

Dear Educator:

It is never too early to encourage students to become problem-solvers. Understanding how to identify a problem and use their creativity to develop a solution is a life-long skill that can be used in every facet of their lives.

Inventing does just that. Learning about inventions and understanding the process that inventors go through to develop their inventions helps students to become **critical thinkers** and **problem-solvers**. To identify a problem and use their creativity to develop a solution is a life-long skill that can be used in every facet of their lives. Students will ultimately be the ones to “invent” the future. Starting this learning process at a young age will *set them up for success*.

After you complete all of the provided activities review them with your students and break down the different parts of the invention process that they have learned: Observing, problem identification, solution brainstorming, and creating/designing solutions! Want to keep inventing? Coming soon, we are even providing a guide to run an invention fair at your school!

Standards:

Below find overarching Next Generation Science Standards for the unit. In addition, at the end of this guide you will find a chart that shows alignment for each activity with NGSS and Common Core standards for each activity.

Next Generation Science Standards

3-5-ETS1-1.

Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2.

Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3.

Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.



Have your students join the Young Inventor's Club by going to: **theyounginventorsclub.com**

Components:



Educator Guide:

This guide will assist you in navigating through the activities, with implementation suggestions and alignment to standards where applicable.



8 Activities:

The 8 activities outlined in this guide are available for download and designed with your kindergartners in mind. They offer challenges that can be done in the classroom or at home.



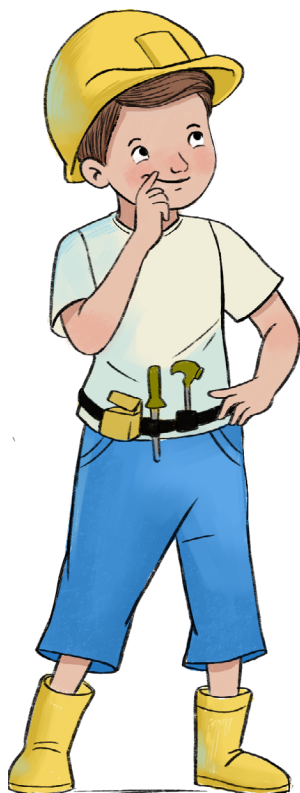
Young Inventor's Invention Fair:

A great way to end the unit on Invention with an Invention Fair in your classroom, with other classes, or even schoolwide to encourage young inventors everywhere.

How to Use This Program:

We suggest that you review the activities outlined below, download them from your dashboard, and copy as needed. Each activity can be completed in a class period or can be done at home for extended learning.

The activities do not need to be done in the order presented below. You can mix and match to align to your current curriculum. Be sure to read through each activity to be sure you have all of the materials needed before you start.



Overview

The Young Inventor's Club offers a free resource to introduce inventive thinking to children through a series of hands-on, project based activities. With each activity students will use creativity and critical thinking to solve challenges presented. The activities incorporate S.T.E.A.M. lessons and are based on the "If Not You, Then Who" book series.

We encourage you to purchase a set of books with a bonus Inventor's Journal at IfNotYouBooks.com. These books bring the educational lessons and activities to life with engaging stories of young inventors.

Program Objectives:

- Engage students in development of key 21st Century skills including **creativity, critical thinking** and **problem solving**
- Introduce the **invention process**
- Support existing **S.T.E.A.M. curriculum** with fun and inspiring content
- Empower students to view problems as opportunities with the **tools to invent solutions**

Challenge #1: Kitchen Gadget Re-Engineered

Challenge your students to use their creativity and imagination to re-engineer a kitchen gadget to either work better or do something completely different.

1. Introduce this activity by talking with your students all of the various gadgets in the kitchen. You could have them list all the ones they can think of and write them on the board. Where did these different gadgets come from? They were all invented at some time to solve a problem. Have them talk about what problems are solved with the different gadgets.
2. Print the chart included in the activity and pass it out to the students. Have the students complete the chart as directed in the activity coming up with a new gadget or an improvement on an existing gadget.
3. They can share their new gadget ideas with the class.

Challenge #2: Master Detective

In this activity, children will identify problems around them through detective work. They will have fun observing, asking questions, and taking notes and data to record their findings. It is fun for students to work in teams.

1. Introduce this activity by discussing the importance of observation and inquiry to identify problems. An inventor is a problem-solver. They look for ways to make tasks easier for people. Watching how people perform tasks and asking them questions will help to identify where they have trouble with the task. An example might be observing people in the grocery store with their carts. Some people have trouble finding a place to put their reusable bags while they are shopping. What could you invent to help them with the problem? Possibly some hooks on the cart to hang their bags on.
2. Have the students follow the instructions in the activity to observe doing specific tasks through the day and create a presentation of what they found.

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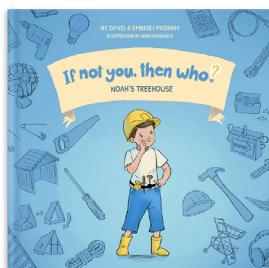
Challenge #3: Pet Entrepreneur

Kids love their pets, and this is a great activity for them to come up with new technology to help care for their pets or to make their pets life easier. Even for those students who don't have a pet, they can talk with a friend who does to learn what tasks they need help with. They will also learn about marketing an invention.

1. Introduce this activity by inviting students to talk about their pets. Ask them who feeds their dog/cat/gold fish/hamster etc.? Who takes the dog for a walk? What do they like about having a pet? What don't they like? You can tell them about products that have been invented to help care for pets such as dog leashes to walk the dog, pooper scoopers to pick up after your pet etc.
2. Print out the chart provided and give to your students and challenge them to fill out the chart with some of the problems they can think of and then brainstorm some solutions. They will then select a solution, develop a name and a slogan to market their new program.

Challenge #4: Design Your 3-D Dream Bedroom

Design is an important aspect of any invention. What does it look like? How will things fit together? This is a great activity for students to think about the space they spend time in - their bedroom - and what it would look like if they were able to design it themselves.



Inspired by Book 2 :
"Noah's Treehouse"

1. Introduce this activity by talking space and shapes in relation to design. You might discuss how architects design buildings to fill certain spaces. Measurements will be important for the design of their dream bedroom and planning it out in pencil before finalizing the design is a good way to be sure they can fit everything into the space.
2. Challenge your students to follow the directions in the activity to design their bedroom making items in the room 3D. What will be in the room? Where will everything go?

Challenge #5: Invention Scavenger Hunt

Inventions are all around and this activity will help students understand that by finding different types of inventions around them.

1. Introduce this activity by talking some inventions through history. You can find different inventions identified throughout the If Not You Books or you can do a google search.
2. Print out the scavenger hunt chart and hand it out to the students. You might want to give them the full school day to find everything on the list. They can also practice their math as they add up the scores when they find the items.

Challenge #6: Dance Break!

Inventing is fun and this is an activity to illustrate how even dancing, singing and making up games is inventing. The If Not You Book, "Let The Games Begin" provides a great inspiration for this activity.

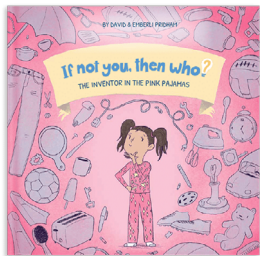


Inspired by Book 3:
"Let The Games Begin!"

1. Introduce this activity by discussing all the ways that people show their creativity. Through dance, music, and even schoolwork. You can have students suggest ways they are creative throughout the day.
2. This activity provides a great opportunity for students to be creative and get out some excess energy! All you need is music and a video camera to get them going coming up with their new dance routine. Maybe they will be the next "virtual sensation."

Challenge #7: Cool School Tool & Prototype

In this activity, children will invent a new tool to use at school to make their day easier. Like Brooke in "The Inventor In the Pink Pajamas", students will imagine how they can make their day easier by coming up with a new tool to use or improving one they already use and build a model of that tool.



Inspired by Book 1:
"The Inventor In
The Pink Pajamas"

1. Introduce this activity talking about all the tools that are used in school. You can take the lead by showing them some of the things that you use. The whiteboard, rulers, pencils, erasers, staplers etc. With your students' help, make a list on the board of all the various tools they use. Then talk about a prototype and how it is a model of their invention.
2. Print the planning worksheet and distribute to the students so they can complete it and come up with a new and/or improved school tool to make their life easier!

Challenge #8: Trash to Treasure

In this activity children will be challenged to reimagine their trash. Making treasure out of trash.



Inspired by Book 4:
"We're Going Green!"

1. Introduce this activity by talking about recycling, reducing, and reusing to help the environment. You might tell them that items that end up in a landfill can stay there for up to 500 years! Or if they get into the water they can hurt fish and sea life. Reusing and recycling will help the planet.
2. This activity will challenge students to take trash and make it into a usable new item that will help the environment in some way (save water, clean water, remove trash etc.). The only rule is it must help the environment and not just used for decoration.

English Language Arts Standards	Kitchen Gadget RE-Engineered	Master Detective	Pet Entrepreneur	Design Your 3-D Dream Bedroom	Invention Scavenger Hunt	Dance Break!	Cool School Tool & Prototype	Trash To Treasure
CCSS.ELA-LITERACY.RL.5.4 Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.		X		X				
CCSS.ELA-LITERACY.RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.	X				X			
CCSS.ELA-LITERACY.RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.		X			X		X	
CCSS.ELA-LITERACY.SL.5.1.A Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.	X	X	X	X	X	X	X	X
CCSS.ELA-LITERACY.SL.5.1.D Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.		X	X					

Mathematical Practice Standards	Kitchen Gadget RE-Engineered	Master Detective	Pet Entrepreneur	Design Your 3-D Dream Bedroom	Invention Scavenger Hunt	Dance Break!	Cool School Tool & Prototype	Trash To Treasure
CCSS.MATH-CONTENT.5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.					X			
CCSS.MATH-CONTENT.5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.				X				
CCSS.MATH-CONTENT.5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.				X			X	
CCSS.MATH-CONTENT.5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.				X			X	