

INTERVENTIONS AT AMITY REGIONAL HIGH

AMITY REGIONAL HIGH SCHOOL FROM 2007-2010

Amity High School was posting CAPT Math and Science scores that consistently placed us in the bottom 10% of schools in our reference group. This was unacceptable to our community. We began a change process by asking ourselves a series of questions.

GUIDING QUESTIONS

- **What is your target?**
 - How are you Measuring and Monitoring?
 - Is data Aligned to your target and is your target attainable (SMART)?
- **Who is your target cohort?**
 - Freshmen, course specific, minority, special ed.
- **What Time is Available?**
 - Teacher Collaboration
 - Student Intervention Programming
- **How are you collecting, organizing, and using Data?**
 - Gradebook data, Spreadsheet, Reporting Software
- **What are your interventions?**
 - Tier I
 - Tier II



THE ANSWERS

The answers to these questions helped us identify weaknesses in our programming, assessment, instruction, and curriculum, and started us down the road to meaningful change.

CHANGE IS GOOD

- The answers to your guiding questions will change over time
- Keep the guiding questions - modify the program
- Embrace change, continue monitoring



INTERVENTIONS AT AMITY REGIONAL HIGH

Mathematics

WHAT IS YOUR TARGET?

Historical

- CAPT scores in the DRG basement
- Target – Move to top of DRG
 - Raise scores 10%
- How did we do?
 - 66% to 82% over 3 years
 - 2nd to bottom to 2nd in DRG



Current

- School-wide Common Assessment
 - CCSSM Aligned
- Target - 70% or higher on CA
- How are we doing?
 - Algebra 1 Diagnostic – 60%
 - Algebra 1 Midterm – 55%
 - Geometry Diagnostic – 58%
 - Geometry Midterm – 60%
 - Algebra 2 Diagnostic – 30%
 - Algebra 2 Midterm – 66%

WHO IS YOUR TARGET COHORT?

Historical

- Analyze student cohorts
 - Level 1 and honors
 - Advanced and Goal
 - Level 2
 - Goal and some proficient
 - Level 3
 - Mostly Basic
- Target – Level 2
 - Fastest way to gain
 - Closest to goal score
 - Every 4 students – 1% gain

Current

- Analyze student performance
 - Algebra 2 Example
 - HSF-IF.B.4 70% (12 CA Qs)
 - Level H – 89%
 - Level 1 – 80%
 - Level 2 – 65%
 - Level 3 – 46%



WHAT TIME IS AVAILABLE?

Historic

- Tight Schedule - 7 periods/day
- Students
 - Full Schedule
 - Most students in target cohort didn't have a study hall
- Teachers
 - Common Prep Time
 - After School
 - Bi-monthly Department Meetings
 - Release Time



Current

- Flexible Schedule-8 Drop 2
- Students
 - More course opportunities for students
 - Math Study Hall off Science Lab for target cohort
- Teachers
 - Common Prep Time
 - After School
 - Bi-monthly Department Meetings
 - Inter-discipline PLC time
 - Organized with teachers from other disciplines
 - meets 1 period every 8 days
 - Intra-discipline PLC time
 - Organized by teaching groups (Algebra, Geometry, Algebra II)
 - Meets 3 periods every 8 days

HOW ARE YOU COLLECTING & ORGANIZING DATA?

Historic

- Teacher-Created common CAPT Assessments
 - All Students & Target cohort
 - Given at specific points of time, scaffolded to build stamina
- Combo of MC and FR
- Teachers given release time to grade together
- DC organized the data to find weaknesses
- Release time to review data as a team



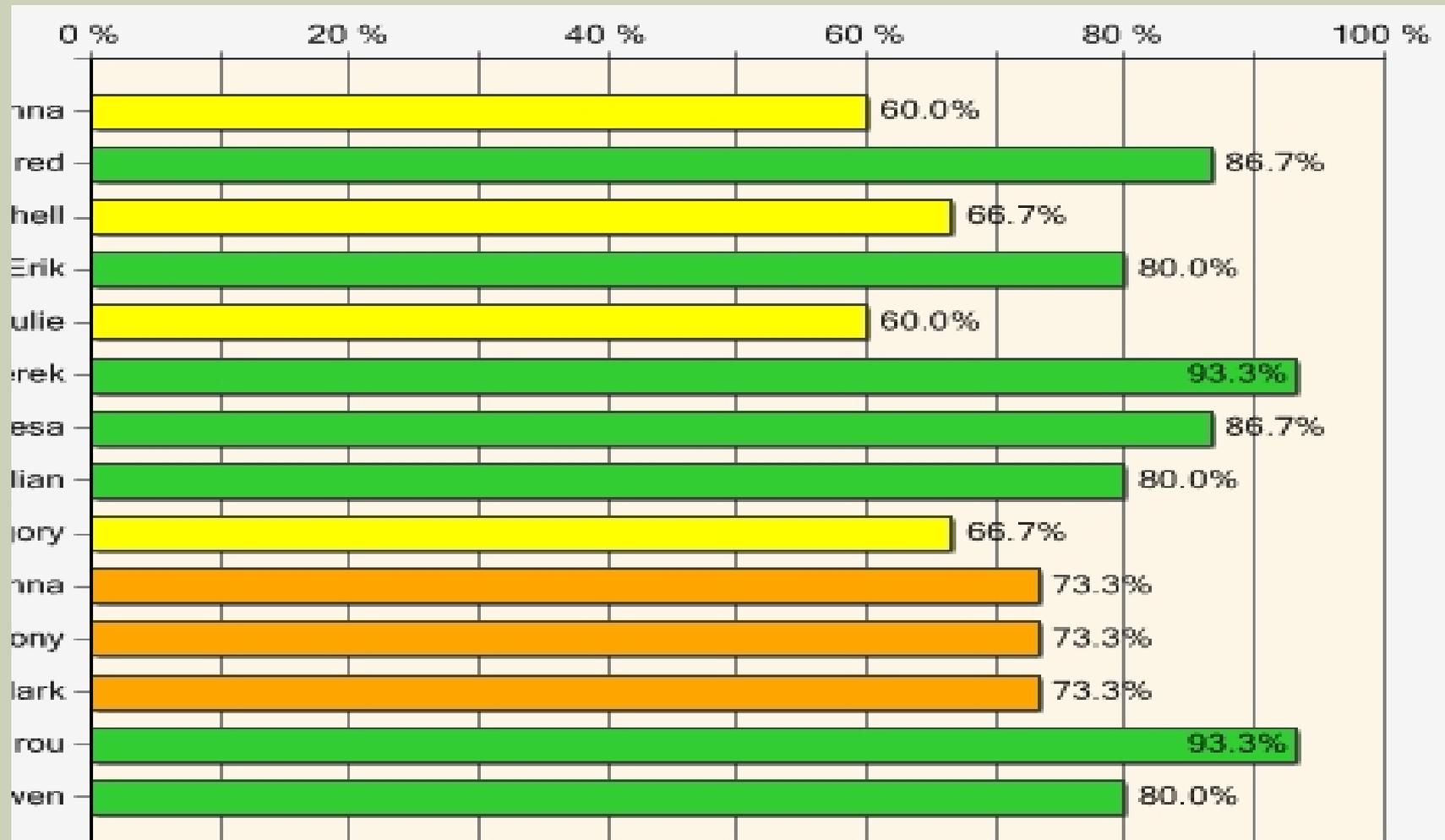
Current

- Teacher-Created common Assessments
 - Given at end unit of study
 - All Algebra and Geometry students
- MC – Scanned into DB/Reporting Software
 - Scantron Achievement Series
 - Teachers have real-time access to their classes
- DC organizes department data
 - XL formatted
 - Distributes to curricular groups after all students complete CA

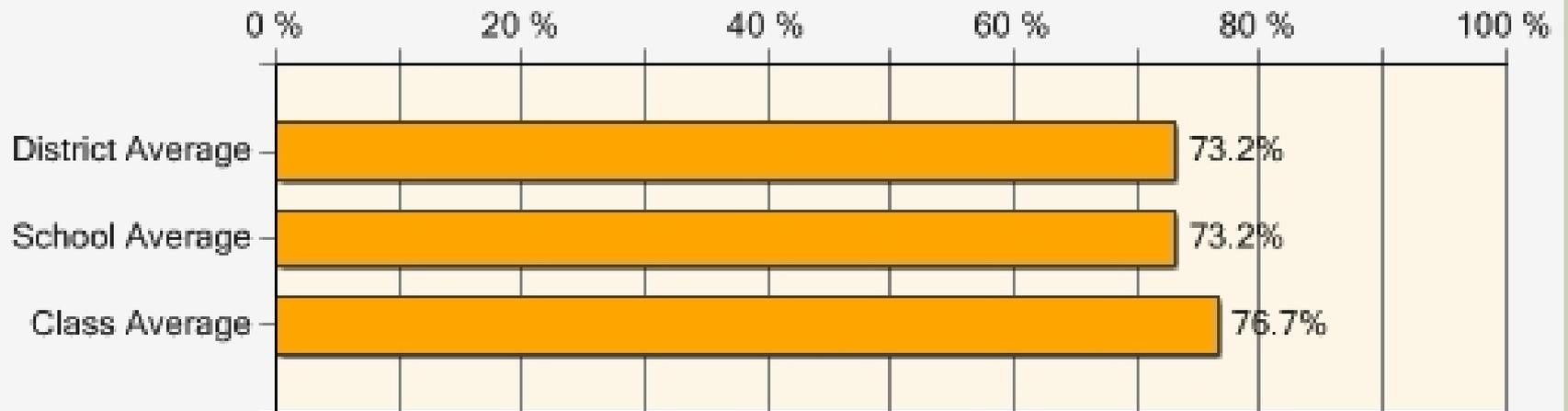
CLASS ROOM REPORTS

Cumulative Average	May 5, 2015 Algebra 2 - CA5 - Quadratics Part 1	January 21, 2015 Algebra 2 Common Midterm 14-15	January 16, 2015 Algebra 2 CA 3_Rev1	January 13, 2015 Algebra 2 CA 4 14-15	December 3, 2014 Algebra 2 CA 2	November 20, 2014 Algebra 2 CA 1	September 9, 2014 Algebra 2 Start of Year C A (2014 - 2015)
	A+ <u>76.7%</u>	A+ <u>73.1%</u>	A+ <u>66.3%</u>	A+ <u>79.2%</u>	A+ <u>54.7%</u>	A+ <u>78.6%</u>	A+ <u>55.6%</u>
63.5%	<u>60.0%</u>	<u>70.0%</u>	<u>60.0%</u>	<u>66.7%</u>	<u>50.0%</u>	<u>78.6%</u>	<u>59.0%</u>
46.6%		<u>50.0%</u>	<u>30.0%</u>	<u>44.4%</u>	<u>37.5%</u>	<u>71.4%</u>	<u>46.2%</u>
79.1%	<u>86.7%</u>	<u>60.0%</u>	<u>90.0%</u>	<u>100.0%</u>	<u>62.5%</u>	<u>92.9%</u>	<u>61.5%</u>
62.9%	<u>66.7%</u>	<u>40.0%</u>	<u>60.0%</u>	<u>100.0%</u>	<u>50.0%</u>	<u>64.3%</u>	<u>59.0%</u>
76.6%	<u>80.0%</u>	<u>70.0%</u>	<u>90.0%</u>	<u>88.9%</u>	<u>75.0%</u>	<u>78.6%</u>	<u>53.8%</u>
77.8%		<u>90.0%</u>	<u>50.0%</u>	<u>88.9%</u>	<u>75.0%</u>	<u>85.7%</u>	<u>76.9%</u>
58.9%	<u>60.0%</u>	<u>60.0%</u>	<u>40.0%</u>	<u>66.7%</u>	<u>50.0%</u>	<u>100.0%</u>	<u>35.9%</u>
79.8%	<u>93.3%</u>	<u>80.0%</u>	<u>90.0%</u>	<u>77.8%</u>	<u>75.0%</u>	<u>78.6%</u>	<u>64.1%</u>
64.4%	<u>86.7%</u>	<u>70.0%</u>	<u>80.0%</u>	<u>66.7%</u>	<u>25.0%</u>	<u>71.4%</u>	<u>51.3%</u>
68.2%	<u>80.0%</u>	<u>90.0%</u>	<u>40.0%</u>	<u>77.8%</u>	<u>50.0%</u>	<u>85.7%</u>	<u>53.8%</u>

STUDENT DATA PER COMMON ASSESSMENT



COMPARE TO SCHOOL & DISTRICT



VIEW STANDARDS PERFORMANCE

CC Common Core State Standards 2010 (Mathematics)

Test : Algebra 2 - CA5 - Quadratics Part 1

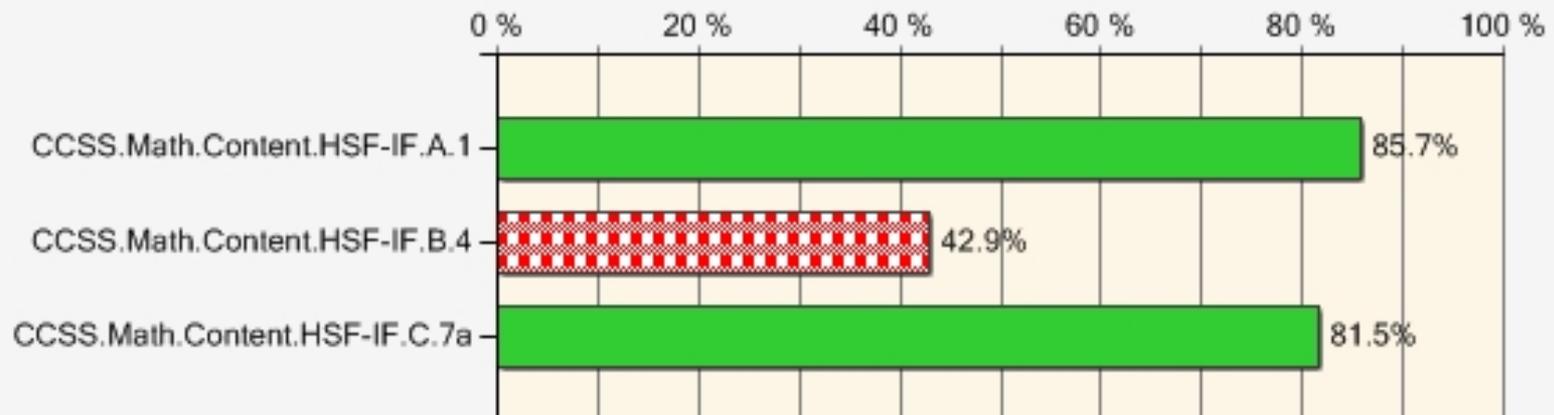
Class : Algebra II L2: Sec. 1, Per./Block 2

Teacher : Barretta, Frank

Test Reliability : 0.80

Standard Deviation : 21.05

N-Value : 301



VIEW ITEM PERFORMANCE



ITEM ANALYSIS

5:MC	6:MC	7:MC	8:MC	9:MC	10:MC	11:MC	12:MC	13:MC	14:MC	15:MC
D	C	C	D	B	A	D	C	B	B	B
B	C	C	D	B	E	D	D	B	A	C
B	D	C	D	B	A	D	A	B	B	C
B	C	C	D	B	A	D	C	D	D	C
B	C	C	C	C	F	A	C	B	B	C
B	C	C	D	B	A	D	C	B	C	C
D	C	C	D	B	A	D	D	B	B	C
B	C	C	D	B	A	A	C	B	A	C
C	D	C	D	B	A	D	C	B	B	C
B	D	C	D	E	A	D	C	B	D	C
D	C	C	D	B	A	D	B	B	D	C
B	C	C	D	B	A	D	A	B	B	C
B	C	C	D	F	A	D	D	B	C	C
B	C	C	D	B	A	D	C	D	B	C
0.71	0.79	1.00	0.93	0.79	0.86	0.86	0.21	0.86	0.14	0.93

WHAT ARE YOUR TIER I INTERVENTIONS?

Historic

- Created a team of 9th/10th grade teachers to teach target cohort
- Scheduled middle classes so only 9th or 10th – not mixed
- Each course had CAPT focus
- CAPT-like Problems Sets – 9th & 10th – released items
- Practice CAPT – 9th used for individualized instruction for 10th

Current

- Curriculum fully aligned to CCSSM
 - Weekly Quizlets of spiraled material
 - Start of year diagnostics
- T-Val goals based on diagnostics
- District-wide Universal Screening is being investigated for implementation next year



WHAT ARE YOUR TIER II INTERVENTIONS?

Historic

- All targeted students scheduled to math lab - extra math instruction
- After school help session - voluntary
- Some students pulled from PE and Arts

Current

- Most freshmen and middle level sophomores scheduled to math study hall
 - Used for pullout instruction based on battery of Common Assessments/Teacher Rec.
- All other students
 - Use regular study hall if possible
 - Some students don't have time in schedule-
 - Get creative - after school sessions with teachers, special services occasionally



INTERVENTIONS AT AMITY REGIONAL HIGH

Science

OUR DATA SHOWED...

- Nearly 100% of our honors (LH) and level one (L1) students were at/above goal on CAPT.
- 60% of our level two (L2) students were at/above goal on CAPT.
- 30% of our level three (L3) students were at/above goal on CAPT.
- Our focus: L2 and L3 students.



CHANGES TO THE SCIENCE PROGRAM

1. Curriculum revision
2. Increased teaching time
3. Increased meeting time
4. Tier 1 intervention
5. Tier 2 intervention



AMITY COURSE SEQUENCE



- **9th: Biology L1,L2,L3**
- **10th: Chem LH,L1 OR**
- **11th: Physics LH,L1**
- **12th: Electives**
- **10th: Environmental Earth Sci. L1,L2,L3**
- **11th: Chem L1,L2,L3**
- **12th: Physics L1,L2,L3 or electives**

CURRICULUM REVISION

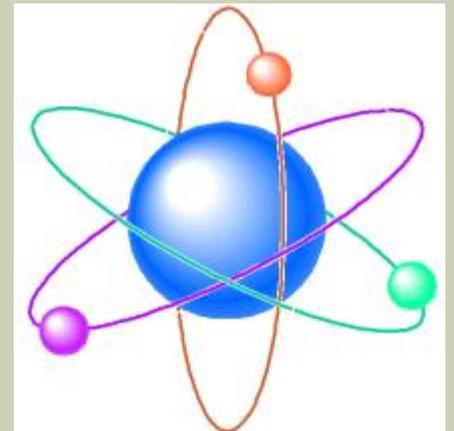
- Originally, “Environmental Earth Science” was true to its name...
- Then we realigned the curriculum directly to CAPT standards (strands I, II, III). (Strands IV and V are taught in 9th grade biology)



CURRICULUM REVISION

■ Revised Environmental Earth Science curriculum:

- 1st quarter: Chemistry (CAPT strand II)
- 2nd quarter: Environmental (CAPT strand III)
- 3rd quarter: Energy (CAPT strand I)
- CAPT test
- 4th quarter: Astronomy



Carbon Chemistry (Week 12, 3 Weeks)

Science Framework (2005)

Grade 9

II. Properties of Matter

Strand II: Chemical Structures and Properties
9.5 – Due to its unique chemical structure, carbon forms many organic and inorganic compounds.

[Show details](#)

D 13. Explain how the structure of the carbon atom affects the type of bonds it forms in organic and inorganic molecules.

D 14. Describe combustion reactions of hydrocarbons and their resulting by-products.

XI. Science & Technology in Society

Strand I: Energy Transformations 9.3 - Various sources of energy

Chemistry: How does the structure of matter affect the properties and uses of materials?

How does the unique chemical structure of carbon create the many forms of organic and inorganic compounds?

9.5 Due to its unique chemical structure, carbon forms many organic and inorganic compounds. 1

- Carbon atoms can bond to one another in chains, rings and branching networks, to form a variety of structures, including fossil fuels, synthetic polymers and the large molecules of life.

9.6 Chemical technologies present both risks and benefits to the health and well-being of humans, plants and animals. 1

- Materials produced from the cracking of petroleum are the starting points for the production of many synthetic compounds.
- The products of chemical technologies include synthetic fibers, pharmaceuticals, plastics and fuels.

9.3 Various sources of energy are used by humans and all have advantages and

Students will:

D 13.Explain how the structure of the carbon atom affects the type of bonds it forms in organic and inorganic molecules.

D 14.Describe combustion reactions of hydrocarbons and their resulting by-products.

D 15.Explain the general formation and structure of carbon-based polymers, including synthetic polymers such as polyethylene and biopolymers such as carbohydrate.

D 16.Explain how simple chemical monomers can be combined to create linear, branched and/or cross-linked

Required

- Quiz/Test-Carbon, combustion, polymers
- LAB-Synthetic Polymers embedded CAPT Task
- TECH-Synthetic Polymers embedded CAPT STS
- LAB- Modeling (Building) Hydrocarbons

Optional

- LAB-Making Polymers (Slime)
- * Do Now - Naming Hydrocarbons
- TECH-Synthetic Polymer STS (alternate)
- Lab - Physical Properties of Polymers; CAPT style
- Spin Off Questions Polymer Lab
- CAPT Polymer Lab (State version)
- CAPT Polymer Lab (State version) teacher

Direct

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Unit Planner

View Edit Actions ?

Amity Regional High School > Mixed-Grade High School > Science > Environmental Earth Science L-2 > Week 12 - Week 14

Last Updated: Wednesday, January 14, 2015 by Karen Keenan

Unit Saved

Carbon Chemistry

[Collaboration](#)

Unit Planner School Values

Stage 1: Desired Results

Curriculum Frameworks/CCSS Math or English ⓘ

Choose Standards

Science Framework (2005)

Grade 9

II. Properties of Matter

Strand II: Chemical Structures and Properties 9.5 – Due to its unique chemical structure, carbon forms many organic and inorganic compounds. Chemistry details

materials produced from the cracking of petroleum are the starting points for the production of many synthetic compounds.

- The products of chemical technologies include synthetic fibers, pharmaceuticals, plastics and fuels.

9.3 Various sources of energy are used by humans and all have advantages and disadvantages. 1

- During the burning of fossil fuels, stored chemical energy is converted to electrical energy through heat transfer processes.

[+ Add an Attachment](#)

Objectives ⓘ

Students will:

- D 13.Explain how the structure of the carbon atom affects the type of bonds it forms in organic and inorganic molecules.
- D 14.Describe combustion reactions of hydrocarbons and their resulting by-products.
- D 15.Explain the general formation and structure of carbon-based polymers, including synthetic polymers such as polyethylene and biopolymers such as carbohydrate.
- D 16.Explain how simple chemical monomers can be combined to create linear, branched and/or cross-linked polymers.
- D 17.Explain how the chemical structure of polymers affects their physical properties (strength, flexibility).
- D7. Explain how heat is used to generate electricity.

[+ Add an Attachment](#)

Stage 2: Learning Plan

Activities ⓘ

Required

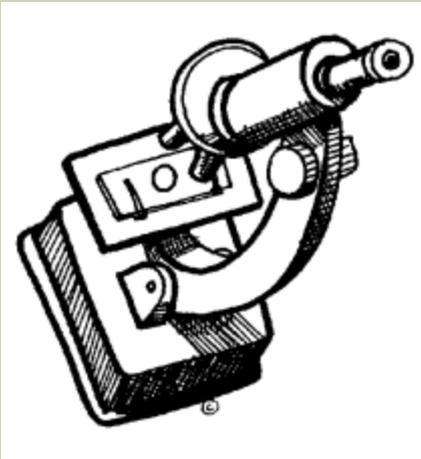
- Quiz/Test-Carbon, combustion, polymers
- LAB-Synthetic Polymers embedded CAPT Task
- TECH-Synthetic Polymers embedded CAPT STS

Instructional Strategies / DI Strategies ⓘ

Direct Instruction
Structured overview

INCREASED TEACHING TIME

- Amity added lab periods to 9th grade biology, and all Level 3 courses.
 - Increased teaching time for target students.



INCREASED MEETING TIME

- Amity changed from a 7 period schedule to an 8 period schedule.
 - Resulted in dedicated time for PLC meetings between subject-alike teachers. Used to:
 - Create common formative assessments (CFAs)
 - Analyze student performance data
 - Refine exams to increase correlation with CAPT results



TIER 1 INTERVENTION

- After the move to the 8 period schedule, we created a class for our L2 and L3 students, called “CAPT Prep”.
 - Required extra class, meets once every four days
 - Adds math lab and study hall period to their schedules
 - Tier 2 Tutoring
 - Activities include teacher-created, CAPT aligned materials and use of Study Island computer program
 - Study Island: online, CAPT-aligned series of lessons and assessments





Study Island

Matthew Filip

Messages

AMITY REGION 5 SR HIGH SCHOOL

Wednesday, May 6

Help

Contact

Seehive

Login



CAPT Preparation

Science

Math (Retire: July 2015)

Reading (Retire: July 2015)

Main Menu

What's New

Teacher Page

School Reports

Class Manager

Benchmarking

Teacher Toolkit

Custom Material

CT Programs

2nd Grade

3rd Grade

4th Grade

5th Grade

6th Grade

Start Studying

Science

	Topic	Teacher Resources	Your Results Items : Score	Passing Goal Items : Score	Grade
1. PRETEST					
<input checked="" type="checkbox"/>	Pretest - Science		0 : -	10 : N.A.	-
2. SCIENTIFIC INQUIRY, LITERACY AND NUMERACY					
<input type="checkbox"/>	a. Scientific Inquiry - Lesson		0 : -	10 : 70%	-
<input type="checkbox"/>	b. Lab Tools & Safety - Lesson		0 : -	10 : 70%	-
<input type="checkbox"/>	c. Collect, Interpret & Communicate Data - Lesson		0 : -	10 : 70%	-
3. CONCEPTUAL THEME - ENERGY TRANSFER AND TRANSFORMATIONS					
<input type="checkbox"/>	a. Heat Transfer & Energy Transformations - Lesson		0 : -	10 : 70%	-
<input type="checkbox"/>	b. Electricity & Magnetism - Lesson		0 : -	10 : 70%	-
4. CONCEPTUAL THEME - SCIENCE AND TECHNOLOGY IN SOCIETY					
<input type="checkbox"/>	a. Energy Sources - Lesson		1 : 0%	10 : 70%	BB

Temperature and Molecular Motion

The particles that make up a substance are always in motion. The **temperature** of a substance measures the average energy of motion, or kinetic energy, of the particles in that substance. Decreasing the average motion of the particles of a substance will cause the temperature of that substance to decrease. Likewise, increasing the average motion of the particles of a substance will cause the temperature of that substance to increase.

For example, if a solid, room temperature object is placed in a refrigerator, the average motion of its particles will begin to slow down. This will cause the temperature of the object to decrease. Likewise, if a solid, room temperature object is placed on a hot plate, the average motion of its particles will begin to speed up. This will cause the temperature of the object to increase.

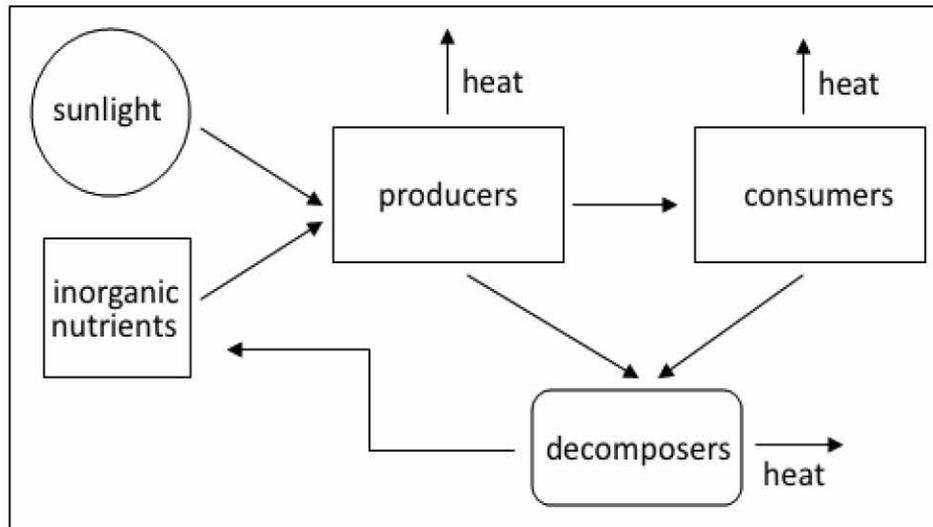
As an object changes state, the molecular motion of the object will also change. In general, the molecular motion of objects increases from solids to liquids to gases. This means the molecules of a gas will move much more than the molecules of a solid.

Watch the video below to learn more about the different states of matter.
To start the video, click the play button on the bar below.



Heat Transfer & Energy Transformations

3. The diagram below demonstrates the energy flow through an ecosystem.



According to the diagram, only a percentage of the energy at one trophic level is transferred to the next trophic level. What happens to the remainder of the energy?

- A** It is all consumed by organisms within the trophic levels.
- B** It is all consumed by decomposers.
- C** Some of it is recycled back to the Sun.



Study Island

Matthew Filip

Messages

AMITY REGION 5 SR HIGH SCHOOL

Wednesday, May 6, 2015

Help

Contact

Seehive

Logout



AMITY REGION 5 SR HIGH SCHOOL User Statistics

Emailed Report Manager

Password List

Adjust Student Difficulty

For more information about our reports, [click here](#).

Main Menu

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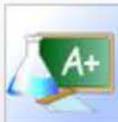
6th Grade

Class Gradebook Report



View a list of students by class and their Study Island statistics.

Assignment Report



View class results for assignments you have created.

Weekly Report



View overall weekly and yearly usage statistics for each program.

Blue Ribbon Report



View Blue Ribbons earned by class or grade level.

RTI Report



Track individual student response to intervention by topic.

Weekly Campus Report



View graphic representations of detailed educator and student usage on a school-wide basis.

Individual Student Report



Track individual student progress and Study Island usage.

Built Test Report



View student performance in each reporting category assessed.

High Score Report



Display student high score game rankings.

Study Island Topics

Topic	Sessions	Time Spent	Correct / Total	% Correct	Grade
1. Pretest - Science	239	24:32:06	1874 / 2908	64.4%	-
2. Scientific Inquiry, Literacy and Numeracy					
a. Scientific Inquiry - Standard	211	20:27:11	1357 / 1850	73.4%	G
b. Lab Tools & Safety - Standard	153	10:37:43	1264 / 1487	85.0%	A
c. Collect, Interpret & Communicate Data - Standard	213	23:26:45	1520 / 2056	73.9%	G
3. Conceptual Theme - Energy Transfer and Transformations					
a. Heat Transfer & Energy Transformations - Standard	88	06:12:53	616 / 721	85.4%	A
b. Electricity & Magnetism - Standard	125	07:54:26	877 / 1081	81.1%	G
4. Conceptual Theme - Science and Technology in Society					
a. Energy Sources - Standard	90	06:30:17	622 / 735	84.6%	G
b. Human Environmental Impact - Standard	168	15:47:23	1006 / 1381	72.8%	G
c. Microorganisms & Disease - Standard	123	09:29:00	847 / 1077	78.6%	G
d. Genetics & Biotechnology - Standard	158	15:04:26	1006 / 1342	75.0%	G
e. Population Dynamics - Standard	83	06:22:13	584 / 654	89.3%	A
5. Conceptual Theme - Properties of Matter					
a. Atoms & The Periodic Table - Standard	287	20:52:45	2067 / 2837	72.9%	G
b. Chemical Bonding & Acids/Bases - Standard	265	18:42:16	1694 / 2430	69.7%	P
c. Carbon Chemistry - Standard	204	17:20:54	1449 / 1901	76.2%	G
6. Conceptual Theme - The Changing Earth					

TIER 2 INTERVENTION

- Hired a science tutor to work with identified L2 and L3 students in 9th and 10th grade.
- Process:
 - Teachers give CFA
 - Teachers discuss results in PLC or department meetings
 - Students are identified for tutoring
 - Department chair schedules students for tutoring
 - Pulled from study hall
 - Students meet with tutor for one period every four days, in groups of no more than five students



RECENT DEVELOPMENTS/FUTURE PLANS

- Budgetary allotment for Tier 2 tutor teaching resources
- Pre and post-testing of Tier 2 students using Scantron Achievement Series
- Data analysis to determine effectiveness of “CAPT Prep” classes.
- Refine CFAs to target specific standards
- Subgroup analysis
- Simplify course sequence
- Realign courses/curriculum to Next Generation Science Standards (if adopted)
 - Has implications for all of the above

