

**Dynamic Planet**  
**Metea Valley High School**  
**(KEY)**

Part 1. Multiple Choice/True-False (35 points total, 1 point for each question)

1. A
2. A
3. A
4. C
5. B
6. B
7. B
8. C
9. A
10. D
11. A
12. A
13. C
14. A
15. A
16. A
17. B
18. B
19. A
20. C
21. D
22. C
23. C
24. B
25. A
26. D
27. A
28. B
29. A
30. B
31. A
32. B
33. B
34. C
35. B

Part 2. Matching- Match the scientist with the theory/contribution (10 points total, 1 point for each question)

1. I
2. J
3. G
4. D
5. B
6. H
7. C
8. F
9. A
10. E

Part 3. Fill in the Blank (16 points; 1 point for each question; ½ point awarded for each blank in a question if there is more than 1 blank present.)

1. *Oceanic crust* has a density of **2.9 g/cm<sup>3</sup>**; *continental crust* is **2.7 g/cm<sup>3</sup>**
2. **0.66** to **8.50** centimeters per year
3. Rodinia
4. Pahoehoe
5. 'A'a
6. Transform fault
7. Transform fault
8. Fold mountains
9. Embryonic stage
10. John Tuzo
11. Hotspots
12. Gutenberg
13. Iron
14. Felsic/Rhyolitic
15. Isostatic Rebound
16. Any value between 4000 and 5000

Part 4. Short Answer/Free Response (25 points total; 5 points each; point distribution based on quality of answer)

1. Convection is the heat transfer by circulation of currents from one region to another. Mantle convection takes place in the interior of our Earth. The inner core is the source of the heat, and from there convection currents slowly carry heat up through the mantle towards the surface of the Earth. At this point, the cooler mantle near the surface sinks down to the interior of the Earth, where it again heats up. Thus, a cyclic motion of convection currents is developed.
2. Shield volcanoes have more liquid lava while stratovolcanoes have more viscous lava. Stratovolcanoes also have much more explosive pyroclastic material than shield volcanoes. Both shield volcanoes and stratovolcanoes are very large and emit lava out of a central vent. Examples of shield volcanoes include the Hawaiian volcanoes. Examples of stratovolcanoes include Mount Baker, Mount Rainier, Mount St. Helens, Mount Hood, and Mount Shasta.
3. An aulacogen is the failed arm of a triple junction in a rift system. It exists due to the formation of a triple junction under a continental plate that starts a 3-way breakup of that continental plate. One arm stops spreading or fails - the aulacogen.
4. The Wilson Cycle is the opening and closing of ocean basins caused by plate tectonics. The steps are: 1. A continent rifts when it breaks up. 2. As spreading continents open, passive margin cools and sediments accumulate. 3. Convergence begins; an oceanic plate subducts, creating a volcanic chain at an active margin. 4. Terrane accretion-from the sedimentary wedge welds material to the continent. 5. As two continents collide orogeny thickens the crust and building mountains. 6. The continent erodes, thinning the crust.

5. (½ point per tectonic plate)

