Grade: 5

Program Title: Ecofootprint

Related Iowa Core Performance Expectations:

5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Future Considerations: Blend this program with the unit storyline developed by the classroom teacher.

Program alignment with the Iowa Core Science Standards:

Disciplinary Core Ideas (DCIs)	Investigative Question	Investigative Phenomena	Practices (SEPs) Students will:	Cross Cutting Concepts (CCCs) Students will identify:
ESS3.C Human activities in ag, industry, and everyday life have major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect the earth's resources and environments.	What effect do your actions have on the planet? What can I do to reduce my ecological footprint?	Show some pictures of homes from the book, *Material World,* including the US and 2-3 different countries. Have students generate questions about resource uses. Alternative: Using 10 one-gallon jugs to represent the average 100 gallons of water each person uses per day, ask students to estimate the water use of the average person in the US.	**Ask questions** about resource use around the world **Analyze and interpret data** creating a class graph of the number of equivalent Earths used from Ecological Footprint Calculator activity. **Engage in arguments from evidence** when making a claim and deciding which class solution would have the most impact from the class data from the Ecological Footprint Calculator activity	**Cause and effect** of resource use on Earth's natural resources as students work through the eco footprint calculator. **Scale, proportion, and quantity** of resource use calculating individual vs. worldwide resource use

Program components: The presenter will have students use the CCCs, the SEPs and the phenomena to figure out how to answer the investigative question and to grasp the disciplinary core ideas.

Adapted from www.islandwood.org and Our Mississippi –Educational Curriculum Guide about the Upper Mississippi River

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Use the book, *Material World*, to show pictures of what a typical family owns in 3-4 countries including the United States. Have students generate questions about environmental impacts that different countries are having on the earth.

Students complete the Ecological Footprint Calculator (contact Mary and Clay for their adaptation of the Ecological Footprint calculator resource). The calculator worksheet includes questions on: transportation, water use, clothing, entertainment, food, and school. Each answer is assigned a point value and students calculate their total usage number.

Using that information, students calculate how many Earths would be needed if everyone on the planet lived exactly as they did. Students create a class graph to show how many Earths they use. This can be done with sticky notes on a poster paper for a quick large class graph. Students analyze the class initial use.

Revisit the initial questions as to how individual actions affect the environment and ways they can reduce their ecological footprints. Students generate a list of behaviors that would be possible for them to do to reduce their use of resources. Students support a claim with evidence as to which suggestion would have the most impact. After discussion, students decide as a class on one action. Students will be asked make a commitment to implement that change for the next week and track as a class how much of the resource they target is conserved (ex water usage).

Note: Planning with the teacher to discuss ways to continue this as they students go back to the classroom is recommended.

Extension activities:

Optional activity as a starting activity: Ask students to estimate the average number of gallons of water one person uses in the United States in one day. Use 10 one-gallon jugs to represent the average 100 gallons of water each person uses per day. This would be a good visual that could be also used in the beginning activity if time allows.