

## STEM Module Title: Inventions

About This Module	
Overview	Youth will learn about and work through the design process while creating a new game for the Club.
Driving Questions	What does it mean to be a maker? Why is exploration and creation an important part of learning?
Product of the Week	A new game youth developed for the gamesroom
Session 1	<b>Try It!</b> Youth will focus on discovery and interpretation. Youth will first build a tower with pipe cleaners, then a second tower using alternative materials.
Session 2	<b>Think It!</b> Youth will use ideation to decide on a game to build using their maker materials. By the end of this session, youth will have created game plans for their projects.
Session 3	<b>Build It!</b> Youth will focus on experimentation. Using their game plans, groups will build their games using the materials in the program area.
Session 4	<b>Show It!</b> Teams will showcase their DIY games to the group. All youth will have the opportunity to give and receive feedback on their creations.
Session 5	<b>Review It!</b> Teams will demonstrate their evolution of ideas through reflection and debriefing questions.

Academic Vocabulary	
Word	Definition
Makerspace	A place to explore your interests by using tools and materials to create something new
Discovery	Building a team and identifying ways to solve a challenge together
Interpretation	To show your understanding of something
Ideation	A collection of ideas
Experimentation	To try out ideas, create a prototype (model), and receive feedback

Academic Vocabulary	
Word	Definition
Prototype	A model or sample from which a final product can be made
Feedback	A reaction to something that can be used for improvement
Evolution	To track your progress and changes, reflect and celebrate achievement
Recorder	A person who keeps notes or records
Spokesperson	A person who speaks on behalf of others

Supplies		
Facilitator Needs	1	Cup, can or another container
	1	Flipchart paper or whiteboard with writing utensils (as appropriate to your activity space)
	1	Ball
	1	Hula hoop
Each Team Needs	15	Pipe cleaners
	assorted	Maker materials
	assorted	Writing utensils
	1	Box or container
Each Child Needs		N/A

### Note to Facilitators

“Creativity is intelligence having fun.” – Albert Einstein

This module will introduce youth to the design process and provide opportunities to apply it to a project of their creation. Youth will be challenged to be creative, use teamwork and problem-solve to create a new game for their Club.

**Optional variation:** The game that groups develop as their final project does not need to be a completely new game of their own creation. It can be an existing game that they build out of the materials you have assembled. It should be something new the group feels should be added to your gamesroom.

## Extension Activities

- If time permits, involve youth in the first part of the design process: identifying a challenge or need. In this module, the need for a new gamesroom activity has been provided, but you may find youth have another idea that could determine the final product.
- If your Club has the capacity, take this module to the next level by moving beyond the prototype to the actual building phase!
- Explore more about career opportunities that use the design process, creativity and invention.
- Organize a Cardboard Challenge at your Club! [cardboardchallenge.com](http://cardboardchallenge.com)
- Tie this module to literacy. Here are just a few books that support the maker movement, curiosity, creativity and STEM:
  - › “The True Story of the Three Little Pigs” by Jon Szieszka
  - › “Kid Scientists: True Tales of Childhood from Science Superstars” by David Stabler and Anoosha Syed
  - › “Rosie Revere: Engineer” by Andrea Beaty
  - › “The Mysterious Benedict Society” by Trenton Lee Stewart