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HONORS WORKSHEET 9s: Bonding Summary

Ionic Bonding

1. What is an ionic bond? (2)

2. Identify the ions present in the following ionic compounds. (16)

	Cation	Anion
Mg(NO ₃) ₂		
Al ₂ (SO ₃) ₃		
AlN		
Na ₃ P		
NH ₄ NO ₂		

Covalent Bonding

3. What is a covalent bond? (2)

4. What types of element tend to form covalent bonds when they combine? (1)

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Lewis Structures, Shape and Hybridization

5. Complete the table. (15)

Molecule or ion	AROUND CENTRAL ATOM			Lewis dot structure	Different molecule or ion with same atom geometry
	# of Bonding pairs (Count multiple bonds as one pair)	# of Lone pairs	Atom geometry & 3D sketch		
PCl_6^-					
NH_4^+					
NO_3^-					
IBr_3					
CO_3^{2-}					



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Polarity

6. Complete the table by writing either YES or NO in each box. (4)

	Polar Bonds?	Polar Molecule?
Carbon dioxide		
Boron trifluoride		
CHCl_3		
H_2		

Intermolecular Forces

7. What do you understand by the term "Dipole"? (2)

8. Describe hydrogen bonding. (2)

9. State and explain the variation in one physical property that varies according to the amount of hydrogen bonding present. (1)

10. Under what circumstances could a temporary dipole be induced in a molecule? (2)



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Solids

11. In terms of its structure explain diamonds hardness. (2)

12. In terms of its structure explain the fact that solid iodine will sublime. (2)

13. When will ionic compounds conduct electricity? Explain. (2)

14. What makes metals good conductors of electricity? Explain. (2)

Liquids & Gases

15. A liquid has a high vapor pressure. Explain what this suggests about its boiling point and the inter-molecular forces present. (2)

16. Explain the pattern of boiling points observed below, amongst the group 16 hydrides. (2)

Group VI Hydride	H ₂ O	H ₂ S	H ₂ Se	H ₂ Te
Boiling Point / °C	100	-65	-45	-15