EVENT PARAMETERS: Team of 2 students maximum (50 minutes)
10 minutes per station!

- Each team may bring four 8.5" x 11" sheets of paper that may contain information on both sides in any form from any source.
  - Each participant may also bring a "non-graphing" calculator.
  - Students will demonstrate an understanding of the large-scale processes affecting the structure of Earth's crust.
  - Participants will be presented with five timed stations. Each station will be 10 minutes.

SCORING: Points will be awarded for the quality and accuracy of responses. Ties will be broken by the accuracy and/or quality of answers to pre-selected questions.

<table>
<thead>
<tr>
<th>TEAM Number: ____________</th>
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<tr>
<th>Station</th>
<th>Regular Points Earned</th>
<th>Tie Breaker Points Earned</th>
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<tbody>
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<td>A</td>
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<td>B</td>
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<td>D</td>
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<td>E</td>
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</table>
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A. History of the theory of plate tectonics, including key scientists.
1. _____ (1 pt)
2. _____ (1 pt)
3. _____ (1 pt)
4. _____ (1 pt)

5. (5 pts) What was the original evidence for the preliminary theory and where was it collected?
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________

6. _____ (1 pt)
7. _____ (1 pt)

8. (5 points) Give an in-depth explanation of the modern evidence for Plate Tectonic Theory.
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________

9. *(TB 3 pts) How is the acceptance of the theory of Plate Tectonics similar to the currently debated scientific theory of Global Warming?
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________

10. *(TB 3 pts) Explain the relationship between Pangaea, Panthalassa, Gondwana, Laurasia and the current known tectonic plate arrangements.
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
___________________________________________________________________________________________
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Team Number: _______________

Station A: 1_2_3_4_5_6_7_8 = ________ 9__10__ = ________
Total Regular ____/ 16 TB Points ____ out of 6
Structure of the Earth: Using the picture, identify each portion of the Earth and answer the questions that are pertinent to each area.

A. (1 pt each) What is this layer of the Earth called?
1-A: ________________________________
2-A: ________________________________
3-A: ________________________________
4-A: ________________________________
5-A: ________________________________

B. (1 pt each) What is the composition of this layer of the Earth?
1-B: ________________________________
2-B: ________________________________
3-B: ________________________________
4-B: ________________________________
5-B: ________________________________

C. (1 pt each) How thick is this layer of the Earth?
1-C: ________________________________
2-C: ________________________________
3-C: ________________________________
4-C: ________________________________
5-C: ________________________________

D. (1 pt each) What are the physical characteristics of this layer of the Earth?
1-D: __________________________________________________________________________
2-D: __________________________________________________________________________
3-D: __________________________________________________________________________
4-D: __________________________________________________________________________
5-D: __________________________________________________________________________

E. *(TB 1 pt each) Why is this layer of the Earth comprised of these elements and why are its physical characteristics the way they are?
1-E: __________________________________________________________________________
2-E: __________________________________________________________________________
3-E: __________________________________________________________________________
4-E: __________________________________________________________________________
5-E: __________________________________________________________________________

Team Number: _______________

Station B: 1ABCD____2 ABCD ___3 ABCD ___4 ABCD ___5 ABCD ___ = _____       TB 1E___2E___3E___4E___5E___ = _______

Total Regular ___/ 16              TB Points ____/ 5
For the first part of this station, use the Figure 1 to answer Parts A through F.

A. (0.5 pt each) What is the name of this plate and how large is it (square meters)?

1. _____________________________ 8. _____________________________
2. _____________________________ 9. _____________________________
3. _____________________________ 10. _____________________________
4. _____________________________ 11. _____________________________
5. _____________________________ 12. _____________________________
6. _____________________________ 13. _____________________________
7. _____________________________ 14. _____________________________

B. (0.5 pt each) What type of plate is it (continental, oceanic, combination)?

1. _____________________________ 8. _____________________________
2. _____________________________ 9. _____________________________
3. _____________________________ 10. _____________________________
4. _____________________________ 11. _____________________________
5. _____________________________ 12. _____________________________
6. _____________________________ 13. _____________________________
7. _____________________________ 14. _____________________________

C. (0.5 pt each) Which direction is each plate currently moving (W, E, N, S, SW, SE, NE, NW)?

1. _____________________________ 8. _____________________________
2. _____________________________ 9. _____________________________
3. _____________________________ 10. _____________________________
4. _____________________________ 11. _____________________________
5. _____________________________ 12. _____________________________
6. _____________________________ 13. _____________________________
7. _____________________________ 14. _____________________________

D. (0.5 pt each) What type of boundaries does it have? (If there is more than one type, state the different types.)

1. _____________________________ 8. _____________________________
2. _____________________________ 9. _____________________________
3. _____________________________ 10. _____________________________
4. _____________________________ 11. _____________________________
5. _____________________________ 12. _____________________________
6. _____________________________ 13. _____________________________
7. _____________________________ 14. _____________________________

Go to back of answer sheet to complete this section.

Team Number: __________
Station C: A____ B____ C____ D____ E____ F____ G1-5,7____ = _____
Total Regular ____/ 51
TB 6____, 8____ = _____
TB Points ____/6
E. (0.5 pt each) What type of geologic events or features are generated as a result of the boundary type for each plate?

1. ______________________________________
2. ______________________________________
3. ______________________________________
4. ______________________________________
5. ______________________________________
6. ______________________________________
7. ______________________________________
8. ______________________________________
9. ______________________________________
10. _____________________________________
11. _____________________________________
12. _____________________________________
13. _____________________________________
14. _____________________________________

F. (0.5 pt each) What type of rock is most common in this plate?

1. ______________________________________
2. ______________________________________
3. ______________________________________
4. ______________________________________
5. ______________________________________
6. ______________________________________
7. ______________________________________
8. ______________________________________
9. ______________________________________
10. _____________________________________
11. _____________________________________
12. _____________________________________
13. _____________________________________
14. _____________________________________

Section G - For this section, use the diagrams supplied as Figures and your most reliable information.

1. (1 pt) Who was the scientist that linked the formation of the sea floor to the developing Plate Tectonic Theory?
   a. Harry Hess  
   b. Rachel Carson  
   c. Emile Argand  
   d. Kurt Wegener  
   e. Alfred Wegner  
   f. Arthur Holms  
   g. Alexander Du Toit  
   h. Charles Darwin  
   i. Madame Curie

2. (2 pts) Which plates are currently growing? (Use Figure 1) _________________________________________

3. (2 pts) Which plates are currently shrinking? (Use Figure 1) _________________________________________

4. (1 pt) Where is the oldest seafloor located (Use Figure 2)? _________________________________________

5. (1 pt) Where is new seafloor currently forming (Use Figure 2)? _______________________________________

6. *(TB 3 pts) Explain what is going on in this picture and how does it relate to plate tectonic theory? (Refer to Figure 3)

7. (2 pts) What type of geologic features does Tectonic plate theory explain? (Use Figure 3)

8. *(TB 3 pts) What is the correlation of the movement of the plates to the geologic feature?
Station D 2017 (10 Minutes)  
TEAM __________________

Each question is worth 1 point
1. ____
2. ____
3. ____ (*TB 1 pt)
4. ____
5. ____
6. ____
7. ____
8. ____ (*TB 1 pt)
9. ____
10. ____ (*TB 1 pt)
11. ____
12. ____
13. ____
14. ____
15. ____
16. ____
17. ____
18. ____

Team Number: ______________

Station D: 1_2_4_5_6_7_9_11_12_13_14_15_16_17_18_ = __________  
TB 3___, 8__, 10- = ____  
Total Regular ___/15  
TB Points ___/3
Short Answer: Answer using complete sentences.
1. (2 pt) How do the three types of convergent boundaries differ from one another?

2. (2 pt) Explain the process of subduction.

Examine the diagrams of boundaries and answer the questions that follow.

3. (2 pt) Which type of tectonic plates are colliding in A? Explain your reasoning.

4. (2 pt) Which type of tectonic plates are colliding in B? Explain your reasoning.

Imagine that you could travel to the center of an Earth-like planet (each layer has the same properties as that on Earth).

Use the table below to answer the questions that follow.

<table>
<thead>
<tr>
<th>Composition</th>
<th>Structure</th>
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<tbody>
<tr>
<td>Crust (35 km)</td>
<td>Lithosphere (250 km)</td>
</tr>
<tr>
<td>Mantle (1,500 km)</td>
<td>Asthenosphere (250 km)</td>
</tr>
<tr>
<td></td>
<td>Mesosphere (1,000 km)</td>
</tr>
<tr>
<td>Core (2,548 km)</td>
<td>Outer core (1,500 km)</td>
</tr>
<tr>
<td></td>
<td>Inner core (1,048 km)</td>
</tr>
</tbody>
</table>

5. * (TB 1 pt) How far beneath Planet’s surface would you have to go to find the liquid material in the core?

6. * (TB 1 pt) At what range of depth would you find mantle material but still be within the lithosphere?


Go to back of answer sheet to complete this section.
Station E 2017 (10 Minutes)  
TEAM ____________________

1 pt Each Multiple Choice

8. ____
9. ____
10. ____
11. ____
12. ____
13. ____
14. ____
15. ____
16. ____
17. ____
18. ____

Team Number: ________________

Station E: 1_2_3_4_8_9_10_11_12_13_14_15_16_17_18 = ________
Total Regular ___/19
TB 5__, 6__, 7- = ________
TB Points ____/3