

Game Design to Learn about Climate Change: Middle School Girls' Experiences with Systems Thinking

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Summary

Computing has been a foundational tool in the development of scientific understanding of current and future impacts of climate change, the most important socio-scientific issue facing society today. Science practices, such as modeling and abstraction, are critical to understanding complex systems dynamics integral to understanding climate science. Given the demonstrated affordances of game design in supporting computational thinking, many aspects of which are akin to systems thinking, we implemented a free four-day intensive game design and climate change workshop for middle school girls that focused on game design to teach about climate change. In the workshop, five girls used the object-oriented programming environment, Scratch, to create games based on a systems perspective on climate change. Findings are organized into three broader categories: a) analogies to science content in the game; b) game design experience; and c) evidence of systems thinking, including socio-ecological connections.

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