

Name: _____
Earth Science ESRT Review

Teacher: _____
Date: _____

1. Measure the width of this page to the nearest 0.1 cm. _____
2. How much of a 400-gram sample of K40 is left after 2 half-lives? _____
3. During which phase change is the most energy gained? _____
4. From the specific heat chart... which material heats and cools the fastest?

5. A material has a density of 4.5g/ml and a mass of 2.6grams, what is the volume?

6. What is the percentage error if a student calculates the Earth's radius to be 6400km?

7. What is the orbital eccentricity of a planet if the foci distance is 7.6 cm and the major axis is 15.2 cm? _____
8. On a topographic (topo) map. Point A is 456 meters in elevation. Point B is 1256 meters. They are 12.2 km apart. What is the gradient? _____
9. Locate the approximate latitude and longitude of the following landscape regions in New York State: (also use page 3)
 - a. Tug Hill Plateau _____ lat. _____ long.
 - b. Taconic Mountains _____ lat. _____ long.
 - c. Triassic / Newark Lowlands _____ lat. _____ long.
10. Within what landscape is Manhattan Island located? _____
11. Where are the youngest rocks in New York State? _____
12. Where are the oldest rocks in New York State? _____
13. Which region(s) of New York State would have little evidence of fossils? _____
14. Which city is located closest to 43°N and 77°38' W? _____
15. How old are the oldest sedimentary rocks in New York State? _____
16. How old are the oldest rocks that are found in New York State? _____
17. Describe the motions of the Gulf Stream. _____
18. In what direction does the California current flow? _____
19. List the major plates of the world: _____

20. List the major plate boundaries due to plate tectonics (draw an arrow diagram showing the relative motion of the plates at each boundary).

21. Describe the relationship between the tectonics map and the locations of volcanic activity?

22. If a stream's velocity increases from 20 cm/sec to 100 cm/sec, what sediments can be carried? _____
23. A cementation/compaction of a particle .055 cm in diameter will most likely form what type of rock? _____
24. Evaporites can be listed as minerals and rocks. How are they formed? _____
25. Sandstone differs from limestone based on particle size. How is their point of origin different?

26. What minerals are found in granite? _____
27. How does rhyolite differ from granite? _____
28. Which minerals are not present in felsic type igneous rocks but are present in mafic type igneous rocks? _____
29. How do felsic and mafic igneous rocks differ in density, color, and mineral content?

30. **What process must a rock undergo in order to become igneous?** _____
31. What process must a rock undergo in order to become metamorphosed? _____
32. List all the terms associated with the formation of sedimentary rocks.

33. What are the two major divisions of sedimentary rocks? _____
34. How is a breccia different from a conglomerate? _____
35. How is rock gypsum formed? _____
36. What is the composition of rock salt? _____
37. How is chemical and fossil limestone different? _____
38. What are the main types of metamorphism? _____
39. What are the two major textures of metamorphic rocks? _____
40. **Complete:** metamorphic rock -----> parent rock
 slate _____
 marble _____
 quartzite _____
41. **During which time period were trilobites common?** _____
42. **What is the approximate age of the Appalachian plateau?** _____
43. Which span of geologic time is the longest? _____
44. For how long did dinosaurs roam the earth? _____
45. How long ago did dinosaurs become extinct? _____
46. Which is the most recent time period where North America and Africa are believed to be separated? _____
47. Describe the motions of North America from the Ordovician to the Tertiary. _____
48. When was the Taconic Orogeny and how did it happen? _____
49. When did the Atlantic Ocean started to open? _____
50. What is the official fossil of NYS (see cover)? _____
51. Which earth layer is the most dense ? _____
52. What is the approximate pressure at the mantle-outer core interface? _____
53. **In which strata of the earth is the Earth's temperature change the greatest?** _____
54. Describe where the Moho is located? _____
55. How thick is the asthenosphere? _____
56. **What does ultramafic mean?** _____
57. What is the composition and phase of the inner core? _____
58. What is the scale on the y-axis (earthquake chart)? _____
59. What is the scale on the x-axis (earthquake chart)? _____
60. If P waves arrive 5 minutes and 20 seconds before S waves from an earthquake, what is the distance of the observer from the epicenter? _____
61. If the epicenter is 2.2×10^3 km from the observer, how long did it take the P-wave to travel to the station?
 _____, S-Wave: _____
62. What is the most common element, by volume, in the earth's crust? _____
63. Find the dew point if the wet bulb reading is 3°C and the dry bulb is 6°C _____
64. Find the air temp. (dry bulb) if the dew point is 15°C and the wet bulb depression is 5°C

65. What is the relative humidity if the air temperature is 10°C and the dew point is 6°C ?

66. Find the equivalent values of the following:
 a) $64^\circ\text{F} =$ _____ $^\circ\text{C}$ b) $64^\circ\text{F} =$ _____ $^\circ\text{K}$
 c) $32^\circ\text{F} =$ _____ $^\circ\text{C}$ d) $71^\circ\text{C} =$ _____ $^\circ\text{F}$
67. a. From what direction is the wind blowing on the station model? _____
 b. What is the wind speed in knots on the station model? _____
68. What is the present weather symbol for thunderstorms? _____
69. Draw and label each type of weather front, determine where the cold and warm air masses are in relation to these frontal boundaries:

70. a) What happens to air pressure as atmospheric altitude increases? _____
 b) convert: 30" Hg = _____ mb (pressure)
71. In the atmosphere, all of our weather is found below in the _____
72. Which form of energy has a wavelength of 10^{-4} meters in size? _____
73. At which zone in the atmosphere does the temperature go over 50°C ? _____
74. Describe the relationship of winds and wet and moist climates. _____
75. Which latitudes are associated with high pressure? _____, Low pressure

76. Which planet has an orbit shaped most like a circle? _____
77. What planet has the longest period of revolution? _____
78. Which planet is the most dense? _____
79. a) What color star is the Sun? _____, Sirius _____,
 Betelgeuse _____.
- b) What part of the H-R Diagram do you find the largest stars? _____, smallest _____.
80. What two variables are used to classify stars? _____
81. What mineral is dark and cleaves into sheets? _____
82. What metallic mineral has a red streak? _____
83. List two properties of olivine. 1. _____ 2. _____
84. What are the chemical symbols for: Iron _____, Potassium _____, Sodium _____, Sulfur

85. Which three fossils might appear to have been related?
 _____, _____, _____.