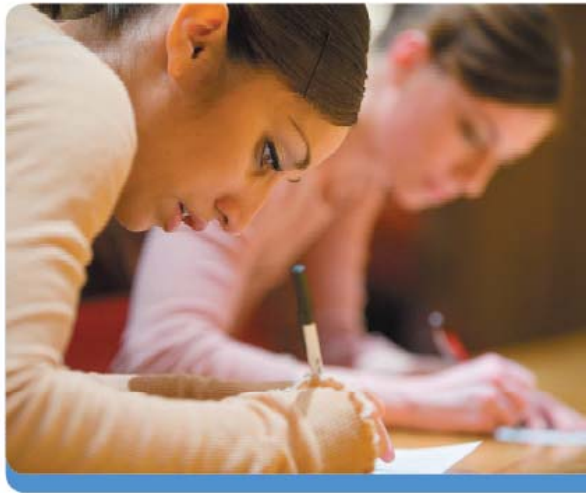


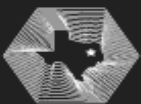
Aligning the P-16 Curriculum to Improve Science Teacher Preparation

Texas College and Career
Readiness Standards



Michael Odell, Ph.D.
John Ophus, Ph.D.
Teresa Kennedy, Ph.D.
Jason Abbitt, Ph.D.
Kristian Trampus, Ph.D.

Ingenuity Center
University of Texas at Tyler



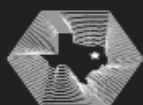
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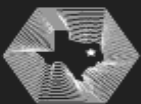
Background

- The University of Texas at Tyler is integrating the Career and College Readiness Standards (CCRS) into middle and secondary science teacher preparation programs.
- The science teacher preparation faculty from the College of Education and The College of Arts and Science are creating a team from universities and P-12 Districts statewide to:
 - utilize the Surveys of Enacted Curriculum (SEC) to code and align the CCRS with the Science TEKS.
 - Provide professional development on how to use the SEC to evaluate the “enacted curriculum” in terms of meeting CCRS and TEKS in the science teacher preparation program
 - Utilize the SEC to evaluate instructional materials utilized to teach science.



Phase I: Research

- **The Surveys of Enacted Curriculum (SEC) are a practical, reliable set of data collection tools being used with instructors to collect and report consistent data on current instructional practices and content being taught in classrooms.**
- **Instructors complete the survey questions through an online, web-based system.**
- **Group data are reported in user-friendly charts and graphs to facilitate analysis of differences across classrooms, schools, or districts.**
- **The SEC survey instruments and resulting data provide an objective method for educators to analyze the degree of alignment (or consistency) between current instruction, the standards and assessments.**
- **The surveys include items on school and class characteristics, teacher preparation, and demographics to facilitate comparison of results.**
- **With the adoption of the CCRS and the new science TEKS we are coding both sets of standards and providing a research-based tool to allow examination of how well what we teach (enacted curriculum) and the courses/materials we deliver align to the CCRS.**
- **Results will be used to support the information needs of science teacher preparation programs, districts and schools, and will also be used in analyses associated with several studies being conducted by the Ingenuity Center at UT-Tyler.**



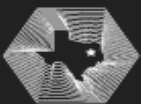
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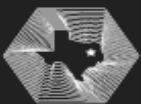
Phase II: Professional Development

- Once the CCRS and TEKS were coded we hosted a series of professional development activities for science teacher preparation faculty.
- IHE and LEA faculty were able to code their own curriculum and see how it aligns with the CCRS and/or TEKS.
- Professional development sessions highlighted how to use the SEC analysis tools.
- We hosted professional development sessions live and online through webinars.
<https://sites.google.com/site/texasccri/home/graphics>
- Provided information on how to integrate the CCRS into science and pedagogy courses
- A dedicated website is under development



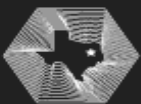
What are the Surveys of Enacted Curriculum?

- The SEC are:
 - Practical, reliable set of data collection tools being used to collect and report consistent data on:
 - Current instructional practice
 - Content being taught in classrooms
 - Science, Mathematics, Language Arts, and Social Studies
 - Professional development practices



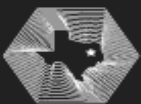
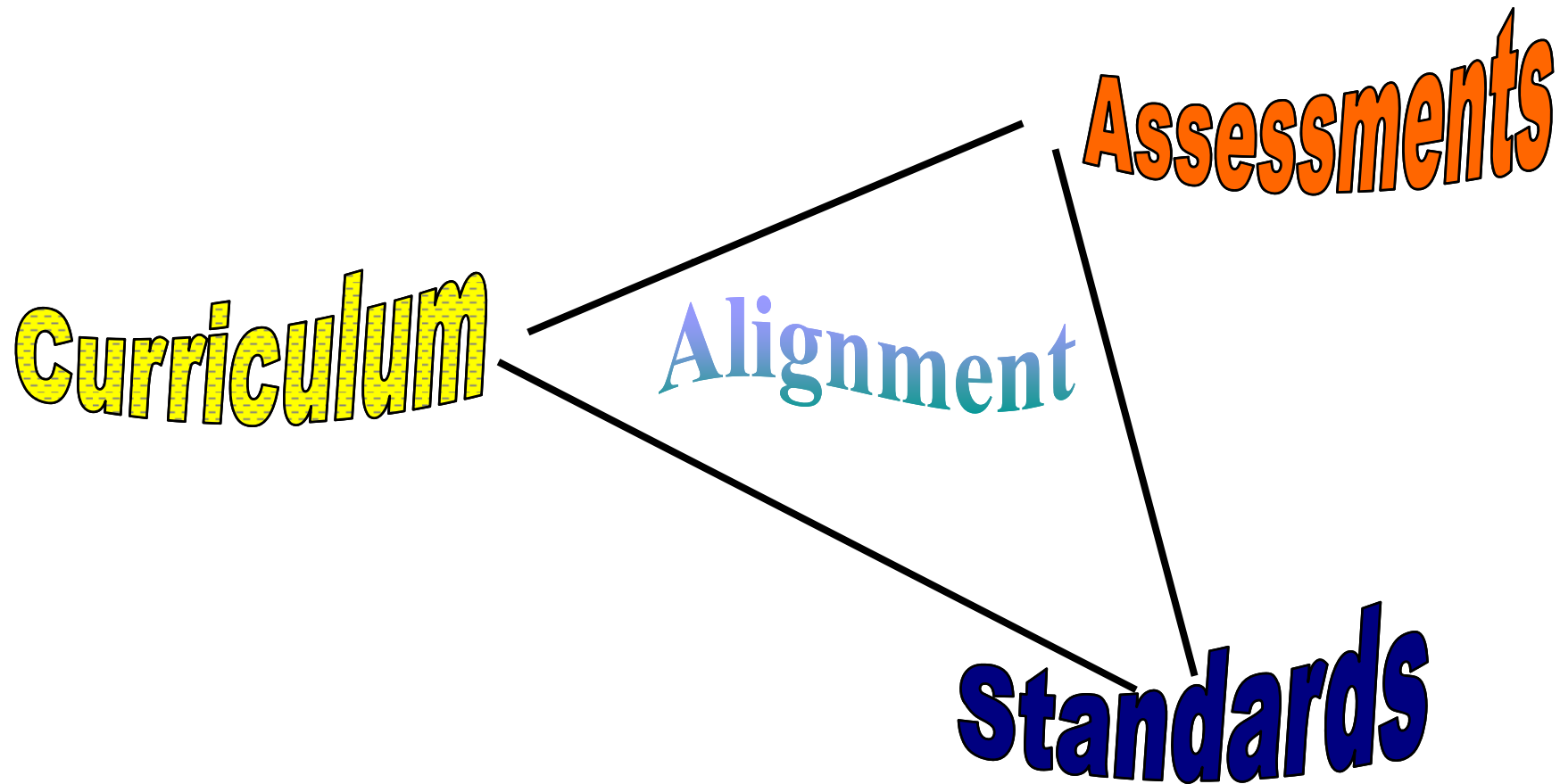
What are the Educational Applications of SEC Data?

- Alignment of Instruction, Standards, and Assessments
- Improvement of Instruction
- Needs Assessment and Program Evaluation
- Indicators System for Monitoring Change
- Professional Development



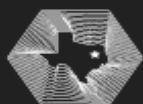
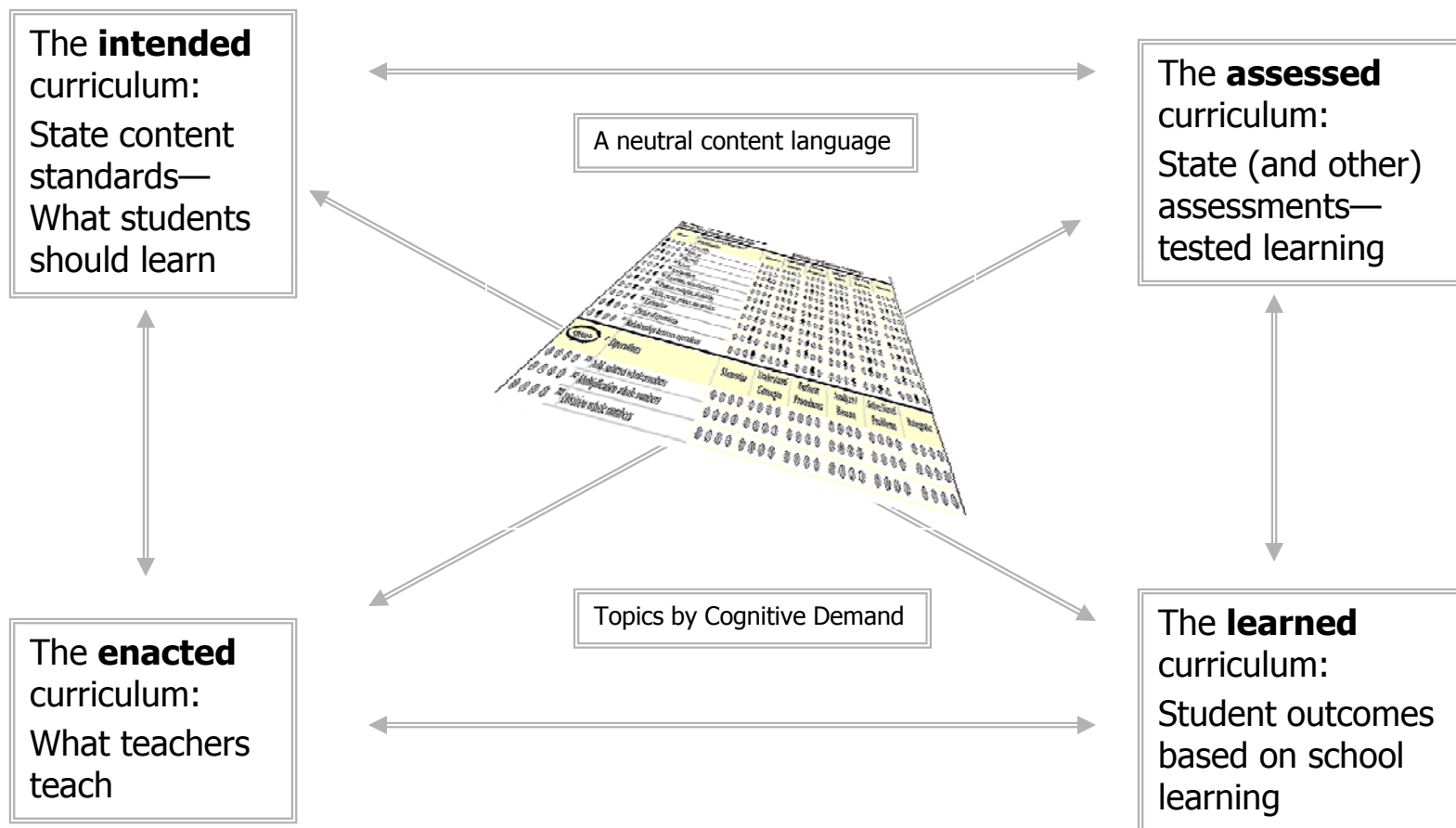


To Facilitate Comparisons



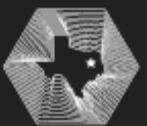
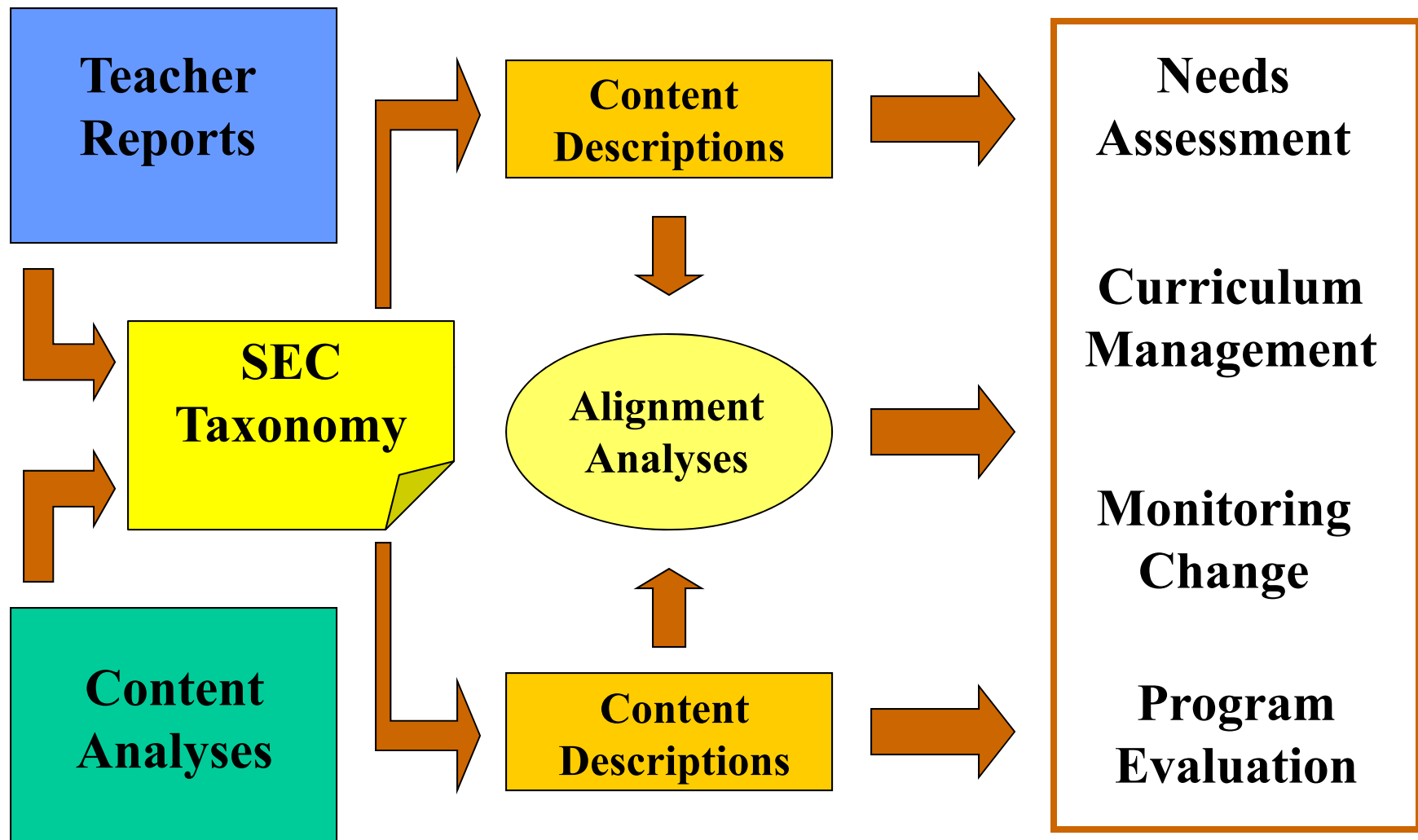


Content Analysis Workshop



Surveys of Enacted Curriculum

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To Describe Instructional Content

SEC utilizes a two-dimensional taxonomy based

on:

Topic

by

1	
2	
3	
4	
5	

Cognitive Demand

B	C	D	E	F





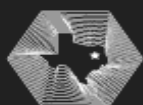
Uses of Content Analysis Results

Descriptive: (Tile Charts and Content Maps)

- Visual, curriculum-based descriptions of Instructional Targets for teacher reflection, discussion and planning.

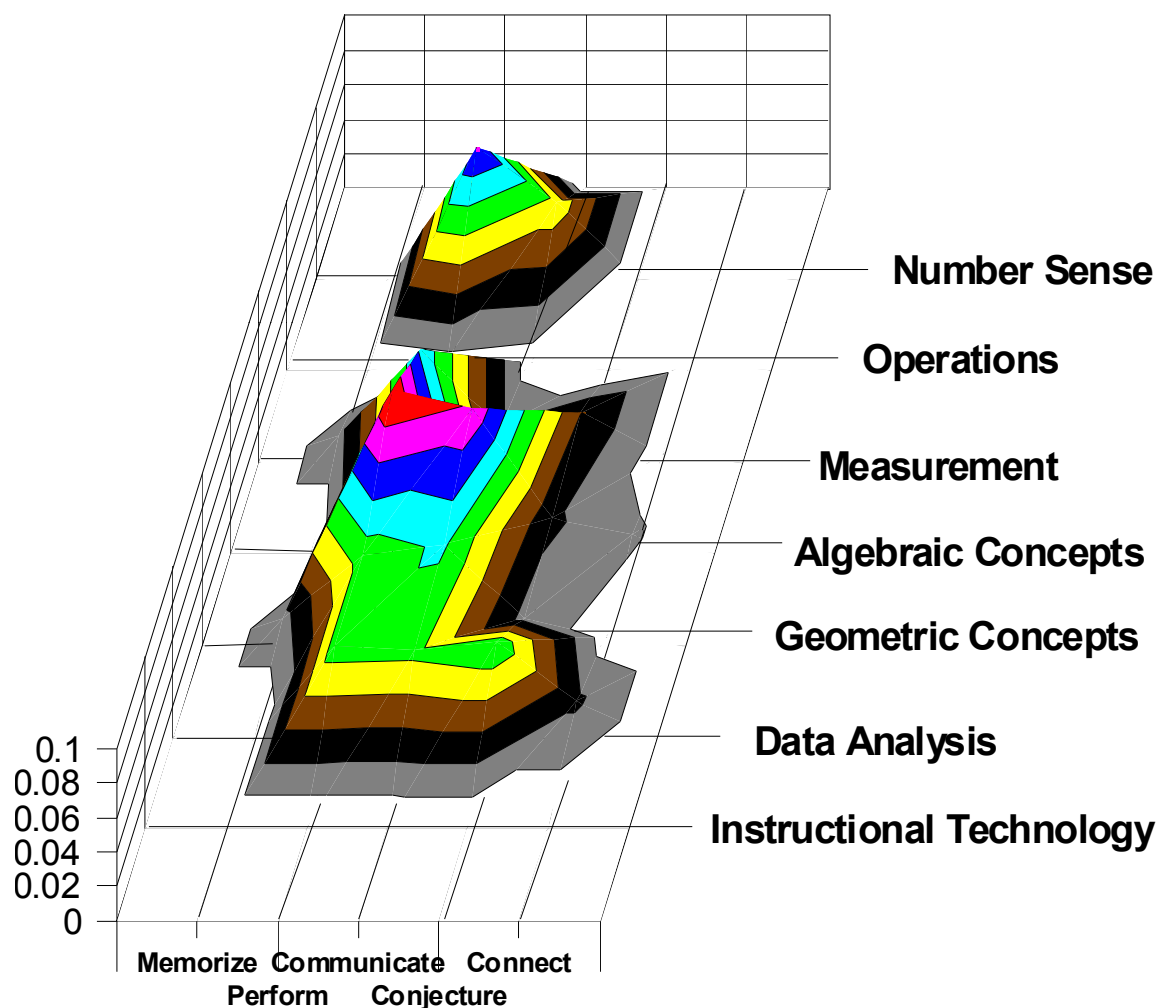
Analytic: (Alignment)

- Predict student achievement gains
- Control for content to examine other factors
- As an outcome measure for change over time
- Examine alignment of Standards & Assessments

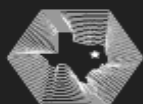
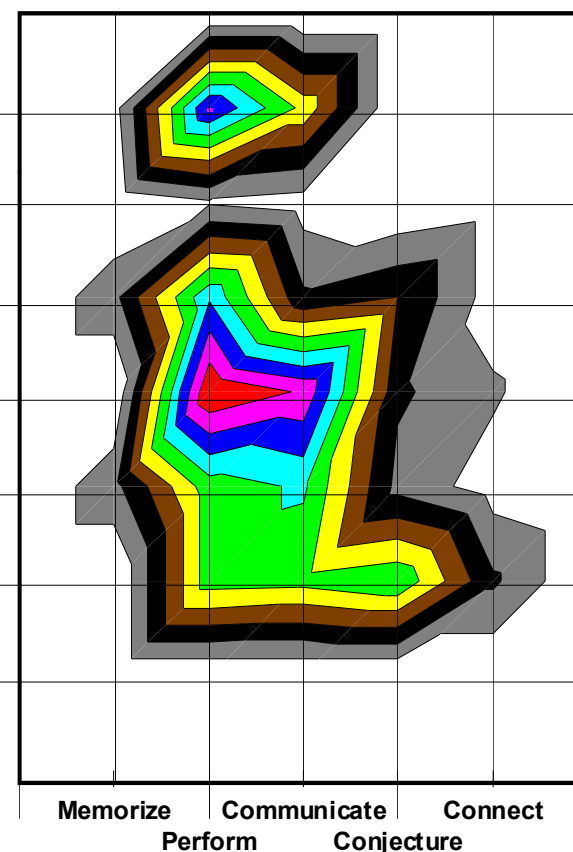




Content Map Data Displays



State J Grade 8
Mathematics Assessment





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Administration Year: 2004

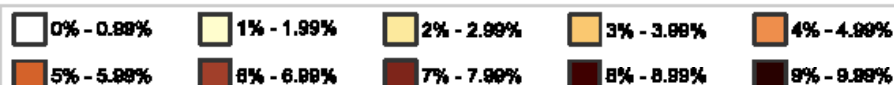
Viewing: NAEP 1996 Test Gr. 8 Data

Data Cut: All Data

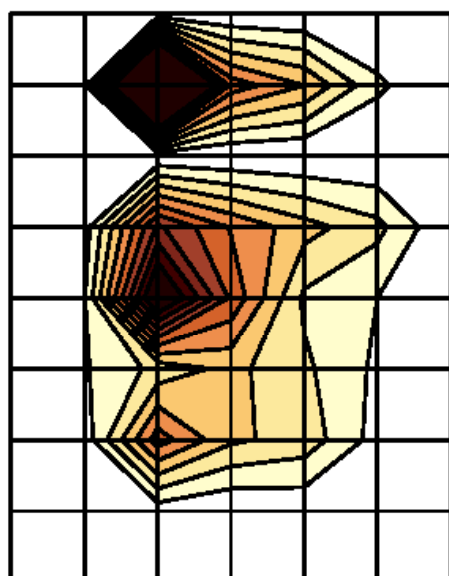
Count: 1



Update Maps



Contour Interval - 1% of Content Coverage



Number Sense / Properties / Relationships

Operations

Measurement

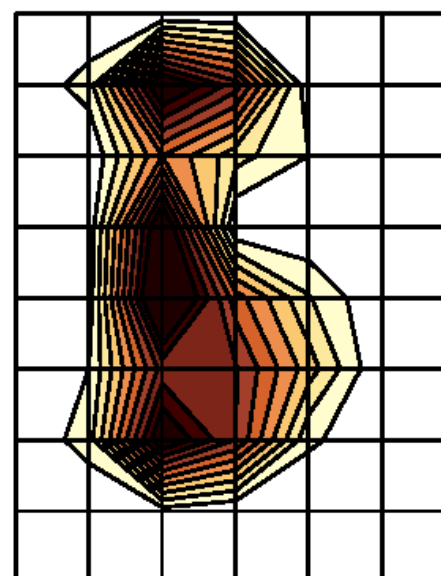
Algebraic Concepts

Geometric Concepts

Data Analysis / Probability / Statistics

Instructional Technology

Memorize
Perform Procedures
Demonstrate Understanding
Conjecture, Prove
Solve novel, non-routine problem



Number Sense / Properties / Relationships

Operations

Measurement

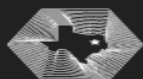
Algebraic Concepts

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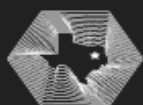
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Ingenuity Center use of SEC

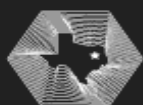
- Coding of TEKS and Released TAKS
 - Results used to identify Power Standards
 - End of Course Exams (future)
- Vertical Alignment of H.S. and College
 - Content
 - Instructional Practices
- Needs for Professional Development





Results of TEKS v. TAKS Coding

- Alignment of TEKS to the TAKS
- Identification of “Power Standards”
 - Measurement
 - Nature of Science
- Identification of Content Gaps
- Instructional Practice Analysis

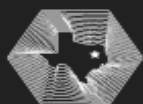
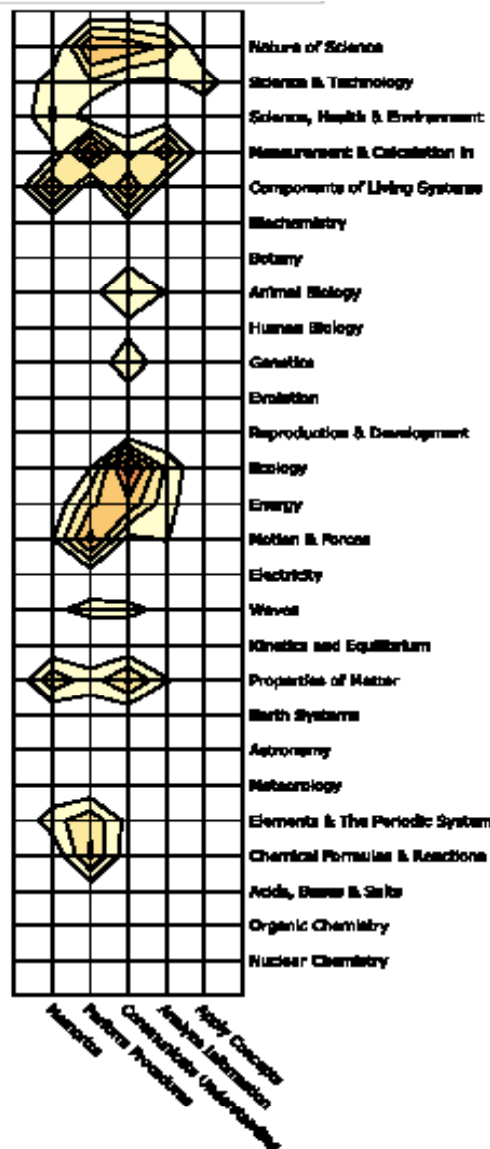
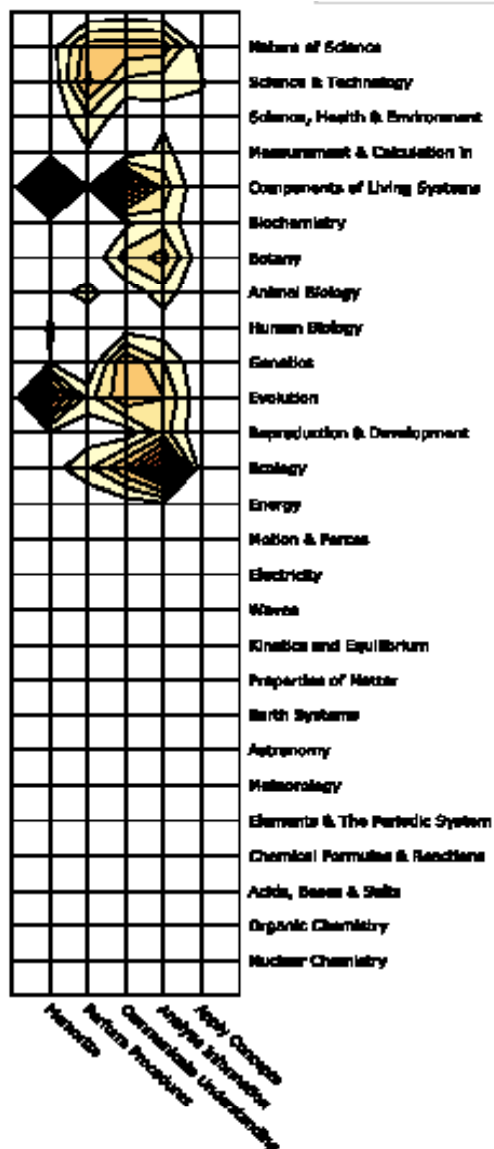




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Biology v. TAKS



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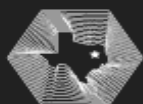
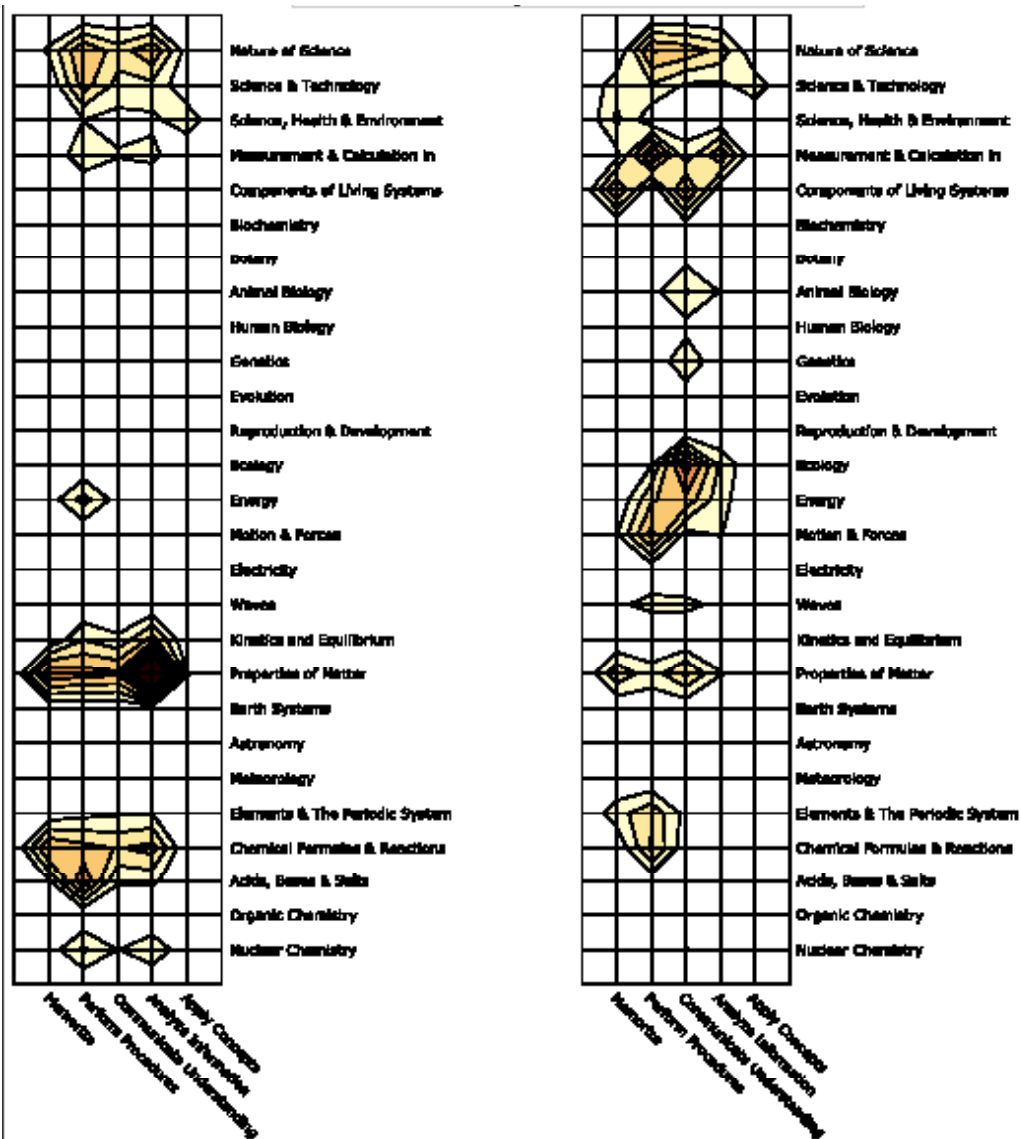
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Chemistry v. TAKS



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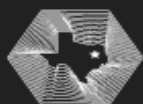
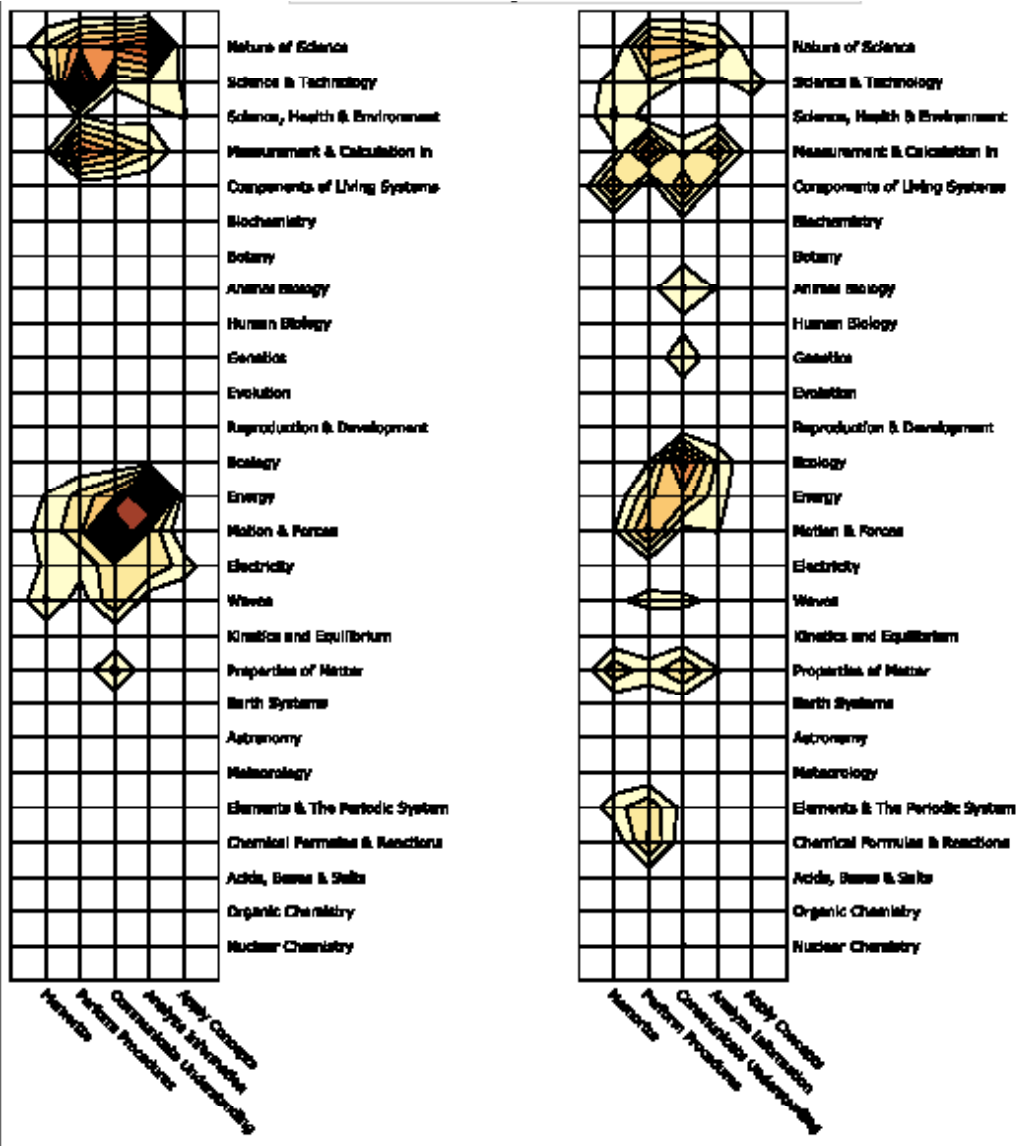
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Surveys of Enacted Curriculum

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Physics v. TAKS



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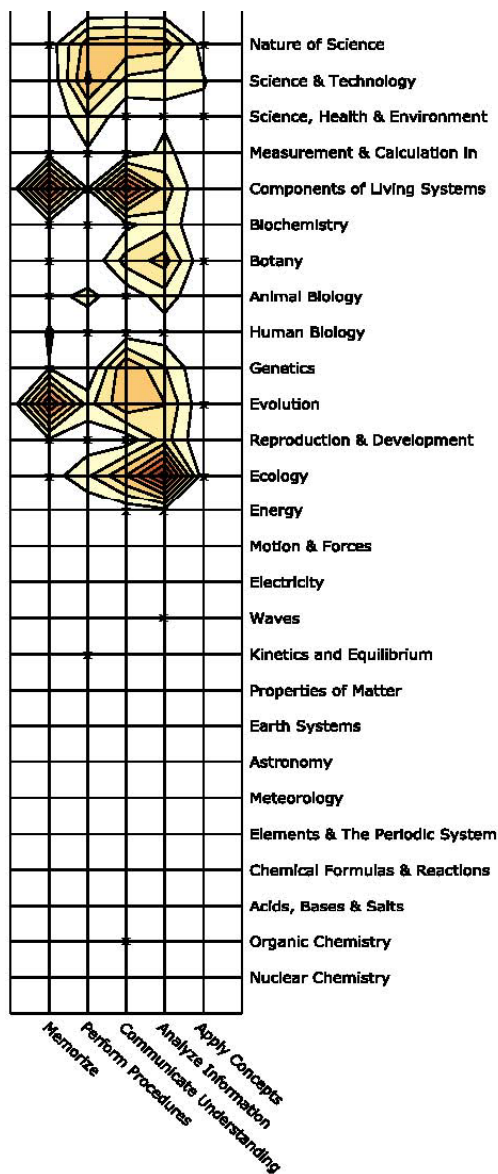
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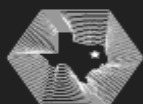
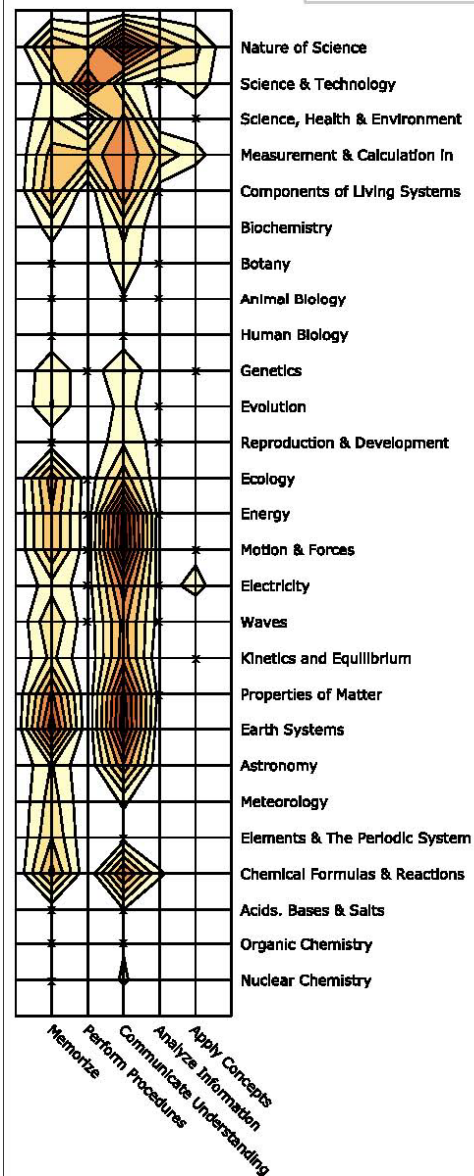
Surveys of Enacted Curriculum

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Biology



CCRS



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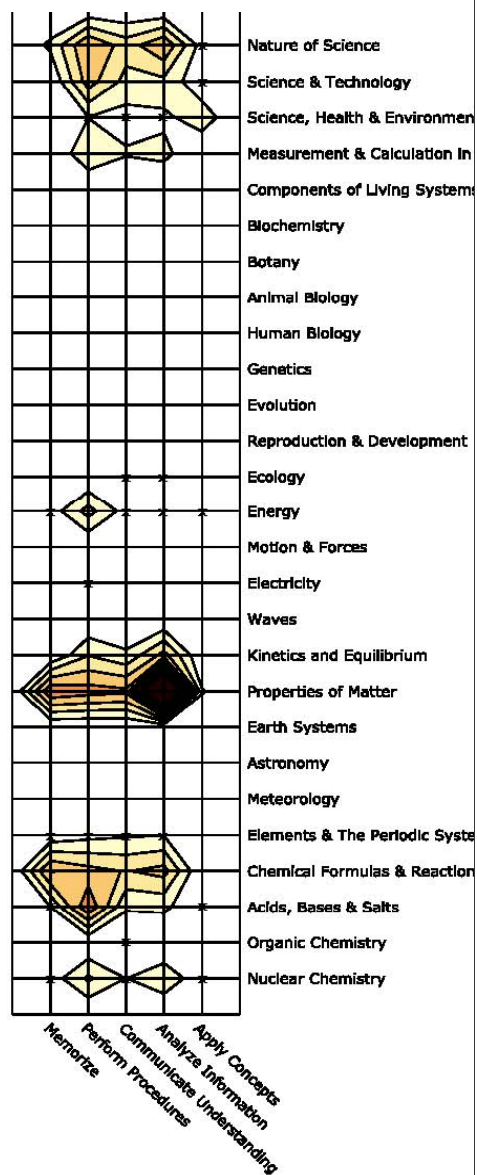
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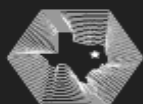
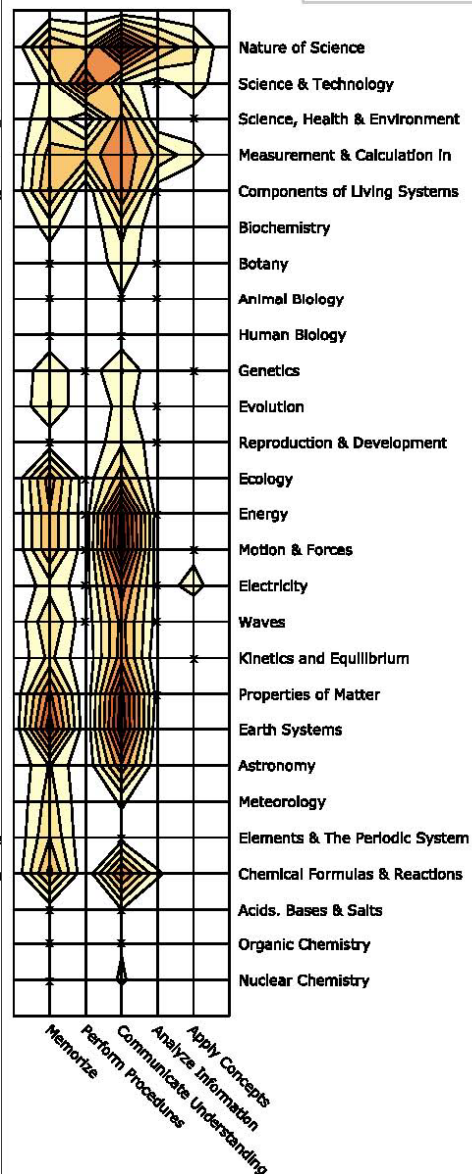
Surveys of Enacted Curriculum

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Chemistry



CCRS



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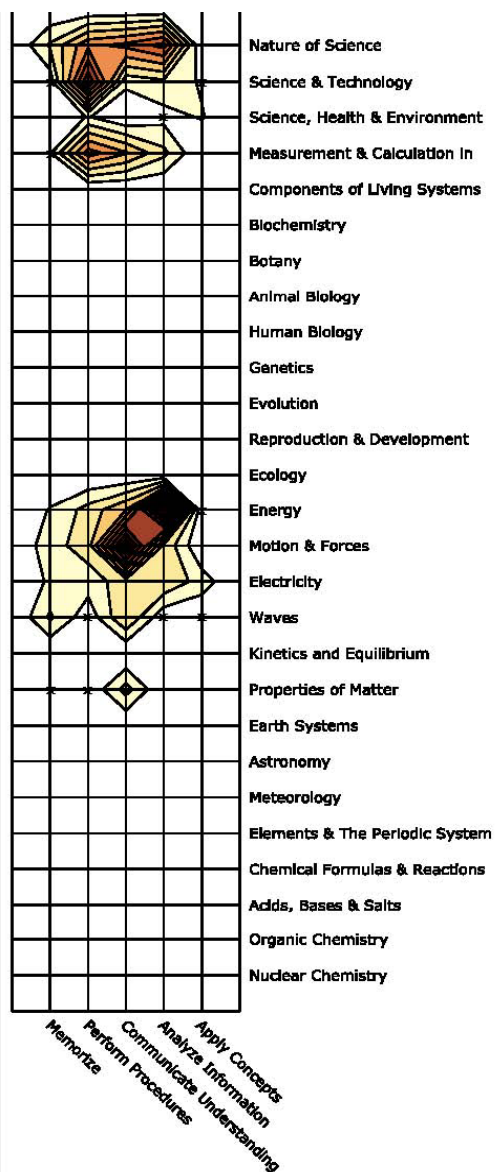
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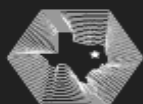
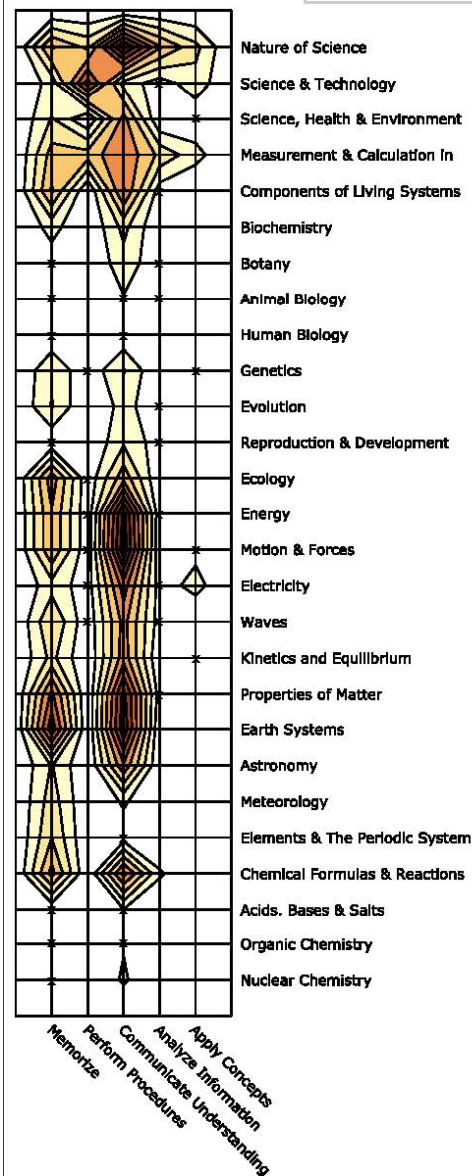
Surveys of Enacted Curriculum

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Physics



CCRS



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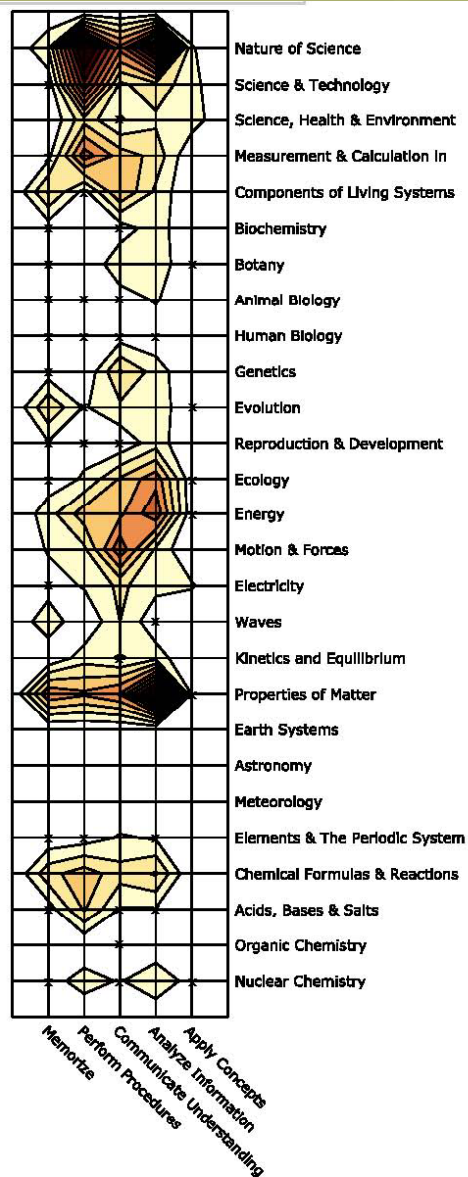
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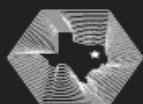
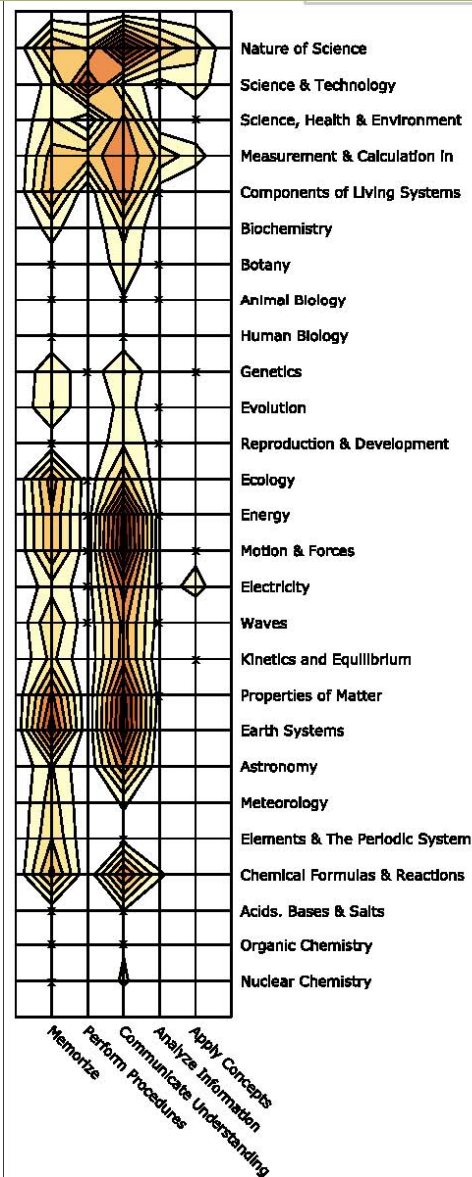
Surveys of Enacted Curriculum

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Combined



CCRS



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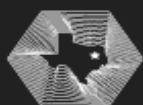
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Additional Applications

- Comparison of Courses across schools
 - Pre-calculus at High School, CC, University
- Comparison of Textbooks and other curriculum materials to standards and assessments.
- Planning Professional Development
 - Data driven decision making





Questions?

