Giant Cigarette Activity # 7

Target: Grades 4-9

Time frame: 20-30 minutes

Materials needed: Giant blow up cigarette

Learning Objective: Students will learn what some of the harmful ingredients that are found in cigarette smoke as well as some of their common uses.

Use the giant cigarette model to engage students in a discussion on the harmful ingredients found in cigarette smoke. Start the discussion by providing some facts as listed below. Ask students to name any chemicals they have heard are contained in cigarettes. Include the common uses of these substances in the discussion as well.

What Are Some of the Harmful Ingredients in Cigarette Smoke?

Tobacco smoke contains more than 4,000 chemicals. Many are known to be harmful substances, including carbon monoxide, toluene, acetone and ammonia.

According to health Canada, about 50 of these chemicals cause cancer in humans, including: 2-naphthylamine, 4-aminobiphenyl, arsenic, benzene and nickel.

Some of the Harmful Chemical Substances found in Cigarette Smoke

- 4-Aminobiphenyl*
- Arsenic*
- Benzene*
- Chromium VI*
- 2-Naphthylamine*
- Nickel*
- Vinyl chloride*
- Acetaldehyde**
- Acetamide**
- Acrylonitrile**
- o-Anisidine**
- Benzaanthracene**
- Benzobfluoranthene**
- Benzojfluoranthene**
- Benzkfluoranthene**
- Benzoapyrene**
- Cadmium**
- DDT**
- Dibenzo, hacridine**
- Dibenzo, jarcidine**
- 2-Nitroprone**
- N-nitrosodi-n-butylamine**
- N-Nitrosodiethanolamine**
- N-Nitrosodiethylamine**
- N-Nitroso-n-methylethylamine**
- N´-Nitrosonornicotine**
- N-Nitrosopiperidine**
- N-Nitrosopyrrolidine**
- Styrene**
- 2-Toluidine**
- Urethane**
- Acetone
- Acrolein
- Ammonia
- Aniline
- 1, 3 –Butadiene
- Captan
- Carbon disulfide
- Carbon monoxide
- Catechol
Dibenza, hanthracene
7H-Dibenzoc, gcarbazole**
Dibenzao, epyrene**
Dibenzao, hpyrene**
Dibenzao, ipyrene**
1, 1- Dimethylhydrazine**
Formaldehyde**
Lead**

Chrysene
Hydrogene cyanide
Hydroquinone
1-Naphthylamine
Phenol
Pyridine
Quinoline
Toluene

* Known human carcinogen, according to the International Agency for Research on Cancer and/or the Environmental Protection Agency.

** Possible human carcinogen, according to the International Agency for Research on Cancer and/or the Environmental Protection Agency.

Sources:

Canadian Council for Tobacco Control


Health Facts – Chemical Constituents of Tobacco Smoke. Health Canada.


What are Some of the Common Uses of the Cigarette Smoke Ingredients?

<table>
<thead>
<tr>
<th>How Chemicals are used in Industry</th>
<th>Name of chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td>Formaldehyde**</td>
</tr>
<tr>
<td>Pesticide or Herbicide</td>
<td>Acrolein</td>
</tr>
<tr>
<td></td>
<td>Hydrogen Cyanide</td>
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<tr>
<td></td>
<td>Catechol</td>
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<tr>
<td></td>
<td>Pyridine</td>
</tr>
<tr>
<td></td>
<td>Quinoline</td>
</tr>
<tr>
<td></td>
<td>Nicotine (mostly banned)</td>
</tr>
<tr>
<td>Disinfectant</td>
<td>Formaldehyde**</td>
</tr>
<tr>
<td></td>
<td>Phenol</td>
</tr>
<tr>
<td>Solvents, resins or varnishes</td>
<td>Pyridine</td>
</tr>
<tr>
<td>Source</td>
<td>Chemicals</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Batteries</td>
<td>Hydroquinone, Toluene</td>
</tr>
<tr>
<td></td>
<td>Nickel*, Cadmium**</td>
</tr>
<tr>
<td>Tire Manufacture</td>
<td>1, 3 – Butadiene</td>
</tr>
<tr>
<td>Explosives</td>
<td>Toluene</td>
</tr>
<tr>
<td>Household cleaners</td>
<td>Ammonia</td>
</tr>
<tr>
<td>Rubber</td>
<td>Hydroquinone, Catechol, Toluene</td>
</tr>
<tr>
<td>Only found in Tobacco products</td>
<td>NNN, NNK</td>
</tr>
</tbody>
</table>

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**Sources:**

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