

Name

Period

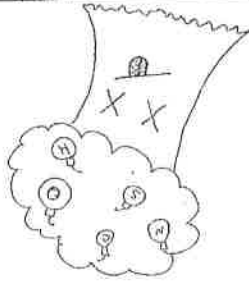
Group

Date

# CSI: Herbicide

There's been a murder and the local forensics team needs your help to solve it! Chem S. Tree, a noble and wise member of the chemical community, has been poisoned. The forensics team has compiled an autopsy report along with the information on widely used herbicides that are often used to kill plants. Four suspects have been taken into custody, and it's up to you to determine who-done-it.

## The Autopsy Report

	Victim:	Chem S. Tree
	Age:	283 yrs
	Height:	152.3 ft
	Girth:	9.7 ft
Cause Of Death:	Poisoning	
Unusual Toxicity:	Foreign substance found inside victim's sap-stream contained the following:	
	Element	Mass
	Carbon	62.464 g
	Hydrogen	5.215 g
	Chlorine	20.512 g
	Oxygen	27.697 g

## Your Report

Fill in the following table:

Person	Herbicide
Adam Icbomb	
Elle-Ectro Negativity	
U.N. Balanced	
Mortimer Mole	
Chem S. Tree	

The police department needs clear evidence to convict one of the suspects, so you need to **SHOW ALL OF YOUR WORK** and make sure that it is clear enough that they can follow it!!! You need to calculate the empirical formula of the herbicide for each suspect and the victim.

After you have determined who the killer is, you need to write a paragraph report for the police stating the following:

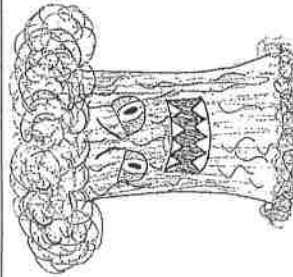
- What pesticide killed Chem S. Tree
- Who killed Chem S. Tree
- How you know/can prove that your chosen suspect was the killer

## The Common Herbicides

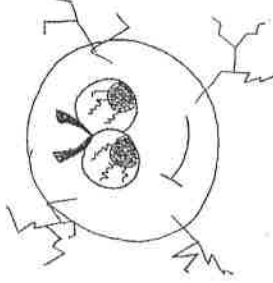
Chemical Name	Abbreviation	Chemical Formula
2,4-Dichlorophenoxyacetic acid	2,4-D <sub>1</sub>	C <sub>8</sub> H <sub>6</sub> Cl <sub>2</sub> O <sub>3</sub>
Methylchlorophenoxypropionic acid	MICPP	C <sub>10</sub> H <sub>12</sub> ClO <sub>3</sub>
2,3,7,8-Tetrachlorodibenzodioxin	TCDD	C <sub>12</sub> H <sub>4</sub> Cl <sub>4</sub> O <sub>2</sub>
4-[2,4-dichlorophenoxy]butyric acid	2,4-DB	C <sub>10</sub> H <sub>10</sub> Cl <sub>2</sub> O <sub>3</sub>
2,4,5-Trichlorophenoxyacetic acid	2,4,5-T	C <sub>8</sub> H <sub>5</sub> Cl <sub>3</sub> O <sub>3</sub>
2-methyl-4-chlorophenoxyacetic acid	MCPA	C <sub>9</sub> H <sub>9</sub> ClO <sub>3</sub>
(R)-2-(2,4-dichlorophenoxy)propanoic acid	2,4-D <sub>2</sub>	C <sub>9</sub> H <sub>8</sub> Cl <sub>2</sub> O <sub>3</sub>

## The Suspects

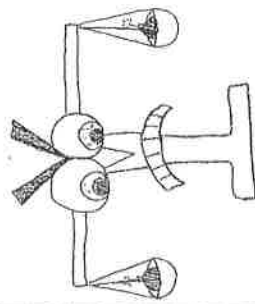
Name	Adam Icbomb										
<b>Motive:</b>	Unquenchable thirst for total destruction										
<b>Suspicious Behavior:</b>	<ul style="list-style-type: none"> <li>Green leaves found stuck to bottom of shoe</li> <li>Suspicious residue found on gloves</li> </ul>										
<b>Chemical Make-up of suspicious residue:</b>	<table border="1"> <thead> <tr> <th>Element</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Carbon</td> <td>43.5% C</td> </tr> <tr> <td>Hydrogen</td> <td>2.7% H</td> </tr> <tr> <td>Chlorine</td> <td>32.1% Cl</td> </tr> <tr> <td>Oxygen</td> <td>21.7% O</td> </tr> </tbody> </table>	Element	Amount	Carbon	43.5% C	Hydrogen	2.7% H	Chlorine	32.1% Cl	Oxygen	21.7% O
Element	Amount										
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Name	Elle-Ectro Negativity										
<b>Motive:</b>	Chem S. Tree's branches were blocking the power lines										
<b>Suspicious Behavior:</b>	<ul style="list-style-type: none"> <li>Smell of burnt sugar coming off suspect</li> <li>Unlabeled spray bottle in suspect's pocket</li> </ul>										
<b>Chemical Make-up of Solution in Spray Bottle:</b>	<table border="1"> <thead> <tr> <th>Element</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Carbon</td> <td>37.6% C</td> </tr> <tr> <td>Hydrogen</td> <td>2.0% H</td> </tr> <tr> <td>Chlorine</td> <td>41.6% Cl</td> </tr> <tr> <td>Oxygen</td> <td>18.8% O</td> </tr> </tbody> </table>	Element	Amount	Carbon	37.6% C	Hydrogen	2.0% H	Chlorine	41.6% Cl	Oxygen	18.8% O
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Name	U.N. Balanced										
<b>Motive:</b>	Has a chemical imbalance that gives him the urge to destroy										
<b>Suspicious Behavior:</b>	<ul style="list-style-type: none"> <li>Bark pieces covered in sticky liquid found in weighing trays</li> </ul>										
<b>Chemical Make-up of the Sticky Liquid:</b>	<table border="1"> <thead> <tr> <th>Element</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Carbon</td> <td>53.9% C</td> </tr> <tr> <td>Hydrogen</td> <td>4.5% H</td> </tr> <tr> <td>Chlorine</td> <td>17.7% Cl</td> </tr> <tr> <td>Oxygen</td> <td>23.9% O</td> </tr> </tbody> </table>	Element	Amount	Carbon	53.9% C	Hydrogen	4.5% H	Chlorine	17.7% Cl	Oxygen	23.9% O
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Name	Mortimer Mole										
<b>Motive:</b>	Wanted to dig tunnels under Chem S. Tree's roots										
<b>Suspicious Behavior:</b>	<ul style="list-style-type: none"> <li>Sap found under claws</li> <li>Broken ornament covered in residue found in tunnel</li> </ul>										
<b>Chemical Make-up of suspicious residue:</b>	<table border="1"> <thead> <tr> <th>Element</th> <th>Amount</th> </tr> </thead> <tbody> <tr> <td>Carbon</td> <td>44.8% C</td> </tr> <tr> <td>Hydrogen</td> <td>1.3% H</td> </tr> <tr> <td>Chlorine</td> <td>44.0% Cl</td> </tr> <tr> <td>Oxygen</td> <td>9.9% O</td> </tr> </tbody> </table>	Element	Amount	Carbon	44.8% C	Hydrogen	1.3% H	Chlorine	44.0% Cl	Oxygen	9.9% O
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