## Surface Tension

### Individual Setups

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>soap bubble apparatus</td>
<td>1</td>
</tr>
<tr>
<td>ring stand</td>
<td>1</td>
</tr>
<tr>
<td>ring stand clamps</td>
<td>3</td>
</tr>
<tr>
<td>small 3-pronged clamp</td>
<td>2</td>
</tr>
<tr>
<td>ruler</td>
<td>1</td>
</tr>
<tr>
<td>protractor</td>
<td>1</td>
</tr>
<tr>
<td>flashlight</td>
<td>1</td>
</tr>
<tr>
<td>circular template</td>
<td>1</td>
</tr>
<tr>
<td>water manometer</td>
<td>1</td>
</tr>
<tr>
<td>tray</td>
<td>1</td>
</tr>
<tr>
<td>calibrated eyepiece</td>
<td>1</td>
</tr>
<tr>
<td>precision capillary tubes</td>
<td>1</td>
</tr>
<tr>
<td>non-precision capillary tubes</td>
<td>2</td>
</tr>
</tbody>
</table>

### Equipment List

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>glass stirrer</td>
<td>1</td>
</tr>
<tr>
<td>disposable mouth pieces</td>
<td>2</td>
</tr>
<tr>
<td>50ml beakers marked soap and water</td>
<td>2</td>
</tr>
<tr>
<td>short rubber tubes with glass pieces</td>
<td>2</td>
</tr>
<tr>
<td>glass cylindrical tube with rubber stopper attached</td>
<td>1</td>
</tr>
<tr>
<td>glass cylindrical tube with cork attached</td>
<td>1</td>
</tr>
<tr>
<td>long rubber tubes</td>
<td>2</td>
</tr>
</tbody>
</table>

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**Complete Setup**
Individual Items

- Soap bubble apparatus
- Glass cylindrical tubes; small 3-pronged clamps
- Calibrated eyepiece
- Capillary tubes - different sizes
- Circle template
- Precision capillary tube
Ruler

Glass stirring rod

Tray to hold small items

Water manometer

50ml beakers marked soap and water
Student Tensiometer Setups

3 wooden stands
1 He-Ne laser
1 ruler/large clip
1 glass dish
1 micrometer platform

1 small ring stand
1 paper clips
1 torsion balance apparatus/mirror and counterpoise

Complete setup

Individual Items

Wooden stand
Micrometer platform
He-Ne laser
Ruler with large clip
Glass dish
Mounted glass slide
Torsion tensiometer apparatus
Fisher Tensiometer Setups

1. Fisher tensiometer
2. 50ml beakers marked soap and water
1. precision metal ring

1. 500mg weight
2. 200mg weight
1. 100mg weight
1. tensiometer users manual

Complete setup
Individual Items

- 50ml beakers marked soap and water
- Precision ring
- Tensiometer users manuals
- Tools needed to replace tension wire
- 500mg, 200mg, 100mg weights
Class Supplies

1 large beaker filled with soap solution
metal shapes for making soap shapes
1 bottle of glycerin
distilled water
concentrated soap solution

Metal shapes for soap bubbles
Supplies for making more soap solution