

# For Students and Teachers

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## The Rock Cycle in Michigan

Originally the Michigan Geological Survey developed and produced "The Rock Cycle in Michigan CD" for use by earth science teachers in the classroom.

All of the files that were on the CD – and many more – are now on the "deqgeologyinmichigan" web pages as part of the **Digital Geology Library**.

⌘ (deq geology in michigan - all lowercase - no spaces)

You can use the search function in Acrobat to find items of interest in the **Digital Geology Library Web Catalog**. There are PowerPoint, Excel and Zip files in addition to Acrobat PDF files. Pick and choose whatever you like - or have your students download files for you as part of an assignment.

## PowerPoint to the People

Below are some PowerPoint presentations that may be of interest and use in the classroom or as study aids. Microsoft does have a viewer if you do not have access to PowerPoint.

### ***The Rock Cycle in Michigan.PPT***

The Rock Cycle in Michigan - from this PowerPoint presentation students can learn about the geological principals which explain how the rock types are related, with Michigan references.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-RCIM.ppt](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-RCIM.ppt) (file size 4.0 MB)

### ***Something Rare Yet Common***

Do you know what the State stone is? If you want to learn more about the Petoskey stone this is worth checking out. (The theme song is sung by a coral group.)

[www.deq.state.mi.us/documents/deq-ogs-gimdl-SRYC.ppt](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-SRYC.ppt) (file size 20 MB)

### ***Honey, I Shrunk the Glacier***

What would happen if you were to shrink a glacier? Do not try this at home. Check this out first - learn about glaciers and landforms that can be found in Michigan. An exercise in modeling, scaling and coming to grips with - How thick, How big, and How much the glaciers were.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-HISTG.ppt](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-HISTG.ppt) (file size 5.0 MB)

## **How thick, How big, How much**

You can printout and use the sheets as is or have the students discover or modify the numbers to suit their interests.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-HThbHM.xls](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-HThbHM.xls) (file size 0.05 MB)

## **Geologic Time Line Helper *NEW!***

### **Geologic Time Chart**

A one page handout of the geologic time scale.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGT.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGT.pdf) (file size 0.05 MB)

### **Geologic Time Line Helper**

You can learn more about Geologic Time, fossils, evolution and non-renewable geologic resources found in Michigan by making a Time Line.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH.pdf)

(file size 0.84 MB)

### **Geologic Time Line Concentration**

A document that lets students jump from one part of Geologic Time to another. Can be used on-line or off-line, even without an internet connection.

The file can be printed and used by students for various activities like making your own Geologic Time Line.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH\\_con.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_con.pdf)

(file 2.32 MB)

### **Geologic Time Line - Geology**

See the changes in the distribution of Michigan bedrock geology.

[http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH\\_geo.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_geo.pdf)

(file size 1.60 MB)

### **Geologic Time Line Graphics pdf file**

This is a set of graphics to help student create their own model or as flashcards just to name a couple of uses.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH\\_Gpdf.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_Gpdf.pdf)

(file size 0.72 MB)

### **Geologic Time Line Graphics zip file**

This is a set of full sized graphics to help student create their own model or as flashcards just to name a couple of uses.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH\\_Gzip.zip](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GTLH_Gzip.zip)

(file size 3.56 MB)

## **Paper Teeth *NEW!***

Students can learn about the differences between mammoth and mastodon teeth. One model uses an empty egg carton, the other uses "Paper Teeth."

### **Egg Carton**

The Egg Carton model by itself A series of question related to mammoths and mastodons are included.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-PT\\_EC.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-PT_EC.pdf)

(file size 0.65 MB)

### **Paper Teeth**

The make your own Paper Teeth. A series of questions related to mammoths and mastodons are included.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-PT\\_PT.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-PT_PT.pdf)

(file size 0.06 MB)

### **The Whole Tooth**

Work with both the Egg Carton and Paper Teeth models. A series of question related to mammoths and mastodons are included.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-PT\\_WT.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-PT_WT.pdf)

(file size 0.76 MB)

### **Answers**

Answers to the questions are available from Steven E. Wilson via [wilsonse@michigan.gov](mailto:wilsonse@michigan.gov)

## **Michigan Fossils Poster**

### **Michigan Fossils Poster Small**

Michigan Fossils, 2 pages, 8 ½ by 11 format, good for individual student distribution. The poster and text are meant to be printed as separate sheets for side by side use, black and white.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMFPF.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMFPF.pdf)

(file size 0.34 MB)

### **Michigan Fossils Poster Big**

Michigan Fossils, 12 pages, 8 ½ by 11 format, good for large displays, mosaics or dioramas. The poster and text are meant to be printed as separate sheets for side by side use, black and white.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMFPB.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGMFPB.pdf)

(file size 0.34 MB)

## **Michigan Fossils Poster Flash Cards Small**

2 pages, 8 ½ by 11 format, good for individual or team student use. The flash cards and text are meant to be printed (or copied) front-to-back, 8 ½ by 11 format black and white.

<http://www.deq.state.mi.us/documents/deq-ogs-gimdl-FCFML.Pdf>  
(file size 0.2 MB)

## **Michigan Fossils Poster Flash Cards**

Size Michigan Fossils Poster Flash Cards 'Big Size', larger pictures, 12 pages, 8 ½ by 11 format, good for large displays, mosaics or dioramas. The flash cards and text are meant to be printed (or copied) front-to-back, black and white.

<http://www.deq.state.mi.us/documents/deq-ogs-gimdl-FCBIG.Pdf>  
(file size 1 MB)

## **Michigan Fossils Poster Fill in the Blanks**

Student activity to help them remember the information about the fossils.

<http://www.deq.state.mi.us/documents/deq-ogs-gimdl-MFPFITB.Pdf>  
(file size 0.61 MB)

## **Petoskey Stone 4 Page Handout**

Find out about the lore, history and geology of the Michigan State stone *Hexagonaria percarinata*.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGPS.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGPS.pdf)  
(file size .57 MB)

## **Geologic Time**

A one page handout of the geologic time scale

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGT.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGT.pdf)  
(file size 0.050 MB)

## **Word Searches**

A standard lead-in or review especially for younger students. Collect all 10: Igneous Rocks, Metamorphic Rocks, Sedimentary Rocks, Rock Cycle, Rock Forming Minerals, Rock Types and Names, Eight Great Elements, Fossil Names (from the Michigan Fossils Poster), Geologic Time and General Interest.

<http://www.deq.state.mi.us/documents/deq-ogs-gimdl-Words.Pdf>  
(file size 0.13 MB) Answers to the questions are available from Steven E. Wilson via [wilsonse@michigan.gov](mailto:wilsonse@michigan.gov)

## **Oldest Fossil**

Information about the oldest macrofossil and it comes from Michigan!!

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGOF.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGOF.pdf)  
(file size 0.04 MB)

## **Greenstone**

Information about the State Gem Stone.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGS.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGGS.pdf)  
(file size 0.30 MB)

## **Salt Brochure**

Brief introduction to the geology and history of this unique and very important resource.

[www.deq.state.mi.us/documents/deq-ogs-gimdl-GGSB.pdf](http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGSB.pdf)  
(file size 0.16 MB)

## **Minerals Found in Michigan**

Listings of minerals found in Michigan sorted by county and mineral name. The list is based on the revision of the 'Mineralogy of Michigan' (2003).

<http://www.deq.state.mi.us/documents/deq-ogs-gimdl-MINFIM.Pdf>  
(file size 60 KB)

## **Rocks Found in Michigan**

Find out what rocks (igneous, metamorphic and sedimentary) are found in Michigan.

<http://www.deq.state.mi.us/documents/deq-ogs-gimdl-GGRF.pdf>  
(file size 0.06 MB)

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Files in Adobe **PDF** format need [Acrobat Reader](#).

Readers for Excel are available at [Microsoft.com](#).

Go to the [OGS](#) web page

Go to the Digital Geology Library [Web Catalog](#).

Please direct comments, changes, corrections, additions, contributions, ideas and/or suggestions to: Steven E. Wilson via email [wilsonse@michigan.gov](mailto:wilsonse@michigan.gov)