

2. Compound Structure and Properties

Starter Quiz · 课前小测

AP Chemistry

Name: _____ Score: _____

1. A metal transfers electrons to a nonmetal. What bond forms?

- ☐ ionic
- ☐ covalent
- ☐ metallic

2. On a potential-energy versus distance curve, the bond length is at the...

- ☐ lowest point of the well
- ☐ far right where energy is zero
- ☐ highest point

3. An ionic solid conducts electricity...

- ☐ only when molten or dissolved
- ☐ always, even as a solid
- ☐ never, under any condition

4. What carries electric current through a solid metal?

- ☐ delocalized electrons
- ☐ moving positive ions
- ☐ neutrons

5. What is the first step in drawing a Lewis diagram?

- ☐ count the total valence electrons
- ☐ guess the shape
- ☐ add double bonds everywhere

6. A deeper potential-energy well means a stronger bond.

- ☐ True
- ☐ False

7. How many valence electrons does CO₂ have? (C = 4, O = 6 each)

8. An oxygen atom (6 valence) has 4 lone electrons and 4 bonding electrons. Its formal charge?

9. A lattice of metal cations in a shared sea of electrons is a _____ bond.

10. A higher lattice energy generally means a higher melting point.

- ☐ True
- ☐ False

AP Chemistry1. **ionic**

Electron transfer between a metal and nonmetal makes an ionic bond.

2. **lowest point of the well**

The minimum is the stable separation – the bond length.

3. **only when molten or dissolved**

Ions must be free to move – that happens when melted or dissolved.

4. **delocalized electrons**

Free (delocalized) electrons move and carry the charge.

5. **count the total valence electrons**

You must know the total electron count before placing anything.

6. **True**

The well depth is the bond energy needed to break the bond.

7. **16**

$4 + 2 \times 6 = 16$ valence electrons.

8. **0**

$FC = 6 - 4 - \frac{1}{2}(4) = 6 - 4 - 2 = 0.$

9. **metallic**

This "sea of electrons" model describes a metallic bond.

10. **True**

More energy holds the lattice, so more heat is needed to break it apart.