

## INTERCONNECTIONS COLLECTION

In an era of increasing interconnectedness, knowledge — and power — belongs to those who understand the nature of the interdependent systems that organize the world — and have the skills to change those systems. The books in the Interconnections collection offer K-12 educators a curriculum toolkit for supporting systems thinking with a design-based approach to learning that aligns with current Common Core and Next Generation Science Standards while still being relevant to youth interests in digital culture.

Each book teaches systems thinking concepts and skills in the context of a specific digital media platform and includes an average of six design challenges or learning projects. This innovative, design-based approach is useful for both in- and out-of-school settings, and was developed collaboratively by designers and educators from Indiana University's Creativity Labs, Institute of Play, the Digital Youth Network, and the National Writing Project.



### GAMING THE SYSTEM

#### Designing with Gamestar Mechanic

**Katie Salen Tekinbaş, Melissa Gresalfi, Kylie Pepler, and Rafi Santo**

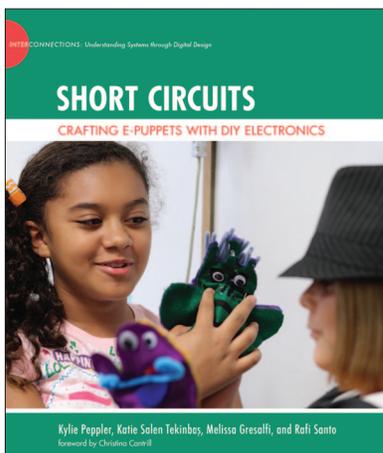
*Gaming the System* demonstrates the nature of games as systems, how game designers need to think in terms of complex interactions of game elements and rules, and how to identify systems concepts in the design process. The activities use Gamestar Mechanic, an online game design environment with a systems thinking focus.

### SCRIPT CHANGERS

#### Digital Storytelling with Scratch

**Kylie Pepler, Rafi Santo, Melissa Gresalfi, and Katie Salen Tekinbaş**

*Script Changers* shows the ways that stories offer a lens for seeing the world as a series of systems. It provides opportunities for youths to create interactive and animated stories about creating positive change in their communities. These projects utilize the Scratch visual programming environment.

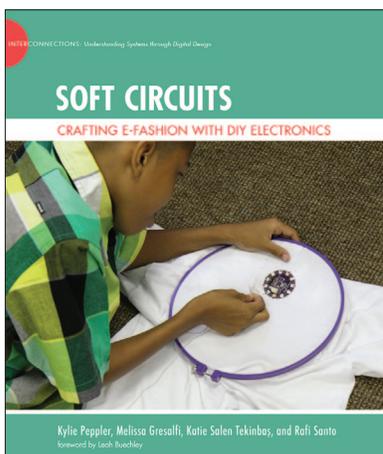


### SHORT CIRCUITS

#### Crafting e-Puppets with DIY Electronics

**Kylie Pepler, Katie Salen Tekinbaş, Melissa Gresalfi, and Rafi Santo**

*Short Circuits* offers youths opportunities to undertake physical computing projects, providing tools and methods for creating electronic puppets. Youths learn how to incorporate microprocessors into everyday materials and use them to enhance their language and writing skills with shadow puppet shows featuring their own DIY flashlights.



### SOFT CIRCUITS

#### Crafting e-Fashion with DIY Electronics

**Kylie Pepler, Melissa Gresalfi, Katie Salen Tekinbaş, and Rafi Santo**

*Soft Circuits* introduces youths to the world of wearable technology. Using Modkit, an accessible DIY electronics toolkit, youths learn to create e-textile cuffs, “electric-tee” shirts, and solar-powered backpacks. Youths also learn the importance of one component to the whole—how, for example, changing the structure of LED connections immediately affects the number of LEDs that light up.

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# An Interconnections Guide for Educators

## WHAT IS THE INTERCONNECTIONS CURRICULA?

Interconnections: Understanding Systems through Digital Design is a collection of curricula that support middle-school aged youths to develop critical twenty-first century skills—systems thinking and digital design—by engaging in rich projectbased learning using the latest technologies.

## WHAT IS SYSTEMS THINKING, AND WHY IS IT IMPORTANT FOR MY YOUNG PEOPLE?

As the world gets more complex and interconnected, we need to help our kids to understand and positively impact the dizzying number of systems around them. Systems thinking is a set of ideas and practices that allow kids to see through the “lens” of systems: how to take a “big picture” view of complex social structures and technologies, how to see the patterns and dynamics that drive systems, how to understand that the whole is usually greater than the sum of its parts.

## HOW IS DIGITAL DESIGN DIFFERENT FROM OTHER USES OF EDUCATIONAL TECHNOLOGY?

Digital design is all about getting youths the skills they need in order to be innovative, creative, and entrepreneurial thinkers. Rather than educational technologies that replicate a consumer mentality around learning, dumping information into youths’ brains, digital design activities put them in the driver’s seat, and prepare them for a world that increasingly expects them to engage in creative processes.

## DIGITAL STORYTELLING, CIRCUITRY, AND GAME DESIGN, REALLY?

There are lots of great reasons we’ve found in our work to use these platforms and technologies as the foundation for a classroom curriculum. Coding and creating with these tools is incredibly engaging, the results – games, animated stories, and fashion -- are an integral part of youth culture, and can be leveraged to get youths excited about entering into some pretty important academic practices: giving and getting feedback, revising drafts, making arguments, problem solving, and more.

## DOES THIS ALIGN TO STANDARDS?

Yes! All the Interconnections curricula have been aligned to the Common Core State Standards in areas including language arts, history and science, as well as the Next Generation Science Standards.

## HOW MUCH TIME DOES THIS TAKE?

Each *Interconnections* curriculum is designed to take about 20-30 hours overall, but of course can and will be adapted to fit youths’ needs and abilities as well as your school culture. This means that we fully expect that you might take certain parts and extend them, cut other parts, or repurpose to fit existing units of study.

## WHERE CAN I FIND OUT MORE ABOUT THE INTERCONNECTIONS COLLECTION?

<http://digitalis.nwp.org/gnl>

