

Kudos Test Prep

COLLEGE/SENIOR HIGH ENTRANCE TEST REVIEWER

SCIENCE



Name

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SCIENCES MODULE

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What to Expect in the Science Test

Most entrance exams have a Science subtest that will likely include topics covered in Junior High School. Students are expected to have mastered basic principles of General Science, Earth Science, Biology, Chemistry, and Physics. Not only are students tested for concept recall and understanding, but also for application to problems encountered in daily life. Students may also be tested for their skills in the scientific method as well as their ability to analyze and evaluate scientific data.

Some Useful Tips

- Scan the items. Go over the test booklet quickly to get an idea of the type of questions in the test. Find out whether these are brief (conceptual, identification of items) or lengthy (analysis type of problem solving). This will determine the appropriate pace you should take in answering the test.
- Take note of all the given information such as tables and graphs. This is particularly important when dealing with analytical questions. Watch out for relationships between the quantities and the variables mentioned in the item.
- Review your answers. Going through the questions may be a learning process in itself. It is very possible that answering the latter questions will give you some ideas on previous items. You can then return to these items with newly-learned tools at hand. Answer changes in multiple-choice tests are more often changes from wrong-to-right than from right-to-wrong. Thus, changing answers is generally favorable.

Test Wiseness Principles for Science Items

You can apply these principles when you are not completely sure of your answer. You as a student must take advantage of cues that a test maker inadvertently makes when he/she creates the test.

1. Choose more general statements over specific ones. They include more variations and make room for exceptions.
2. The longest alternative may be the correct one, since most test-makers won't bother expounding on wrong alternatives.
3. If alternatives range in value, eliminate the extremes and choose from the middle values

Science 1-Science Basics

Pre-Test

25 Items/20 minutes

- Which number contains 3 significant figures?
A. 16.00
B. 0.00016
C. 0.0160
D. 160.0
- Expressed in proper scientific notation, 0.000014 becomes
A. 1.4×10^5
B. 1.4×10^{-5}
C. 140×10^4
D. 14×10^{-4}
- A wide billboard measures 10.0 m by 15.0 m. What is the area in cm^2 ?
A. $1.50 \times 10^6 \text{ cm}^2$
B. $1.50 \times 10^4 \text{ cm}^2$
C. 1,500 cm^2
D. 150 cm^2
- A substance has a density of 2 g/mL. What is its equivalent in g/L?
A. 0.002 g/L
B. 2 g/L
C. 200 g/L
D. 2,000 g/L
- The average temperature in San Francisco in the month of June is a cool 10.0 $^\circ\text{C}$. What is its equivalent in Fahrenheit?
A. -12 $^\circ\text{F}$
B. 42 $^\circ\text{F}$
C. 50.0 $^\circ\text{F}$
D. 260 $^\circ\text{F}$
- The half-life of a radioactive substance is the time required for half of the amount of the substance to change to other substances. The half-life of uranium is 4.5 billion years. If a rock containing uranium was formed 13.5 billion years ago, how much of the uranium will be found today?
A. 75%
B. 50%
C. 25%
D. 12.5%
- What is the density of a 64-g iron cube that displaces 8 mL of water?
A. 512 g/ml
B. 32 g/ml
C. 8 g/ml
D. 4 g/ml
- An athlete can run 9 kilometers in one hour. If the athlete runs at that same average speed for 30 minutes, how far will the athlete travel?
A. 18 kilometers
B. 9 kilometers
C. 4.5 kilometers
D. 3.3 kilometers
- Phototropism* most probably means:
A. The ability of plants to turn the direction of its growth towards the sun.
B. Plants that bloom during periods of prolonged sun exposure.
C. How fast plants photosynthesize when exposed to the sun.
D. The number of buds formed within a week of exposure to the sun.

Answer Key for Science 1 (Science Basics)

Pre -test

1. C. 0.0160
2. B. 1.4×10^{-5}
3. A. $1.50 \times 10^6 \text{ cm}^2$
4. D. 2,000 g/L
5. C. 50.0 °F
6. D. 12.5%
7. C. 8 g/ml
8. C. 4.5 kilometers
9. A. The ability of plants to turn the direction of its growth towards the sun.
10. C. in which the petals are joined together
11. D. amount of vinegar added
12. C. hypothesis
13. B. 2 meters/minute
14. A. Air is made up of one substance.
15. A. 1
16. C. change in the mass of an object
17. B. exactly 12kg
18. A. The liquid pressure in all the vases are the same.
19. B. radiation
20. B. by letting the ball roll down the hill
21. D. salt
22. C. It is a white crystalline solid.
23. D. the reaction of chlorine gas with sodium to form salt
24. A. soil
25. D. cannot move around each other

Post-test

1. C. 1800
2. C. 1.8×10^{24}
3. B. $1.2 \times 10^7 \text{ N/m}^2$
4. A. 36 km/hr
5. B. - 87
6. C. 3,200 yrs
7. C. 3
8. B. 50 s
9. B. an organism resulting from the union of two different cells
10. A. the ability to dissolve in water
11. D. Create a third group that does not receive the supplement.
12. D. repeatedly confirmed by experimentation.
13. B. 3 m/s
14. B. C_{10}H_8 in water
15. D. lizards
16. B. inertia
17. A. 50 kg
18. A. The air pressure on an airplane while in flight.
19. D. E is radiation and F is convection
20. A. C
21. A. cadmium
22. B. Electrolysis is an example of a chemical change.
23. C. The particles are separated by filtration.
24. D. Liquids are the easiest state of matter to be compressed.
25. A. Table salt and water both retain their characteristic properties when mixed together.

Technical/Mechanical Reasoning

1. A.
2. A.
3. C. first in one direction, the in another.
4. B.
5. A.
6. A.
7. A. The lamp will come on
8. F. Contact will be broken once the bimetallic strip gets hot
9. D. All Three
10. C. The wire will eventually drop out of the bottom of the block.

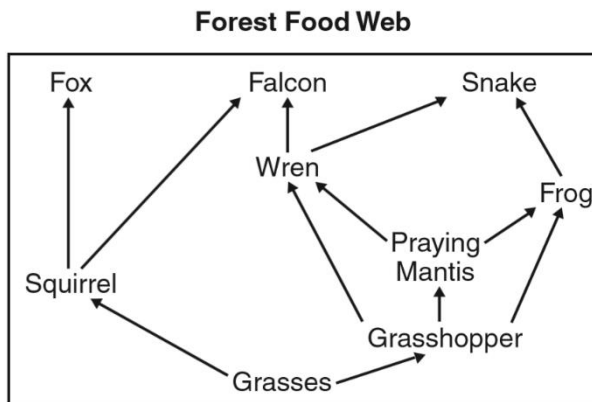
16. A disease was found to be caused by a microscopic organism with a cell wall and a distinct nucleus with a membrane. The disease is most likely caused by an organism belonging to the Kingdom --

- a. Plantae
- b. Fungi
- c. Alveolata
- d. Animalia

17. Which does not belong to the group?

- a. crab
- b. spider
- c. butterfly
- d. octopus

18. A forest-ecosystem food web is shown below:



If additional wrens are introduced into this ecosystem, there will most likely be an immediate decrease in the --

- a. frog population.
- b. snake population.
- c. falcon population.
- d. grasshopper population.

19. *Triconympha campanulata* is a flagellate that lives inside the gut of termites. The former digests the cellulose from the wood eaten by the termites while the latter serves as the host. Which of the following pairs of organisms belong to the same kind of ecological relationship as the termite and the flagellate?

- a. fleas – dogs
- b. snake – eagle
- c. barnacles – whale
- d. sea anemone – hermit crab

20. Which of the following *best* illustrates natural selection?

- a. Bears and skunks slowing their activity during winter.
- b. Monarch butterflies migrating during winter.
- c. Reduction of leaves into spines in desert cactus.
- d. Change in color of peppered moths from light grey to dark as a result of pollution.