Intermolecular Forces Activities

Investigation: Cornstarch London Forces

1. Mix the cornstarch with enough water in a plastic cup to get a smooth, viscous paste.
2. Pour some of the paste into the palm of your hand. Squeeze the paste. If it is of the correct consistency, you will feel it solidify under the pressure of your hand.
3. Release the pressure and observe what happens to the paste.

Explain your observations by referring to intermolecular forces.

Butane and octane (a major component in gasoline) are both nonpolar molecules with similar structures.

CH₃ – CH₃ – CH₃ – CH₃  \hspace{1cm} CH₃ – CH₃ – CH₃ – CH₃ – CH₃ – CH₃ – CH₃ – CH₃
butane  \hspace{1cm} octane

Use your knowledge of London forces to explain why octane is a liquid at room temperature, while butane is a gas at room temperature.
Intermolecular Forces Activities

**Investigation: Soap Films & Polar Molecules**

1. Pour a small amount of bubble solution into a lid – bring it close to the top, but not enough to overflow.
2. Place a straw into the bubble solution and blow to form one large bubble.
3. Observe the bubble in different angles of light.
4. Rub a balloon on your hair (or pant leg) and approach, but do not touch, the balloon. This will make the balloon negatively charged. You can also rub a vinyl strip with rabbit hair to get a negative charge.
5. Record your observations.
6. Predict what would happen if a positively charged strip was brought near the soap film. Record your prediction below.
7. Rub an acetate strip with cotton fabric, to give it a positive charge. Record your observations.

**Explain your observations by referring to the polar nature of the water molecule. How was the waters reaction different to each of the two strips? Use a diagram to strengthen your reasoning.**
Intermolecular Forces Activities

Investigation: Buret – what is the polarity of the two liquids?

1. Use the rabbit hair to charge the vinyl strip.
2. Allow water to run through the buret.
3. Approach the running water with the strip, but do not touch the strip to the water.
4. Record your observations
5. Repeat steps with the oil
   • With the oil, you will need to have one person pour the oil through the funnel while the other brings the charged strip towards the stream of oil.

Explain your observations in terms of the intermolecular forces present in each liquid.
Name: ______________________

**Intermolecular Forces Activities**

**Investigation: Surface Tension**

How many pennies can be added to a full glass of water?

1. Fill the glass until it is full (you cannot pour any more water in it)
2. Make and record your hypothesis
3. Add pennies until the glass overflows
4. Record your answer

**Explain your observations in terms of the intermolecular forces present in water**