

Rocks and Minerals of your School Day

What were going to do is follow your day from the time you get up in the morning until you get to school. Every one of you has used many rocks and minerals already today, indirectly. In other words, the rocks and minerals are in many of the things you use and wear or in your house. We will focus on those found in ILLINOIS.

(YOU MAY CHOOSE SOMEONE TO KEEP COUNT OF THE ROCKS AND MINERALS)
AT EACH MINERAL HOLD THE ROCK AND END PRODUCT UP FOR SHOW.

This morning when you woke up you probably turned on the light bulb. Where does the electricity come from? From the power plant where they may burn **COAL(1)**. Most of the electricity produced in Illinois comes from **COAL**. (ADD LOCAL MINE INFO IF APPLICABLE) Coal is made from the remains of plants that lived in ancient swamps but only partially decomposed. Coal is found in central and southern Illinois. It has been mined for almost 200 years in Illinois.

Next you went into the bathroom and brushed your teeth. Toothpaste has an ingredient in it called fluoride. **FLUORITE OR FLUORSPAR(2)** is the mineral that is the source of fluoride. It is our state mineral and was mined for many years in the SE part of the state. Just like we have a state bird, state tree, fluorite is the state mineral. All the mines are now closed and the fluorite is imported from China or Mexico. Fluoride is also added to municipal drinking water. It helps to strengthen your teeth.

Next you may have looked out the window to check the weather before you got dressed. Windows are made of glass. Illinois is the largest producer of industrial **SILICA SAND (3)**, which is mined, then melted down with a few other chemicals, cooled to form glass. **SILICA SAND** is produced in the North Central part of the state. The fiberglass insulation in your house also comes from this. The actual mineral is **QUARTZ(4)**.

Now its time to get dressed. All of you have on gym shoes or rubber soled shoes. The bottoms are made from artificial rubber. Artificial rubber comes from **OIL(5)**. All plastics, vinyl, and many medicines are made from oil. Your house may have vinyl siding, your sandwich is probably wrapped in a plastic bag. The carpet on the floor is made from **OIL** If you had a headache from doing your homework and took an aspirin, it was made from **OIL**. The plastic lenses in your glasses are made from **OIL**. The nylon in your jacket or backpack is made from **OIL**. Of course, gasoline is made from **OIL**. Although Illinois is not a major oil producing state, most of the oil produced in Illinois comes from the SE part of the state. It is pumped from the ground where it is found in the pores and cracks in the rocks. It is not found in big underground lakes.

I'm sure you did your chores before school. If you used some scouring powder on the sink, it contains **CALCITE(6)** in it. It's the scratchy stuff in the powder.

When you were cleaning the sink you probably noticed some caulking which keeps the water from running behind the wall. The Silicone in the caulk may have come from the rock **TRIPOLI(7)**, which is a microcrystalline form of the mineral **QUARTZ**. It is mined in SW southern Illinois.

Who here has a cat? What's the least fun job when you have a cat? Right, cleaning the litter box. In the extreme southern part of the state there are clay mines. This is a special kind of clay called **FULLERS EARTH(8)**, which is very absorbent. You can understand why it's important to have an absorbent clay.

If you took the bus or came to school in a car you used many rock products. Under the hood is a battery that stores the electricity to turn the motor to get it started. Inside the battery is lead. Lead comes from the mineral **GALENA(9)**. Illinois has a town, named Galena, in the NW corner where they mined lead for over 150 years. Lead was also mined at the **FLUORSPAR** mines as well. All Galena is now mined in Missouri. Galena is very heavy and has a metallic luster.

The road that the bus or car took to school was either made of **CONCRETE or ASPHALT**. The sidewalks and playground are also made of these. Concrete is a mixture of **SAND and (10) GRAVEL**, sometimes **CRUSHED LIMESTONE**, and a gray powder called **CEMENT**. When mixed with water it hardens to form a rocklike material called **CONCRETE**. The **SAND AND GRAVEL** come from a mine near a stream or river or from a deposit left by glaciers. Limestone comes from a quarry. **CEMENT** is manufactured from a mixture of **LIMESTONE(11), SHALE(12)** and a few other materials. These rocks are found throughout the state.

An **ASPHALT** road or playground is made of sand and gravel and a black tarry substance which is called **ASPHALT**. This black material is actually a byproduct from the refinery where they process oil.

Most schools are made of bricks, also your kitchen or bathroom made have tile in it. These are made from a non-absorbent clay. The clay comes from a mine where they mine **SHALE**. Shale is a rock made up of clay. The shale is crushed, water is added, it is put in a mold to give it a shape. Then it is baked in a kiln to make it hard again like a rock. Shale mines are found in the north central part of the state.

You probably notice the fence at your school has a silver coating on it which helps to keep it from rusting. It is galvanized. This coating has the element **ZINC** in it. The mineral **SPHALERITE(13)** contains zinc and was found at the same mines as **GALENA** and **FLUORITE**.

Has anyone here ever planted flowers or seeds in a pot. You may have gone to the store to buy potting soil, which is a fluffy mixture of **PEAT(14)** and soil. **PEAT** is mined in the northern portion of the state. It is the remains of plants that grew in bogs and swamps just like coal but is much younger in age.

There are many other minerals in your house or school. Many which don't come from Illinois. You can see how many we've counted so far.

(TIME PERMITTING)

Let's go back in time, several hundred years and look at other rocks and minerals. We didn't have McDonalds to get our lunch or a refrigerator to store our food. How did we get it? We went out and hunted with a spear or bow and arrow. The point of this was made of another rock called **CHERT(15) OR FLINT**. Chert is light colored and flint is a dark colored version of the same rock. It is a microcrystalline form of **QUARTZ** which when broken forms a very sharp edge. These rocks were mined to make arrowheads. Here is an arrowhead from an archeological site. Food was also stored and cooked in clay pots. Just like the **CLAY** to make bricks, pots can also be made. Here is a piece of Indian pottery from another archeological site.

SALT was produced long before Illinois was a state. In 1803 the US government signed a treaty with seven tribes for a salt spring in Gallatin county. Most of the salt was used in Tenn, Ky, and Ind, as well as Illinois. Salt was used to preserve meat.

Iron ore (from Limonite) was mined from the 1830's through the Civil war . Due to the small reserves, production was based on imported ore after that.

Mineral/Rock	Sample
Coal	Light bulb
Fluorite	Toothpaste
Silica Sand(Quartz)	Glass, Fiberglass
Oil	Shoe, Backpack, Glasses, Sandwich Bag, Gas Can, Lipstick, Plastic Aspirin bottle
Calcite (crystal and Limestone)	Antacid
Tripoli	Silicone Caulking
Fullers Earth	Plain Kitty Litter
Galena	Car/Garden tractor battery
Sand and Gravel	Concrete/Asphalt
Limestone	Concrete/Asphalt
Shale	Brick
Sphalerite	Galvanized metal
Peat	Potting Soil
Chert/Flint	Arrowhead
Salt	Salt shaker