Unit 04 Geomations: The Rockies

We've been looking at how spreading ridges under the ocean make seafloor, which moves away from them and eventually gets old and cold and sinks down. And it will be sinking down beneath a continent, often, and it will scrape things off to make the Olympic. And then it will have a big volcanic range such as the Cascades, Mount Saint Helen's, and so on.

And they will be sitting there next to the ocean, which we can draw in. And coming up from below, there will be melt to make seafloor out here. And coming up from below there will be materials that erupt at the volcanoes like that.

Now, that works all fine, but what happens when there is a little bit of a swinging down of the slab? We know that the slab is moving away from the seafloor spreading ridge, as I show here. But the slab really does have a little of this swinging down, as well, in some cases. And the continent moves to catch up with it.

And so pretty soon, the continent is going to end up getting close to the spreading ridge. And the stuff going down is then not going to be cold. It's going to be getting warmer.

And when that happens, we have to erase this, because now the materials don't want to go down anymore. You'll get something that goes more like this, with it running right underneath the edge of the continent and staying high. And where it runs under the continent and stays high, you'll get a lot of rumpling, a lot of pushing happening in this way. And so then you might expect to see something that gets pushed up like this. And we're reasonably confident that that sort of push up is what the Rockies are.

In a few cases, as in the west, where the San Andreas Fault is, in fact, the subduction zone has been pushed all the way out and has run over the spreading ridge. And the subduction zone and the spreading ridge annihilated each other. And then you've got the San Andreas Fault.