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Recommended Citation

Robinson, Sarah A., "The Learning Landscape: An assessment of state science standards and application in a URI Outreach Center youth education program" (2015). *Senior Honors Projects*. Paper 448.
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The Learning Landscape: An assessment of state science standards and application in a URI Outreach Center youth education program

Introduction

When it comes to education in this country, we have standards. A movement of outcome-based education reform began in the 1980's that included a new wave of national education goals, standardized testing, and the "No Child Left Behind" era.¹ The current standards for science in this state are the Rhode Island Grade Span Expectations (GSEs). Recently however, a new set of science standards has been developed, the Next Generation Science Standards (NGSS) outlining performance expectations with a greater emphasis on "knowing and doing."²

Navigating these standards can be both overwhelming and time-consuming for already busy educators. URI Outreach Center youth education programs such as Learning Landscape Field Trips, provide educators with a means to meet some of these standards by infusing environmental education into their curriculum. Using the Learning Landscape program as a case study, I have worked to overlaying the current GSEs and the new NGSS to the program. This includes identifying standards that are currently being met through Learning Landscape, as well as recommendations for program enhancement. My goal is to aid both Rhode Island educators and the URI Outreach Center with this transition to new standards by highlighting the key differences of NGSS, and ways they can be incorporated more fully into Learning Landscape Field Trips.

Background

Learning Landscape is a field trip program for elementary classes, run by the URI Outreach Center.

- Winter sessions are held at the Botanical Center at Roger Williams Park in Providence. Spring sessions are held at the URI Botanical Gardens, Kingston.
- Each Session is 2 hours and includes 5 stations:
 1. Seed planting and Composting
 2. Beneficial and pest insects
 3. Native birds
 4. Native mammals
 5. Watersheds and nonpoint source pollution

The **Rhode Island GSEs** are the current standards for K-12 science education.

- Assessment Targets are evaluated by the NECAP
- Science standards are based upon the AAAS benchmarks (1994) and the National Science Education Standards (1993)

The **NGSS** are a set of national standards for science, engineering, and technology.

- Published in 2013 with Rhode Island as a part of the development process
- Based upon *A Framework for K-12 Science Education* (2013)
- Plan to be fully implemented in RI schools by the 2017-2018 school year

(Note: NECAP= New England Common Assessment Program, AAAS = American Association for the Advancement of Science)

Methods

Direct teaching experience: Winter Learning Landscape educator

- Participated in all 20 Learning Landscape sessions

Applying the standards

- Read through standards to become familiar with the background, structure and material
- For both GSEs and NGSS, identified which K-5 life science standards are covered (or not) and to what extent, and which are applicable to each of the five Learning Landscape stations
- For NGSS, the Disciplinary Core Ideas (DCI) were also evaluated to see which applied to the Learning Landscape stations

Results

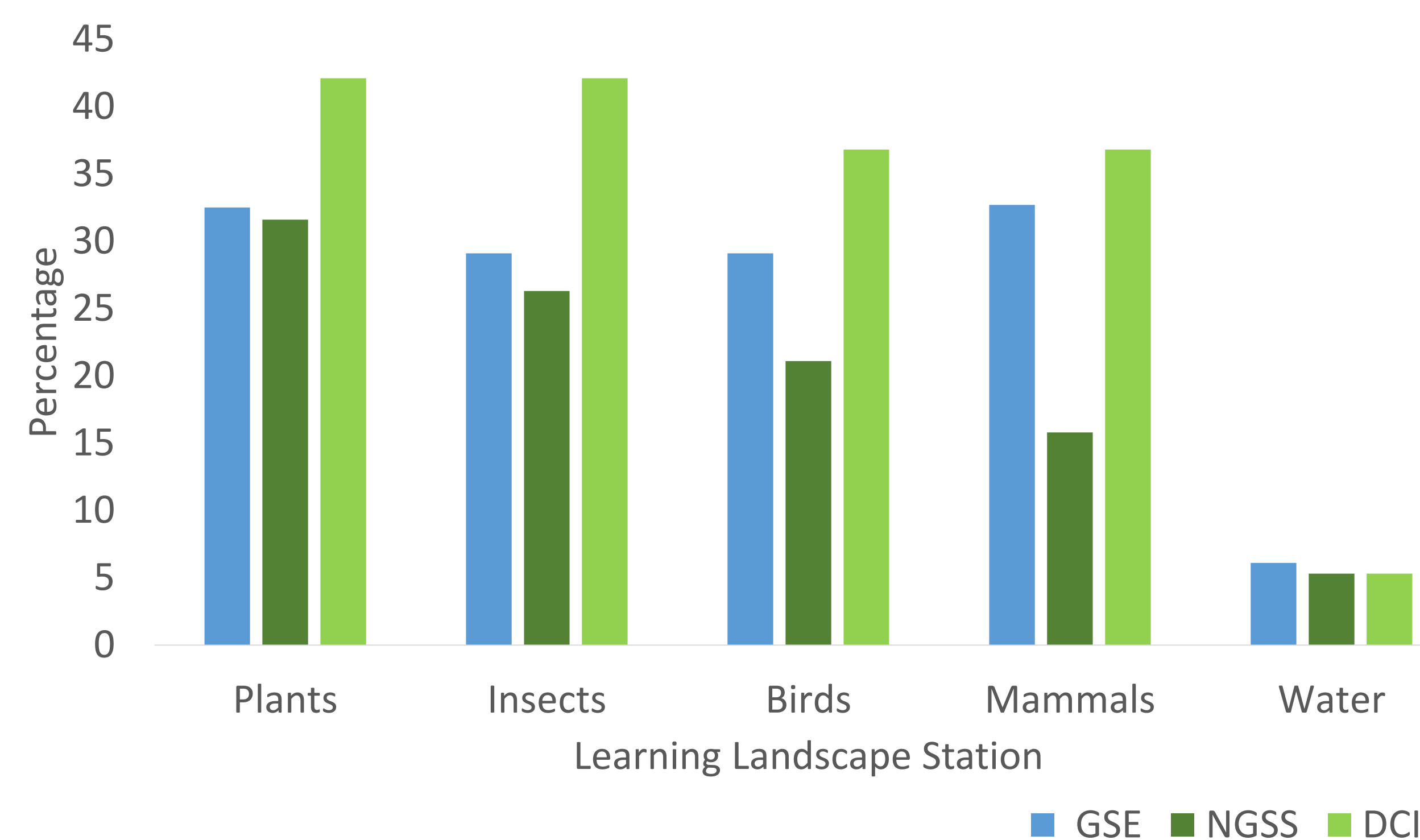


Figure 1. Percentage of Life Science Standards that apply to each Learning Landscape Station. Because of the difference in the number of standards between the NGSS performance expectations and the Grade Span Expectations, it was more efficient to display the percentage of standards covered. Disciplinary Core Ideas of the NGSS were also included to show that although the performance expectation may not be directly covered, the concepts are addressed. Because the water cycle is more earth science related, it does not cover as many of the standards as do the other stations.



Discussion

In a two hour session, Learning Landscape does well to cover many of the current GSEs and new NGSS, and even more of the key concepts outlined in the NGSS as Disciplinary Core Ideas, DCI. After spending time getting to know these standards, I have noticed several key differences:

- NGSS topics include multiple disciplines, the topics of the GSE include only one domain, e.g. life sciences.
- The NGSS are organized for specific grade levels, GSEs are organized into topics that cover multiple grade levels
- The NGSS are more action oriented, asking students to "design," "construct," and "use models," the wording of the GSEs are more often "explain" and "observe."

The transition to a more applied and active approach is probably where Learning Landscape can be enhanced the most, as it already meets so many of the DCIs for NGSS. My recommendations for program enhancement include:

- Adding activities that connect all of the stations, e.g. a food web game
- Presenting students with problems or questions that are answered through physical interaction with the subject, e.g. students learn classification by physically sorting insect models by structure and type

After contacting 15 of the participating elementary teachers about their experience, the four who responded all shared similar sentiments about the program, stating it was "memorable and educational" and "does address the life science concepts we teach the students." Students learning English as a Second Language also found this program especially enriching as it provided a physical and visual supplement to the verbal context.

Conclusion

The Learning Landscape Field Trip Program is an enriching experience for students and teachers. As a Learning Landscape educator, I found that students were, almost as a rule, excited by the material and their surroundings at the Botanical Center. Feedback from participating elementary teachers also supported my experience, showing that it supplemented classroom material and content met their required standards. As Rhode Island educators move forward with NGSS, the enhanced Learning Landscape curriculum can be more fully infused into their curriculum to meet the standards.

Acknowledgements

Very special thanks to all who have provided support, guidance, and encouragement:

- Amy Cabaniss and the URI Outreach Center
- Carolyn Hames and the Honors Program
- Participating Learning Landscape educators and students

And for financial support:

- Smith and Clarke Foundation



References

1. Education Week, (2014). *Timeline: Fueling the Push for Education Standards*. EdWeek.Org. Bethesda, MD: Editorial Projects in Education.
2. National Research Council, (2015). *Guide to Implementing the Next Generation Science Standards*. Committee on Guidance on Implementing the Next Generation Science Standards. Board on Science Education, Division of Behavioral and Social Sciences and Education, Washington, DC: The National Academies Press.