

Name: Key

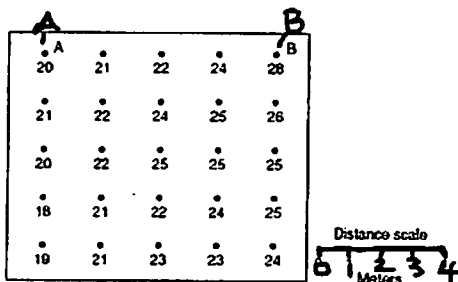
The ESRT Review Guide



Complete the following using your ESRT. Remember to show work and use units as appropriate.

Page 1

- Write the half life of Uranium-238 as a standard number 45000000000
- What substance requires the most energy to heat up a unit mass by 10°C?
liquid water
- Which uses more energy, melting a 10 g ice cube or evaporating 10 g of water?
evaporation
- How wide is this sheet of paper, to the nearest 0.1 cm? 21.7 cm
- How many half lives have passed if a wood sample from a glacier deposit is 28,500 years old?
5 Why is Carbon-14 a good choice to date this sample?
short half life
What is the daughter product? N 14
- What is the density of Water at 3.98°C? 1.0 g/mL
Since Ice floats, what does that tell you about its density compared with the density of liquid water?
Ice is less dense
- What is the New York State Fossil? Eucyrtus remipes
- What are the 2 most common elements in the oceans? Oxygen and Hydrogen
- What element makes up about 8% of crustal rocks by mass, but only about .5% by volume?
Aluminum
- Would potassium be found in the Troposphere? no What is the symbol for potassium? K
- How many Joules would be required to raise the temperature of 1 g of Basalt by 10°C? 0.84
- What is the average gradient from A-B? 1 units/meter



$$\frac{8}{8} = 1$$

Page 2

- What landscape region do we live in? Hudson Highlands
- What is the name of the landscape region Plattsburgh, NY is in? Champlain Lowlands
- Would the Catskills be classified as a mountain, plateau, or lowland? plateau
- What 3 landscape regions are within the New England Province?
Taconic Mts, Hudson Highlands, Manhattan Escarpment
- What major geographic province does the Tug Hill Plateau belong to? Appalachian Plateau

Page 3

13. Fill in the table below: Geology of Rochester and Old Forge

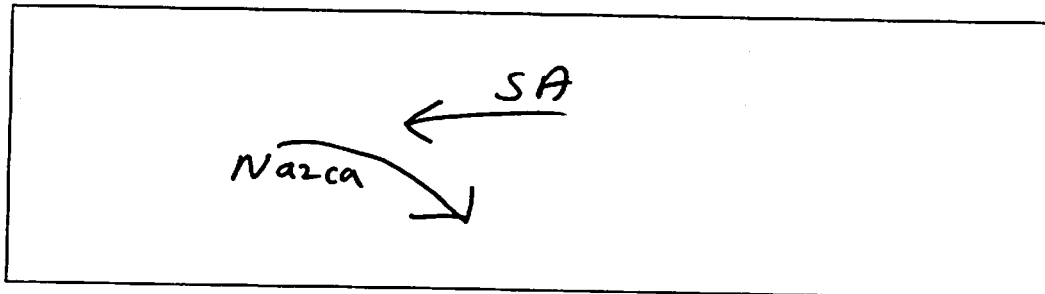
	Rochester	Old Forge
Latitude	43° 10' N	43° 40' N
Longitude	77° 30' W	75° W
Bedrock age	Silurian 416-444 mya	Mid Proterozoic 1300 mya
Igneous, Sedimentary or Metamorphic?	S	M
Direction from Ithaca	NW	NE
Distance from Ithaca, in Kilometers	120 km	190 km

Page 4

19. What ocean currents tend to keep coastal areas of Europe warmer?
N. Atlantic C, Norwegian C
20. How does the Peru Current affect the climate of the coast of South America?
cool current
21. What Current goes around the Earth without "bumping into" a continent? Antarctic Circumpolar C
22. What current runs by 20° N, 160°W? No Equatorial C
23. How many degrees difference is there between the Tropic of Capricorn and the Tropic of Cancer? 47°


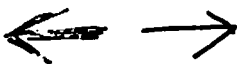


Page 5

24. Why are the Himalayan Mountains (North of India) so high and continuing to get higher?
two continental plates colliding
25. What type of Plate Boundary is the East African Rift? Divergent
26. How many types of plate boundaries can be found on the Cocos Plate? 2
What are they? Divergent, Convergent
27. What is found at 15°S, and just West of the Prime Meridian? St. Helena Hot Spot
28. Draw a side view, from West to East, showing the boundary between the Nazca Plate and the South American Plate. Include arrows to show direction of movement. Indicate where volcanoes/mountains would be and place X's where earthquakes will occur.



29. Name the major active fault in the U.S. San Andreas

30. Complete the table below:

	Convergent	Divergent	Transform	Complex/Uncertain
Relative motion	move together	move apart	slide past each other	
Symbol				
Example (give location using two plate names)	Peru-Chile Trench	Mid Atlantic Ridge	San Andreas Fault	E. African R. ft
2 features and/or events that happen at this type of boundary	earthquakes mt. ranges	earthquakes volcanoes	earthquakes	

Page 6

31. What processes must a metamorphic rock go through to become sediment?

Weathering erosion

32. What types of rocks can become metamorphic rock?

All types I S M

33. Name the particle sizes that can be transported by water with a stream velocity of 9 cm/s.

0.1 - 0.2 cm

34. A particle with a diameter of 0.05 cm must be in a stream with a water velocity of @ 2 cm/s in order to be moved by that stream.

35. What is the particle size range for silt? 0.0004 - 0.006 cm

36. Name the rock which contains plagioclase feldspar, biotite, and amphibole, and was formed intrusively.

Diorite

37. Explain the difference between vesicular basalt and basalt. Vesicular has gas pockets - cooled quickly

38. What elements can I expect to find in dunite? Fe, Mg (Iron and Magnesium)

39. Complete the table below:

Rhyolite	Rock Name	Basalt
Felsic	Composition	Mafic
lower	Density	higher
POT. Feld, Quartz, Plag. Feld, biotite, Amphibole	Minerals Present	Plag. Feld, biotite, Pyroxene, olivine, amphibole

Page 7

40. What rock would be composed of sediments with grain sizes of 0.004 cm? Siltstone
41. Explain how dolostone differs from sandstone, with respect to its origin.
Sandstone - inorganic land-derived - clastic
dolostone - crystalline
42. What are the two primary textures for metamorphic rocks? Give an example for each.
Foliated
non foliated
43. Would contact metamorphism result in banding? no Why or why not? _____

Pages 8 & 9

44. How long did the Devonian Period last? 416 - 359
45. What is the name of the index fossil that lived in the late Triassic? L Coelophysis
46. What happened at the end of the Paleozoic Era? extinction of many land and marine organisms - incl. trilobites
47. Was there ever a time period when dinosaurs, eurypterids, and brachiopods were living together on Earth?
no
48. A geology student finds a Manticoceras in a rock sample. What major rock type did she find it in?
Sedimentary What is the age of the rock? bt 359-416 mya
What type of environment was the Manticoceras likely living in? _____
49. Devonian aged shale is found in Ithaca, New York. What types of fossils is it likely to contain?
C F G I N Q R V X Z - look them up

Page 10

50. What layer of the Earth are there convection cells? asthenosphere What feature forms where the convection cell rises due to lower density? _____
51. Determine the pressure and temperature at the interface between the Inner and Outer Core?
Temp: About 6200°C Pressure: 3.1 ma
52. What are the sub-layers of the Lithosphere? crust and rigid mantle
53. What is the range of temperature from the bottom of the Asthenosphere to the bottom of the Stiffer Mantle?
2500°C - 2900°C

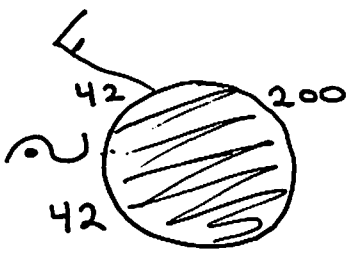

Page 11

54. How far away is the epicenter of an earthquake if the S-P interval is 6 min 20 sec? about 4800 km
55. If an earthquake occurred at 07:20:00 am, and the distance to the epicenter is 4,000 km, what time did the P-wave arrive? 7:27:00 What time did the S-wave arrive? 7:32:40

Page 12

56. Determine the dewpoint if the air temperature is 13°C and the wet-bulb temperature is 9°C. 5°C
57. If the dewpoint is -1°C, and the air temperature is 4°C, what is the relative humidity? 70%
58. As dewpoint gets closer to the dry-bulb temperature, what happens to relative humidity?
increases

Page 13

59. Convert -18°C to Fahrenheit: 3°F
60. How many degrees difference is there between the point of water freezing to the point of water boiling, in $^{\circ}\text{K}$?
Freezing - 273K boiling - 373K difference 100K
61. 29.30 inches of mercury is 992.1 millibars.
62. Make a station model for the following weather conditions:
 Temperature = 42°F
 Barometric Pressure = 1020.0 mb
 Winds NW at 15 knots
 Freezing Rain
 Overcast
 Dewpoint = 42°F
- 
63. What symbol would go on a map if a warm air mass is rising gently over a cold air mass, causing showers ahead of this front?

64. What type of air mass has dry, cold air? Continental polar symbol: CP

Page 14

65. Describe what happens to the temperature as a weather balloon rises from Sea Level to 80 km. Include the temperature values in your response.
decrease $15^{\circ}\text{C} - -55^{\circ}\text{C}$ increase $-55^{\circ}\text{C} - 0^{\circ}\text{C}$
decrease $0^{\circ}\text{C} - -90^{\circ}\text{C}$ (decrease, increase, decrease)
66. What happens to water vapor as one descends from the tropopause to sea level?
increases
67. The wind belts shown are near the equinox dates. As the Sun's rays become more vertical in the Northern hemisphere, what do the wind belts do?
The belts shift northward in the summer in the N. hem.
68. Planetary winds at latitude 43°N typically come from the SW
69. Latitudes with rising convection cells typically are (wet, dry) and (high, low) pressure zones.
70. Place the following in order of decreasing wavelengths: (largest to smallest)
 Infrared X rays Radio waves Blue Visible Light Red Visible Light
2 5 1 4 3
71. Visible light reaches Earth from the sun, and infrared heat waves are radiated back from the Earth. The visible light waves are (longer, shorter, the same as) the infrared rays.

Page 15

72. On what basis do we classify stars? Temp, luminosity, color

73. Complete the chart below.

	Spica	Aldebaran
Color	Blue	Orange
Temperature	25,000 K	4,000 K
Luminosity	50,000 times brighter than the sun	500 times brighter than the sun
Size	Super Giant	Giant

74. Name the star in its intermediate stage, with an orange-yellow color and a luminosity of about 90.
Pollux
75. What is the relationship between a planet's distance from the sun and the period of revolution?
As planets distance increases, period of rev. increases
76. How far is the Earth's moon from the Earth? 0.386 million km from Earth
77. Which planet has a period of rotation very similar to Earth's? Mars
78. Jupiter's mass is how many more times that of the Earth? J mass = 317.83 E mass = 1
317 times that of Earth

Page 16

79. What elements do the minerals Calcite, Dolomite, and Selenite Gypsum have in common?
Calcium
80. List and describe three identifying characteristics that would help you determine if the mineral is Galena.
1. metallic luster
 2. gray-black streak
 3. cleavage
81. Which mineral(s) on the list could scratch Fluorite, but not Potassium Feldspar? Fluorite - 4 Pot. Feld
Amphibole, Pyroxene, some hematite and magnetite
82. Why would using hydrochloric acid be a good field test to use to determine if a rock sample is Limestone?
IT will bubble

NOW, to put this together.... Consider where we live. Using several different pages in the Earth Science Reference Table, summarize 5-7 unique pieces of information that describes your hometown.

Congratulations!
You have finished!