

Seafloor Spreading Unit Review and Exam Lesson Plan
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(1) 90 min period

Summary:

This serves as the final unit assessment.

Materials:

Lecture_SFSspreading_Review.ppt Lecture Slides (including presenters notes contained within the powerpoint).

StudyGuide_SeafloorSpreading_exam.doc (1 per student)

Seafloor Spreading unit exam versions 1 and 2

Seafloor Spreading unit exam key

Documents:

Exam_SeafloorSpreading.doc

Lecture_SFSpreading_Review.ppt

Lesson_Plan_ExamAndReview.pdf

StudyGuide_SeafloorSpreading_exam.doc

Prep: Sort exams so adjacent students will have different versions of exam.

Lesson Plan & Instructions:

1. A day or two before the exam, distribute the study guide. Students should work on this at home and come to the review session prepared with questions.
2. Present "Seafloor Spreading Review" Lecture Slides and lead a review.
3. Give the exam. Allow approximately 1 hour for the test.

Seafloor Spreading Unit Exam

Total: 30 pts

Version 1

Name KEY

Period _____

Define the Following Terms (1 pt each):

1. Bathymetry – **The shape of the seafloor.**
2. Pangea - **The Supercontinent that existed when all of the continents were one piece of land.**
3. Normal Polarity - **When Earth's magnetic field is the same direction as it is today; a compass points North.**
4. Subduction - **The process where one plate dives beneath another plate and is destroyed.**

Short Answer (1-2 pts each):

5. What are two types of evidence for Continental Drift? (2)
Fit of the Continents; Fossils (plant and animal); Mountain Ranges; Glacial markings.
6. Which two continents have the best fitting coastlines? (1)
South America and Africa.
7. Where on Earth is the oldest seafloor located? (1)
The Pacific ocean; the Northwest Pacific ocean; near Asia/Japan; the outside edges of the symmetric age pattern; farthest away from the seafloor spreading center.
8. What two geologic events happen along the "Ring of Fire"? (2)
Earthquakes and Volcanoes. Ok to accept subduction as well.

Multiple Choice (1 pt each): Circle the letter of the best answer.

9. A seafloor spreading center that spreads at a rate higher than 90 km/Myr is:
A) Intermediate
B) Fast
C) Slow
D) Ultra-slow

10. Which of the following continents or countries is NOT bordered by the “Ring of Fire”?
- A) South America
 - B) Asia
 - C) North America
 - D) Africa
11. What is the age of the oldest seafloor?
- A) 1.8 Billion years
 - B) 180 Million years
 - C) 4 Billion years
 - D) 4 Million years
12. Which of the following provide evidence for seafloor spreading?
- A) The pattern of seafloor ages and the pattern of seafloor magnetic stripes.
 - B) The pattern of seafloor magnetic stripes and the ages of continental rocks.
 - C) Explosive stratovolcanoes and rock drilling.
 - D) Floating continents and the ages of continental rocks.
13. Rocks are age dated in a lab using:
- A) The magnetic timescale.
 - B) A compass.
 - C) The decay of radioactive elements.
 - D) Sonar.
14. The seafloor along an isochron has
- A) Different ages.
 - B) The same age.
 - C) Normal Polarity.
 - D) The same depth.
15. The deepest places on Earth are located:
- A) Away from the middle of the oceans.
 - B) Near the middle of the oceans.
 - C) Both A and B.
 - D) Neither A or B.
16. Which of the following features connects two offset Ridge Segments?
- A) Fracture Zone
 - B) Spreading Center
 - C) Transform Fault
 - D) Subduction Zone
17. The Ring of Fire is caused by:
- A) Subduction.
 - B) Seafloor spreading.
 - C) The magnetic field.
 - D) Continental Drift.

18. What is the longest continuous feature on Earth?

- A) The Continents
- B) The Seafloor Spreading Centers
- C) The Ring of Fire
- D) The Atlantic Ocean

Short Answer Part 2 (2-3 pts each):

19. Describe the pattern seen in the seafloor ages and magnetic stripes. How does this pattern help to explain and provide evidence for seafloor spreading? (3)

Seafloor ages and magnetic stripes form a symmetric (mirror image) pattern across the seafloor spreading center. This pattern provides evidence for seafloor spreading because it suggests that new material is formed in the middle of the pattern (at the spreading center) and moves outwards in both directions causing a symmetric pattern on each side.

20. Discuss the main problem with Continental Drift that kept scientists from believing it. (2)

The main problem with Continental Drift that kept scientists from fully accepting the idea is that they could not explain a force that would be large enough to cause massive continents to move or plow through the seafloor.

21. Describe what will happen to the size of the Pacific ocean in the future and explain why. (2)

Over time, the Pacific ocean will continue to shrink until it disappears completely. This is because subduction is destroying the Pacific plate on most of its edges. (The Atlantic ocean will grow and become the world's largest ocean).

22. Draw a picture of a seafloor spreading center and a subduction zone connected by an oceanic plate. Draw arrows to show how all the plates are moving. (3)

