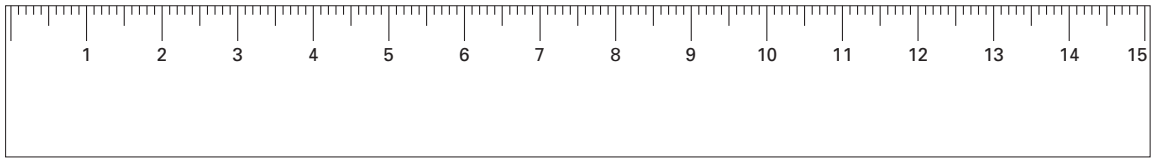
FLINN SCIENTIFIC

Name_____



Intermolecular Forces Worksheet

	Water		Ethyl Alcohol	
	Glass	Polyethylene	Glass	Polyethylene
Microscope Slide **Steps 3 and 4**				
1. Drop width (mm)	_____	_____	_____	_____
Drop height (mm)	_____	_____	_____	_____
Step 8				
2. Force to separate slides	_____	_____		
Microspatula **Steps 9 and 10**				
3. Number of drops to fill microspatula	_____ mm		_____ mm	
Capillary Tube **Steps 13 and 14**				
4. Capillary rise (mm)	_____ mm		_____ mm	
Buret **Steps 19 and 23**				
5. Unmixed liquid volume	_____ mL			
Mixed solution volume	_____ mL			
Volume change	_____ mL			
Volume change–%	_____ %			
Dry Erase Board **Steps 24 and 25**				
6. Pattern of water on dry erase board	_____			
Pattern of ethyl alcohol on dry erase board	_____			
7. Evaporation time (sec)	Water _____		Ethyl Alcohol _____	

Post-Lab Questions

1. Which liquid was least attracted to each of the surfaces? How could you tell that this was true?

2. In step 3, which of the water drops was the flattest and widest? What does this mean about the attraction of the molecule to the surface?

3. Can you determine whether the polyethylene is made of polar or nonpolar molecules?

4. When you compressed the slides in step 4, which slide seemed the most difficult to separate?

5. Which liquid took the most drops to fill the microspatula in steps 9 and 10? What does this indicate about the size of the drops? How does the size of the drop relate to the attraction of the molecules to each other?

6. When you compare the size of the molecules of water and ethyl alcohol, which is bigger? How does this compare to the size of the drops?

7. The glass capillary tube contains encapsulated ions at the surface; based on this fact, which molecules shows the greatest ion–dipole attraction?

8. In step 24 when the drops run down the dry erase board, which liquid seemed to spread out on the surface?

9. Which liquid took longer to evaporate? What does this imply about the attraction of the molecules to each other?

10. Which liquid has weaker intermolecular attraction and which has the stronger intermolecular attractions?

11. *(Optional)* Speculate on the cause of the observed results when water and ethyl alcohol were mixed in step 21.