

## Pre-Formatted Reports: Benchmark Test Item Analysis - New Format

### Data Selections

**Institution(s):** All School Types, All Schools  
**Benchmark Administration:** 03/02/15, 2014-15 Mid-Semester Chemistry (2sem)  
**Trend Profile:** 2014-2015  
**Subject:** Life and Physical Sciences  
**Test Focus:** All Test Focuses  
**Test Level:** All Benchmark Test Levels  
**Test Category:** District Benchmark  
**Grade:** All Grade Levels  
**Enrollment:** Current

Number of questions: 50  
 Number of test-taking students: 440

### Student Responses

Question - Type	Correct		Incorrect	Most Common Mistake		Point Value	Points Achieved / Possible	P-Value / Item Mean	Discrimination
	Rate	Value	Total Rate	Rate	Value				
1 - Multiple Choice	70%	C	30%	19%	D	1	310 / 440	0.70	0.41
2 - Multiple Choice	60%	C	40%	15%	A	1	265 / 440	0.60	0.50
3 - Multiple Choice	44%	B	56%	28%	C	1	194 / 440	0.44	0.37
4 - Multiple Choice	46%	A	54%	26%	B	1	202 / 440	0.46	0.35
5 - Multiple Choice	61%	C	39%	14%	A	1	269 / 440	0.61	0.16
6 - Multiple Choice	62%	B	38%	19%	C	1	274 / 440	0.62	0.35
7 - Multiple Choice	64%	A	36%	15%	C	1	281 / 440	0.64	0.29
8 - Multiple Choice	47%	D	53%	26%	C	1	207 / 440	0.47	0.47
9 - Multiple Choice	75%	C	25%	15%	A	1	328 / 440	0.75	0.34
10 - Multiple Choice	87%	B	13%	11%	A	1	381 / 440	0.87	0.23
11 - Multiple Choice	82%	A	18%	7%	C	1	361 / 440	0.82	0.40
12 - Multiple Choice	34%	D	66%	50%	B	1	149 / 440	0.34	0.41
13 - Multiple Choice	64%	B	36%	20%	A	1	282 / 440	0.64	0.46
14 - Multiple Choice	38%	C	62%	34%	B	1	169 / 440	0.38	0.33
15 - Multiple Choice	49%	B	51%	41%	A	1	214 / 440	0.49	0.12
16 - Multiple Choice	40%	D	60%	21%	C	1	178 / 440	0.40	0.26
17 - Multiple Choice	68%	B	32%	23%	A	1	300 / 440	0.68	0.29
18 - Multiple Choice	75%	A	25%	12%	C	1	329 / 440	0.75	0.32
19 - Multiple Choice	31%	D	69%	33%	C	1	137 / 440	0.31	0.39
20 - Multiple Choice	48%	D	53%	31%	C	1	209 / 440	0.48	0.36

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21 - Multiple Choice	52%	B	48%	41%	A	1	227 / 440	0.52	0.39
22 - Multiple Choice	56%	A	44%	26%	B	1	248 / 440	0.56	0.44
23 - Multiple Choice	66%	B	34%	19%	D	1	291 / 440	0.66	0.43
24 - Multiple Choice	32%	D	68%	37%	C	1	139 / 440	0.32	0.41
25 - Multiple Choice	77%	A	23%	18%	C	1	337 / 440	0.77	0.41
26 - Multiple Choice	24%	D	76%	31%	B	1	106 / 440	0.24	0.17
27 - Multiple Choice	57%	A	43%	22%	C	1	249 / 440	0.57	0.28
28 - Multiple Choice	92%	D	8%	4%	A	1	404 / 440	0.92	0.33
29 - Multiple Choice	71%	C	29%	19%	D	1	312 / 440	0.71	0.40
30 - Multiple Choice	78%	A	22%	19%	B	1	342 / 440	0.78	0.44
31 - Multiple Choice	66%	B	34%	26%	A	1	290 / 440	0.66	0.28
32 - Multiple Choice	31%	B	69%	44%	A	1	137 / 440	0.31	0.26
33 - Multiple Choice	56%	C	44%	28%	A	1	245 / 440	0.56	0.48
34 - Multiple Choice	82%	C	18%	10%	B	1	360 / 440	0.82	0.43
35 - Multiple Choice	62%	D	38%	23%	B	1	274 / 440	0.62	0.34
36 - Multiple Choice	32%	C	68%	37%	B	1	142 / 440	0.32	0.25
37 - Multiple Choice	85%	B	15%	12%	A	1	376 / 440	0.85	0.40
38 - Multiple Choice	33%	B	67%	37%	A	1	147 / 440	0.33	0.38
39 - Multiple Choice	52%, 25%	A, B	23%	14%	D	1	339 / 440	0.77	0.24
40 - Multiple Choice	36%	B	64%	33%	C	1	160 / 440	0.36	0.11
41 - Multiple Choice	54%	D	46%	26%	C	1	238 / 440	0.54	0.19
42 - Multiple Choice	37%	C	63%	29%	B	1	162 / 440	0.37	0.40
43 - Multiple Choice	64%	B	36%	13%	C	1	281 / 440	0.64	0.33
44 - Multiple Choice	53%	C	47%	30%	D	1	233 / 440	0.53	0.25
45 - Multiple Choice	51%	D	49%	22%	A	1	225 / 440	0.51	0.33
46 - Multiple Choice	42%	A	58%	35%	C	1	183 / 440	0.42	0.36
47 - Multiple Choice	45%	A	55%	28%	B	1	197 / 440	0.45	0.10
48 - Multiple Choice	59%	B	41%	26%	A	1	260 / 440	0.59	0.42
49 - Multiple Choice	35%	B	65%	48%	A	1	153 / 440	0.35	0.19
50 - Multiple Choice	29%	D	71%	25%	B	1	129 / 440	0.29	0.35
<b>Summary</b>	<b>56%</b>		<b>44%</b>				<b>245 / 440</b>		

P-value represents an item's difficulty as evaluated by dividing the total number of correct responses by the total number of students tested. P-value is calculated for true/false, multiple choice, gridded or hot spot-single response items.

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Item Mean is the average score for student responses to an open response question or to a multi-part question. Item Mean is calculated for inline response, matching or hot spot-multiple selections items.

Discrimination or Item Total Score Correlation is the correlation between the question score and the overall test score and indicates the extent to which success on an item corresponds to success on the test.

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## Standards Alignment to NC Essential Standards

Question	ID	Standard Description
1 - Multiple Choice	NCES.Chm.1.1	Analyze the structure of atoms and ions.
2 - Multiple Choice	NCES.Chm.1.1	Analyze the structure of atoms and ions.
3 - Multiple Choice	NCES.Chm.1.3.2	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
4 - Multiple Choice	NCES.Chm.1.1.3	Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model.
5 - Multiple Choice	NCES.Chm.1.1.4	Explain the process of radioactive decay by the use of nuclear equations and half-life.
6 - Multiple Choice	NCES.Chm.1.1.4	Explain the process of radioactive decay by the use of nuclear equations and half-life.
7 - Multiple Choice	NCES.Chm.1.2.5	Compare the properties of ionic, covalent, metallic, and network compounds.
8 - Multiple Choice	NCES.Chm.1.2.1	Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds.
9 - Multiple Choice	NCES.Chm.1.2.2	Infer the type of bond and chemical formula formed between atoms.
10 - Multiple Choice	NCES.Chm.1.2.4	Interpret the name and formula of compounds using IUPAC convention.
11 - Multiple Choice	NCES.Chm.1.2.2	Infer the type of bond and chemical formula formed between atoms.
12 - Multiple Choice	NCES.Chm.1.2.4	Interpret the name and formula of compounds using IUPAC convention.
13 - Multiple Choice	NCES.Chm.1.2.4	Interpret the name and formula of compounds using IUPAC convention.
14 - Multiple Choice	NCES.Chm.1.2.1	Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds.
15 - Multiple Choice	NCES.Chm.2.2.4	Analyze the stoichiometric relationships inherent in a chemical reaction.
16 - Multiple Choice	NCES.Chm.1.2.3	Compare inter- and intra- particle forces.
17 - Multiple Choice	NCES.Chm.1.2.1	Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds.
18 - Multiple Choice	NCES.Chm.1.2.1	Compare (qualitatively) the relative strengths of ionic, covalent, and metallic bonds.
19 - Multiple Choice	NCES.Chm.1.2.5	Compare the properties of ionic, covalent, metallic, and network compounds.
20 - Multiple Choice	NCES.Chm.1.2.5	Compare the properties of ionic, covalent, metallic, and network compounds.
21 - Multiple Choice	NCES.Chm.1.3.2	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
22 - Multiple Choice	NCES.Chm.1.3.2	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
23 - Multiple Choice	NCES.Chm.1.3.1	Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition).
24 - Multiple Choice	NCES.Chm.1.3.2	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
25 - Multiple Choice	NCES.Chm.1.3.1	Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition).
26 - Multiple Choice	NCES.Chm.1.3.1	Classify the components of a periodic table (period, group, metal,

metalloid, nonmetal, transition).

<b>27 - Multiple Choice NCES.Chm.2.2.5</b>	Analyze quantitatively the composition of a substance (empirical formula, molecular formula, percent composition, and hydrates).
<b>28 - Multiple Choice NCES.Chm.1.3.2</b>	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
<b>29 - Multiple Choice NCES.Chm.2.2.2</b>	Analyze the evidence of chemical change.
<b>30 - Multiple Choice NCES.Chm.1.2.2</b>	Infer the type of bond and chemical formula formed between atoms.
<b>31 - Multiple Choice NCES.Chm.1.3.2</b>	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
<b>32 - Multiple Choice NCES.Chm.1.1.1</b>	Analyze the structure of atoms, isotopes, and ions.
<b>33 - Multiple Choice NCES.Chm.1.1.1</b>	Analyze the structure of atoms, isotopes, and ions.
<b>34 - Multiple Choice NCES.Chm.1.3.1</b>	Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition).
<b>35 - Multiple Choice NCES.Chm.1.3.1</b>	Classify the components of a periodic table (period, group, metal, metalloid, nonmetal, transition).
<b>36 - Multiple Choice NCES.Chm.2.2.3</b>	Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).
<b>37 - Multiple Choice NCES.Chm.1.1.2</b>	Analyze an atom in terms of the location of electrons.
<b>38 - Multiple Choice NCES.Chm.2.2.3</b>	Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).
<b>39 - Multiple Choice NCES.Chm.1.2.4</b>	Interpret the name and formula of compounds using IUPAC convention.
<b>40 - Multiple Choice NCES.Chm.2.2.2</b>	Analyze the evidence of chemical change.
<b>41 - Multiple Choice NCES.Chm.1.1.3</b>	Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model.
<b>42 - Multiple Choice NCES.Chm.2.2.3</b>	Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).
<b>43 - Multiple Choice NCES.Chm.2.2.3</b>	Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).
<b>44 - Multiple Choice NCES.Chm.2.2.3</b>	Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).
<b>45 - Multiple Choice NCES.Chm.3.2.6</b>	Explain the solution process.
<b>46 - Multiple Choice NCES.Chm.1.3.2</b>	Infer the physical properties (atomic radius, metallic and nonmetallic characteristics) of an element based on its position on the Periodic Table.
<b>47 - Multiple Choice NCES.Chm.1.1.4</b>	Explain the process of radioactive decay by the use of nuclear equations and half-life.
<b>48 - Multiple Choice NCES.Chm.1.1.1</b>	Analyze the structure of atoms, isotopes, and ions.
<b>49 - Multiple Choice NCES.Chm.1.1.3</b>	Explain the emission of electromagnetic radiation in spectral form in terms of the Bohr model.
<b>50 - Multiple Choice NCES.Chm.2.2.3</b>	Analyze the law of conservation of matter and how it applies to various types of chemical equations (synthesis, decomposition, single replacement, double replacement, and combustion).