



# Corn in the Classroom

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Products that use Corn  
How Corn is used in some products  
Photograph of corn products

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## Products that use Corn

**Adhesives (glues, pastes, mucilages, gums, etc.)**

**Aluminum**

**Antibiotics (penicillin)**

**Asbestos insulation**

**Aspirin**

**Automobiles (everything on wheels)**

- cylinder heads
- ethanol - fuel & windshield washer fluid
- spark plugs
- synthetic rubber finishes
- tires

**Baby food**

**Batteries, dry cell**

**Beer**

**Breakfast cereals**

**Candies**

**Canned vegetables**

**Carbonated beverages**

**Cheese spreads**

**Chewing gum**

**Chocolate products**

**Coatings on wood, paper & metal**

**Colour carrier in paper & textile, printing**

**Frozen foods**

**Fructose**

**Fuel ethanol**

**Gypsum wallboard**

**Ink for stamping prices in stores**

**Insecticides**

**Instant coffee & tea**

**Insulation, fibreglass**

**James, jellies and preserves**

**Ketchup**

**Latex paint**

**Leather tanning**

**Licorice**

**Livestock feed**

**Malted products**

**Margarine**

**Mayonnaise**

**Mustard, prepared**

**Paper board, (corrugating, laminating, cardboard)**

**Paper manufacturing**

**Paper plates & Cups**

**Peanut butter**

**Pharmaceuticals - The Life Line of The Hospital**

|   |                                  |
|---|----------------------------------|
| Corn chips                                    | Potato chips                     |
| Corn meal                                     | Rugs, carpets                    |
| Cosmetics                                     | Salad dressings                  |
| C.M.A. (calcium magnesium acetate)            | Shaving cream & lotions          |
| Crayon and chalk                              | Shoe polish                      |
| Degradable plastics                           | Soaps and cleaners               |
| Dessert powders                               | Soft drinks                      |
| Dextrose (intravenous solutions, icing sugar) | Starch & glucose (over 40 types) |
| Disposable diapers                            | Syrup                            |
| Dyes  | Tacos, tortillas                 |
| Edible oil                                    | Textiles                         |
| Ethyl and butyl alcohol                       | Toothpaste                       |
| Explosives - firecrackers                     | Wallpaper                        |
| Finished leather                              | Wheat bread                      |
| Flour & grits                                 | Whiskey                          |
|   | Yogurts                          |

Of 10,000 items in a typical grocery store, how many would you guess would contain corn in one form or another?

Of 10,000 items in a typical grocery store, at least 2,500 items use corn in some form during the production or processing.

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## How Corn is Used in Some of these Products

### **Beer**

Beer manufacturing is a process of treating malt to convert and extract the barley starch to fermentable sugars using the amyloytic enzymes present in malt followed by yeast fermentation. However, demand for lighter, less filling beer, especially in the U.S., has permitted use of more refined carbohydrate sources of two types:

- a) dry adjuncts, primarily dry milled corn grits, broken rice, refined corn starch, and more recently, dextrose.
- b) liquid adjuncts, namely corn syrups.

### **Cake Mixes**

Cake mixes use a pregelatinized corn starch that will form a paste in cold or warm water. In baked goods that use yeast for rising, dextrose is used as a yeast nutrient.

### **Candies**

Corn syrup is used in hard candies to provide a body giving them chewiness and a desirable mouthfeel without excessive sweetness. Candies that are coated use a pyrodextrin corn starch for the coating.

### ***Carbonated Beverages - Coke***

High fructose corn syrup (HFCS) blended with sucrose in a 50/50 blend is sweeter than the same concentration of sucrose. The use of HFCS in carbonated beverages is common throughout Canada and the U.S.

### ***Cookies***

Corn starch, corn flour or dextrose may be found in cookies.

### ***Corn Flakes***

The flaking grits are cooked to a rubbery consistency with syrup, malt, salt and flavouring added. After tempering, the cooked grits are flattened between large steel rolls, followed by toasting in travelling ovens to a golden brown colour.

### ***Corn Starch***

Corn starch is derived from the wet milling process and is an important manufactured product. Some uses depend on the properties in the dry state, but most applications relate to its properties as a cooked, hydrated paste.

### ***Corn Meal***

Corn meal is a popular dry corn product because of its long shelf life. It is used to produce an assortment of chemically leavened bread and fried products like corn bread and muffins.

### ***Cosmetics***

Corn cobs, when finely ground, are relatively dust free and very absorbent. This absorbency makes corn cobs useful carriers for pesticides, fertilizers, vitamins, hand soaps, cosmetics and animal litters.

### ***Granola Dips/Granola Bars***

Some types of Granola Dips use dextrose as a sweetener.

### ***Gypsum Wallboard***

Starch-containing corn flour is gelatinized during the manufacturing process; It functions by controlling the rate of water loss during drying of the board. Soluble carbohydrates migrate to the surface and control the rate of crystallization of the gypsum, providing a strong bond between the gypsum and the liner.

### ***Instant Coffee & Tea***

Maltodextrins are derived from the wet milling process. They are a dextrose equivalent product of complete solubility but little or no sweetness. Maltodextrins are sprayed on instant tea and coffee to keep the granules free flowing. This solution is also used in instant soup mixes or

other packages where the contents must be kept free flowing.

### ***Mars Bar & Twix Bar***

Many candy bars contain corn syrup.

### ***Paint and Varnish***

Tetrahydrofurfuryl alcohol is a resin developed from processing corncobs. These resins are useful in the paint and varnish industry as solvents for dyes, resins, and lacquers.

### ***Paper Products***

Paper products use raw starch in the manufacturing process. The properties of high paste viscosity and strong gels are useful in specially coated papers. Pyrodextrins are also used for paper manufacturing for the adhesive property on remoistenable gums for postage stamps and packaging tape.

### ***Pharmaceuticals***

Aspirin - an oxidized starch paste, which dries to a clear, adherent, continuous film, is spread in a thin layer over the aspirin. Intravenous - some IVs consist of dextrose and water solutions.

Antibiotics - preferred carbohydrate sources are corn syrup, dextrose, corn starch, lactose and sucrose. Cornsteep liquor was early found to provide a ready source of soluble nitrogenous nutrients plus unknown growth factors that stimulate antibiotic production.

Over 85 different types of antibiotics are produced using corn.

### ***Snack Foods - Corn Chips & Doritos***

These snack foods are generally made from whole corn (cornmeal). The high starch content of cornmeal and flour is important in giving a high puff in preparation of extruded (pressed) snack products in which a delicate corn flavour is desired.

### ***Spark Plugs***

Starch is used in the production of the porcelain part of spark plugs.

### ***Tire, Rubber***

In the production of tires, corn starch is sprinkled on the molds before pouring the rubber, to prevent the rubber from sticking to the molds.

### ***Toothpaste***

Sorbitol, which is produced from the corn sugar dextrose, is used in toothpaste as a low-calorie, water-soluble, bulking agent.

### ***Whiskey***

The major carbohydrate in the production of whiskey is corn. A typical Canadian whiskey is made from a mixture of about 90% corn, 5% rye, and 5% barley malt.

### ***Yogurt***

Some of the different brands of yogurt use corn syrup as a sweetener.

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***Photograph of corn products (36k)***



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