Destructive Wood Distillation
1. Be sure test tube has a slight tilt upward

2. Stopper end of test tube is pointed away from sink

3. Be sure clamp is near the rim of the test tube

4. Be sure you can slide the Bunsen Burner back and forth under the test tube

Hottest part of flame

Ice water in 600mL Beaker

Light the smoke
6. begins to change color – darker brown first to eventually black.

7. Smoke burns. it ignites
DAY 1

8. The water that was in the bottle is replaced with air (smoke).

9. The smoke stays in the container when it is turned upside down.
   - highly flammable when lit with a wood splint.

DAY 2

12. Day 1 liquid Observation
Title: Distillation of Solution X

Purpose: Inquiry Process of distillation; to analyze later

Materials: ..... 

Procedure: 1. Put on safety goggles
          2. Set-up apparatus as shown (draw sketch)
          3. Place boiling chips into the test tube
          4. Place thermometer into test tube so readings can be taken throughout the experiment.
          5. *Gently heat the solution (blue; but not hottest)
          6. Start timer and record **temperature** and **volume** every minute.

* Have data table ready before turning on burner

<table>
<thead>
<tr>
<th>Time (minutes)</th>
<th>Temperature (°C)</th>
<th>Volume (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
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<tr>
<td>2</td>
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</tbody>
</table>
Set-Up

- Boiling chips in test tube
- Beaker w/ ice water and 25mL graduated cylinder
- Clamp near the rim of the test tube
- Ceramic screen w/ no holes
- No kinks in hose
- Not touching screen
Teacher Demonstration in the Hood
Same set-up as solution X – Separating the Condensed Liquid from Day 1 Distillation

17. Compare the 2 liquids
18. Distillation is a “physical” means of separating a mixture. The 2 liquids are unchanged. So they can simply be mixed together again.
When placed in the Bunsen Burner – the wood splint glows, it doesn’t burn as a flame.
Products of Destructive Wood Distillation

- $C_7H_4O$ Charcoal
- $CO_2$ Carbon dioxide
- $CO$ Carbon monoxide
- $CH_4$ Methane
- $CnH_{2n}$ Unsaturated hydrocarbons
- $C_2H_4O_2$ Acetic acid
- $CH_4O$ Methanol
- $C_3H_6O$ Acetone
- $C_3H_6O_2$ Methyl acetate
- $H_2O$ Water
- Complex CHO compound
- Soluble tar
- Complex CHO compound
- Tarry residue