

# Community Mapping in K-12 Education

Dana Duncan  
Emily Olsen  
School of Excellence  
San Antonio, TX





# Abstract




" A map is the greatest of all epic poems. Its lines and colors show the realization of great dreams." Gilbert J. Grosvenor, Editor of National Geographic (1903-1954)

The School of Excellence K-12 program uses community mapping to teach students GIS and GPS skills. It is very evident that this learning style is very effective. Our students have taken a problem within our community and helped to provide a solution. Our major project, Mitchell Project has students creating a new trail map for visitors of the center providing a service a non-profit center could not normally afford. Community mapping is a useful way to take learning out of the classroom and put it in a context that allow students to become part of the community solution.








# Facts about SEE

- Open enrollment charter school
  - Opened in 1997 with less than 200 students on one campus
  - 2006-2007 school year brought 2200 students and 5 campuses .
  - Our enrollment is diverse and students come from all over San Antonio to attend.
- 
- 
- 

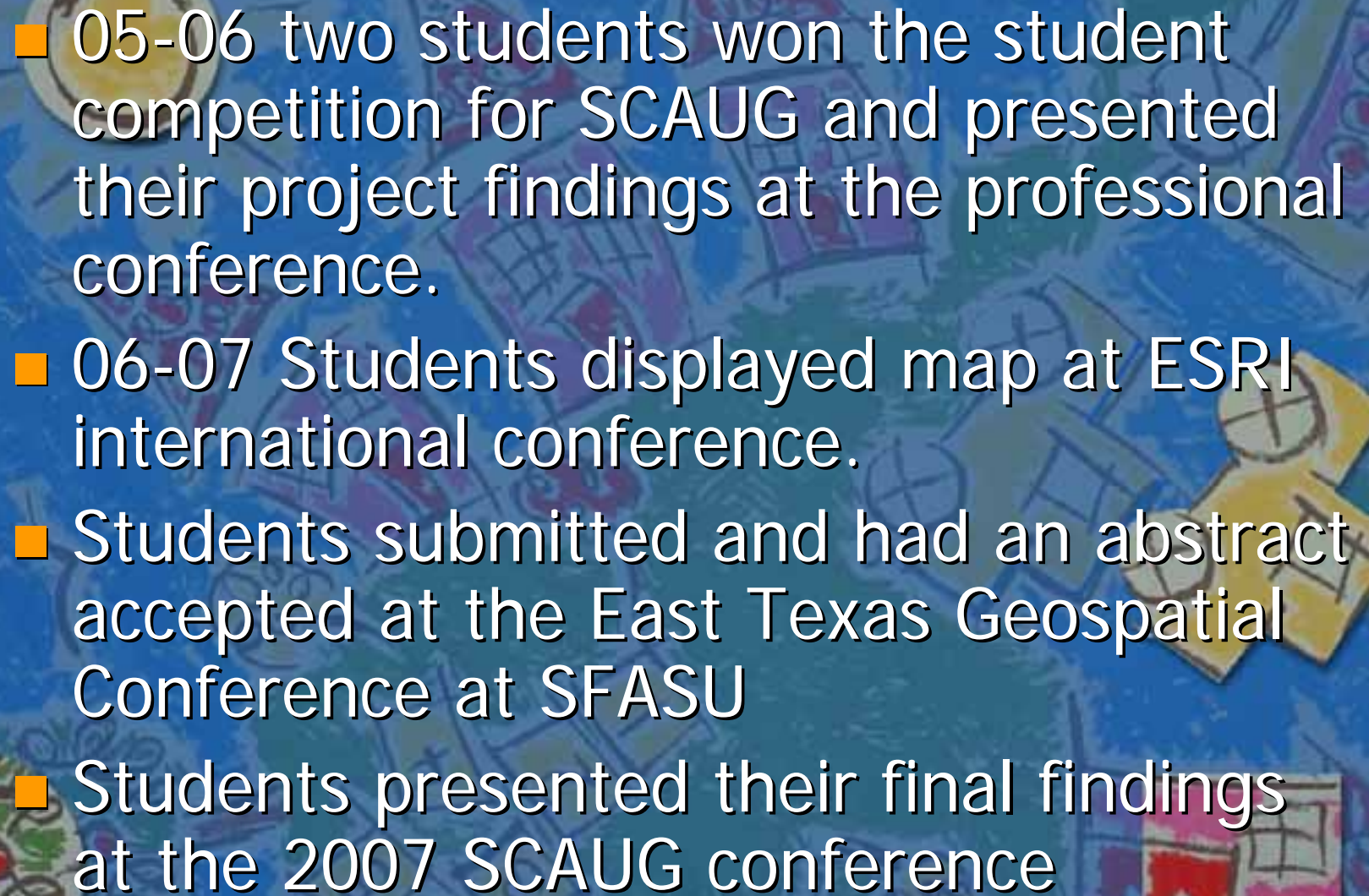




# SEE's GIS Program

- Started in 2004 with 11 classes, approx 200 students from grades 7-12<sup>th</sup>.
  - Students used Arc View 3.1
  - In 2005-06 the school received Arc View 9.1
  - During the 05-06 school SEE's GIS program received two grants; Beaumont grant (>60,000) and a SAWS mini grant (2000)
- 
- 
- 



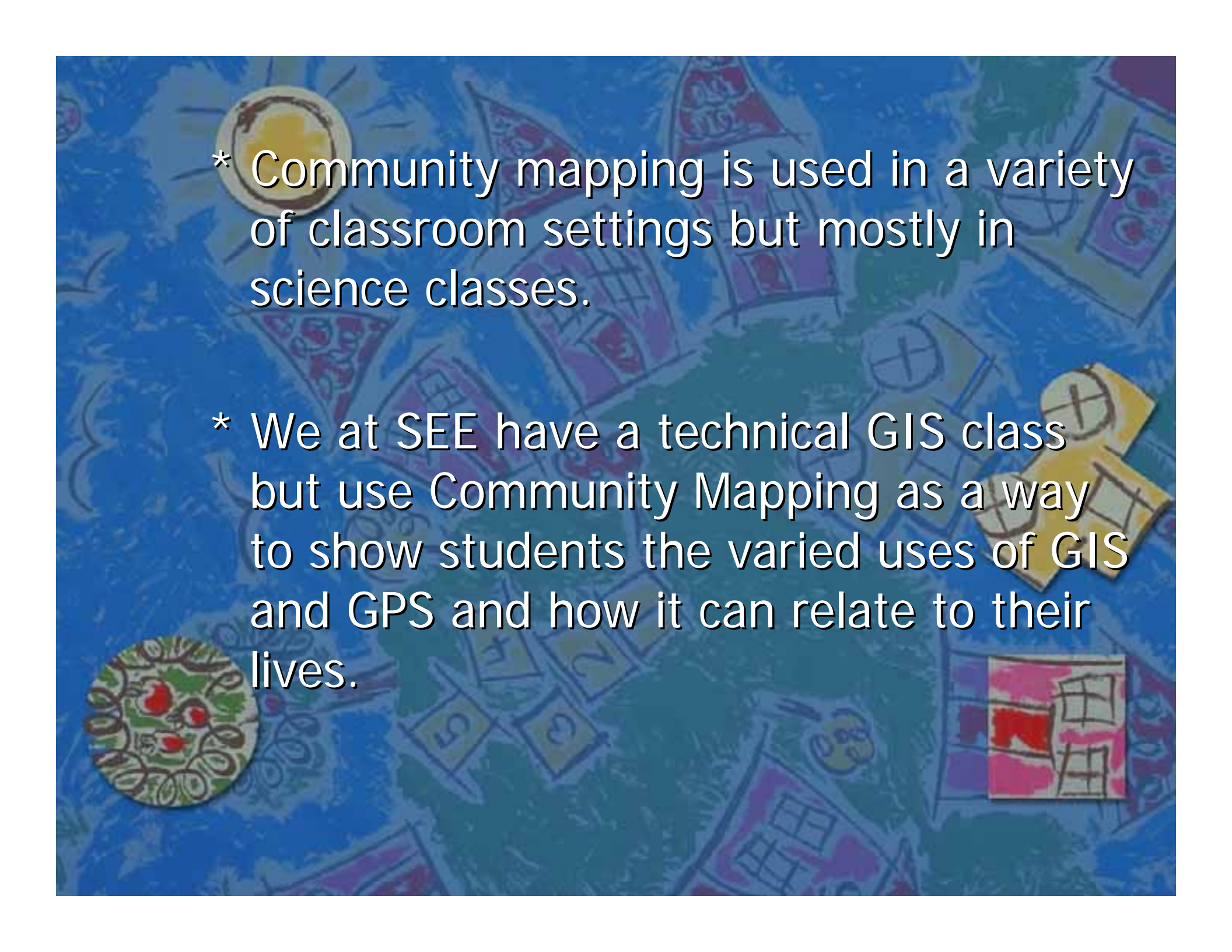
- 
- 05-06 two students won the student competition for SCAUG and presented their project findings at the professional conference.
  - 06-07 Students displayed map at ESRI international conference.
  - Students submitted and had an abstract accepted at the East Texas Geospatial Conference at SFASU
  - Students presented their final findings at the 2007 SCAUG conference



# What is Community Mapping?

"Community mapping is a tool grounded in a school-to-careers research base that can aid educators' efforts in matching students' transition needs with community assets. It is also a tool that can build teachers' knowledge and awareness of community assets to create more effective transition plans. Additionally, it is an instructional activity that helps students explore organizations as well as career opportunities in their community. Community mapping can be a geographical mapping of a target community (concrete mapping) or an abstract mapping of assets or services within a target community (abstract mapping). Either way, it is a contextualized teaching and learning (CTL) approach that can acquaint teachers with the target community's culture, resources, transition assets, and needs."



- 
- \* Community mapping is used in a variety of classroom settings but mostly in science classes.
  - \* We at SEE have a technical GIS class but use Community Mapping as a way to show students the varied uses of GIS and GPS and how it can relate to their lives.



# Examples of Community Mapping

**Some examples are:**

- \*Creating a trail map
- \*Mapping fire hydrants
- \*Mapping water waste runoff
- \*Mapping cemeteries
- \* Mapping neighborhood graffiti





## Some positive outcomes of Community Mapping:

- using a problem-based approach;
- supporting an understanding students' diverse life contexts;
- employing authentic methods of assessment; and
- utilizing interdependent working groups.





# Statistics

Since the GIS program at SEE was started we have tracked the TAKS scores of the students involved and have found that GIS with community mapping has helped to raise the scores.

- Science up 100%
- Math up 60%
- Social Studies up 71%

Statistics are from 05-07, student sample was 10% of total GIS student population.



# Benefits of Community Mapping

“Community mapping creates a useful, exciting product for teachers, students, and community members. The creative aspects of community mapping can energize teachers; they can begin to think differently about assessment, transition planning, and teaching. They become more engaged in their students’ communities and begin to share a common knowledge-base with students. Community mapping, too, can motivate students and stimulate increased interest in learning. It can also help them expand their view of the community and its members. Students gain a connection with businesses and services with which they might not typically connect. Finally, community mapping engages community members in school programs and allows them to view students and teachers more personally. ”



# How this helps different learning styles learn.



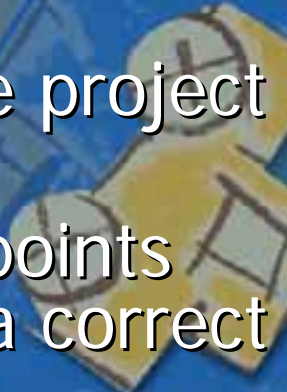


- As we all know there are many types of learners. This type of project successfully incorporates kinetic, visual and auditory.
- Students who are involved in this project use both the creative and analytical process.







# Mitchell Lake

- We began this major community during the fall of 2005 and had hoped to have it completed by spring 2008.
  - The original plan for the Mitchell Lake project was a 2 phase plan.
  - Phase 1: Students would collect waypoints from trails and boundaries to create a correct and neat trail map.
  - Phase 2: Collect agriculture and water samples, mapping the test sites.
  - What was completed was only phase 1.
- 
- 
- 



# Mitchell Lake Failures and Success

- We successfully completed phase one within a year. We had a completed trail map within a year. We presented the data as well as the completed trail map to the SCAUG conference.
- Phase two was never started because of communication difficulties with the Mitchell Lake staff.



# Failure and how it teaches us how to succeed

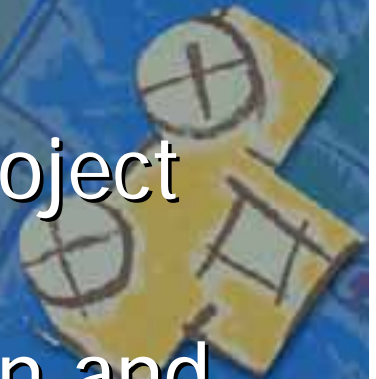
- Because of the failure of Mitchell Lake the students as well as the teachers learned how important good and clear communication is to a project.
- The more valuable lesson was that sometime failure does occur and that nothing can stop it. Students learned that sometimes in the professional world you have to accept failure and move on.





# Elm Creek

- In Summer 2005 we received a SAWS grant to map a major San Antonio watershed.
- We began and completed the project within 6 months.
- The students map a small section and marked all visible pollution.
- We turned in our completed project that spring.





# Graffiti and Cemeteries

- This year we decided because of the failure of phase two of Mitchell lake to concentrate on smaller projects.
- Examples:
  - Graffiti on Campus
  - Mapping a small cemetery
  - Student enrollment
  - Alumni map





# What we learned!

Through community mapping our students had units on:

- GIS
- GPS
- Watersheds
- Conservation
- Waste Water Treatment
- History of Graffiti
- Geocaching
- Historical Mapping
- Census data
- etc

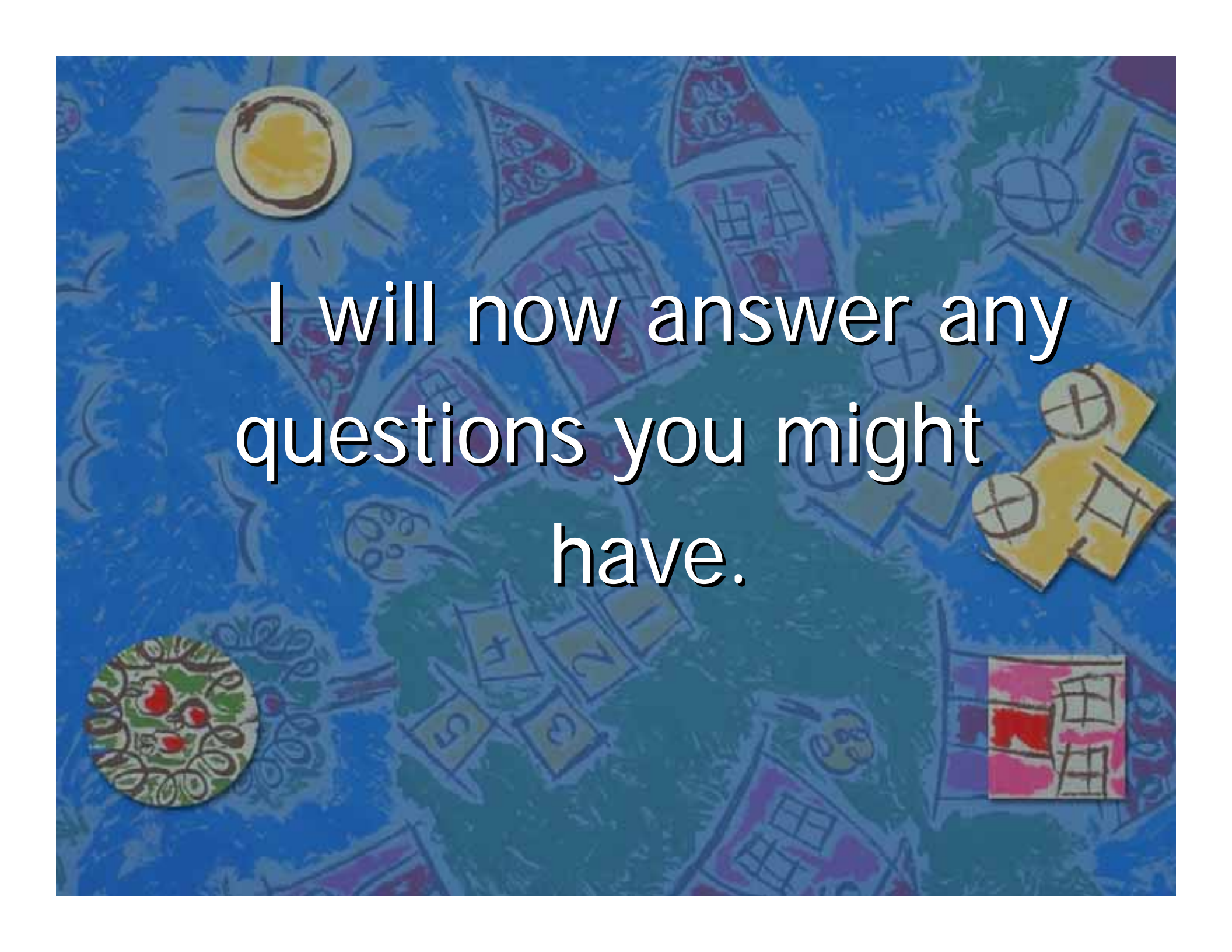




# The Future!

- We have grand plans for the future of GIS at SEE, we hope to mold a elite program and have students take dual credit classes in high school. We also plan on having many more community mapping projects.





I will now answer any questions you might have.








We would like to thank all our community partners throughout the last three years.

- OLLU
- UTSA
- City of San Antonio
- San Antonio Water Systems
- Bexar County Appraisals
- Dr. Steve Brown
- Mr. Joe Chapa
- Veronica Schindler at ESRI
- SCAUG
- Dr. McDonald
- SFASU





# Resources

- <http://www.actionforchange.org/mapping/>
  - <http://www.ldpride.net/learningstyles/M1.htm>
  - <http://www.utsa.edu/lrsg/GISRS/resource.htm>
  - [www.sanantonio.gov](http://www.sanantonio.gov)
  - [http://www.ncset.org/publications/view\\_desc.asp?id=2128](http://www.ncset.org/publications/view_desc.asp?id=2128)
- 
- 
- 





Dana Duncan

1826 Basse Rd.

San Antonio, TX 78216

[duncand@excellence-sa.org](mailto:duncand@excellence-sa.org)

Emily Olsen

1826 Basse Rd

San Antonio, Tx 78216

[eolsen@excellence-sa.org](mailto:eolsen@excellence-sa.org)