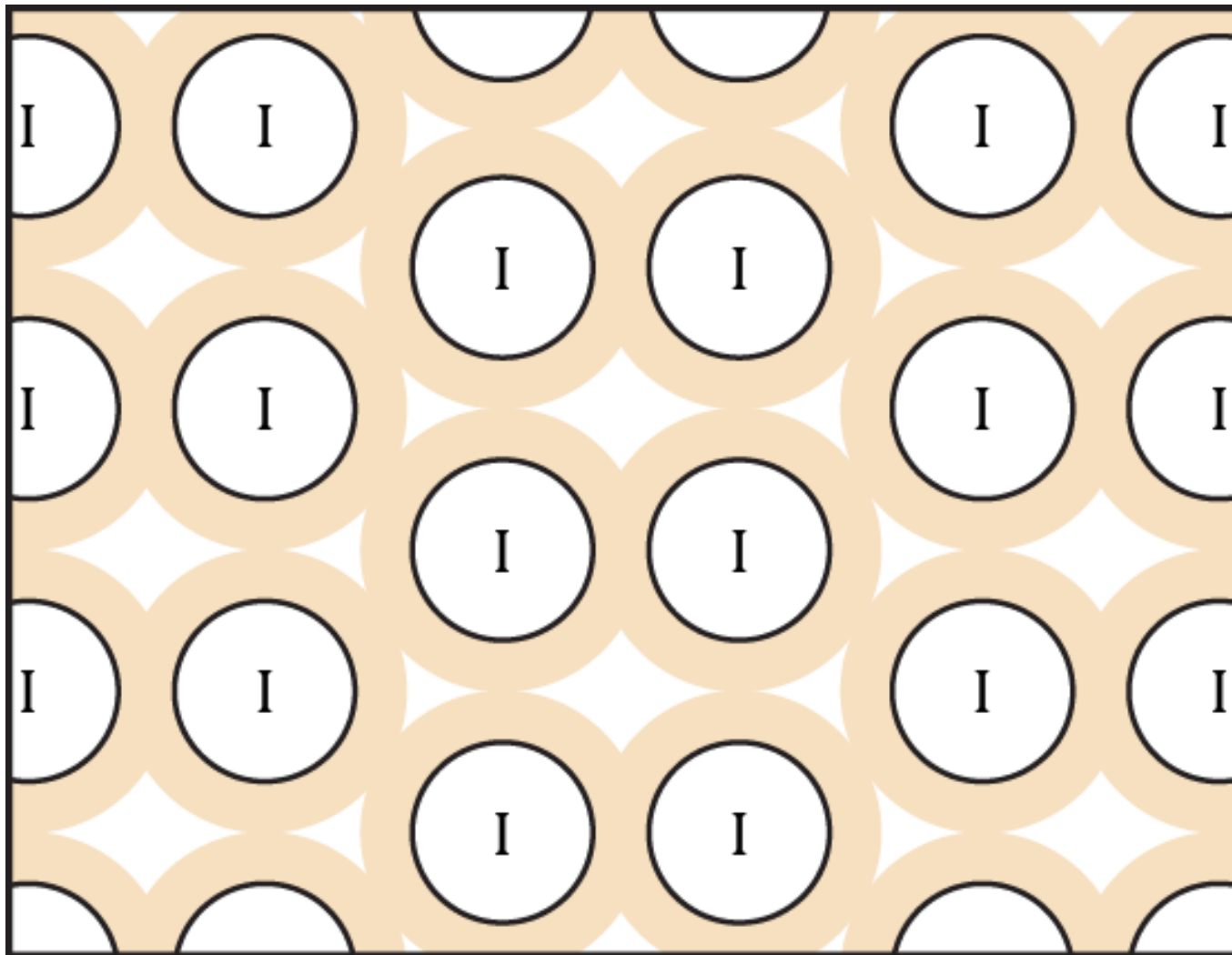
Spot the bonding:

covalent

**More types of bonding
to spot:**

polar
hydrogen

Iodine lattice: answer



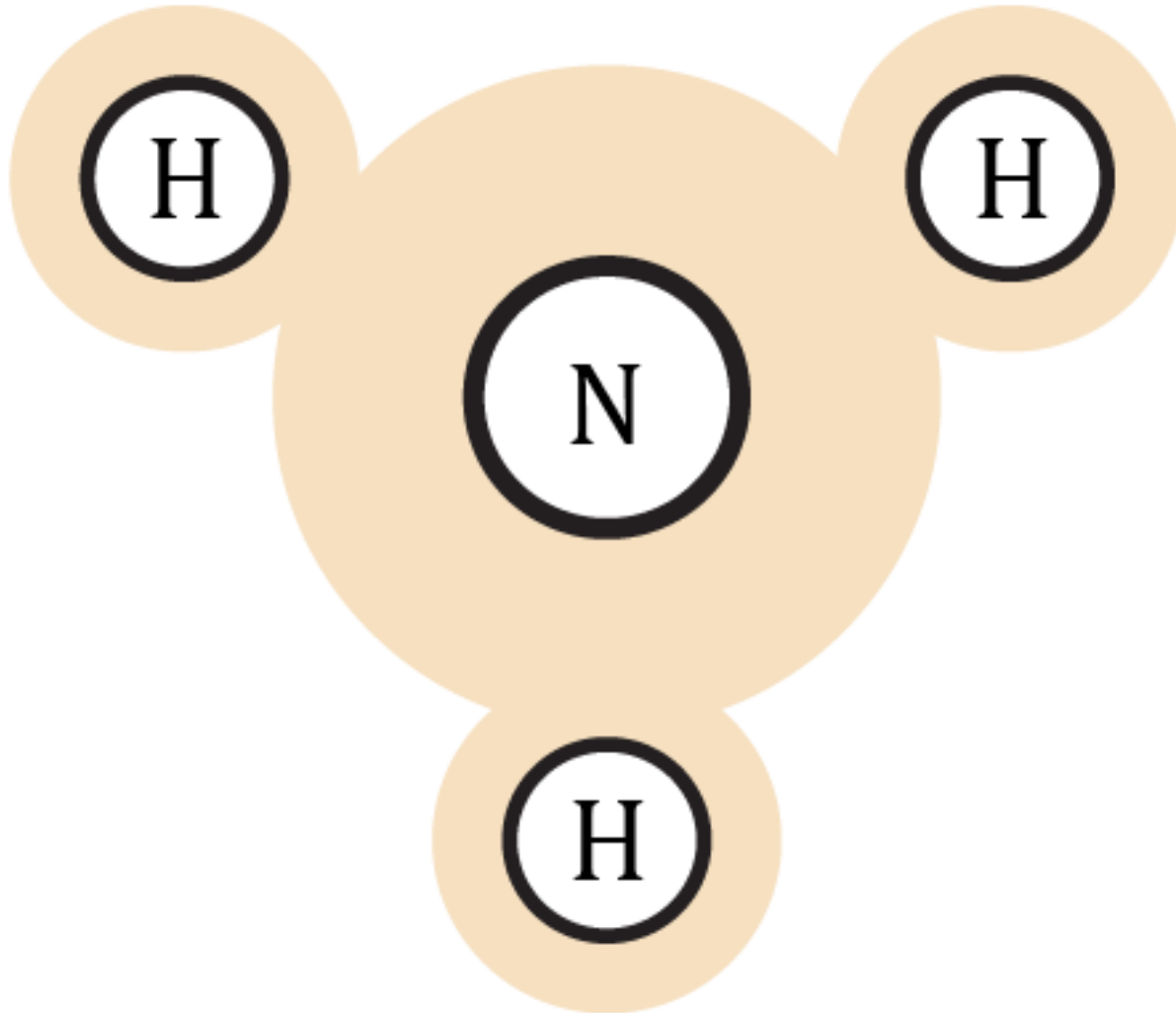
Spot the bonding:

covalent

More types of bonding to spot:

van der Waals forces

Ammonia molecule: answer



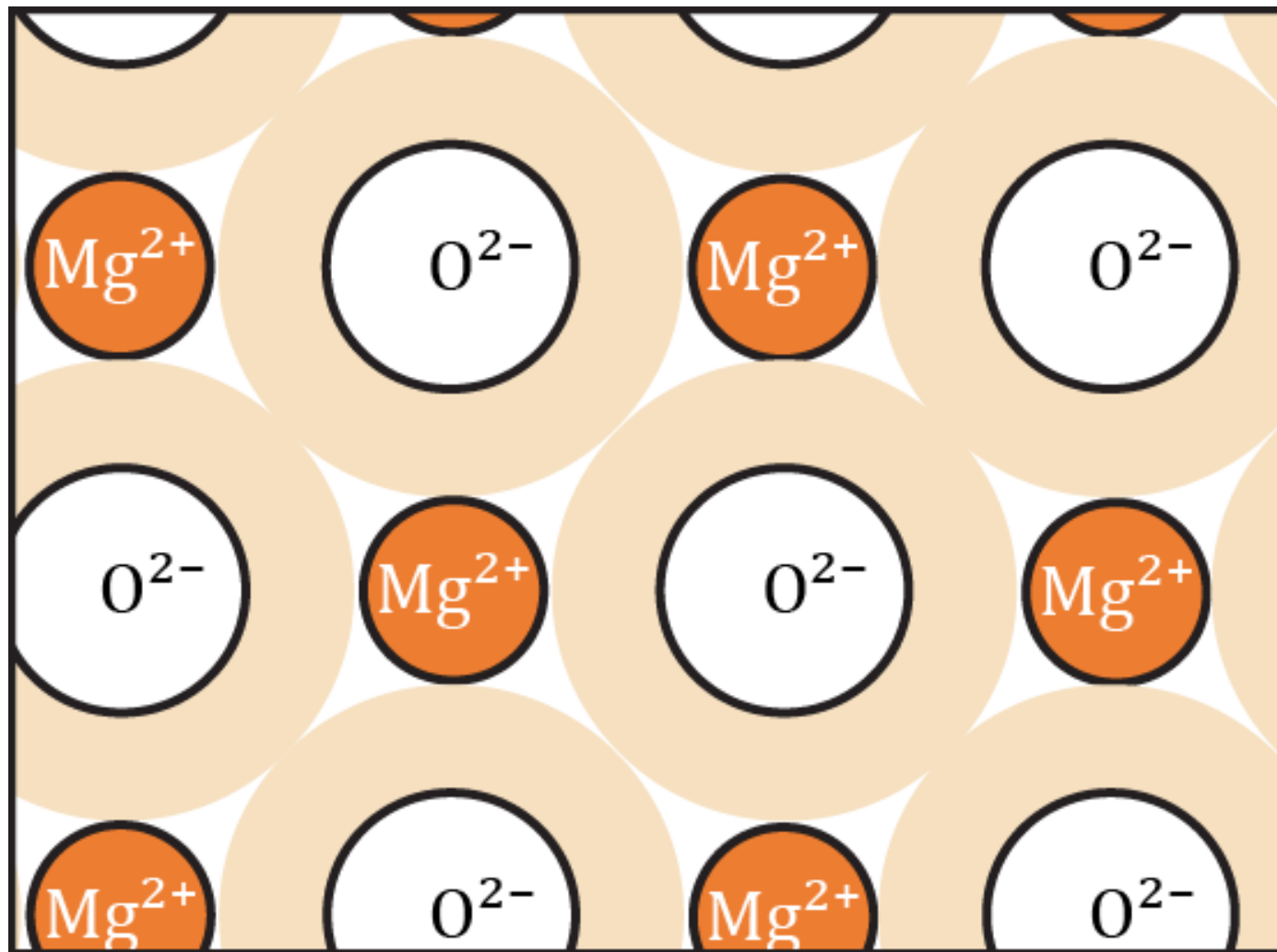
Spot the bonding:

covalent

More types of bonding to spot:

polar

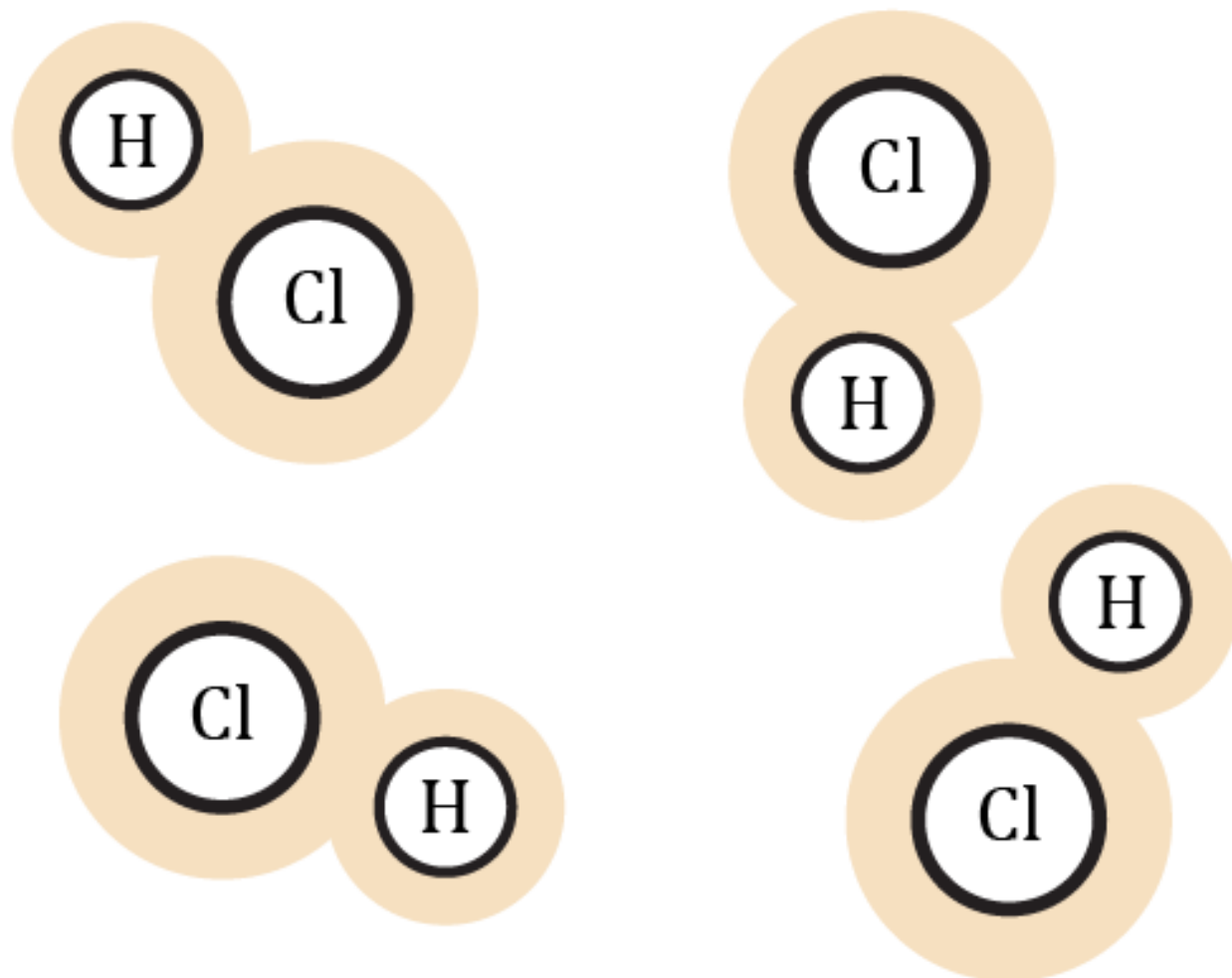
Magnesium oxide lattice: answer



Spot the bonding:

ionic

Liquid hydrogen chloride: answer



Spot the bonding:

covalent

More types of bonding
to spot:

polar
van der Waals
forces