Like Sacajawea, Matterhorn is composed mostly of marble.

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As you climb away from Falls Creek a view to the southeast opens and Sacajawea, the Wallowas' highest peak at 9,838 feet, appears. It's a gray-colored mountain, composed almost entirely of marble. To geologists, marble is nothing more than limestone that has been metamorphosed — recrystallized by heat and some pressure. The light-colored, gray rocks that comprise Sacajawea, Matterhorn and the lower portion of Hurricane Divide to the west are all limestones that were metamorphosed by the intrusion of the "granites" that form the core of the Wallowa Mountains. These limestones (now marbles) are about 200-230 million years old. In places where they are less altered they contain fossils, including corals and "clams." But fossils in the rocks of Sacajawea, Matterhorn and Hurricane Divide have been obliterated by heat and pressure.

In addition to being the highest peak in the Wallowas, Sacajawea also rises 1.2 vertical miles (6,377 feet) from its base on Hurricane Creek. The climber's website Peakbagger.com says it is the second most prominent peak in Oregon. Only Mount Hood rises higher above its surrounding terrain.

As the landscape opens to views of Hurricane Divide west of the trail, you'll see dark layered rocks atop the gray marbles. These are sedimentary rocks — mostly sandstones that, like the marbles beneath them, have been heated and metamorphosed. The marbles and banded or layered "sandstones" appear along the trail, especially at stream crossings.

You'll also notice narrow streaks of dark red-brown rocks that slice through the gray marble. These are basalt. Specifically, they are the fissures or "dikes" that allowed dark, fluid, iron-rich basalt lavas to reach the surface (far above today's peaks) and erupt. The eruptions — about 14-16 million years ago — produced the Columbia River basalts, the lavas that covered the Columbia Basin, and flowed all the way to the Pacific Ocean.

You can get up-close and personal with one of these dikes at Slick Rock Creek. About 3 miles into the hike, the trail switchbacks and then creeps along above a steep, narrow gorge sliced into marble before leading to Slick Rock Creek. Here, a waterfall cascades over a dark cliff. The dark cliff at Slick Rock Creek is part of a Columbia River basalt dike.

Beyond Slick Rock Creek you'll find patches of open meadows that open views of granite peaks to the south, and finally, the marble face of Matterhorn. The dark lines that mottle its north face are more Columbia River basalt dikes. The vegetation begins to change. Subalpine fir increases, Douglas fir decreases and Ponderosa pine vanishes. Large Engelmann spruce are the patriarchs of the valley floor.

"Granite" outcrops don't appear along the trail until about 8 miles into the 10-mile trek, at the threshold of the Lakes Basin. These black-and-white, speckled rocks are about 120 million years old — much younger than the greenstones, marbles and "sandstones" but much older than the basalts. Granites, strewn with dark red-brown basalt dikes form the core of the Wallowas, and occupy the entirety of the Lakes Basin.

If you venture into the Wallowas in the fall, be sure you are prepared for cool to cold, wintry mountain weather. This means base layers and mid-layers of clothing that will keep you warm. Also, waterproof, insulated boots, hat, warm gloves, warm and waterproof jacket(s), fire-starter and stove, water, flashlight and/or headlamp, shelter and extra food at a minimum are in order.

Be sure to let someone know where you are going, and when you will return.