**Carbon Snake**

**Curriculum Links:**

[LS2.1](https://www.edonline.sk.ca/webapps/moe-curriculum-BBLEARN/index.jsp?view=indicators&lang=en&subj=science&level=2&outcome=2.1) Investigate properties (e.g., colour, taste, smell, shape, and texture) of familiar liquids and solids. [SI]

[MC5.1](https://www.edonline.sk.ca/webapps/moe-curriculum-BBLEARN/index.jsp?view=indicators&lang=en&subj=science&level=5&outcome=2.1) Investigate the characteristics and physical properties of materials in solid, liquid, and gaseous states of matter. [CP, SI]

MC5.2 Investigate how reversible and non-reversible changes, including changes of state, alter materials. [SI]

AE9.1 Distinguish between physical and chemical properties of common substances, including those found in household, commercial, industrial, and agricultural applications. [SI]

[AE9.2](https://www.edonline.sk.ca/webapps/moe-curriculum-BBLEARN/index.jsp?view=indicators&lang=en&subj=science&level=9&outcome=2.2)

Analyze historical explanations of the structure of matter up to and including:

* Dalton model
* Thomson model
* Rutherford model
* Bohr model of the atom.

**Science Background:**

* Sulfuric acid removes water from the sugar (Dehydration).
* Reaction is very exothermic (releases heat)
* With water removes you are left with elemental carbon
* Much of the water is boiled off as steam

**Materials:** Sulfuric acid, sugar, beaker, glass stir rod, dish to collect overflow

**Directions:**

1. Fill beaker 2/3 full of sugar. 100-250 mL is a good size
2. Add concentrated Sulfuric Acid so it just covers sugar
3. Mix with glass stir rid (you may need to add some more acid)
4. When beaker heats up (sugar turns brown) stop stirring.
5. Reaction may take a few minutes. Be patient.

**Expected Results**

* Once sulfuric acid is added the sugar will slowly turn yellow, then brown, then black.
* Steam and heat will be released
* It will smell like caramel or burnt sugar
* Black carbon will push itself out of the beaker
* Youtebe video: <https://www.youtube.com/watch?v=pqi50sjJVc0&feature=related>

**Inquiry Questions:**

**Source:** <http://chemistry.about.com/od/chemistrydemonstrations/a/acidsugardemo.htm>