



TMSCA ELEMENTARY SCIENCE SPRING ON -LINE TEST © 2021

GENERAL DIRECTIONS

1. About this test:
 - A. You will be given 40 minutes to take this test.
 - B. There are 50 problems on this test.
2. All answers must be written on the answer sheet/Scantron form/Chatsworth card provided. If you are using an answer sheet be sure to use **BLOCK CAPITAL LETTERS**. Clean erasures are necessary for accurate grading.
3. If using a Scantron answer form, be sure to correctly denote the number of problems not attempted.
4. You may write anywhere on the test itself. You must write only answers on the answer sheet.
5. You may use additional scratch paper provided by the contest director.
6. All problems have **ONE** and **ONLY ONE** correct [5BEST] answer. There is a penalty for all incorrect answers.
7. On the back of this page is a copy of the periodic table of the elements as well as a list of some potentially useful information in answering the questions.
8. A simple scientific calculator with the following formulas is sufficient for the science contest: +, -, %, ^, log x, e^x, ln x, y^x, sin x, sin^{-x}, cos x, cos^{-x}, tan x, tan^{-x}, with scientific notation and degree/radian capability.
The calculator must be silent, hand-held and battery operated. The calculator cannot be a computer or cannot have built-in or stored functionality that provides scientific information and cannot have communication capability. If the calculator has memory, it must be cleared. Each student may bring one spare calculator. **NO GRAPHING CALCULATORS ARE PERMITTED.**
9. All answers within $\pm 5\%$ will be considered correct.
10. All problems answered correctly are worth **FIVE** points. **TWO** points will be deducted for all problems answered incorrectly. No points will be added or subtracted for problems not answered.
11. In case of ties, percent accuracy will be used as a tie breaker.

																1A																	8A
1																	2																
H 1.01																	He 4.00																
3	2A																	3A	4A	5A	6A	7A	10										
Li 6.94	Be 9.01																	B 10.81	C 12.01	N 14.01	O 16.00	F 19.00	Ne 20.18										
11	12	3B	4B	5B	6B	7B	8B			1B	2B	13	14	15	16	17	18																
Na 22.99	Mg 24.31	3	4	5	6	7	8			9	10	11	12	Al 26.98	Si 28.09	P 30.97	S 32.07	Cl 35.45	Ar 39.95														
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36																
K 39.10	Ca 40.08	Sc 44.96	Ti 47.87	V 50.94	Cr 52.00	Mn 54.94	Fe 55.85	Co 58.93	Ni 58.69	Cu 63.55	Zn 65.38	Ga 69.72	Ge 72.64	As 74.92	Se 78.96	Br 79.90	Kr 83.80																
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54																
Rb 85.47	Sr 87.62	Y 88.91	Zr 91.22	Nb 92.91	Mo 95.94	Tc (98)	Ru 101.07	Rh 102.91	Pd 106.42	Ag 107.87	Cd 112.41	In 114.82	Sn 118.71	Sb 121.76	Te 127.60	I 126.90	Xe 131.29																
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86																
Cs 132.91	Ba 137.33	La 138.9	Hf 178.49	Ta 180.95	W 183.84	Re 186.21	Os 190.23	Ir 192.22	Pt 195.08	Au 196.97	Hg 200.59	Tl 204.38	Pb 207.20	Bi 208.98	Po (209)	At (210)	Rn (222)																
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118																
Fr (223)	Ra (226)	Ac (227)	Rf (261)	Db (262)	Sg (266)	Bh (264)	Hs (277)	Mt (268)	Ds (281)	Rg (281)	Cn (285)	Nh (286)	Fl (289)	Mc (289)	Lv (293)	Ts (293)	Og (294)																

Specific heat of water = $4.18 \text{ J/g} \cdot ^\circ\text{C}$

2021 TMSCA Elementary On-Line Spring Science Test

1. Which of these rocks is not sedimentary?
A. marble B. limestone C. sandstone D. shale
2. Which of these creatures is not an invertebrate?
A. perch B. lobster C. octopus D. snail
3. To what class does an alligator belong?
A. amphibian B. rodent C. mammal D. reptile
4. In mammals, which body system contains the aorta and the superior vena cava?
A. digestive B. respiratory C. skeletal D. circulatory
5. What term describes a beagle, a retriever, or a terrier?
A. equine B. ovine C. canine E. feline
6. What is the highest point in New York?
A. Mount Wheeler B. Denali C. Guadalupe Peak D. Mount Marcy
7. What is the name of any blood vessel that returns blood to the heart?
A. fontanel B. vein C. artery D. allele
8. Carp, pike and sturgeon are examples of _____.
A. fish B. flowers C. dogs D. cats
9. What property of matter describes the tendency of an object to remain in its current state unless acted upon by an outside force?
A. inertia B. motion C. friction D. gravity
10. What produces silk that is used in some clothing or sheets?
A. flowers B. worms C. trees D. cotton
11. What was the name of the first manned Apollo mission to orbit the Earth?
A. Apollo 4 B. Apollo 6 C. Apollo 7 D. Apollo 8
12. Who was a pioneer in computer programming?
A. Thomas Edison B. Isaac Newton C. Grace Hopper D. Blaise Pascal
13. What is a name for a baby horse?
A. fawn B. colt C. whelp D. shoat
14. Which of these animals is not a rodent?
A. nutria B. squirrel C. cat D. rabbit
15. Which of the following rocks is not classified as metamorphic?
A. gneiss B. sandstone C. marble D. schist

16. Which of the following animals is not a mammal?
A. yak B. emu C. gorilla D. lion
17. Which planet's orbit is between Mercury and Earth?
A. Mars B. Venus C. Jupiter D. Saturn
18. Cirrus, stratus and cumulus are names for _____.
A. asteroids B. phases of the moon C. clouds D. types of tropical storms
19. An animal that does not eat meat is called a/an:
A. herbivore B. omnivore C. carnivore D. piscivore
20. Who invented the nuclear reactor?
A. Fermi B. Nobel C. Whitney D. Bell
21. On the pH scale, orange juice would have a pH number near _____.
A. 12 B. 7 C. 24 D. 3
22. The meniscus is a c-shaped pad of _____ located in the human knee.
A. keratin B. bone C. muscle D. cartilage
23. Which of these layers of the atmosphere is farthest from the Earth's surface?
A. troposphere B. stratosphere C. thermosphere D. mesosphere
24. Who was not involved in the development of the flush toilet?
A. Booth B. Harington C. Cumming D. Sloan
25. _____ centimeters equals 835 meters.
A. 83,500 B. 0.0835 C. 835,000 D. 83.5
26. Which of these types of whales is not a baleen whale?
A. sperm B. humpback C. fin D. blue
27. Many of the world's polar bears live in _____.
A. Antarctica B. South America C. North America D. Australia
28. The medulla oblongata is located in the _____.
A. heart B. brain C. liver D. kidneys

29. What is the highest point in Utah?

- A. Guadalupe Peak B. Denali C. Baxter Peak D. Kings Peak

30. The least dense substance of these choices is:

- A. calcium B. iron C. gold D. carbon

31. In Einstein's famous equation, what variable represents the speed of light?

- A. E B. m C. c D. h

32. The study of weather is called _____.

- A. ornithology B. meteorology C. astronomy D. zoology

33. Rhyolite is classified as a/an _____ rock.

- A. metamorphic B. sedimentary C. igneous D. indigenous

34. The highest point in Montana is:

- A. Guadalupe Peak B. Mount Mitchell C. Baxter Peak D. Granite Peak

35. The babies of which of these animals is called a joey?

- A. giraffe B. kangaroo C. nutria D. raccoon

36. A group of elephants is called a herd or a parade. A group of geese can be called a/an _____.

- A. colony B. goggle C. giggle D. gaggle

37. Which of these machines was not one of the first electronic digital computers?

- A. Colossus Mark I B. EDVAC C. EDRAC D. ENIAC

38. To what group does a squirrel belong?

- A. reptile B. rodent C. amphibian D. mollusk

39. Platelets and erythrocytes are parts of _____.
A. blood B. lymph C. mucus D. insulin
40. What is the process in which small grains from the anther are transferred to the stigma of a flower?
A. pollination B. evaporation C. respiration D. photosynthesis
41. Which of these is not a chemical change?
A. burning B. rusting C. boiling D. rotting
42. As of 2019, how many astronauts have walked on the moon?
A. 31 B. 3 C. 12 D. 8
43. Nephrons are located in what part of the body?
A. bones B. heart C. kidney D. brain
44. Which astronaut was the first NASA astronaut to go into space and also was one of the astronauts who walked on the moon?
A. Buzz Aldrin B. Neil Armstrong C. Alan Shepard D. John Glenn
45. Copernicus, Aitken and Clavius are names of _____.
A. clouds B. craters C. asteroids D. moons
46. Who patented the first sewing machine?
A. Whitney B. Bell C. Fulton D. Howe
47. What shape describes the structure of a DNA molecule?
A. inverted cone B. double helix C. oblong cylinder D. concentric circle
48. Which of these diseases is a skin disease that causes raised, red scaly patches to appear?
A. Alzheimer's B. psoriasis C. dementia D. scoliosis
49. What is the main organ of the respiratory system?
A. lung B. spleen C. liver D. kidney
50. What is the highest point in North America?
A. Mount Marcy B. Denali C. Mount Whitney D. Pike's Peak

2021 Elem On-Line Spring Meet Science Test Answer Key

1. A	18. C	35. B
2. A	19. A	36. D
3. D	20. A	37. C
4. D	21. D	38. B
5. C	22. D	39. A
6. D	23. C	40. A
7. B	24. A	41. C
8. A	25. A	42. C
9. A	26. A	43. C
10. B	27. C	44. C
11. C	28. B	45. B
12. C	29. D	46. D
13. B	30. A	47. B
14. C	31. C	48. B
15. B	32. B	49. A
16. B	33. C	50. B
17. B	34. D	