

PFLUGERVILLE ISD

Curriculum Department



Science

Grade 6 Science District Assessment 1 2015-2016

6th Grade

District Benchmark
Regular English Version

Student ID

Student Name

Score(S)

DIRECTIONS

Read each question carefully. For a multiple-choice question, determine the best answer to the question from the four answer choices provided. Then fill in the answer on your answer document.

1. A scientist's lab notebook is a record of all steps taken in an experiment as well as all observations made. The notebook should be as organized as possible to ensure that others can repeat their work and verify their results.

In a section of the notebook marked "Chemical Reactions" which of the following observations should be recorded?

- A. The density is 19.6 g/mL after being mixed with sodium citrate.
- B. Bubbles appear when mixed with sodium citrate.
- C. The color of sodium citrate is white.
- D. The mass is 55 g once mixed with sodium citrate.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$
$$D = \frac{m}{v}$$

2. A teacher wrote the following information on the board.

Element	Color	Boiling Point	Density	Malleability and Conductivity
Germanium	Gray-white	2830 °C	5.323 g/cm ³	Medium Malleability Good Conductor
Phosphorus	White, yellow, red, violet, and black	280 °C	1.82 g/cm ³	High Malleability Poor Conductor
Chromium	Steel-gray	2672 °C	7.19 g/cm ³	Malleable Poor Conductor
Sodium	Silver-white	552.9 °C	0.971 g/cm ³	High Malleability Somewhat a Good Conductor

Which of the following is true based on the table?

- F. Chromium is a non-metal
- G. Phosphorus is a metalloid
- H. Germanium is a non-metal
- J. Sodium is a metal

3. A man is trying to sell Jason what he is claiming to be is a gold nugget. Jason knows that the density of gold is 19.3 g/cm³. He measures the nugget and finds that it is 3 cm on each side and weighs 45 grams. Should Jason buy the gold nugget?

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{v}$$

- A. Yes, because it is 80 grams per cubic centimeter and is gold.
- B. No, because it is 9.65 grams per cubic centimeter and is not gold.
- C. Yes, because it is 19.3 grams per cubic centimeter and is gold.
- D. No, because it is 5 grams per cubic centimeter and is not gold.

4. Which of the following is a compound?

F. Br

G. C

H. NH_3

J. Mg

5. Which of the following gases is not considered to be an element?

A. CO_2

B. Ar

C. He

D. O_2

6. Mark created a study guide for his sixth grade science test.

Main Idea	Supporting Detail
Atom	The smallest possible piece of an element
Element	?
Matter	Composed of indivisible particles called atoms
Molecules	Combination of any two or more atoms

Which of the following would complete his study guide?

- F. A pure substance represented by a chemical symbol
- G. The rearrangement of atoms
- H. A combination of atoms in a set ratio that act as a single unit
- J. The number of electrons on an atom's outer shell

7. Which of the following compounds contains 3 elements?

- A. CO_2
- B. MgSO_2
- C. H_2O
- D. MgO

8. Patrick left a wheelbarrow outside over the winter. In the summer, he noticed it had begun to rust.



Is this an example of a chemical change?

- F.** No, because rust forms on wheelbarrows when it rains outside a lot.
- G.** Yes, because the mass and density of the wheelbarrow changed.
- H.** No, because no fizzing or bubbling occurred from the rust.
- J.** Yes, because of the visible color change and formation (start) of rust.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{v}$$

9. During a field expedition, a geologist collects a rock sample for identification.

DENSITY CHART	
All densities are in grams per cubic centimeter (cm ³)	
Density	Mineral
2.32	Gypsum
2.65	Quartz
3.4 to 3.6	Topaz
5.02	Pyrite

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{v}$$

Returning to the laboratory, they measure the following data.

1. When the sample is placed in a graduated cylinder, the water level displaced from 25.0 mL to 30.0 mL.
2. The mass of the sample is found to be 13.25 grams.

What is the identity of the rock sample?

- A. Pyrite
- B. Quartz
- C. Gypsum
- D. Topaz

10. A student is given three unknown elements to identify. After running a series of experiments, the student arrives at (finds) the data shown below.

	Luster	Electrical Conductivity	Malleability
Sample 1	Shiny	High	Flexible
Sample 2	Dull	Low	Brittle
Sample 3	Shiny	Low	Brittle

What is a possible identity for Sample 3?

- F. Iron
- G. Fluorine
- H. Sodium
- J. Silicon

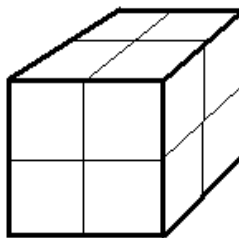
11. On a test comparing different types of materials, a student was asked to look at the following chart.

	Physical Property A	Physical Property B	Physical Property C
1	Colorless Non-metallic	Not a good conductor	Constitutes nearly four-fifths of the air by volume
2	Silvery-white High luster	Good conductor	Very light, stiff, and strong
3	Dark gray Metallic shine or glow	Semi-conductor	Hard
4	Pale yellow Non-metallic	Not a good conductor	Brittle

Which of the following is most probably used to make wire?

- A. 1 because it is aluminum.
- B. 2 because it is aluminum.
- C. 3 because it is aluminum.
- D. 4 because it is aluminum.

12. A metal cube measures 2 cm on each side. It has a mass of 63.2 grams.



Metal	Density (g/cm ³)
Iron	7.9
Gold	19.3
Aluminum	2.7
Silver	10.5
Magnesium	1.7

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$
$$D = \frac{m}{v}$$

According to the table above, what type of metal is it?

- F. Silver
- G. Aluminum
- H. Iron
- J. Gold

- 13.** CsCl is a colorless solid that occurs naturally in mineral waters. Which of the following elements is present in CsCl?
- A.** Carbon
 - B.** Sulfur
 - C.** Chlorine
 - D.** Lithium
-
- 14.** A scientist mixes together a clear liquid and a gray powder to test for evidence of a chemical reaction. Which of the following results would **NOT** indicate that a chemical reaction has occurred?
- F.** Bubbles form in the solution.
 - G.** The temperature of the solution rises considerably (a large amount).
 - H.** Light is produced (made).
 - J.** The powder dissolves into the liquid.

Short Answer

DIRECTIONS

Answer the following questions in the box labeled "Short Answer 1" on your answer document using complete sentences.

Your friend has a hard time describing differences between elements and compounds. Explain what an element is and how a compound is different from an element. Using an example, identify what elements are found in water (H_2O).



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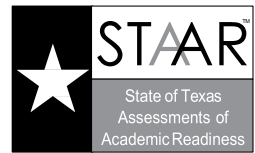
Student Code: _____ Score: _____

E SHORT ANSWER 1

Document ID:

YOU MAY USE ALL 10 LINES TO RESPOND TO THE PROMPT, BUT YOU MAY NOT WRITE MORE THAN 10 LINES.
YOU MAY NOT ADD LINES OR WRITE OUTSIDE THE BOX.

STAAR GRADE 8 SCIENCE REFERENCE MATERIALS



$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$D = \frac{m}{V}$$

$$\text{Average speed} = \frac{\text{total distance}}{\text{total time}}$$

$$s = \frac{d}{t}$$

$$\text{Net force} = (\text{mass})(\text{acceleration})$$

$$F = ma$$

$$\text{Work} = (\text{force})(\text{distance})$$

$$W = Fd$$

STAAR GRADE 8 SCIENCE REFERENCE MATERIALS

PERIODIC TABLE OF THE ELEMENTS

	1 1A																	18 8A	
1	1 H 1.008 Hydrogen																		2 He 4.003 Helium
2	3 Li 6.941 Lithium	4 Be 9.012 Beryllium										5 B 10.812 Boron	6 C 12.011 Carbon	7 N 14.007 Nitrogen	8 O 15.999 Oxygen	9 F 18.998 Fluorine	10 Ne 20.180 Neon		
3	11 Na 22.990 Sodium	12 Mg 24.305 Magnesium										13 Al 26.982 Aluminum	14 Si 28.086 Silicon	15 P 30.974 Phosphorus	16 S 32.066 Sulfur	17 Cl 35.453 Chlorine	18 Ar 39.948 Argon		
4	19 K 39.098 Potassium	20 Ca 40.078 Calcium	21 Sc 44.956 Scandium	22 Ti 47.867 Titanium	23 V 50.942 Vanadium	24 Cr 51.996 Chromium	25 Mn 54.938 Manganese	26 Fe 55.845 Iron	27 Co 58.933 Cobalt	28 Ni 58.693 Nickel	29 Cu 63.546 Copper	30 Zn 65.38 Zinc	31 Ga 69.723 Gallium	32 Ge 72.64 Germanium	33 As 74.922 Arsenic	34 Se 78.96 Selenium	35 Br 79.904 Bromine	36 Kr 83.798 Krypton	
5	37 Rb 85.468 Rubidium	38 Sr 87.62 Strontium	39 Y 88.906 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.906 Niobium	42 Mo 95.96 Molybdenum	43 Tc (98) Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.906 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.868 Silver	48 Cd 112.412 Cadmium	49 In 114.818 Indium	50 Sn 118.711 Tin	51 Sb 121.760 Antimony	52 Te 127.60 Tellurium	53 I 126.904 Iodine	54 Xe 131.294 Xenon	
6	55 Cs 132.905 Cesium	56 Ba 137.328 Barium	71 Lu 174.967 Lutetium	72 Hf 178.49 Hafnium	73 Ta 180.948 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.217 Iridium	78 Pt 195.085 Platinum	79 Au 196.967 Gold	80 Hg 200.59 Mercury	81 Tl 204.383 Thallium	82 Pb 207.2 Lead	83 Bi 208.980 Bismuth	84 Po (209) Polonium	85 At (210) Astatine	86 Rn (222) Radon	
7	87 Fr (223) Francium	88 Ra (226) Radium	103 Lr (262) Lawrencium	104 Rf (267) Rutherfordium	105 Db (268) Dubnium	106 Sg (271) Seaborgium	107 Bh (272) Bohrium	108 Hs (270) Hassium	109 Mt (276) Meitnerium	110 Ds (281) Darmstadtium	111 Rg (280) Roentgenium								

Atomic number — 14
 Symbol — **Si**
 Atomic mass — 28.086
 Silicon — Name

Mass numbers in parentheses are those of the most stable or most common isotope.

Lanthanide Series

57 La 138.905 Lanthanum	58 Ce 140.116 Cerium	59 Pr 140.908 Praseodymium	60 Nd 144.242 Neodymium	61 Pm (145) Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.925 Terbium	66 Dy 162.500 Dysprosium	67 Ho 164.930 Holmium	68 Er 167.259 Erbium	69 Tm 168.934 Thulium	70 Yb 173.055 Ytterbium
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Actinide Series

89 Ac (227) Actinium	90 Th 232.038 Thorium	91 Pa 231.036 Protactinium	92 U 238.029 Uranium	93 Np (237) Neptunium	94 Pu (244) Plutonium	95 Am (243) Americium	96 Cm (247) Curium	97 Bk (247) Berkelium	98 Cf (251) Californium	99 Es (252) Einsteinium	100 Fm (257) Fermium	101 Md (258) Mendelevium	102 No (259) Nobelium
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