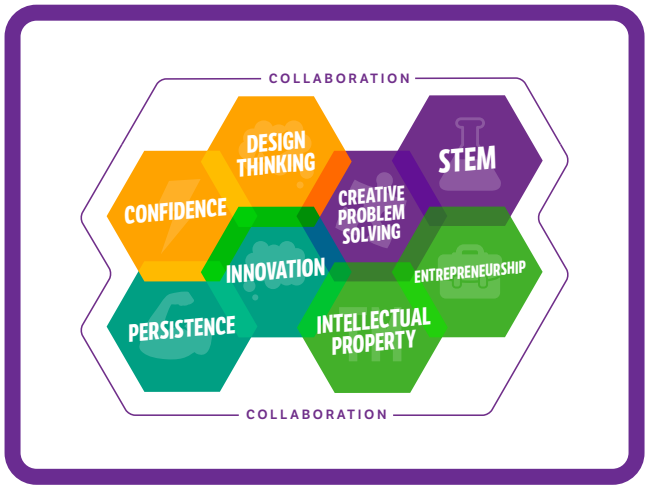
Club Invention®

FLEXIBLE STEM PROGRAMMING

FOR GRADES 1-6

A NATIONAL INVENTORS HALL OF FAME® EDUCATION PROGRAM

TABLE OF CONTENTS



CLASSROOM SET PRICE PER UNIT	
1-5 UNITS	$1,000
6-11 UNITS	$900
12+ UNITS	$800

Learn more about Club Invention **here.**

IMMERSIVE INVENTION EDUCATION

Club Invention® makes it easy to create an afterschool environment that promotes critical and creative thinking. Children gain insight and inspiration while finding opportunities to take risks and develop new ideas. These experiences empower children to thrive as problem solvers in their own lives and in the world around them. The Club Invention modules each contain eight, one-hour units and incorporate a wide range of subject areas through purposeful, hands-on exploration.

> "The kids **CULTIVATE THEIR CREATIVITY,** work on their strengths, are stimulated with new experiences, learn to work in groups, learn new educational concepts **AND HAVE FUN AT THE SAME TIME.**"

MARIA L., VISTA, CALIFORNIA

INNOVATIVE EXPERIENCES

- Research-based curriculum allows teachers to facilitate with confidence
- Open-ended exploration promotes creativity and builds 21st-century skills
- Challenges empower children to use their imagination, build functioning prototypes and make their thinking visible
- Job-embedded professional development helps educators cultivate an innovative mindset

FLEXIBLE CURRICULUM

- A variety of modules provides a wide range of subject areas
- Aligned to state, Common Core and Next Generation Science Standards
- Units can be bundled or purchased individually to align with various schedules and time frames

ESSENTIAL LIFE SKILLS

- Stories and materials guide children to experience empathy and advance their capacity for civic responsibility
- Activities encourage child-led learning through the invention of new ideas and exploration of ways to share them with others

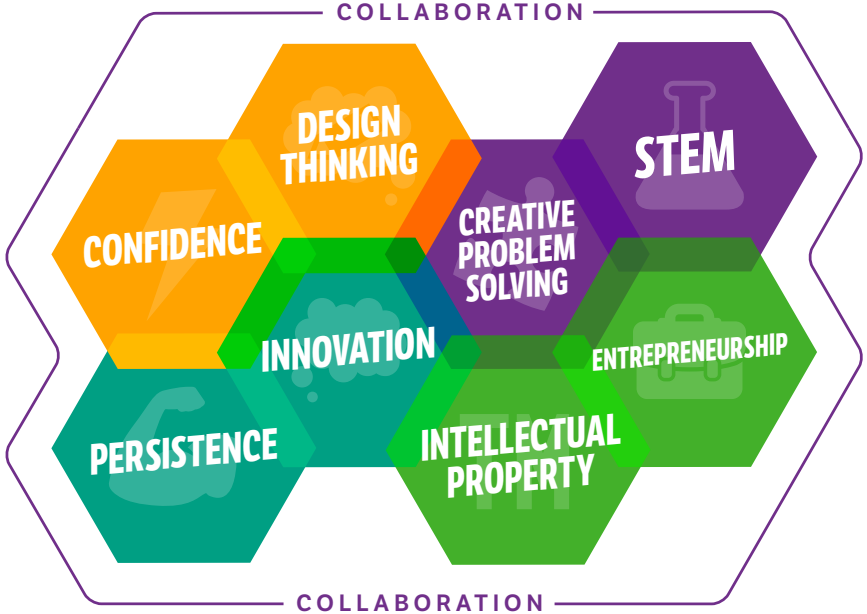
TURNKEY IMPLEMENTATION

- Step-by-step curriculum guide
- All-inclusive materials packed in classroom sets
- Dedicated National Inventors Hall of Fame® support

Learn more about Club Invention **here.**

THE I CAN INVENT® MINDSET

All National Inventors Hall of Fame education programs are built on the belief that every child can invent. Through open-ended, hands-on exploration, children build the I can Invent® Mindset — a growth mindset infused with lessons from world-changing inventors — that enables and empowers them in all areas of their lives.



The I Can Invent Mindset is made up of nine essential skills and traits that are strengthened every time a child applies them. Each Club Invention module highlights different aspects of this mindset, guiding children to unlock their full potential and discover the power of their own creativity.

Learn more about Club Invention **here.**

CLUB INVENTION MODULES

BOLDER BUILDERS™
Children join an engineer, architect and builder to restore a town by designing, creating and testing structures including shelters and bridges.
- **Creative Problem Solving**
- **Innovation**
- **STEM**

E.Z. SCIENCE™
To help a famous science magazine develop solutions to everyday problems, children create games, conduct experiments and solve puzzles.
- **Entrepreneurship**
- **Innovation**
- **STEM**

PASSAGE TO PLANET ROG™
Traveling to a distant planet, children apply teamwork and creative problem solving to develop devices that will help them succeed in space.
- **Confidence**
- **Creative Problem Solving**
- **Design Thinking**

SOS: ENDANGERED EARTH™
Investigating ecology and discovering threats to animal habitats, children design safe spaces for wildlife from black bears to birds.
- **Confidence**
- **Design Thinking**
- **Persistence**

WHEEL OF INVENTION™
By teaming up to take on entrepreneurship challenges, children build nature-inspired prototypes and provide real-world solutions.
- **Entrepreneurship**
- **Design Thinking**
- **Confidence**

CASTLES, CATAPULTS AND COATS OF ARMS™
Working together to explore science and medieval history, children take on roles from knights to craftspeople and engage in hands-on creativity.
- **Confidence**
- **Design Thinking**
- **STEM**

FLIGHT SIGHT™
Children learn how flight innovations provide new perspectives as they invent ways to jump higher, fly giant paper planes and create 3D maps.
- **Creative Problem Solving**
- **Intellectual Property**
- **Persistence**

PHYS ED: PHYSICS IN MOTION™
Children explore the laws of gravity, energy, motion and magnetism as they create games based on the work of famous physicists.
- **Confidence**
- **Persistence**
- **STEM**

TRASH ISLAND: A GARBAGE PATCH JOURNEY™
Children take on ocean research challenges and apply creative thinking to address the buildup of trash in the North Pacific Central Ocean Gyre.
- **Confidence**
- **Design Thinking**
- **Innovation**

Next Generation Science Standards Align to **All Club Invention modules.**

KEY SKILLS AND CONCEPTS

- Architecture
- Biomimicry
- Design Thinking
- Ecology
- Engineering
- Physics

BOLDER BUILDERS™

In Bolder Builders, children join engineer, architect and builder Archie Tek to restore a town called Unlucky. They apply building principles that have been used for centuries, learning that even through natural disasters, people can be resilient and rebuild their communities. Considering both function and aesthetics, children design the town layout and construct buildings and bridges. They collaborate, brainstorm and plan their design, and then create, test and recreate to discover that they can make an impact on the world.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

CREATIVE PROBLEM SOLVING

Applying empathy and creative problem solving to design shelters for different weather conditions.

INNOVATION

Exploring biomimicry and innovation, using inspiration from nature to create strong structures.

STEM

Using STEM principles to replicate bridge construction and learn how earthquakes impact buildings.

Bolder Builders aligns to Common Core and Next Generation Science Standards.

KEY SKILLS AND CONCEPTS

- Writing
- Chemistry
- Art
- Design Thinking
- Physics

E.Z. SCIENCE™

In E.Z. Science, children conduct experiments, solve puzzles and create games to help the manager of a famous science magazine keep subscribers happy. As they help the magazine publish solutions to everyday problems, children encounter engaging lessons in physics, mathematics, engineering, invention and the arts. Building valuable skills with each hands-on activity, children are introduced to the writing process and the challenges of entrepreneurship as they use their creativity to save the day.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

Practicing Innovation and learning about historical timelines.

Building an understanding of entrepreneurship while overcoming obstacles to run a successful business.

Exploring a variety of STEM concepts while sketching and constructing prototypes.

E.Z. Science aligns to **Common Core and Next Generation Science Standards.**

KEY SKILLS AND CONCEPTS

- Life Science
- Physical Science
- Engineering
- Biology
- Earth & Space Science
- Measurement & Data

PASSAGE TO PLANET ROG™

Passage to Planet ROG engages children in an exciting journey through space to a distant planet. Through a series of challenging missions, from establishing an outpost to making clay sculptures, children practice creativity, collaboration and communication as they develop solutions to explore this new place and then return home to Earth. Children also practice empathy and understanding of differences through observing alien lifeforms. This hands-on adventure empowers children to use their imaginations, make observations, collect data, apply engineering principles and practice responsible decision making.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

CONFIDENCE

Building confidence while working individually and in teams to survive on a new planet.

CREATIVE PROBLEM SOLVING

Applying creative problem-solving skills to complete missions and travel back to Earth.

DESIGN THINKING

Empowering the use of imagination and creativity to understand differences.

Passage to Planet ROG aligns to **Common Core and Next Generation Science Standards.**

KEY SKILLS AND CONCEPTS

- Measurement
- Animal Science
- Writing
- Ecology
- Biology

SOS: ENDANGERED EARTH™

In SOS: Endangered Earth, children team up with the Saving Our Species (SOS) organization and use their ingenuity to fulfill an important mission — protecting animal habitats and preserving natural resources across the country. This mission guides children to practice empathy, explore the relationship between humans and wildlife, investigate the real ecological issues that will affect their futures, and apply responsible decision making and creative problem solving to make a positive impact on the world.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

CONFIDENCE

Building confidence by applying unique ideas and talents that can help the environment and shape the future.

DESIGN THINKING

Practicing design thinking to invent solutions that balance the needs of animals and humans.

PERSISTENCE

Demonstrating persistence while brainstorming, sketching, testing and modifying prototypes.

SOS: Endangered Earth aligns to **Common Core and Next Generation Science Standards.**

KEY SKILLS AND CONCEPTS

- Biomimicry
- Design Thinking
- Engineering
- Engineering Design
- Entrepreneurship
- Speaking & Listening

WHEEL OF INVENTION™

In Wheel of Invention, children team up to take on exciting invention challenges. Throughout the module, they have the chance to be inspired by the unique features of animals and plants from around the world as they build prototypes to provide real-world solutions. Along the way, students play games that will test their aim to win bonus materials. To score even more prizes, contestants race to buzz in and correctly answer questions that mention invention. Get ready to spin and win!

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

Pitching different invention designs that solve real-world problems.

Using the unique features of plants and animals from around the world to inspire the prototyping process.

Working in teams to develop inventions that are presented to others.

Wheel of Invention aligns to Common Core and Next Generation Science Standards.

KEY SKILLS AND CONCEPTS

- English Language Arts
- Social Studies
- Mathematics
- Measurement & Data
- Engineering
- Visual Arts

CASTLES, CATAPULTS AND COATS OF ARMS™

Children build skills for the future as they explore the past in Castles, Catapults and Coats of Arms. Investigating basic scientific principles through the lens of medieval history, children use their imaginations to take on the roles of lords, ladies, knights, craftspeople and serfs. They work together to complete hands-on challenges and discover that inventiveness has existed even in times of suppressed learning, helping them to build empathy and responsible decision making skills.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

DESIGN THINKING

Exercising design thinking and creative problem solving to construct a castle wall and sculpt boats to transport cargo.

STEM

Applying fundamental knowledge of STEM concepts while exploring history.

CONFIDENCE

Creating, testing and recreating a catapult and drawbridge using simple machines.

Castles, Catapults and Coats of Arms aligns to **Common Core and Next Generation Science Standards.**

KEY SKILLS AND CONCEPTS

- Physical Science
- Engineering
- Biomimicry
- History
- Algebraic Thinking
- Speaking & Listening

FLIGHT SIGHT™

Flight Sight offers children insight and inspiration from inventors who have made human flight possible, from the first attempts at manned flight through space exploration. Just as people have gained new perspectives by flying farther and soaring higher, children also discover new ways to see the world in this module. Both collaboratively and independently, they engage in kinesthetic activities, explore art concepts and practice real-world problem solving to defy gravity, create topographical maps and travel beyond Earth's atmosphere.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

PERSISTENCE

Demonstrating persistence while investigating aspects of flight from the ground up.

INTELLECTUAL PROPERTY

Building an appreciation for intellectual property by getting to know National Inventors Hall of Fame Inductees and their innovations.

CREATIVE PROBLEM SOLVING

Applying creative problem solving and exploring biomimicry to simulate space travel.

Flight Sight aligns to **Common Core and Next Generation Science Standards.**

KEY SKILLS AND CONCEPTS

- Physical Science
- Engineering
- Fluid Dynamics
- Aerodynamics
- Algebraic Thinking
- Energy

PHYS ED: PHYSICS IN MOTION™

In Phys Ed: Physics in Motion, children team up to create imaginative games inspired by famous scientists including Galileo, Newton, Bernoulli and Gilbert. Through fast-paced, creative problem solving, children explore and experiment to discover how and why objects move. They investigate the laws of gravity, energy, friction, motion and magnetism, and they build perseverance and pride as they determine how to incorporate each of these concepts into their dynamic game designs.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

PERSISTENCE

Developing persistence while experimenting with air pressure to complete an exciting parachute challenge.

STEM

Engaging in STEM exploration by creating an innovative golf game based on Newton's laws of motion.

CONFIDENCE

Gaining confidence by investigating magnetic fields and building kinetic sculptures.

Phys Ed: Physics in Motion aligns to **Common Core and Next Generation Science Standards.**

KEY SKILLS AND CONCEPTS

- Oceanography
- Animal Science
- Mathematics
- Environmental Science
- Geography
- Engineering Design

TRASH ISLAND: A GARBAGE PATCH JOURNEY™

In Trash Island: A Garbage Patch Journey, children investigate the extreme buildup of trash in the North Pacific Ocean Gyre between California and Hawaii. They must determine what has contributed to this area, known as Trash Island, and develop solutions to keep it from growing. Children are immersed in ecological topics including ocean conservation and pollution control as they collaborate, conduct research and tap into their creativity to clean up the ocean and secure a brighter, healthier future.

CURRICULUM HIGHLIGHTS

THIS MODULE EMPHASIZES THESE ASPECTS OF THE I CAN INVENT MINDSET:

INNOVATION

Practicing innovation to develop ideas that promote sustainable living and environmental conservation.

DESIGN THINKING

Applying design thinking to build devices that collect trash and remove contaminants through water filtration.

CONFIDENCE

Building confidence while taking on ocean research challenges that connect to real-world issues.

Trash Island: Garbage Patch Journey aligns to **Common Core and Next Generation Science Standards.**

WHAT'S INCLUDED

EDUCATOR RESOURCES

- Step-by-step instructor guide and curriculum, aligned to national and state standards
- Activity objectives, subject background, academic vocabulary, guiding questions and discussion
- Includes transferrable teaching strategies in inquiry-based learning and 21st Century Skill building
- All-inclusive, hands-on materials for thematic modules
- Posters and handouts for an immersive experience

CREATIVE COLLABORATION

- Start-to-finish program support from dedicated team members at the National Inventors Hall of Fame
- Flexible implementation and scheduling to meet school and district needs
- Promotional materials available to generate participant registration

EXTENSION RESOURCES

- Tech addendum for flexible implementation options
- Literacy and science extensions

Note: Sample of product only.
See unit curriculum for full product list.

Learn more about Club Invention **here.**

PRICING

LICENSED

EACH UNIT SUPPORTS ONE CLASSROOM OF UP TO 25 STUDENTS.

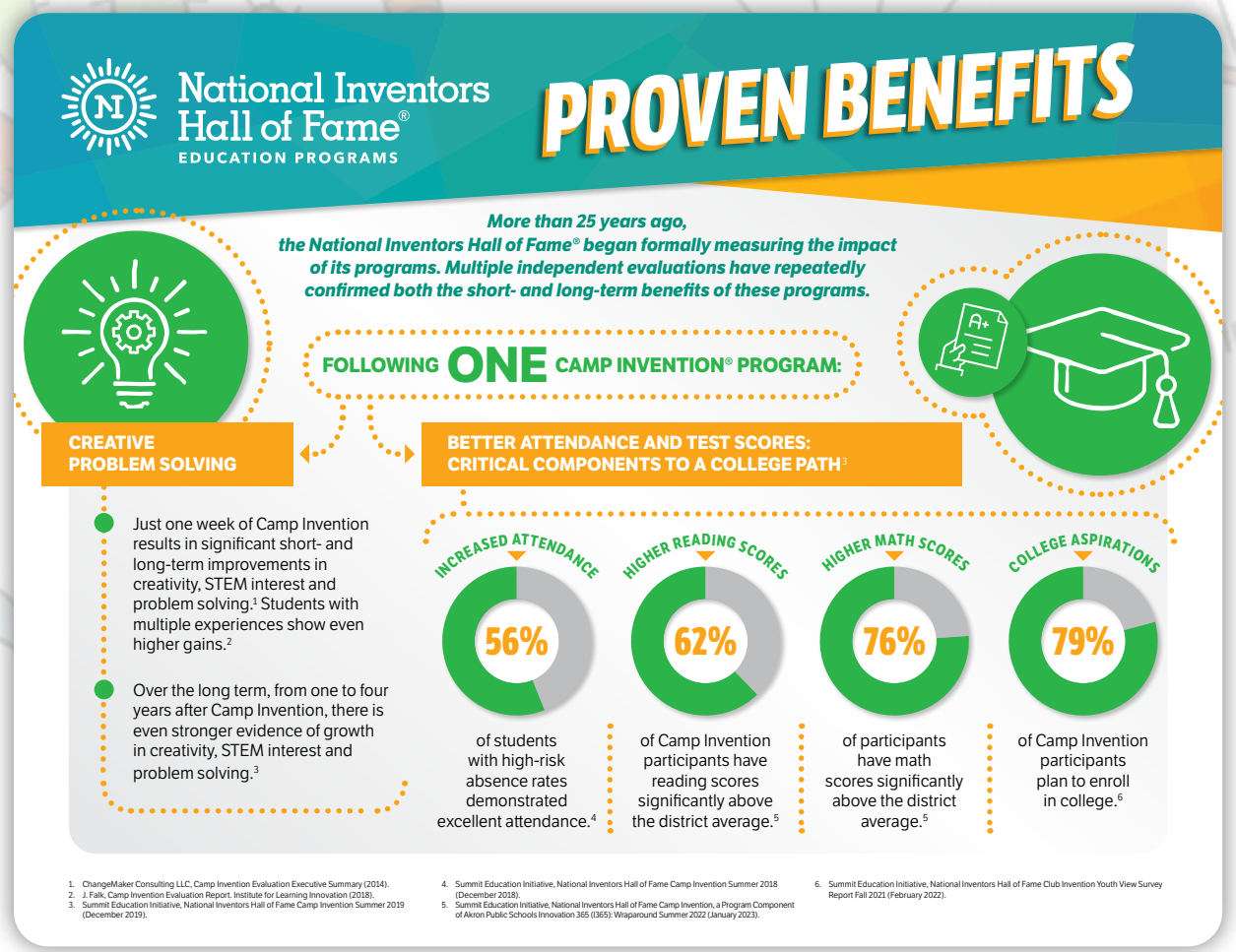
CLASSROOM SET PRICE PER UNIT	
1-5 UNITS	$1,000
6-11 UNITS	$900
12+ UNITS	$800

PRICING

PARENT PAID

CLASSROOM SET			
		EDUCATOR STIPEND	
UNITS PURCHASED	PRICE PER PARTICIPANT	12-19 PARTICIPANTS	20-25 PARTICIPANTS
	$59	$200	$250

APPENDIX



National Inventors Hall of Fame®
EDUCATION PROGRAMS

PROVEN BENEFITS

More than 25 years ago, the National Inventors Hall of Fame® began formally measuring the impact of its programs. Multiple independent evaluations have repeatedly confirmed both the short- and long-term benefits of these programs.

FOLLOWING **ONE** CAMP INVENTION® PROGRAM:

CREATIVE PROBLEM SOLVING

- Just one week of Camp Invention results in significant short- and long-term improvements in creativity, STEM interest and problem solving.[1] Students with multiple experiences show even higher gains.[2]
- Over the long term, from one to four years after Camp Invention, there is even stronger evidence of growth in creativity, STEM interest and problem solving.[3]

BETTER ATTENDANCE AND TEST SCORES: CRITICAL COMPONENTS TO A COLLEGE PATH[3]

INCREASED ATTENDANCE — 56% — of students with high-risk absence rates demonstrated excellent attendance.[4]

HIGHER READING SCORES — 62% — of Camp Invention participants have reading scores significantly above the district average.[5]

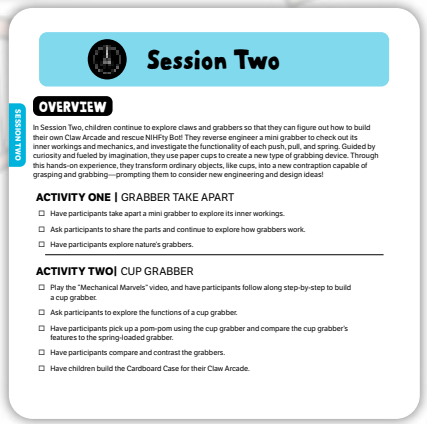
HIGHER MATH SCORES — 76% — of participants have math scores significantly above the district average.[5]

COLLEGE ASPIRATIONS — 79% — of Camp Invention participants plan to enroll in college.[6]

1. ChangeMaker Consulting LLC, Camp Invention Evaluation Executive Summary (2014).
2. J. Falk, Camp Invention Evaluation Report. Institute for Learning Innovation (2018).
3. Summit Education Initiative, National Inventors Hall of Fame Camp Invention Summer 2019 (December 2019).
4. Summit Education Initiative, National Inventors Hall of Fame Camp Invention Summer 2018 (December 2018).
5. Summit Education Initiative, National Inventors Hall of Fame Camp Invention, a Program Component of Akron Public Schools Innovation 365 (I365): Wraparound Summer 2022 (January 2023).
6. Summit Education Initiative, National Inventors Hall of Fame Club Invention Youth View Survey Report Fall 2021 (February 2022).

EVALUATION SUMMARY

Learn more about the proven benefits of participating in Camp Invention.



Session Two

OVERVIEW

In Session Two, children continue to explore claws and grabbers so that they can figure out how to build their own Claw Arcade and rescue NIHEty Bolt! They reverse engineer a mini grabber to check out its inner workings and mechanics, and investigate the functionality of each push, pull, and spring. Guided by curiosity and fueled by imagination, they use paper cups to create a new type of grabbing device. Through this hands-on experience, they transform ordinary objects, like cups, into a new contraption capable of grasping and grabbing—prompting them to consider new engineering and design ideas!

ACTIVITY ONE | GRABBER TAKE APART

- ☐ Have participants take apart a mini grabber to explore its inner workings.
- ☐ Ask participants to share the parts and continue to explore how grabbers work.
- ☐ Have participants explore nature's grabbers.

ACTIVITY TWO| CUP GRABBER

- ☐ Play the "Mechanical Marvels" video, and have participants follow along step-by-step to build a cup grabber.
- ☐ Ask participants to explore the functions of a cup grabber.
- ☐ Have participants pick up a pom-pom using the cup grabber and compare the cup grabber's features to the spring-loaded grabber.
- ☐ Have participants compare and contrast the grabbers.
- ☐ Have children build the Cardboard Case for their Claw Arcade.

CURRICULUM EXCERPT

View a sample of our curriculum to see how we provide detailed guidance for easy-to-implement program experiences.

INVENTOR LOG EXAMPLE

View an example of the Inventor Logs that provide campers with step-by-step guidance and space for writing and sketching ideas.

Learn more about Club Invention **here.**

BRING TRANSFORMATIVE INVENTION EDUCATION TO YOUR DISTRICT TODAY!

TO LEARN MORE, CONTACT

invent.org | 800-968-4332 | nihfatmyschool@invent.org

National Inventors Hall of Fame®
EDUCATION PROGRAMS

In partnership with uspto UNITED STATES PATENT AND TRADEMARK OFFICE ®

The National Inventors Hall of Fame provides STEM education programs for young innovators from PreK through grade 12.