

Features Analysis Chart—Earth’s Changing Surface

Teacher Name: _____

Circle One: PRE POST

Describe the assessment item: Question 2 on the pre-post assessment for the Earth’s Changing Surface unit: Describe in pictures and words how mountains can form.

Describe the ideal response: Earth’s surface (crust) is made of large, thin, interlocking sections called *tectonic plates*. These plates float or ride on a thick layer of hot, slow-moving rock inside Earth. Mountains can form when two similar plates collide. This causes Earth’s surface to crumple and lift up the land. Sometimes when plates collide, one plate sinks underneath the other and melts. This melted material can erupt on Earth’s surface as a volcano. After many volcanic eruptions, the cooling lava slowly builds up the land surrounding the volcano.

Features of a Complete, Accurate Response	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
1. Crustal, or tectonic, plates cover Earth’s surface.																																						
2. Mountains form when two of Earth’s crustal plates collide.																																						
3. Crustal plates float on a layer of hot, slow-moving rock.																																						
4. Crustal plates move slowly around Earth’s surface.																																						
5. Most often, plate movement occurs too slowly to be seen or felt.																																						
6. Volcanoes can form mountains.																																						
7. Volcanoes can form when plates collide, causing one plate to slide under the other and melt.																																						
8. Lava from an erupting volcano cools and becomes hard rock.																																						
9. With each eruption, the land around a volcano is slowly built up.																																						

Features Consistent with Student Misconceptions/Problems	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
1. Mountains are made of molten rock. OR All mountains are volcanoes.																																						
2. The movement of tectonic plates causes uplift of mountains, but “bubbles” or plumes of magma unrelated to plate movement cause volcanic mountains.																																						
3. Tectonic plates are located far beneath Earth’s surface.																																						
4. Volcanoes or earthquakes can cause mountains to form rapidly.																																						
5. Volcanic eruptions happen when a mountain “opens,” and they stop when the mountain “closes.”																																						
6. Tectonic plates are small segments in Earth’s crust but don’t make up the entire crust. These pieces can collide to create individual mountains.																																						
7. Wind and rain cause mountains to form.																																						
8. Erosion and/or deposition cause mountains to form.																																						