

Name _____ Section _____ Date _____

Lab Partner _____ This is an individual assignment _____

Lab Report: Molecular Orbital Diagrams of Diatomic Molecules**H₂**

Energy level diagram:

of bonding electrons

Bond order

of antibonding electrons

Paramagnetic/diamagnetic

H₂⁺

Energy level diagram:

of bonding electrons

Bond order

of antibonding electrons

Paramagnetic/diamagnetic

Li₂⁺			
Energy level diagram:			
# of bonding electrons		Bond order	
# of antibonding electrons		Paramagnetic/diamagnetic	

Be₂			
Energy level diagram:			
# of bonding electrons		Bond order	
# of antibonding electrons		Paramagnetic/diamagnetic	

B₂			
Energy level diagram:			
# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

N₂			
Energy level diagram:			
# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

N_2^+			
Energy level diagram:			
# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

O₂

Energy level diagram:

# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

O_2^{2-}			
Energy level diagram:			
# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

O₂⁻			
Energy level diagram:			
# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

Ne₂			
Energy level diagram:			
# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

NO (use the energy level ordering of O₂)

Energy level diagram:

# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

CO (use the energy level ordering of O₂)

Energy level diagram:

# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	

CN⁻ (use the energy level ordering of N₂)

Energy level diagram:

# of bonding electrons		Paramagnetic/diamagnetic	
# of antibonding electrons		HOMO	
Bond order		LUMO	