Physics Assessments in New York State:
Recent Trends and Resources

WNYPTA

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Why analyze assessment data?

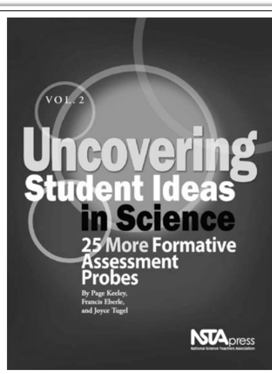
- Critical links:
  - Curriculum/Assessment/Instruction
  - Effective instructional time
  - Program Improvement
- Resources
  - Clickers/thumbs up or down
  - Keeley's "Formative Assessment Probes"
  - Misconceptions research
  - Learning Progressions
  - Peer Discourse/Whiteboarding

What is our emphasis?

- One example: Pendulum Motion – Emphasis?
  1. Technical skills (using stop watches, probeware)
  2. Lab skills (creating, completing tables)
  3. Data analysis (reconciling individual group & class results)
  4. Constructing/refining individual understanding

The Larger Picture
(Pella, 1961)

Steps in Procedure	I	II	III	IV	V
1. Statement of Problem	T	T	T	T	P
2. Hypothesis	T	T	T	P	P
3. Working Plan	T	T	P	P	P
4. Performance	P	P	P	P	P
5. Data Gathering	P	P	P	P	P
6. Conclusion	T	P	P	P	P



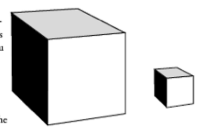
Physical Science Assessment Probes
Concept Matrix

Probes

Core Science Concepts	Properties of Matter							Particulate Matter		Energy	
	Comparing Cubes	Floating Logs	Floating High and Low	Solids and Holes	Turning the Dial	Boiling Time and Temperature	Freezing Ice	What's in the Bubbles?	Chemical Bonds	Ice-Cold Lemonade	Mixing Water
Atoms or Molecules	✓							✓	✓		
Boiling and Boiling point					✓	✓		✓			
Buoyancy			✓								
Change in State					✓	✓		✓			
Characteristic Properties	✓	✓	✓	✓	✓	✓	✓				
Chemical Bonds									✓		
Conduction										✓	✓
Density	✓	✓	✓	✓							

Comparing Cubes

Sofia has two solid cubes made of the same material. One cube is very large, and the other cube is very small. Put an X next to all the statements you think are true about the two cubes.



___ **A** The larger cube has more mass than the smaller cube.

___ **B** The larger cube has less mass than the smaller cube.

___ **C** The larger cube melts at a higher temperature than the smaller cube.

___ **D** The larger cube melts at a lower temperature than the smaller cube.

___ **E** The density of the larger cube is greater than the smaller cube.

___ **F** The density of the larger cube is less than the smaller cube.

___ **G** The larger cube is more likely to float in water than the smaller cube.

___ **H** The larger cube is more likely to sink in water than the smaller cube.

___ **I** The larger cube is made up of larger atoms than the smaller cube.

___ **J** The larger cube is made up of smaller atoms than the smaller cube.

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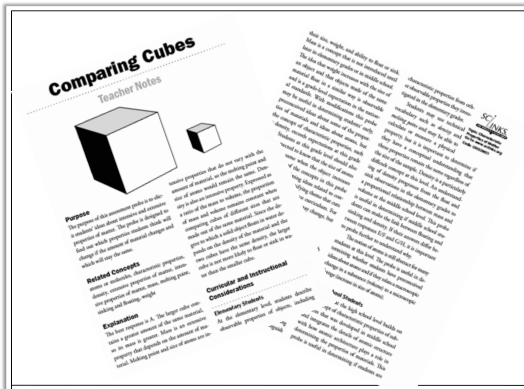

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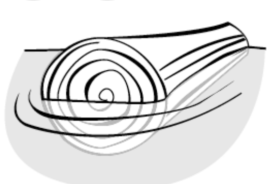
Floating Logs

A log was cut from a tree and put in water. The log floated on its side so that half the log was above the water surface. Another log was cut from the same tree. This log was twice as long and twice as wide. How does the larger log float compared with the smaller log? Circle the best answer:



A More than half of the larger log floats above the water surface.

B Half of the larger log floats above the water surface.

C Less than half of the larger log floats above the water surface.

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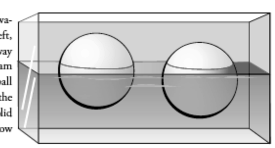
Floating High and Low

Sam put a solid ball in a tank of water. As shown by the ball on the left, it floated halfway above and halfway below the water level. What can Sam do to make a ball float like the ball on the right? Put an X next to all the things Sam can do to have a solid ball float so that most of it is below the water level.



___ **A** Use a larger ball made out of the same material.

___ **B** Use a smaller ball made out of the same material.

___ **C** Use a ball of the same size made out of a denser material.

___ **D** Use a ball of the same size made out of less dense material.

___ **E** Add more water to the tank so it is deeper.

___ **F** Add salt to the water.

___ **G** Attach a weight to the ball.

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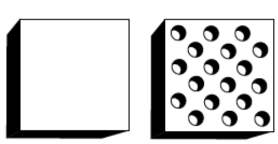
Solids and Holes

Lance had a thin, solid piece of material. He placed the material in water and it floated. He took the material out and punched holes all the way through it. What do you think Lance will observe when he puts the material with holes back in the water? Circle your prediction.



A It will sink.

B It will barely float.

C It will float the same as it did before the holes were punched in it.

D It will neither sink nor float. It will bob up and down in the water.

Explain your thinking. Describe the "rule" or reasoning you used to make your prediction.

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Estimating Item Difficulty is Challenging

- van de Watering, G. & van der Rijt, (2006) Teachers' and students' perceptions of assessments: A review and a study into the ability and accuracy of estimating the difficulty levels of assessment items. J. Educational Research Review Vol .1, No. 2, pp. 133–147
- Impara, J., & Plake, B. (1998) Teachers' Ability to Estimate Item Difficulty: A Test of the Assumptions in the Angoff Standard Setting Method, *Journal of Educational Measurement, Vol. 35, No. 1*, pp. 69-81

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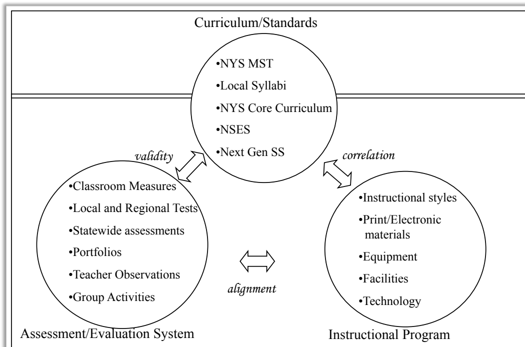
The Current Climate

APPR

1. Develop Student Learning Outcomes (SLOs)
2. Estimate item difficulty (Pre-test)
3. Consider current and potential instructional approaches
4. Generate formative assessments items
5. Revisit item difficulty (Post-test)



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Difficulty, Discrimination, Response Pattern

Test Score	Response (*Correct)
100	A*
95	A*
90	A*
88	A*
85	A*
80	B
78	B
70	B
65	C
60	D

NYS Regents: Physical Setting Physics – June 2012 (WNYRIC) (N=8353)

Multiple Choice

MU	Key Idea	Item #	Dif	R1	R2	R3	R4	NR
4.1-Trans. of Energy	4.1a All energy transfers are governed by the law of conservation of energy.	14	0.70	46	31	2394	**5877**	5
4.1-Trans. of Energy	4.1a All energy transfers are governed by the law of conservation of energy.	50	0.80	758	757	**6665**	160	13
4.1-Trans. of Energy	4.1g When work is done on or by a system, there is a change in the total energy of the system.	17	0.75	1780	163	**6283**	123	4
4.1-Trans. of Energy	4.1i Power is the time-rate at which work is done or energy is expended.	22	0.61	2326	**5122**	498	398	9
4.1-Trans. of Energy	4.1i Power is the time-rate at which work is done or energy is expended.	39	0.60	1312	1893	154	**4985**	9
4.1-Trans. of Energy	4.1i Power is the time-rate at which work is done or energy is expended.	40	0.74	205	589	**6205**	1337	17
4.1-Trans. of Energy	4.1k Moving electric charges produce magnetic fields. The relative motion between. . .	19	0.55	213	449	3061	**4611**	19
4.1-Trans. of Energy	4.1k Moving electric charges produce magnetic fields. The relative motion between. . .	30	0.61	2513	**5087**	584	161	8
4.1-Trans. of Energy	4.1l All materials display a range of conductivity. At constant temperature. . .	20	0.67	821	988	914	**5625**	5
4.1-Trans. of Energy	4.1l All materials display a range of conductivity. At constant temperature. . .	41	0.65	1349	1148	**5393**	426	37
4.1-Trans. of Energy	4.1m The factors affecting resistance in a conductor are length, cross-sectional area, . . .	15	0.63	1031	505	**5231**	1580	6
4.1-Trans. of Energy	4.1o Circuit components may be connected in series or in parallel. . .	25	0.71	**5948**	1396	927	76	6
4.1-Trans. of Energy	4.1p Electrical power and energy can be determined for electric circuits. . .	26	0.84	**7001**	585	353	393	21
4.1-Trans. of Energy	4.1p Electrical power and energy can be determined for electric circuits. . .	43	0.58	**4823**	164	2917	442	7
4.3-Wavelength and Freq.	4.3b Waves carry energy and information without transferring mass. . .	29	0.59	1520	**4966**	664	1195	8
4.3-Wavelength and Freq.	4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .	21	0.52	1104	**4335**	2138	765	11
4.3-Wavelength and Freq.	4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .	31	0.68	**5696**	461	327	1855	14
4.3-Wavelength and Freq.	4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .	34	0.69	2099	**5757**	117	372	8
4.3-Wavelength and Freq.	4.3e Waves are categorized by the direction in which particles in a medium vibrate. . .	24	0.51	**4285**	1008	1479	1570	11
4.3-Wavelength and Freq.	4.3f Resonance occurs when energy is transferred to a system at its natural frequency.	32	0.84	573	73	657	**7044**	6
4.3-Wavelength and Freq.	4.3j The absolute index of refraction is inversely proportional to the speed of a wave.	49	0.64	600	1428	972	**5345**	8
4.3-Wavelength and Freq.	4.3l Diffraction occurs when waves pass by obstacles or through openings. . .	35	0.50	2433	**4177**	1485	254	4
4.3-Wavelength and Freq.	4.3m When waves of a similar nature meet, the resulting interference may be explained. . .	46	0.69	92	**5735**	2402	120	4
4.3-Wavelength and Freq.	4.3n When a wave source and an observer are in relative motion, the observed frequency. . .	33	0.83	659	210	575	**6902**	7
5.1-Patterns of Motion	5.1a Measured quantities can be classified as either vector or scalar.	01	0.67	**5583**	967	125	1676	2
5.1-Patterns of Motion	5.1a Measured quantities can be classified as either vector or scalar.	23	0.57	664	**4726**	648	2298	17
5.1-Patterns of Motion	5.1c The resultant of two or more vectors, acting at any angle, is determined by vector addition.	12	0.73	6058	**286**	1537	463	9
5.1-Patterns of Motion	5.1d An object in linear motion may travel with a constant velocity or with acceleration.	02	0.80	84	1460	6708	97	4
5.1-Patterns of Motion	5.1d An object in linear motion may travel with a constant velocity or with acceleration.	06	0.86	370	322	480	7172	9
5.1-Patterns of Motion	5.1d An object in linear motion may travel with a constant velocity or with acceleration.	08	0.85	306	871	7083	90	3
5.1-Patterns of Motion	5.1f The path of a projectile is the result of the simultaneous effect of the horizontal and . . .	03	0.53	1095	2311	4405	502	40
5.1-Patterns of Motion	5.1g A projectile's time of flight is dependent upon the vertical component of its motion.	45	0.85	186	7097	883	183	4
5.1-Patterns of Motion	5.1i According to Newton's First Law, the inertia of an object is directly proportional. . .	05	0.82	6825	1111	68	345	4
5.1-Patterns of Motion	5.1i According to Newton's First Law, the inertia of an object is directly proportional. . .	07	0.59	1095	1514	4898	831	15
5.1-Patterns of Motion	5.1n Centripetal force is the net force which produces centripetal acceleration. . .	09	0.76	1050	361	566	6355	21
5.1-Patterns of Motion	5.1n Centripetal force is the net force which produces centripetal acceleration. . .	16	0.78	419	747	647	6538	2
5.1-Patterns of Motion	5.1n Centripetal force is the net force which produces centripetal acceleration. . .	37	0.50	3340	354	4195	448	16
5.1-Patterns of Motion	5.1o Kinetic friction is a force that opposes motion.	11	0.81	6796	611	745	174	27

NYS Regents: Physical Setting Physics – June 2012 (WNYRIC) (N=8353)

5.1-Patterns of Motion	5.1q According to Newton's Third Law, forces occur in action/reaction pairs. . .	47	0.52	4371	857	3034	84	7
5.1-Patterns of Motion	5.1r Momentum is conserved in a closed system.	10	0.89	202	7475	118	556	2
5.1-Patterns of Motion	5.1r Momentum is conserved in a closed system.	38	0.72	283	1812	6006	242	10
5.1-Patterns of Motion	5.1s Field strength and direction are determined using a suitable test particle. . .	13	0.88	227	7344	451	292	39
5.1-Patterns of Motion	5.1s Field strength and direction are determined using a suitable test particle. . .	28	0.60	2404	5043	547	345	14
5.1-Patterns of Motion	5.1t Gravitational forces are only attractive, whereas electrical and magnetic forces can. . .	48	0.35	2942	175	4219	1014	3
5.1-Patterns of Motion	5.1u The inverse square law applies to electrical and gravitational fields. . .	18	0.68	5658	712	1754	216	13
5.1-Patterns of Motion	5.1u The inverse square law applies to electrical and gravitational fields. . .	42	0.71	484	692	1208	5962	7
5.3-Energy Relationships	5.3b Charge is quantized on two levels. On the atomic level. . .	04	0.80	458	1036	6657	182	20
5.3-Energy Relationships	5.3c On the atomic level, energy is emitted or absorbed in discrete packets called photons.	44	0.41	765	3911	3440	231	6
5.3-Energy Relationships	5.3d The energy of a photon is proportional to its frequency.	27	0.91	211	153	7566	420	3
Standard 6	I3.2 Extend their use of powers of ten notation to understanding the exponential. . .	36	0.69	660	5804	1741	142	6

Constructed Response

MU	Key Idea	Item #	Dif	0	1	NR
4.1-Trans. of Energy	4.1c Potential energy is the energy an object possesses by virtue of its position or condition. . .	52	0.82	1521	6830	2
4.1-Trans. of Energy	4.1c Potential energy is the energy an object possesses by virtue of its position or condition. . .	53	0.75	2098	6253	2
4.1-Trans. of Energy	4.1d Kinetic energy is the energy an object possesses by virtue of its motion.	68	0.87	1100	7251	2
4.1-Trans. of Energy	4.1d Kinetic energy is the energy an object possesses by virtue of its motion.	69	0.87	1092	7260	1
4.1-Trans. of Energy	4.1d Kinetic energy is the energy an object possesses by virtue of its motion.	70	0.92	635	7717	1
4.1-Trans. of Energy	4.1o Circuit components may be connected in series or in parallel. . .	60	0.91	735	7615	3
4.1-Trans. of Energy	4.1o Circuit components may be connected in series or in parallel. . .	61	0.79	1753	6596	4
4.1-Trans. of Energy	4.1o Circuit components may be connected in series or in parallel. . .	62	0.85	1257	7093	3
4.1-Trans. of Energy	4.1o Circuit components may be connected in series or in parallel. . .	63	0.78	1812	6538	3
4.3-Wavelength and Freq.	4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .	64	0.73	2275	6076	2
4.3-Wavelength and Freq.	4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .	65	0.86	1165	7185	3
4.3-Wavelength and Freq.	4.3h When a wave strikes a boundary between two media, reflection, transmission. . .	80	0.80	1663	6690	0
4.3-Wavelength and Freq.	4.3i When a wave moves from one medium into another, the wave may refract due. . .	77	0.77	1937	6415	1
4.3-Wavelength and Freq.	4.3i When a wave moves from one medium into another, the wave may refract due. . .	78	0.80	1673	6680	0
5.1-Patterns of Motion	5.1d An object in linear motion may travel with a constant velocity or with acceleration.	71	0.76	2013	6339	1
5.1-Patterns of Motion	5.1d An object in linear motion may travel with a constant velocity or with acceleration.	72	0.85	1265	7087	1
5.1-Patterns of Motion	5.1g A projectile's time of flight is dependent upon the vertical component of its motion.	57	0.62	3195	5156	2
5.1-Patterns of Motion	5.1h The horizontal displacement of a projectile is dependent upon. . .	56	0.85	1250	7102	1
5.1-Patterns of Motion	5.1k According to Newton's Second Law, an unbalanced force causes a mass to accelerate.	54	0.79	1747	6603	3
5.1-Patterns of Motion	5.1k According to Newton's Second Law, an unbalanced force causes a mass to accelerate.	55	0.82	1489	6862	2
5.1-Patterns of Motion	5.1u The inverse square law applies to electrical and gravitational fields. . .	58	0.81	1611	6740	2
5.1-Patterns of Motion	5.1u The inverse square law applies to electrical and gravitational fields. . .	59	0.71	2404	5947	2
5.3-Energy Relationships	5.3b Charge is quantized on two levels. On the atomic level. . .	83	0.59	3430	4921	2
5.3-Energy Relationships	5.3g The Standard Model of Particle Physics has evolved. . .	81	0.63	3121	5232	0
5.3-Energy Relationships	5.3g The Standard Model of Particle Physics has evolved. . .	82	0.67	2791	5562	0
5.3-Energy Relationships	5.3j The fundamental source of all energy in the universe is the conversion of mass into energy.	84	0.37	5220	3132	1

MU

4.1-Trans. of Energy

Key Idea

4.1a All energy transfers are governed by the law of conservation of energy.

Item #	Dif	R1	R2	R3	R4	NR
14	0.70	46	31	2394	**5877**	5

4.3-Wavelength and Freq.

4.3c The model of a wave incorporates the characteristics of amplitude, wavelength. . .

Item	Difficulty	1 (0)	2 (1)	3	4	NR
21	0.52	1104	**4335**	2138	765	11
31	0.68	**5696**	461	327	1855	14
34	0.69	2099	**5757**	117	372	8
64	0.73	2275	6076	---	---	2
65	0.86	1165	7185	---	---	3

21 The wavelength of a wave doubles as it travels from medium *A* into medium *B*. Compared to the wave in medium *A*, the wave in medium *B* has

(1) half the speed
(2) twice the speed
(3) half the frequency
(4) twice the frequency

Item	Difficulty	1	2	3	4	NR
21	0.52	1104	**4335**	2138	765	11

31 What is the wavelength of a 2.50-kilohertz sound wave traveling at 326 meters per second through air?

(1) 0.130 m
(2) 1.30 m
(3) 7.67 m
(4) 130. m

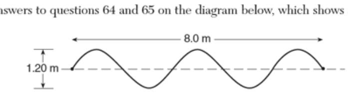
Item	Difficulty	1	2	3	4	NR
31	0.68	**5696**	461	327	1855	14

34 While sitting in a boat, a fisherman observes that two complete waves pass by his position every 4 seconds. What is the period of these waves?

(1) 0.5 s
(2) 2 s
(3) 8 s
(4) 4 s

Item	Difficulty	1	2	3	4	NR
34	0.69	2099	**5757**	117	372	8

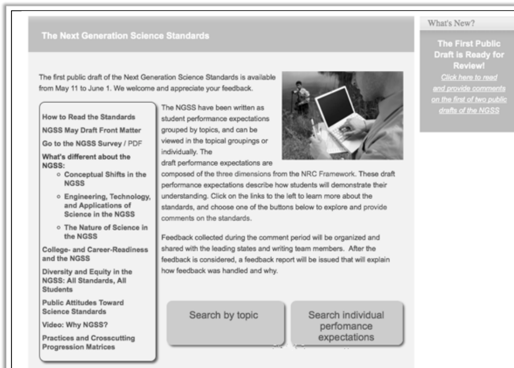
Base your answers to questions 64 and 65 on the diagram below, which shows a wave in a rope.



64 Determine the wavelength of the wave. [1]

65 Determine the amplitude of the wave. [1]

Item	Difficulty	0	1	NR
64	0.73	2275	6076	2
65	0.86	1165	7185	3



Plummer & Krajcik (2010)

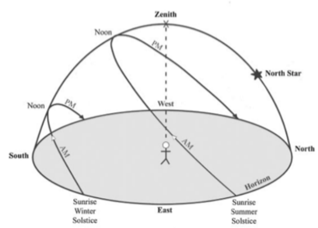
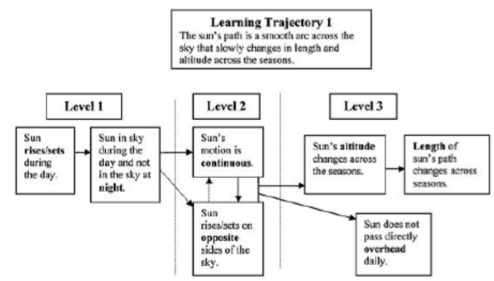


Figure 1. The sun's path in summer and winter for an observer at 40° north latitude.

Learning Progression 1

(1) The sun's path is a smooth arc across the sky that slowly changes in length and altitude across the seasons.
(2) The moon moves across the sky on a daily basis in a similar path to the sun, sometimes during the day and sometimes at night.
(3) The pattern of stars remains the same but appear to move across the sky nightly. The stars visible after sunset change slowly across the seasons.
(4) The appearance of the moon changes slowly in a cycle that lasts about a month.



Percentage of students at each level for Study A (N=60) and Study B (N=63)

Percentage of students at each level for Study A (N=60) and Study B (N=63)

	Level 1 (Rise/set)	Level 1 (Day/night)	Level 2 (Cont)	Level 2 (Opp)	Level 3 (Overhead)	Level 3 (Altitude)	Level 3 (Length)
Study A							
1st grade	65%	79%[a,b]	60%	30%	0%	0%	0%
3rd grade	95%	75%[b]	90%	70%	0%	0%	0%
8th grade	100%	90%[b]	95%	100%	5%	10%	0%
Study B							
Before	86%	81%	N/A	68%	2%	3%	5%
After	97%	86%	N/A	86%	54%	59%	57%

[a] One student was not asked.
[b] Some students were unsure/unclear about the sun's location at night: two in 1st grade; four in 3rd grade; one in 8th grade.

Student Learning Objective (SLOs)

Template (Components):

- Population
- Learning Content[1]
- Interval of Instructional Time
- Evidence[1]
- Baseline
- Target(s)[1]
- HEDI Scoring[1]
- Rationale[2]

[1]Justification (Rationale)
[2]Essential

Student Learning Objective (SLOs)

Template (Components):

- *Population*
- Learning Content
- *Interval of Instructional Time*
- Evidence
- *Baseline*
- Target(s)
- HEDI Scoring
- Rationale

Student Learning Objective (SLOs)

Template (Components):

- Population
- *Learning Content*
- Interval of Instructional Time
- *Evidence*
- Baseline
- *Target(s)*
- *HEDI Scoring**
- *Rationale*

*Highly effective, Effective, Developing, Ineffective

SLO Example

- Posted to EngageNY
- Developed by:

  Jackie Carrese, Science Director

  Niskayuna Central School District

Mr. Photon 97 Students	2 sections of Regents Chemistry with 25 and 22 students respectively, 1 section of Chemistry (non-Regents) with 26 students, 1 section of Science Topics with 24 students
No State- provided growth measure currently exists for Chemistry Regents	
Largest course/assessment combination is Regents Chemistry with a total of 47 students so first SLO must cover/be developed for these classes; however 47 students is less than the majority of this teacher's 97 students (47/97=48%) (must use Regents exam as evidence in this SLO)	
A second SLO must be included for the next largest course/assessment, which is Chemistry (non-Regents). This covers 26 more students and a majority of students are now covered (47 + 26 = 73 and 73/97 = approx. 75% of students covered (must use district developed common assessment as evidence in this SLO)	

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Sample Science SLOs

Mr. Photon	Student Learning Objective #1
Population	Regents Chemistry Class; all 47 students (see attached roster with baseline student information)
Learning Content	New York State Learning Standards for Physical Setting: Chemistry. All standards will be Focused on during the interval of instruction
Interval	September-June 2012-13
Evidence	1. District-wide pre-assessment administered at the beginning of the school year (2010 Regents Exam) 2. Summative assessment will be the June 2013 NYS Physical Setting: Chemistry Regents Examination
Baseline	1. Scores ranged from 6% to 50% on the Chemistry Regents District-wide pre-assessment (Please see attachment for student roster with all baseline data).
Target(s) and HEDI Scoring	1.) 90% of students who scored 6-45% will score 65 or better on the Chemistry Regents Exam 2.) 90% of students who scored 46-50% will score 85 or better on the Chemistry Regents Exam
	Highly Effective: 91-100% of students will meet the target set above Effective: 80-90% of students will meet the target set above Developing: 50-79% of students will meet the target set above Ineffective: 0-49% of students will meet the target set above

Highly Effective (18-20 pts)			Effective (9-17 pts)									Developing (3-8pts)						Ineffective (0-2pts)		
20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
97-100	94-96	91-93	88-90	87	86	85	84	83	82	81	80	75-79	70-74	65-69	60-64	55-59	50-54	33-49	17-32	0-16

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Mr. Photon's SLO #1 continued….

Rationale	The diagnostic pre-assessment is focused on the performance indicators and major understandings that all students must demonstrate proficiency with in order to be successful on the state assessment at the end of the year. Since 90% of students demonstrated understanding of less than 40% of the content/skill, my goal is to provide them with differentiated instruction (embedded with elements of the Common Core for ELA and Math as appropriate within the science standards) to ensure proficiency (65%) on the Chemistry Regents Exam in June, 2013. Since 10% of students demonstrated understanding of 41-50% of the content/skill, my goal is to provide differentiated instruction (embedded with elements of the Common Core for ELA and Math as appropriate within the science standards) to ensure mastery (85%) on the Chemistry Regents Exam in June, 2013. For all students, we will monitor and evaluate progress towards meeting these goals via a common midterm assessment that will be used to guide future instruction. The overarching rationale for this goal is to ensure that students are prepared for advanced courses of study in the chemical sciences whether here in this school (AP Chemistry), or in college for those who are graduating.

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Mr. Photon SLO #2

Mr. Photon	Student Learning Objective #2
Population	Chemistry M (non-Regents) Class; all 26 students (see attached roster with baseline student information)
Learning Content	New York State Learning Standards for Physical Setting: Chemistry in conjunction with the district curriculum map for Chemistry M (non-Regents). The core standards in the curriculum map will be focused on during the interval of instruction
Interval	September-June 2012-13
Evidence	1. District-wide common pre-assessment administered at the beginning of the school year. 2. District-wide common summative assessment administered at the end of the school year.
Baseline	1. Scores ranged from 2% to 48% on the District Common Pre-Assessment (Please see attachment for student roster with all baseline data).
Target(s) and HEDI Scoring	1.) 80% of students will demonstrate proficiency (65 %) in the Chemistry M (non-Regents) performance indicators, as measured by the district developed summative assessment in June 2013
	Highly Effective: 86-100% of students score 65 or higher Effective: 77-85% of students score 65 or higher Developing: 65-76% of students score 65 or higher Ineffective: 0-64% of students score 65 or higher

Highly Effective (18-20 pts)			Effective (9-17 pts)									Developing (3-8pts)						Ineffective (0-2pts)		
20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
95-100	90-94 %	86-89 %	85 %	84 %	83 %	82 %	81 %	80 %	79 %	78 %	77 %	75-76 %	73-74 %	71-72 %	69-70 %	67-68	65-66	51-64	21-50	0-20

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Mr. Photon's SLO #2 continued….

Rationale	The diagnostic District-wide common pre-assessment is focused on the *foundational* components of the Physical Setting: Chemistry performance indicators and major understandings that all students must demonstrate proficiency with in order to be successful on the District-wide common summative assessment at the end of the year. Since 100% of students demonstrated ability at levels 1 and 2 only, my goal is to provide differentiated instruction (embedded with elements of the Common Core for ELA and Math as appropriate within the science standards) to ensure proficiency (65%) on the Chemistry M (non-Regents) common summative assessment in June, 2013. In addition, I will monitor and evaluate progress towards meeting these goals via a common midterm assessment that will be used to guide future instruction. The overarching rationale for this goal is to ensure that students are prepared for advanced courses of study in the chemical sciences whether here in this school, or in college for those who are graduating.

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Science SLO Overall Growth Component Rating (20) SAMPLE

Mr. Photon			
SLO SUBJECT	**Target (as approved by evaluator)**	**Actual Result**	**Evaluator SLO Score**
2 Chemistry R Sections with 25, 22 students (47)	1.) 90% of students who scored 6-45% will score 65 or better on the Chemistry Regents Exam 2.) 90% of students who scored 46-50% will score 85 or better on the Chemistry Regents Exam	89% scored 65 or better 86% scored 85 or better	HEDI score 17 HEDI score 15 Avg= HEDI: Effective **16**
1 Chemistry M (non-Regents) with 26 students (26)	80% of students will score 65 or better on the Chemistry M (non-Regents) District-created summative assessment	88% scored 65 or better	HEDI: Highly Effective **18**
Overall Growth Component Rating (20)		**SLO 1**	**SLO 2**
	Step 1: Assess results of each SLO separately	16/20 points Effective	18/20 points Highly Effective
	Step 2: Weight each SLO proportionately	47 students/73 Total students = 64% of overall	26 students/73 Total students = 36% of overall
	Step 3: Calculate proportional points for each SLO	16 points x 64%= 10 points	18 points x 36%= 6 points
	OVERALL GROWTH COMPONENT SCORE (20) = 16 Points EFFECTIVE		

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Validity & Reliability

- Split-halves
- Test Grids

Test Grid – Analyzing Existing Assessments

Assessment____________ Evaluator____________ Date____________

Cognitive Level	*Topic 1*		*Topic 2*		*Topic 3*		*Topic 4*		*Topic 5*		*Total (%)*
Knowing	Items		Items		Items		Items		Items		
	N	%	N	%	%	N	%	N	%	N	
Using	Items		Items		Items		Items		Items		
	N	%	N	%	%	N	%	N	%	N	
Integrating	Items		Items		Items		Items		Items		
	N	%	N	%	%	N	%	N	%	N	
(Topic Weight)											*(100 %)*

JZ/2009

SLO Resources

Resources:

- EngageNY SLO Landing page: http ://engag eny.org/ resource/ student-learmng-oQjectlves/
- SLO Guidance document:http:// engageny.org/wp-contem/uploads/ 20 1 Z/ 03/ slo-guldance.pdf
- SLO Roadmap: http:// engageny.org/wp-content/ uploads/ 20 12/ 03/ slo-roadmap.pdf
- SLO Webinars (Series I): http://engageny.org/ resource/ student-learning-objectives-webinar-series-i-winter-2012/

SLO Resources

- (Series ll) http:/ / engageny,org/ resource/ student-learning-objectlves-webinar-series-il-fall-20 12/
- Series for Teachers: http:// engageny.org/ resource/ student-learning-objectives-video-series-for-teachers/
- SLO Models:http:/ / engageny.org/news/ student-learning-objective-exemplars-from-new-york-stateteachers-are-now-available/
- SLO Template: http:/ / engageny.org/resource/new-york-state-student-learning-objective-template/
- APPR Guidance document: http:/ / engageny.org/wp-content/ uploads/20 12/ 05/APPR-Field-Guidance.pdf

SLO Resources

- The "Purple Memo": http:/ / engageny.org/wp-content/uploads/20 12/ 03/ nys-evaluation-plans-guidance-memo.pdf
- Approved List of 3rd Party Assessments: http://usny.nysed.gov/ rttt/ teachers-leaders/ assessments/ approved-list.html
- Approved Practice Rubrics for Teachers and Principals: http:// usny.nysed.goy/ rttt/teachers.-leaders/practicerubrics/home.html
- Approved Surveys of Students or Families for Use in Teacher and Principal Evaluations: http://usny.nysed.goylrttt/teacbers-leaders/ agproved-suryeya/bome.htm1

Questions, Comments, Concerns?

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