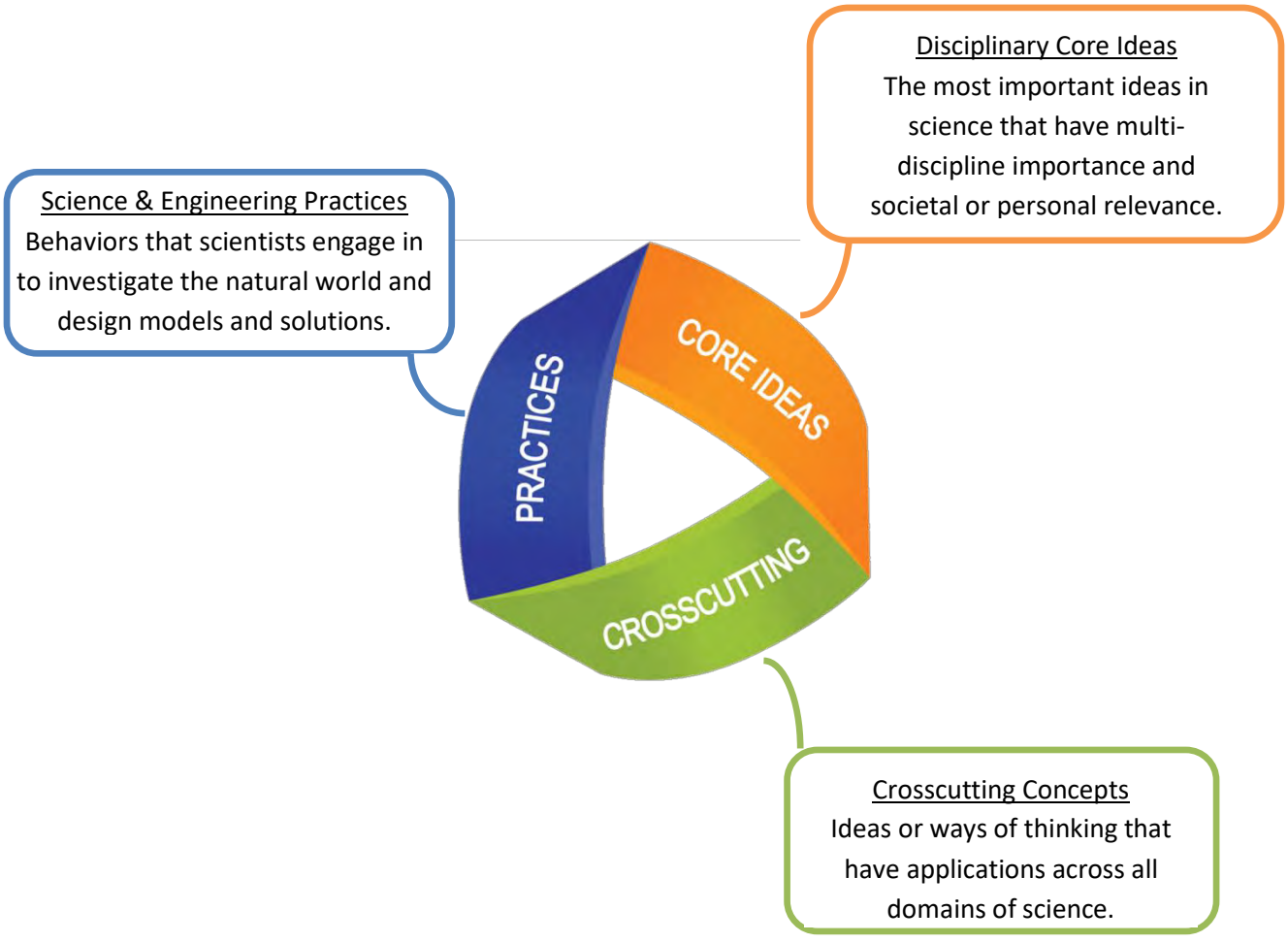
***Next Generation Science Standards* and *Common Core* alignment with**

King County Level One Waste Reduction and Recycling Best Practices Guide

Elementary School

Next Generation Science Standards (NGSS) Categories



Level One - Waste Reduction and Recycling

Elementary School

The connections between the **Next Generation Science Standards** (NGSS) and **King County Level One Best Practices Guide** uses the matrices created by the National Science Teachers Association (NSTA) available at http://ngss.nsta.org/ngss-tools.aspx.

Note: In this reference sheet an *italicized number and title* refers to a specific action in the Best Practices Guide. For example, *"10. Climate change connections*" on page 3 is for schools that choose #10 in the Education and Outreach section of the Best Practices Guide as one of their Level One actions.

Assess and Monitor section of Best Practices Guide

- Plan and conduct an investigation collaboratively.
- Define a simple design problem that can be solved through a process or system.
- Use counting and numbers to identify and describe patterns in the natural and designed world(s).

- Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

- Cause and effect relationships are routinely identified, tested, and used to explain change.
- Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.
- Change is measured in terms of differences over time and may occur at different rates.

Education and Outreach section of Best Practices Guide

3. Waste Audit - Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.

8. Present a short training – Communicate scientific or technical information orally.

11. Math or science lessons – content dependent, check the SEP Matrix.

10. Climate change connections - Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.

The following Crosscutting Concepts can easily be worked into outreach. Contact your King County Green Schools Program representative for assistance.

- A system is a group of related parts that make up a whole and can carry out functions its individual parts cannot.

- Change is measured in terms of differences over time and may occur at different rates.

Waste Reduction and Recycling section of Best Practices Guide

- Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.

11. Science lessons could include

- *Matter* - The amount of matter is conserved when it changes form, even in when it seems to vanish.

- *Landfill design compared to recycling* - Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.

The following Crosscutting Concepts can easily be worked into these actions. Contact your King County Green Schools Program representative for assistance.

- Matter flows and cycles can be tracked in terms of the weight of the substances before and after a process occurs. The total weight of the substances does not change. This is what is meant by conservation of matter. Matter is transported into, out of, and within systems.

Common Core alignment

Level One - Waste Reduction and Recycling

Elementary School – Primary grades

English Language Arts - Speaking and Listening

Education and Outreach – Present a short training

CCSS.ELA-LITERACY.SL.**K-1**.4
Describe people, places, things, and events with relevant details (or recount an experience with appropriate facts).

CCSS.ELA-LITERACY.SL.**K-1**.5
Add drawings or other visual displays to descriptions as desired to provide additional detail.

CCSS.ELA-LITERACY.SL.**K-2**.6
Speak audibly and express thoughts, feelings, and ideas clearly (1-2 Use complete sentences).

CCSS.ELA-LITERACY.SL.**1-2**.6
Produce complete sentences when appropriate to task and situation.

Mathematics

Education and Outreach – extension ideas

- Include age appropriate mathematics on waste reduction posters.
- Calculate how much less paper your class would use if everyone always used both sides.
- Compare waste generated before and after cubby cleanouts.
- Compare food waste before and after a waste free Wednesday campaign.
- Calculate how many recycling bins the school would need to equal the number of garbage bins.

Common Core alignment

Level One - Waste Reduction and Recycling

Elementary School – Intermediate grades

English Language Arts - Speaking and Listening

Education and Outreach – Present a short training

CCSS.ELA-LITERACY.SL.**3-5**.4
Report on a topic or text, tell a story, or recount an experience.

CCSS.ELA-LITERACY.SL.**3-4**.5
Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.

CCSS.ELA-LITERACY.SL.**5**.5
Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.

CCSS.ELA-LITERACY.SL.**3**.6
Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.

Mathematics

Assess and Monitor – Calculate school's recycling rate

CCSS.MATH.CONTENT.**5**.NF.B.6 - Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Education and Outreach – extension ideas

- Include age appropriate mathematics on waste reduction posters.
- Compare food waste before and after a waste free Wednesday campaign.
- Calculate how many recycling bins the school would need to equal the number of garbage bins.
- Conduct a poster contest or video challenge where classes use mathematics to determine how much less waste would be produced in your school if every class reduced daily garbage from one full trash can to one half trash can.