

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Seat#: \_\_\_\_\_

TASK #		ANSWER					
<b>1</b>	Sort by: Ionic, covalent or metallic	Ionic		Covalent		Metallic	
<b>2</b>	Sort by: Polar or non-polar	Polar			Non-Polar		
<b>3</b>	Sort by: "Dominant" IMF present – Dipole-dipole or London Forces	Dipole-Dipole			London Forces		
<b>4</b>	Sort by: Hydrogen bonding or No Hydrogen bonding	Hydrogen Bonding			No Hydrogen Bonding		
<b>5</b>	Sort by: Dipole-dipole or hydrogen bonding	Dipole-Dipole			Hydrogen Bonding		
<b>6</b>	Sort by: "Dominant" IMF present – London, Dipole-dipole, or Hydrogen Bonding	London Forces		Dipole-Dipole		Hydrogen Bonding	
<b>7</b>	Rank from: Lowest to Highest expected boiling point	Lowest					Highest
<b>8</b>	Rank from: Lowest to Highest expected boiling point	Lowest					Highest

Absent? Didn't finish? Use this digital version to finish the activity! <https://tinyurl.com/yfhzn2wz>



**Dougherty Valley HS Chemistry**  
**Bonding and Structure – IMF Card Sort and Practice**

Q#	Questions												
1	<p>HBr, O<sub>2</sub> and CH<sub>3</sub>OH all have comparable molecular masses. List the dominant type of IMF, then rank the strength of each compound based on IMFs within the samples. (1 = strongest, 2 = in between, 3 = weakest).</p> <table border="1" data-bbox="188 306 837 466"> <thead> <tr> <th data-bbox="188 306 464 338">Substance</th> <th data-bbox="464 306 643 338">IMF</th> <th data-bbox="643 306 837 338">Relative Strength</th> </tr> </thead> <tbody> <tr> <td data-bbox="188 338 464 369">HBr</td> <td data-bbox="464 338 643 369"></td> <td data-bbox="643 338 837 369"></td> </tr> <tr> <td data-bbox="188 369 464 401">O<sub>2</sub></td> <td data-bbox="464 369 643 401"></td> <td data-bbox="643 369 837 401"></td> </tr> <tr> <td data-bbox="188 401 464 466">CH<sub>3</sub>OH</td> <td data-bbox="464 401 643 466"></td> <td data-bbox="643 401 837 466"></td> </tr> </tbody> </table>	Substance	IMF	Relative Strength	HBr			O <sub>2</sub>			CH <sub>3</sub> OH		
Substance	IMF	Relative Strength											
HBr													
O <sub>2</sub>													
CH <sub>3</sub> OH													
2	<p>Circle the substances below that can form a hydrogen bond in its pure form. Explain why the other species couldn't hydrogen bond. C<sub>2</sub>H<sub>6</sub> CH<sub>3</sub>NH<sub>2</sub> KCl CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>OH CH<sub>3</sub>OCH<sub>3</sub></p>												
3	<p>Rank the following compounds from weakest intermolecular forces to strongest. Justify your answers. H<sub>2</sub>S I<sub>2</sub> N<sub>2</sub> H<sub>2</sub>O</p>												
4	<p>Rank the following from weakest intermolecular forces to strongest. Justify your answers. <i>They are all bent like water</i>) H<sub>2</sub>Se H<sub>2</sub>S H<sub>2</sub>PO H<sub>2</sub>Te</p>												
5	<p>Using your knowledge of molecular structure, identify the main intermolecular force in the following compounds. You may find it useful to draw Lewis structures to find your answer. PF<sub>3</sub> H<sub>2</sub>CO HF</p>												
6	<p>Explain how dipole-dipole forces cause molecules to be attracted to one another.</p>												
7	<p>Explain how London Forces cause molecules to be attracted to one another.</p>												
8	<p>Rank the following compounds from lowest to highest boiling point: calcium carbonate, methane, methanol (CH<sub>4</sub>O), dimethyl ether (CH<sub>3</sub>OCH<sub>3</sub>).</p>												
9	<p>Explain why nonpolar molecules usually have much lower surface tension than polar ones.</p>												
10	<p>What is the difference between a regular dipole-dipole force and a hydrogen bond force? What is an example of hydrogen bonding that occurs in your body?</p>												

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Fill out the missing information in the chart below:

Q#	Name	Formula	Type of IMF
1	Aluminum sulfate		
2	Ammonium phosphate		
3		CO <sub>2</sub>	
4		CaCO <sub>3</sub>	
5	Nitrogen trihydride		
6		S <sub>2</sub> F <sub>2</sub>	
7		P <sub>2</sub> O <sub>5</sub>	
8	Magnesium nitrate		
9		Pb <sub>3</sub> P <sub>2</sub>	

  

Q#	Formula	Lewis Structure	Polar or non-polar?	Q#	Formula	Lewis Structure	Polar or non-polar?
10	CH <sub>2</sub> F <sub>2</sub>			13	CH <sub>2</sub> O		
11	CO <sub>2</sub>			14	SeH <sub>2</sub>		
12	NCl <sub>3</sub>			15	NO <sub>3</sub> <sup>-</sup>		

Order each group below from strongest to weakest IMF and give the type of IMF:

16	N <sub>2</sub> , HF, Na, CH <sub>2</sub> O						
	Formula						Weakest
	IMF	Strongest					
17	H <sub>2</sub> S, NH <sub>3</sub> , CH <sub>4</sub> , (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>						
	Formula						Weakest
	IMF	Strongest					