

Dynamic Planet Exam 2017

TEAM _____

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.

TEAM Number: _____

Station	Regular Points Earned	Tie Breaker Points Earned
A		
B		
C		
D		
E		

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Station A 2017 (10 Minutes)

TEAM _____

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.

Team Number: _____

Station A: 1__2__3__4__5__6__7__8__ = _____
Total Regular ___/ 16

9__10__ = _____
TB Points ___ out of 6

Station B 2017(10 Minutes)

TEAM _____

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

Station C 2017 (10 Minutes)

TEAM _____

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___ G_{1-5,7}___ = _____

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. _____ | 8. _____ |
| 2. _____ | 9. _____ |
| 3. _____ | 10. _____ |
| 4. _____ | 11. _____ |
| 5. _____ | 12. _____ |
| 6. _____ | 13. _____ |
| 7. _____ | 14. _____ |

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

- | | |
|----------|-----------|
| 1. _____ | 8. _____ |
| 2. _____ | 9. _____ |
| 3. _____ | 10. _____ |
| 4. _____ | 11. _____ |
| 5. _____ | 12. _____ |
| 6. _____ | 13. _____ |
| 7. _____ | 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_ = _____
Total Regular ___/15

TB 3___, 8___, 10- = _____
TB Points ___/3

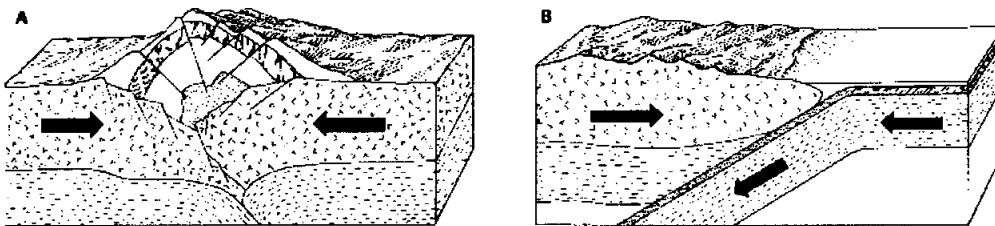
Station E 2017 (10 Minutes)

TEAM _____

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.

Composition	Structure
Crust (35 km)	Lithosphere (250 km)
Mantle (1,500 km)	Asthenosphere (250 km)
	Mesosphere (1,000 km)
Core (2,548 km)	Outer core (1,500 km)
	Inner core (1,048 km)

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?
7. * (TB 1 pt) Describe the role of the asthenosphere in the movement of tectonic plates.

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