Chemistry Part 1 Unit Test Rehearsal Name: Key Hour:

RST.9-10.3.3 I can create a hypothesis to answer the problem

For each problem create a hypothesis to test the question and predict the outcome of the test (experiment).

1. Dudley the bearded dragon lost weight recently when his UV light burnt out.

example: If the UV light is not present then the bearded dragon will lose weight.

2. The Polar Bear garden has two raised beds, one of which has shade throughout the day. In this bed the tomatoes are wilted.

If the tomatoes are in the shade, then they will wilt.

3. Black Otter Lake has lots of algae growing in it. Recently towns have started to ban fertilizers with phosphorus in it.

If there is phosphorus in the lake, then there will be a lot of algae

	4	3	2	1
Questions #1-3	Clear, concise and testable	Demonstrates understanding of what is changed, and what is measured.	Hypothesis written in correct format and attempts to predict outcome	Attempts to write in correct format

RST.9-10.3.2 I can use the factor label method to convert measurements.

4. How many grams are in 597 mg?

relationship: 1000 mg = 1 g

Conversions: $\frac{1000\text{ mg}}{1\text{ g}}$ or $\frac{1\text{ g}}{1000\text{ mg}}$

$$597\text{ mg} \times \frac{1\text{ g}}{1000\text{ mg}} = .597\text{ g}$$

Relationships:	
1000 mg = 1 g	1 m = 39.4 inches
1000 mL = 1 L	1 mile = 1.61 km
100 cm = 1 m	12 inches = 1 foot
1000m = 1 km	1 min = 60 sec.
1 mile = 5280 feet	1 hour = 60 min.

5. The distance between New York and San Francisco is 4,741,000 m. Change the distance to kilometers.

relationship: 1000 M = 1 KM

Conversions: $\frac{1000\text{ M}}{1\text{ KM}}$ or $\frac{1\text{ KM}}{1000\text{ M}}$

$$4{,}741{,}000\text{ M} \times \frac{1\text{ KM}}{1000\text{ M}} = \frac{4{,}741{,}000\text{ KM}}{1000} = 4{,}741\text{ KM}$$

6. How many centimeters are in 4 miles?

relationships:
1 mile = 1.61 KM
1 KM = 1000 M
1 M = 100 CM

$$4\text{ miles} \times \frac{1.61\text{ KM}}{1\text{ mile}} \times \frac{1000\text{ M}}{1\text{ KM}} \times \frac{100\text{ CM}}{1\text{ M}} = 644{,}000\text{ CM}$$

7. Light travels at 300,000,000 meters/second. Convert this to miles/second.

$\frac{300{,}000{,}000\ m}{1\ sec} \left| \frac{1\ km}{1000\ m} \right| \frac{1\ mile}{1.61\ km} = \frac{300{,}000{,}000\ miles}{1{,}610} =$

$186{,}335.404 \frac{miles}{sec}$

4	3	2	1
Can place the given and relationships into a format that will factor out units in order to answer a multiple conversion problem	Can place the given and relationships into a format that will factor out units in order to answer a single conversion problem	Can identify and show the relationship and correct conversion factor between the given and goal	Can identify the "given" and the "goal"

HS-PS1-1.1 I can use the periodic table to interpret data and to identify elements.

8. Periods (from left to right) on the periodic table have increasing _____

a atomic mass b atomic numbers c energy levels

9. As you go down a group on the periodic table, the group has increasing:

a. Energy levels b. group numbers c. valence electrons d. orbital types

For questions 10-14 use the periodic table as well as the key below.

Potassium
19

K

39.0983

10. What does the **number 19** represent on the periodic table for the element Potassium?
    a. Atomic mass b Atomic number c Elements name d Elements symbol

11. What does the **letter K** represent on the periodic table for the element Potassium?
    a. Elements symbol b Atomic mass c Element's name d Atomic Number

12. What does the word **potassium** represent on the periodic table?
    a. Atomic mass b Atomic number c Elements name d Elements symbol

13. What does the **number 39.0983** represent on the periodic table?
a. Atomic mass b Atomic number c Elements name d Elements symbol

14. Refer to your periodic table. How is the element Bromine (#35) classified?
a. Solid b Gas c Liquid d Unknown

15. What period is potassium in?
a 1 b 2 c 3 d 4

16. What group is potassium in?
a1 b 2 c 3 d 4

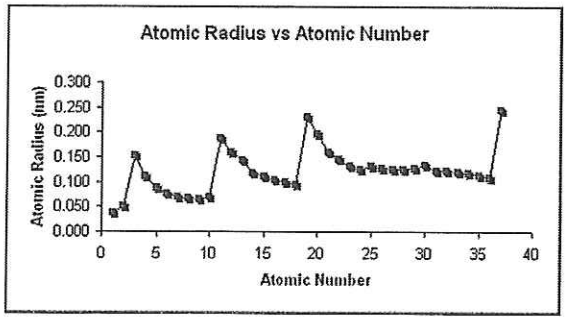
17. What is the state of the element nitrogen (#7)?
a Solid b Liquid c Gas d Unknown

18. What is the state of the element rutherfordium (#104)?
a Solid b Liquid c Gas d unknown

HS-PS1-1.2 I can classify elements into groups based on similar properties.

19. Groups of elements share what type of similar characteristics?
a size b atomic radii c chemical properties

20. How are valence electrons patterned on the periodic table?
a) going across a row the # of valence electrons increase by 1
b) going down a column the # of energy levels increase by 1
c) going down a column the # of energy levels decrease by 1
d) All of the above
e) Only a. and b.



21. Refer to the graph above. Atomic radius of atoms _____ across a period
a decrease b increase c stay the same d have no pattern

22. Refer to the graph above. Atomic radius of atoms _____ down a group
a decrease b increase c stay the same d have no pattern

HS-PS1-1.3 I can identify how electrons are arranged in an atom

23. Electrons are most likely found outside the:

a atom in the nucleus b nucleus in the electron cloud c nucleus in the charged area

24. Order the following from **largest area to smallest area** of the atom

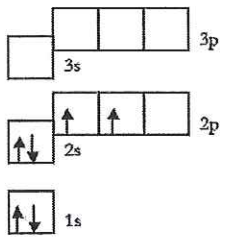
a. suborbital, energy level, electron cloud
b. electron cloud, energy level , suborbital
c. energy level, electron cloud, suborbital
d. suborbital, electron cloud, energy level

25. What is the electron configuration for the element sulfur?

a. $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^5$
b. $1s^2\ 1p^6\ 2s^2\ 2p^6$
c. $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^4$
d. $1s^2\ 1p^6\ 2s^2\ 3s^2\ 3p^4$

26. What is the correct electron orbital diagram for the element oxygen

a



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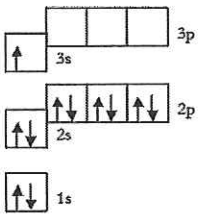
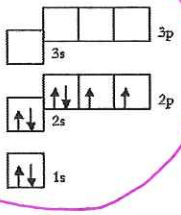


c



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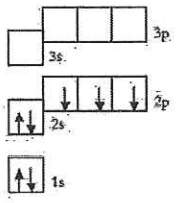

27. Write the electron configuration for the element phosphorus (P)

$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^3$

HS-PS1-1.4 I can construct a Lewis dot diagram for the first 18 elements on the periodic table.

28. The correct Lewis Dot diagram for nitrogen is

a. ·N· b. ·Ni· c. ·N· d. ·N·

29. Draw the Lewis dot diagram for the element sulfur(#16):

·S·

30. Draw the Lewis dot diagram for the element calcium(#20):

Ca·

31. Draw the Lewis dot diagram for the element carbon(#6):

	Element Name	Atomic #	Mass #	p	n	e	Period #	Group #
32.	carbon	6	12	6	6	6	2	14
33.	Zinc	30	65	30	35	30	4	12
34.	Magnesium	12	24	12	12	12	3	2
35.	Lithium	3	7	3	4	3	2	1