



# Rocks of Ontario

THROUGH FIRE, EARTH AND WATER

## Ontario Geological Timeline

OLDEST ROCKS (age, million years) L·A· -V·b- <P·t· (P·t·) >·a >·a

4600 ..... 4000

### HADEAN Oceans of Fire

ΔCL·P·  
V P P P  
LP·U·A·

**The Sudbury Structure:** A large meteorite hit the Earth and created the Sudbury impact crater.

Y Vn <P·t·: V <P·t· Γ° <A·L·U· <P·t· V·d·C· b P P  
D·S·P· <P·t· Γ° <P·t· b <V L·b·L·P· Y Vn·



..... 2500

### ARCHEAN Life is Small

σ·C· b <N <P·A·  
P <A·S·P· ALN·A·

**Canadian Shield:**

Large region made of granites and greenstone rocks – the oldest rocks and middle age rocks of Ontario.

<A·L· <P·t·: V Γ·U·L· b·S·A·  
<P·t· V·L· V·t· V·t· <P·t· -  
L·A· -V·b- <P·t· D·C D·U·L·  
<P·t·

**Granites:** The first crust.

Y·S·A· <P·t·: σ·C· L·b·A·  
<P·C·b·G·

**Greenstone Rocks:**

Formed from Ontario's first volcanoes – often contain valuable mineral resources.

V·t· V·t· <P·t·: b P D·S·P· Δ·A·  
σ·C· b <A·L· <P·t· <P·t· D·U·L·  
<P·t· - <P·t· Γ·N·e <P·C  
L·A·L·b b <P·U·P·



..... 1850

### PROTEROZOIC We Can Breathe

σ·C· ALN·A·  
P·b·P·C·e·e· P P P·t·

**Emerging Earth:** The land was pushed and pulled into pieces, creating oceans, volcanoes and mountains. Early life created oxygen.

V <N J·P·L·b <P·t·: P·b·L·N·L·b <P·t· V·P P <N  
Δ·C·b·P P·P·L·P·t· P·C <P·t·: P·t· Δ·P·t· P P P·S·P·L·b  
ALN·A·



..... 541

PHANEROZOIC Life Gets Big											
Paleozoic <P·t·A·						Mesozoic Γ·D·P·A·			Cenozoic V·D·P·A·		
Cambrian 9·C·L·A·	Ordovician D·b·J·A·P·A·	Silurian P·T·D·L·A·	Devonian N·D·S·A·	Carboniferous b·b·S·V·n·	Permian >·P·A·	Triassic L·A·P·	Jurassic J·S·P·	Cretaceous V·C·P·A·	Paleogene V·D·P·	Neogene σ·D·P·	Quaternary b·J·b·L·



Coral  
d·S·T·

Trilobite  
L·A·<A·

**Tropical Seas:** Warm, shallow ancient seas periodically covered most of Ontario, leaving behind many animal and plant remains seen today as fossils.

S·A·P· P·P·L·P·: V P·b·A·P·P·, V <·b·S·P·  
V·V·b·P P·P·L·P· <P·t· 9·b· Γ·P·A· D·U·L·  
V σ·P·>·U· V·P P <N Δ·C·b·P <P·t·  
<A·L·P· P·C 9·b· b P σ·C·A·P· b  
Γ·P·L·U·P <P·t·



**Erratic Boulder:** Boulder moved to different area by glaciers. The rock type of the erratic boulder and the rock under the boulder are often different.

e·e·b·A· Γ·S·P·N· <P·t·: Γ·S <P·t· V·A·J· Δ·L·<A·d·<A·  
Γ·S Γ·b·L· <A· <A· J·A· <P·t· P·C <A· <P·t·  
<C·Γ· Γ·S <P·t· b Δ·C· e·e·b·A·d·P·A·

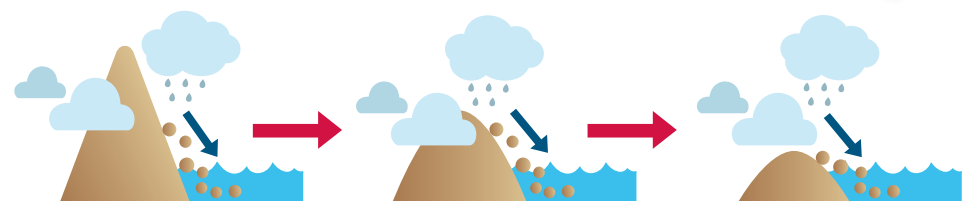
**Striations:** Long, straight parallel lines or gouges formed as glaciers scratched the underlying rock.

b·b·P·A·d·P· <P·t·: b·P·P·V· V <N e·σ·b·<A·  
<P·t· P L·L·P·b·V·P·

**Weathering:** Wind, water, ice, heat and pressure break down rocks. b <A·L· Δ·S P·S·b·: σ·L, L·b·Γ, P·S·U· V·b·σ·A· b L·b·D·P· <P·t·

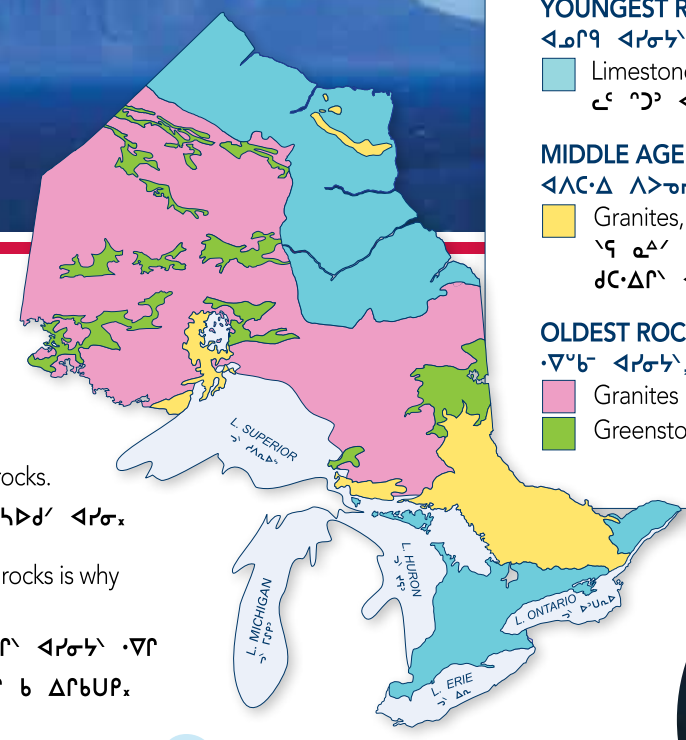
**Erosion:** Movement of broken rocks. This wearing away of the rocks is why Ontario no longer has mountains as high as the Himalayas.

Γ·C·D·P·A·: b <A·L·L·P·C·σ·L· b L·d·<σ·L· <P·t·: V P Γ·C·D·P· <P·t· V·P·  
V·b Δ·C·b·P <P·t· C·L·P· b Δ·L·P· Γ·S·P <P·t· <P·t· V·L·P· b Δ·P·b·U·P·



..... 252

..... 66



- YOUNGEST ROCKS, Phanerozoic**  
Δ·P·P· <P·t·, V·P·P·A·  
Limestones, sandstones  
L·t· V·t· <P·t·, P·b·A· <P·t·
- MIDDLE AGE ROCKS, Proterozoic**  
Δ·L·C·A· L·>·σ·L· <P·t·, P·U·P·A·  
Granites, volcanic rocks, sedimentary rocks  
Y·S·A· <P·t·, <P·t·A· <P·t·, b P  
d·C·A·L· <P·t·
- OLDEST ROCKS, Archean**  
V·V·b- <P·t·, σ·C· <P·t·  
Granites Y·S·A· <P·t·  
Greenstone rocks V·t· V·t· <P·t·



YOUNGEST ROCKS (Today)  
Δ·P·P· <P·t· (Δ·P· b P·S·b·)