14–16 years

Decision tree: what type of bonding?





Downloaded from rsc.li/3SrcX6G

res

Does the substance contain a metal element?

HINT: Remember metals

ore on the left of the

periodic table

No

Is the metal

bonded to a non-metal?

No

Yes

Is it a small

molecule e.g.

No

CH4, NH3?

T IS ON IONIC SALT

Yes

It is a

It is an

ls it a single

element? HINT: Look at the

periodic table

No

It is a SIMPLE

COVALENT

It has a GIANT COVALENT STRUC

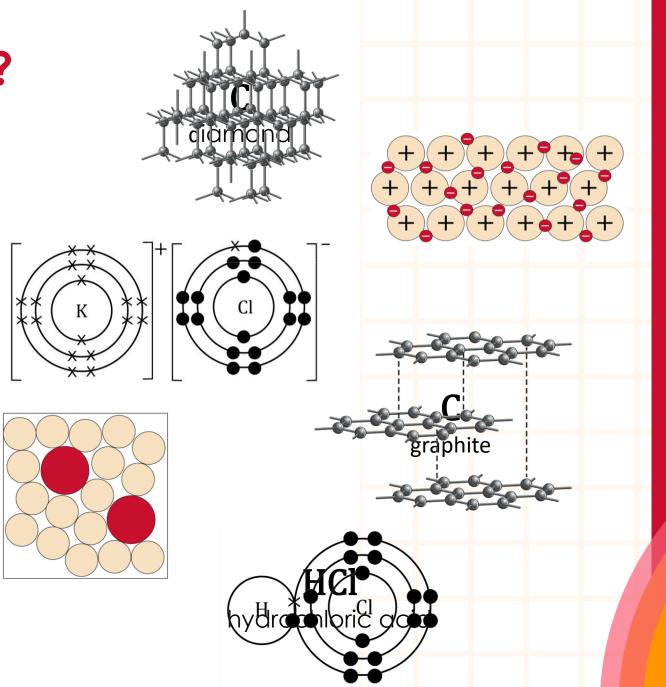
MOLECULE

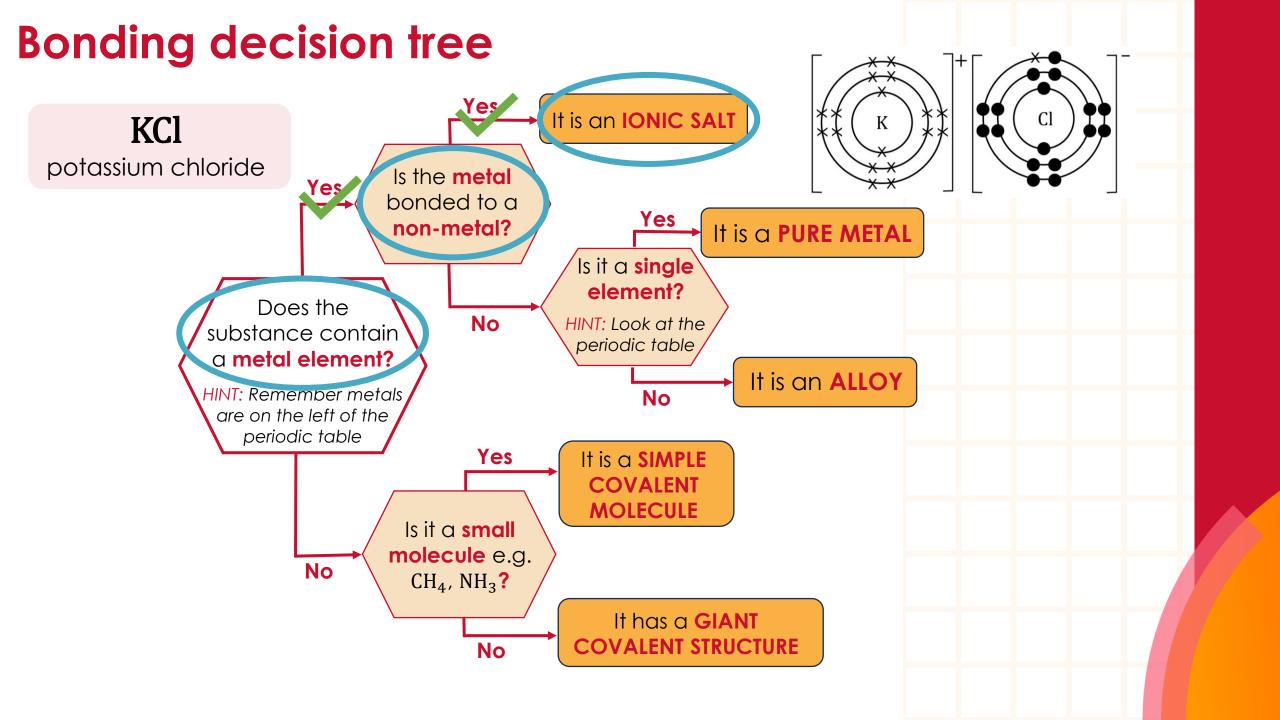
Introduction

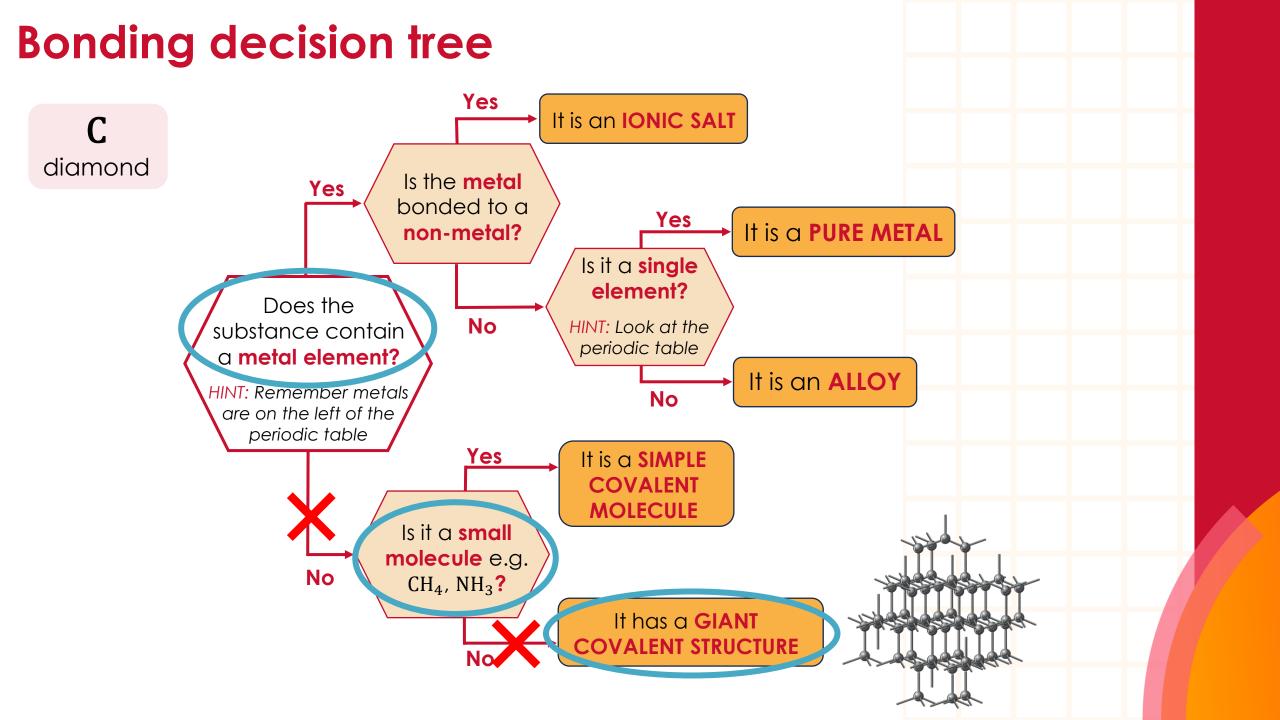
What type of bonding?

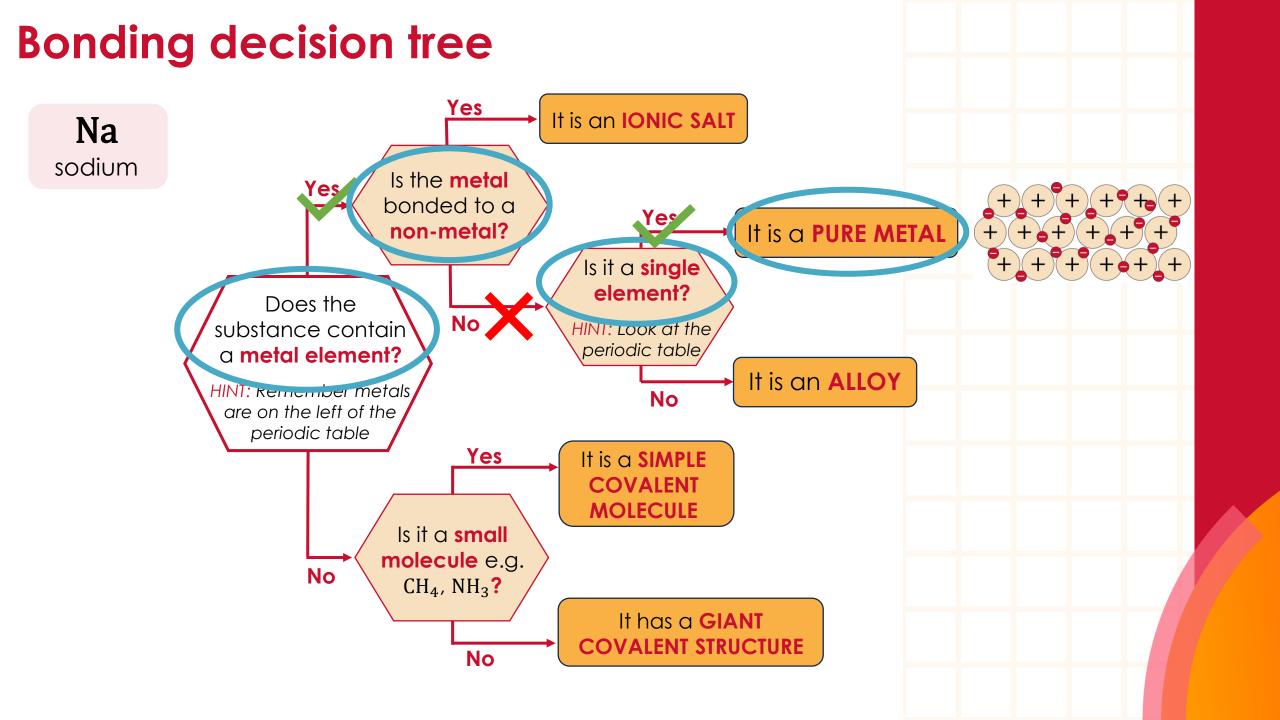
How would you identify the type of bonding in a substance based on its name or formula?

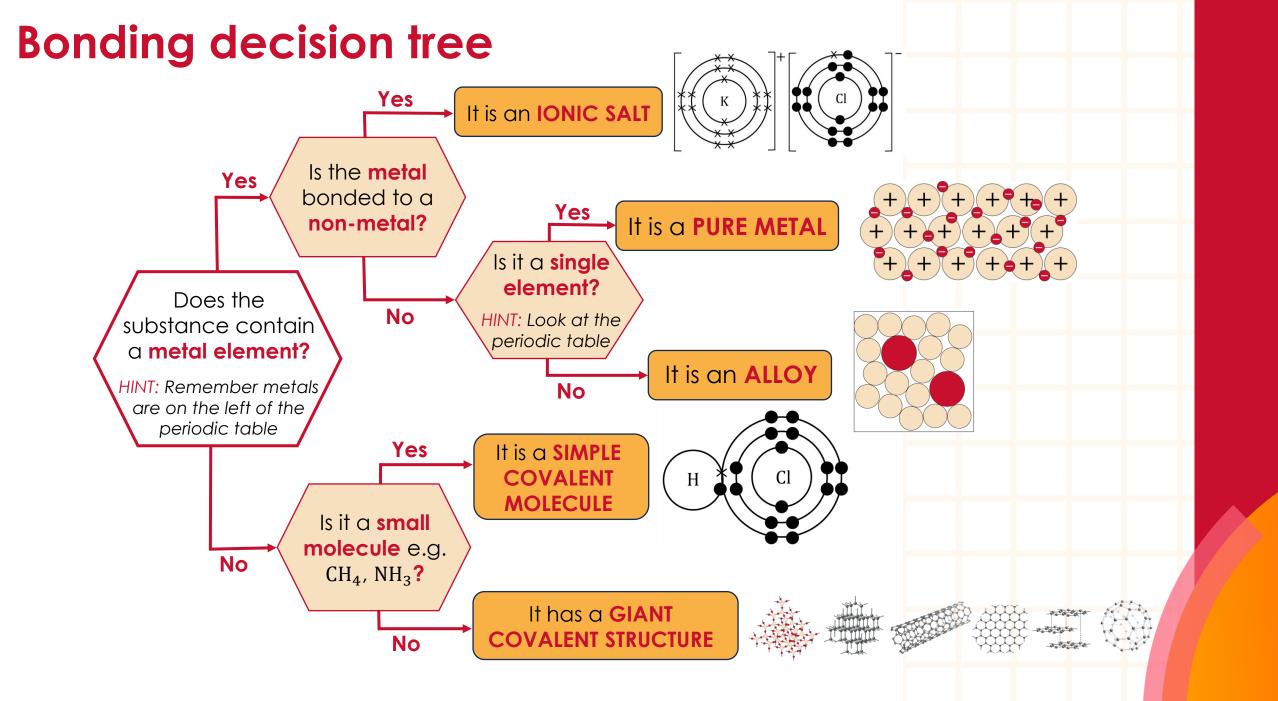
A **decision tree** is a visual representation of the route you take to find an answer. It plans out thinking and breaks it down into a series of decisions to make.

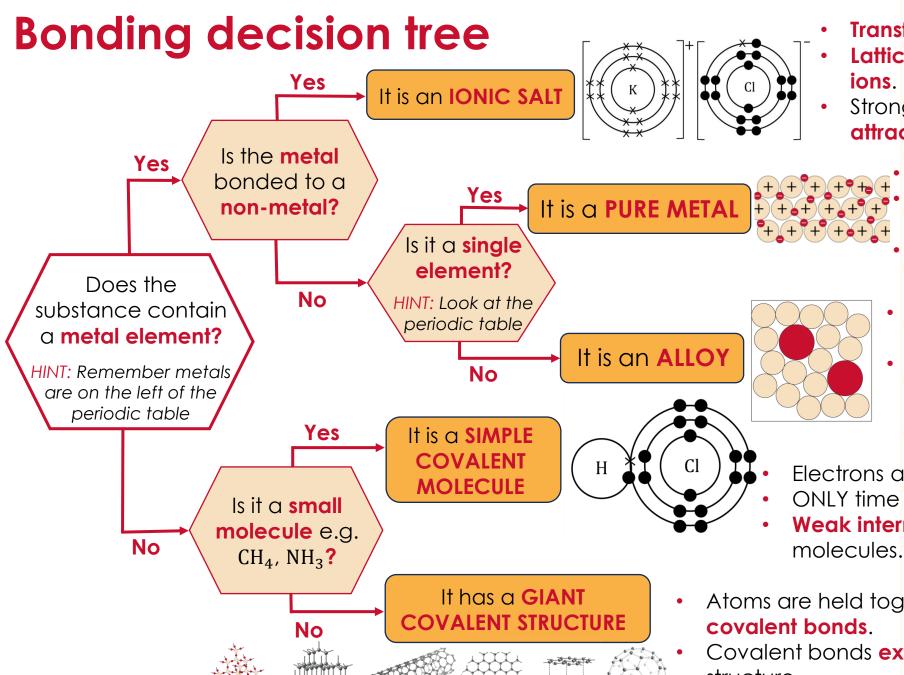












- **Transfer** of electrons.
- Lattice of oppositely charged
- Strong electrostatic force of attraction between the ions.
 - Layers of metal atoms. **Delocalised electrons** in between.
 - Layers can slide over each other.
 - Mixture of a metal and another element.
 - Different sized atoms distort the layers meaning layers can no longer slide over each other.
- Electrons are **shared**.
- ONLY time you can refer to **molecules**.
- Weak intermolecular forces between molecules.
- Atoms are held together by strong
- Covalent bonds extend throughout the structure.

How to use this resource

A decision tree is a visual representation of the schema an expert might use to find the answer to a question. It can support learners by scaffolding that thinking to help them access the knowledge they need to answer questions.

- Use this pre-prepared decision tree once you have taught the structure and bonding topic.
- Introduce the decision tree working through the examples on slides 3–5.
- Be prepared to modify it, add hints or recap learning if any sticking points arise.
- Ask learners to use the decision tree when answering questions that summarise the topic, e.g. past examination questions.
- Gradually remove the scaffold the decision tree provides by using spaced retrieval activities carefully designed to support retention of the key decisions or knowledge.

Read more about how to make and use decision trees in your classroom in **Scaffold learning** with decision trees available from: <u>rsc.li/4khWoGC</u>