Have you ever eaten a rock? Geology in Food and Drink

This list was developed for the 2018 NC Science Festival theme "The Science of Food and Drink."

This list is meant to be fun and maybe gross you out a little bit. It is by no means an exhaustive list of minerals and rocks we consume directly or indirectly. Please consult your doctor before you change your diet or ingest any of these items. It is important to realize that some rocks, minerals, or the elements derived from them, are necessary for our health. If humans are not doing the processing to get these geologic nutrients, then the plants and animals we eat are doing it for us. Thank you to my colleagues who helped me have fun gathering this list. Randy Bechtel, Geologist and NC Certified Environmental Educator. Randy.Bechtel@ncdenr.gov

1. To start, here is a fun link about geology in food and other things we ingest: http://www.funkidslive.com/learn/geology-rocks/geology-rocks-eating-rock/

2. White lettering on M&Ms and Skittles is titanium dioxide (from ilmenite clay or the mineral rutile TiO$_2$).


6. Apatite (it’s chemical formula contains phosphorous) in soil makes a good fertilizer for vegetables such as avocados. Teeth are also made of apatite https://www.sciencelearn.org.nz/resources/1796-bone-and-tooth-minerals and http://www.minerals.net/mineral/apatite.aspx

7. Copper (along with other minerals depending on food) in nuts, mushrooms and avocados.

8. Phosphorous is used as fertilizer and to make phosphoric acid which is found in sodas. North Carolina has a large phosphate mine on the coast and also produces many fossils including shark teeth, whales and many others: https://www.earthmagazine.org/article/mineral-resource-month-phosphate-rock and http://aurorafossilmuseum.org/

9. Calcium Carbonate (CaCO$_3$) (calcite and aragonite) naturally occurs as chalk, limestone, dolomite (Mg) and marble. Used in antacids, white paint, cleaning powders and is a component in toothpaste.

10. More uses of minerals in food and drink (and other uses) from the website of Women in Mining https://www.womeninmining.org/activities/ there are several activities and information sheets
11. Limestone is used as a coating on many types of chewing gum, in drinking water and in sugar production. [http://www.rsc.org/Education/Teachers/Resources/jesei/limestone/home.htm](http://www.rsc.org/Education/Teachers/Resources/jesei/limestone/home.htm)

12. Fluorite is used in toothpaste and in municipal water systems. [https://geology.com/minerals/fluorite.shtml](https://geology.com/minerals/fluorite.shtml)

13. The mineral mica makes toothpaste and nail polish sparkly. It is used in many other cosmetics too (look at the ingredient label).

14. Diatomite is used in filtering of vegetable oil, fruit juice, wine, beer, syrup.

15. Clay is used in processing vegetable oil.


17. Quartz SiO$_2$ (listed as Silicon Dioxide) as anti-caking agent in boxed pastas, rice, and pills. It can be found naturally in fruits and vegetables too.

18. Calcium sulfate (gypsum) is also used as an anticaking agent for items like shredded cheese.

19. Kaolinite clay was in the original formulation for Kaopectate for upset stomachs but was replaced with a bismuth compound in the 1980s in the U.S. The Canadian formulation changed to attapulgite clay about the same time [https://en.wikipedia.org/wiki/Kaopectate](https://en.wikipedia.org/wiki/Kaopectate) and more information and uses at [https://en.wikipedia.org/wiki/Kaolinite](https://en.wikipedia.org/wiki/Kaolinite)


For the Adults


2. For the curious wine lovers, here is some information on Terroir – “the complete natural environment in which a particular wine is produced, including factors such as the soil, topography, and climate.” If you google “terroir geology Scott Burns” you will get some good information, in particular, about the wines from the Pacific Northwest.