

Integrated Science – Final Exam Study Guide

KEY

1. Review all reference tables, handouts, & charts. Begin to study now.
2. Review 5 characteristics necessary to be a mineral: inorganic, not man made, Solid, Crystall pattern, Chemical composition
3. To test for mineral hardness: Use Mohs' Hardness scale; To test for mineral streak: Mineral's powder on porcelain plate.
What is streak: The color of the mineral's powder.
4. How do you test for a mineral's hardness: Scratch mineral & compare to Mohs' Hardness scale. Know Mohs' Hardness Scale. (1-10)
5. What is a mineral ore? Raw mineral mined in large amounts
6. Difference between a renewable & non-renewable resource: Renewable: resource that can be replaced; Non-renewable: once removed it can't be replaced
7. What is a natural resource: Mineral from enviro that people use daily
8. What is the silicate group of minerals: Silicon & Oxygen in mineral
9. Know the metal & non-metal mineral resources: Metal: Gold, Silver, Iron, etc
Non-metal: wood, fuel, paper, etc; which conducts elect?
10. Which conducts electricity? Metal minerals
11. What is a fossil: Preserved remains of animals & plants & organisms
12. Be able to use the density formula ($d = m/v$)
13. Review matter (Anything that has mass + takes up space) & mass (the amount of matter taking up space)
14. Definition of an atom: The smallest part of an element that retains properties
15. Know the atomic # (# protons) & the atomic mass (# protons + neutrons)
16. An isotope is atom of same element w/ diff # of neutrons;
17. An ion is a charged atom
18. Know the difference between chemical & physical changes of matter. Phase change is changing from solid to liquid or to gas.
19. Know the atomic structure: protons, neutrons, electrons, etc. What is a valence e-: The electrons in the outer most shell of an atom
20. Know the 22 element names & symbols: Oxygen, Nitrogen, Gold, Silver, Sodium, Silicon, Fluorine, Lead, Neon, Hydrogen, Chlorine, Helium, Uranium, Sulfur, Zinc, Iron, Calcium, Nickel, Potassium, Carbon, aluminum, Mercury.
21. Know the groups, periods, & metalloids of the periodic table.
22. Least reactive: Group # 18; Most reactive: Group # 1
23. Know the different shells around the nucleus of the atom. 2 electrons in the K shell, 8 electrons in the L shell, 18 electrons in the M shell.
24. How can you tell if the outer shell (valence shell) is full? Know K, L, M
25. Know difference between the hydrogen & helium atoms.
26. Break down a chemical formula into atoms. $CaCO_3 = Ca=1 C=1 O=3$
27. Review the periodic table (groups, periods, metals, non-metals, metalloids)
28. Review notes about elements, metals, non-metals, compound, elements, molecule, chemical reactions, mole, $\frac{1}{2}$ life, valence e-, carbon-14 dating.

49. What force is necessary to maintain a constant state of motion: None - Zero Force
50. Why? Newton's 1st Law
51. Velocity describes: both speed & direction $v = d/t$ with direction
52. What is the velocity of a truck traveling a total of 50 km north in 2 hrs? 25 km/hr North
53. What is the momentum of a 6,000kg bus moving at 10 m/s? $p = m \times v$ 60,000 kg m/s
54. Acceleration: $\Delta v / t$ A change in velocity
55. A girl is pushing a rock 5m away with a force of 12N. What is the work done?
 $w = f \times d$ $60 = 12 \times 5$ $w = 60 J$
56. 3 types of rocks in the Rock Cycle: Igneous: (Volcanic origin),
Sedimentary (from Sediments), & Metamorphic (from temp +
press Δ)
57. Large crystals in Igneous rocks: slow cooling
58. Small crystals in Igneous rocks: fast cooling
59. Parent rock: The rock from which the rock originally came from.
60. Rock cycle processes: Igneous: cooling + hardening; Sedimentary: Compaction + cementation; Metamorphic: press + heat
61. Alternative energy: Solar, wind, hydroelectric, geothermal, nuclear, hydrogen, ethanol
62. Know both Potential & Kinetic energy. Potential = stored energy; Kinetic = energy in motion

Know how to use the mechanical advantage formulas.

65. What is energy? The ability to do work & make things move.

Resistance/effort & output force/input force

STUDY