

Coordinated Science Credit Recovery

Semester 1

Student Name: _____

Student ID: _____

Astronomy and Chemistry

Select the best answer for each question on the following pages. The following are suggested resources you could use to support your work. Please note that you can use others to support your learning.

Khan Academy:

The following Khan Academy courses contain videos and readings that could support your knowledge building related to astronomy and chemistry. Click into each course and review the course summaries on the left. Click on the course summary titles that seem most relevant.

- Cosmology and astronomy
 - <https://www.khanacademy.org/science/physics/cosmology-and-astronomy>
- Chemistry
 - <https://www.khanacademy.org/science/chemistry>

PBS Learning Media:

The following PBS Learning Media sites contain videos that could support your knowledge building related to astronomy and chemistry. Click into each site and review the concept list on the left. Click on the concepts and videos that seem most relevant.

- Earth and Space Science (astronomy)
 - <https://kcts9.pbslearningmedia.org/subjects/science/earth-and-space-science/>
- Physical Science (chemistry – matter and interactions)
 - <https://kcts9.pbslearningmedia.org/subjects/science/physical-science/>

Coordinated Science Credit Recovery – Semester 1

Astronomy

- _____ 1. The correct order of smallest to largest objects in the universe is...
- A. Earth, Moon, Sun, Solar system, Galaxy, Galaxy cluster
 - B. Sun, Earth, Moon, Galaxy, Solar system, Galaxy cluster
 - C. Moon, Earth, Sun, Galaxy, Solar system, Galaxy cluster
 - D. Moon, Earth, Sun, Solar system, Galaxy, Galaxy cluster
- _____ 2. The correct order of closest to farthest from Earth is...
- A. Pluto, Moon, Alpha Centauri, Sun
 - B. Moon, Sun, Pluto, Alpha Centauri
 - C. Moon, Pluto, Sun, Alpha Centauri
 - D. Sun, Moon, Pluto, Alpha Centauri
- _____ 3. A light year is
- A. the distance between the Earth and the sun
 - B. the length of time it takes light to reach the Earth from the sun
 - C. the distance light travels in one year
 - D. the size of the universe
- _____ 4. If the nearest star is 4.2 light-years away then
- A. the light we see left the star 4.2 years ago.
 - B. the star is 4.2 million au away.
 - C. the star must have formed 4.2 billion years ago.
 - D. all of these.
- _____ 5. Which electromagnetic (EM) radiation is the most harmful to us.
- A. x-rays
 - B. gamma rays
 - C. UV
 - D. infrared
- _____ 6. Which region of the electromagnetic spectrum is associated with heat?
- A. microwave
 - B. infrared
 - C. visible
 - D. ultraviolet
- _____ 7. Which of the following produces a suntan?
- A. infrared
 - B. microwaves
 - C. x-rays
 - D. ultraviolet
- _____ 8. Which of the following is not one of the colors of the visible light spectrum?
- A. red
 - B. brown
 - C. green
 - D. violet

- _____ 9. The correct order from smallest to largest wavelength is...
- A. ultraviolet, infrared, x-ray, microwave, visible light, gamma ray
 - B. microwave, infrared, visible light, ultraviolet, x-ray, gamma ray
 - C. gamma ray, x-ray, ultraviolet, visible light, infrared, microwave
 - D. visible light, gamma ray, ultraviolet, microwave, infrared, x-ray
- _____ 10. The sudden change in pitch of a car horn as a car passes by is called what?
- A. Hindenberg Effect
 - B. Mercury Mission Effect
 - C. Doppler Effect
 - D. Placebo Effect
- _____ 11. Fusion is the process where
- A. heavy atoms fuse to form lighter atoms.
 - B. one atom splits into two smaller atoms.
 - C. large atoms fuse to create even bigger atoms.
 - D. light atoms fuse to create heavy atoms.
- _____ 12. Elements heavier than iron are produced when:
- A. low mass stars add mass to become high mass stars.
 - B. low mass stars fuse with each other
 - C. high mass stars explode or become supernovae.
 - D. high mass stars fuse with lower mass stars
- _____ 13. Which of the following is true about a nebula?
- A. They are the middle stage of a star's life cycle.
 - B. They are the beginning or end of a star's life cycle.
 - C. They are composed of energy
 - D. They formed immediately after the Big Bang
- _____ 14. The event that marks the end of a small to medium stars life before becoming a white dwarf is
- A. a supernova.
 - B. the exhaustion of hydrogen in the core.
 - C. fusion stops.
 - D. a helium flash.
- _____ 15. The event that marks a protostars evolution to a star is
- A. when helium begins to fuse.
 - B. when the temperature reaches 100 million degrees C.
 - C. the accretion of gas and dust.
 - D. the core temperature reaches 15 million degrees C.
- _____ 16. Which sequence represents the possible life cycle of a massive star.
- A. nebula, protostar, red giant, white dwarf, neutron star
 - B. nebula, star, red giant, supernova, black hole
 - C. protostar, star, supernova, black hole, neutron star
 - D. nebula, protostar, star, red giant, supernova, neutron star

- _____ 17. Which sequence represents the life cycle of a small to medium star?
- A. nebula, protostar, red giant, main sequence(star), supernova
 - B. nebula, protostar, main sequence, white dwarf, red giant
 - C. nebula, protostar, main sequence, red giant, white dwarf
 - D. nebula, protostar, main sequence, white dwarf, black hole
- _____ 18. What determines the way a massive star dies?
- A. mass
 - B. B. luminosity
 - C. C. surface temperature
 - D. D. color
- _____ 19. According to the big bang theory, about how old is the universe?
- A. about 100-150 million years.
 - B. about 13-14 billion years.
 - C. about 500 billion years.
 - D. the big bang theory does not predict the age of the universe.
- _____ 20. The Big Bang Theory describes:
- A. nuclear fission
 - B. how our universe came into being
 - C. supernova explosions
 - D. formation of our solar system
- _____ 21. Which of the following is an observation that supports the Big Bang Theory?
- A. spiral galaxies are expanding
 - B. stars in most galaxies are blue
 - C. planetary systems orbit the center of galaxies
 - D. most galaxies are moving apart from one another
- _____ 22. Our Sun and Solar System
- A. formed from different nebulas at different times.
 - B. formed from the same nebula at different times.
 - C. formed from different nebulas at the same time.
 - D. formed from the same nebula at the same time.
- _____ 23. The solar system originated
- A. about 500 million years ago
 - C. about 50 billion years ago
 - B. about 5 billion years ago
 - D. about 500 billion years ago
- _____ 24. What is (are) the major difference(s) between Jovian and terrestrial planets?
- A. terrestrial planets have larger diameters.
 - B. terrestrial planets are composed of denser materials.
 - C. Jovian planets are younger.
 - D. (b) and (c).

- _____ 25. In our solar system, which of the following planets is not a member of the Gas Giants?
- A. Jupiter
 - C. Mars
 - B. Saturn
 - D. Neptune

Chemistry

Matching

Atoms

- | | |
|------------------------|--|
| _____ 26. Proton | A. A negatively charged particle found outside the nucleus |
| _____ 27. Neutron | B. Contains protons and neutrons in an atom |
| _____ 28. Electron | C. A neutral particle found in the nucleus |
| _____ 29. Nucleus | D. Contains electrons |
| _____ 30. Energy Level | E. A positively charged particle found in the nucleus |
-

Groups

- | | |
|---------------------------------|---|
| _____ 31. Alkali Metals | A. Non-reactive and colorless |
| _____ 32. Alkaline Earth Metals | B. Contain elements that produce a magnetic field |
| _____ 33. Transition Metals | C. Have 2 valence electrons |
| _____ 34. Halogens | D. Explode when in contact with water |
| _____ 35. Noble Gases | E. Very reactive and form salts |
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Bonding

- | | |
|----------------------------|---|
| _____ 36. Ion | A. an atom with more or less neutrons |
| _____ 37. Isotope | B. elements that naturally bond to themselves |
| _____ 38. ionic bond | C. the attraction of a positive and a negative atom |
| _____ 39. covalent bond | D. the amount of electrons an atom has lost or gained |
| _____ 40. Oxidation number | E. an atom with more or less electrons |
| _____ 41. Diatomic element | F. the sharing of electrons between atoms |

- _____ 42. A row on the Periodic table is called _____ and contains....
- A. a period; elements with the same number of energy levels
 - B. a group; elements with the same number of valence electrons
 - C. a row; non related groups of elements
 - D. nothing; all metals

- _____ 43. A column on the Periodic table is called _____ and contains....
- A. a period; elements with the same number of energy levels
 - B. a group; elements with the same number of valence electrons
 - C. a column; non related groups of elements
 - D. nothing; all metals

- _____ 44. Valence electrons are
- A. found in the 1st energy level of an atom
 - B. found in the outer energy level of an atom
 - C. found in the nucleus
 - D. found in all energy levels of an atom

- _____ 45. Why is hydrogen in group 1?
- A. It is a metal
 - B. It reacts with water
 - C. It has 1 valence electron
 - D. It is a gas
- _____ 46. Helium is different from the other Noble Gases because it
- A. has no valence electrons
 - B. has 2 valence electrons
 - C. does not have a full outer shell
 - D. is very reactive
- _____ 47. Which number on the Periodic Table of Elements is the same as the number of protons and electrons of the atom?
- A. Atomic mass
 - B. Period number
 - C. Group number
 - D. Atomic number
- _____ 48. How can you determine the number of neutrons an atom has on the Periodic Table?
- A. Add the number of protons and electrons
 - B. Subtract the number of protons from the atomic mass
 - C. Subtract the number of electrons from the atomic number
 - D. Add the number of protons to the atomic mass