# Rocks of Ontario

ONTARIO BENEATH YOUR FEET DOUGD OF LOCALCE

GEOLOGY IS THE STUDY OF THE EARTH • MINERALS ARE SOLID MATERIALS THAT OCCUR NATURALLY • ROCKS ARE MADE UP OF TWO OR MORE MINERALS ΓΡΟ ΔΙσοΔ ΦΦΕΟΔΡΑΘΙΑΘΑ ΡΑΣΓΑΦΑΘΑ ΑΡΡΡ • ΔΙΦΡ ΓΑΡΡΙΑΡΙΟΝ ΔΑΓΡΣΡΟΝ • ΡΑ ΠΡΟΦ ΔΙΦΡ ΦΟΝ ΑΓΕΝΡΑΤΙΡΡΦΑΙΟΝ

## Rock Types No.A 4766

Igneous rocks cool from magma (inside the Earth) or lava (outside the Earth).

### $\Delta$ b $\sigma$ bb

Ρά ΠριΔ άγσι βσυβλργριάι άσιρι **βΡ-Δρ ΔΕ -ΔΡΟΒΓΡΡ ΒΛΑΡΓΓ-ΔΡ** ρ∇~9Π·ΔΡΓΥΓ ΔΥΦ.

Metamorphic rocks are rocks that have been changed by heat and/or pressure.

### **TC·L**9Ab

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Sedimentary rocks are formed from bits of other rocks or shells of marine life laid down in water bodies.

### ρΓ·ΔοϽ·ΔΛρωρι

Dd ΠΔ·Δ ΔΖσι ΛΓL·ΔοΟ·ΔΛΡC·Δι dCPhi Δλαρ ΔΓαΝΕ ΡΩΡ·Δρ·Δρ.

### Quartzite

Hard, light-coloured rock changed from sandstone under high heat and/or pressure.

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Granite

Rock with larger

pink, black and

470.4C.4p

white mineral grains

formed by magma cooling

under the Earth's surface.

dre prrehavavaver Ligh,

bσCbΛΡγ·Δι ΔαLbΓbι **ΡΑΝΡΥΙΦΕΝΤΡΙΦΙ.** 

LPO-GV67, . GV. PV67 Pbpalr ροζρι ⊲ια ∇ρ ρυροΛριι qL ∇PLd~d~l.

### Rhyolite

Light-coloured rock, with small mineral grains, cooled from lava erupted from volcanoes.

### 97467

0 0 0

D·499 PD9649 PV766 b<∽PUb.

### Limestone

A light coloured rock formed from the remains of animals and shells on the bottom of a warm, shallow ocean.

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Lage paylorph

### Sandstone

A light coloured rock formed from grains of sand.

### D.40944

<u>6.4√4√6, 44° 660, 67° 6.4° 66°</u>



A light- to dark-coloured rock, with very small mineral grains, formed from silt, clay or mud. It easily breaks into flat pieces.

6.474464 VQ2 PPPAVAV64 PP940.4₽ ο·◊•◊• ΡΡΓΡΥΡΓΡ• ◊ΛΡΦ ΘΕ ◊ΛΑΡΦ. 



A dark-coloured rock, with small mineral grains and pillow-like shapes, that formed from lava erupted under water from volcanoes.

### <.500

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# ΔΦΛΡΥ·ΘΦ, ΡΡΓΡΛΡ ΘΦΓΦΠΓ ΒΡΡΓΚΥΡΟΦ ΔΥΘΟ ΘΥΘΙΑ ΘΦΓΙΘΓΟ.

Rocks showing multi-coloured layers formed under high heat and/or pressure.

Ρα ΠΦ·Δ ΔλΦρ ρσσρ·Δσαλ·Δρ ρλ ΔΔΕ·Δνδλ·Δρ PDCDND. 40 Pb0Vb4. 4r dr pra24. 4r

Sparkly light-coloured rock changed from limestone under heat and/or pressure.

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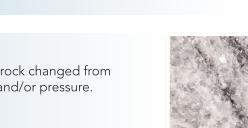
Dark rock with larger mineral grains formed by magma cooling under the Earth's surface.

LPN-AV65 A50 P4 D.A09.40 P6Dac DSDLbb JalbFbb.









4600 -

**HADEAN Oceans** of Fire

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bΡΓΔΓσbU<sup>6</sup> \CVα ·⟨αΔbα.

2500



9509ª 4PLe VFUL·Ve



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

LYNAVb $\lambda\sigma$  Ah $\sigma$  CV $\sigma$ A Ah $\sigma$ 4C· $\sigma$ P 64 Jalbr 979 - 100 979 64 DAC 700 DDL DOUGD.

Granites: The first crust.

**4γα·4C·40**: L·40 σCL bσL<sup>6</sup>b·Δγ0

### **Greenstone Rocks:**

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

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

**PROTEROZOIC** 

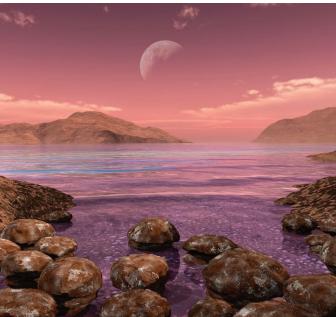
We Can Breathe

1850

<5225AP **ρ**Ρ<**ρ**Сα**J**Γα

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

**βΡϤσΙΡΙΒΕ ϤΡ**: ϤΡ Ρ<<·ΊΛ<sup>ω</sup>ἀU ΫΡϤσΡΛ<sup>ω</sup>ΡΥΕ, ΫΡϤσ DΥDL6ρα ρΓ6Γα, ΦαΓ·ΦΓα 6< ΦΡυρα 64 ·ΦΓα, σCL ΛΕΠΖ·Δο bσC·bb PdσdbLbo bDP<PCaJaσ·db.



Weathering: Wind, water, ice, heat and pressure break down rocks.

**b4Δ1.7<b:** b20eb. σΛbb. Γ.bΓbb. bPJUb b4 bLd5dUb bDC<<.94.46 47σb.

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

**βρλόρλρου:** βράσ λγιδριδορίδι βλιβλρορίδι δίτσε βράσ λγιδιδροβίδι  $\Delta$ L $\supset$ 5\  $\Delta$ Pb.



PHANEROZOIC Life Gets Big <DSYP LUP® VLUY.V₽

Mesozoic 777Δb Paleozoic <>>><Db Cenozoic אשל של Cambrian Ordovician | Silurian | Devonian | Carboniferous | Permian | Triassic | Jurassic | Cretaceous | Paleogene Neogene Quaternary ₽VACP **በ>**σታ٩ b<sup>5</sup>>σ>ሲ<sup>5</sup>  $\Lambda$  $\Gamma$  $\Gamma$  $\Phi$ CUQYDJGZb 6000<->>^a  $\sigma$ D $\Gamma$  $\circ$  $\mathcal{A}_{\mathcal{O}}$ 20070



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

**^^^ b\P^-dbFb +^e:** 9b  $LY \circ D \circ UVD \circ DV$ ∇ρρ∾∙◊ρΓι σΛ. Λσι ρ∢σ Διου <Παጋα b·</ri> ΡΠοσο ΔΓλσιανδιλο Φαι ΡΕλ.ρρ.

Ice Ages: During the most recent ice age, glaciers covered most of Ontario, up to 4 km thick! As glaciers moved forward, they carved out the Great Lakes. Evidence of the melting of glaciers is seen today on land as striations and erratic boulders.

bp rdr.dp: Lpb bp rdr.dp<a. 9b r.d > DaUab p pr r.br.da 9b 4 pcross darpdr.dp d<0 b $d\sigma\Lambda\Gamma$  · $db\cdot\Delta^{\circ}b^{\downarrow}$  PPT· $b^{\downarrow}$  FAL bPd\_PP DLbPa PP $\Delta b$ aa. Dadi a·ba bP $\Lambda$ S σσρη ρυγιρι ργι ς ργυγισι στο ρε ρυγγισι δυστορ.



**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.

YOUNGEST ROCKS, Phanerozoic

MIDDLE AGE ROCKS, Proterozoic

975.9C.96. >cbob 9756. PF-47-4V6~Pr 440

Greenstone rocks 25.979

Granites 475.4C.46

Granites, volcanic rocks, sedimentary rocks

OLDEST ROCKS, Archean ٦٥% ४२७७, ४९०४०

**4/4 10% 4/6%** <2027/6

**Ρ°Ρ 4/σι**. <ΦΡΥΔ<sup>ι</sup> Limestones, sandstones ₽4647₽° ₽·4947₽₽

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

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YOUNGEST ROCKS (T