

# OBSIDIAN

**WHAT IS IT?** Obsidian is a natural volcanic glass—remarkably similar to the glass in your windows. It is not made of crystals, like other rocks are, but has the disordered internal structure of a liquid.

**HOW DOES IT FORM?** When a lava is especially rich in silica ( $\text{SiO}_2$ ), it has the stiff consistency of taffy or cookie dough. This is because the silicon (Si) and oxygen (O) atoms stick together, forming a three-dimensional "web" that hinders movement inside the liquid. Because the lava cools fairly quickly above ground, it hardens to rock before its atoms have time to move about and organize themselves into the symmetrical, closely-packed structures of crystals.

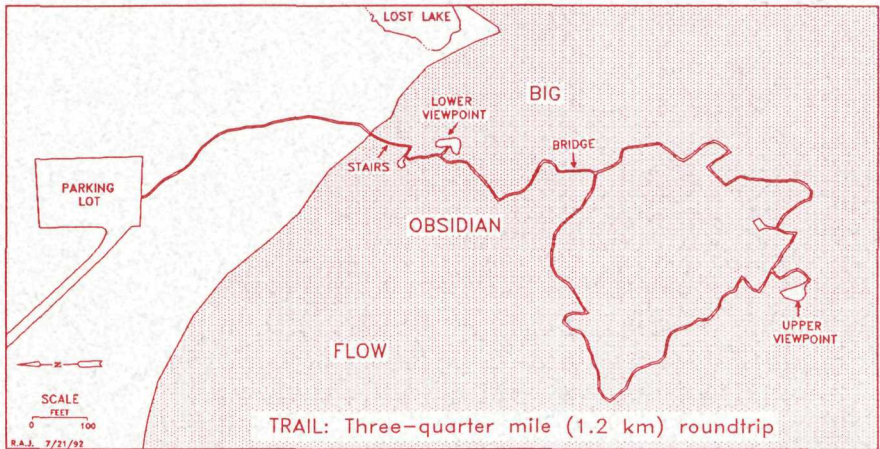
**WHAT IS IT USED FOR?** Native American Indians have fashioned knives, arrowheads, and other sharp tools from obsidian for the past 10,000 years or more. High-quality obsidian from Newberry Crater was traded throughout the Northwest. Because obsidian blades are sharper than steel, they cause little scarring; some doctors use them today for delicate operations, such as eye surgery.

**WHY CAN'T I TAKE A PIECE HOME?** Newberry National Volcanic Monument was established by the U.S. Congress on Nov. 5, 1990, in order to "*preserve and protect for present and future generations Newberry's remarkable geologic landforms.*" Each of us plays a vital role in caring for our National Monument. Damaging or removing even a small sample of rock degrades our resource — and it's illegal (36 CFR 261.9 *a* and *b*). Please report any violations you see to a Forest Service ranger. Thank you.





# THE BIG OBSIDIAN FLOW



**AGE:** 1300 years, Central Oregon's most recent eruption

**LENGTH:** 1 mile (1.6 km)

**AREA:** 1.1 square miles = 2.9 square km = 640 football fields

**THICKNESS:** Average of 150 feet = 45 meters = 17 stories high

**COMPOSITION:** Similar to most window glass — about 73% silica ( $\text{SiO}_2$ ), with major amounts of aluminum and sodium.

**COLOR:** Black, probably due to small inclusions of iron oxide (magnetite).

**ERUPTION TEMPERATURE:** About 1600°F (900°C)

**FLOW SURFACE:** About 10% obsidian, 90% pumice (gray to white, frothy obsidian)

Don't Be A  
Rock Raider

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