



How to use this iNVENT Invention Packet

Thank you for downloading the iNVENT Invention packet for offline use. These lessons were adapted from the iNVENT 2020 Virtual Summer Camps (<https://precollege.oregonstate.edu/be-inventor-iinvent>). This packet is intended for community partners, parents, and youth educators to use with youth as they engage in invention education. This packet presents lessons that are adapted for youth to do offline and without internet access. The lessons in this packet can be found here and are referred to as “offline versions” of each activity: <https://precollege.oregonstate.edu/virtual-professional-development-teachers>.

Lesson Topics & Suggested Order:

Innovation and Household Items

This lesson addresses what is innovation and how items in student households have changed or may have changed over time. Youth will also make a toy for a robot cat based on patent claims.

Human Centered Design Masks and Backpacks

This lesson challenges youth to use Human Centered Design to design a mask for the COVID19 pandemic and to use Human Centered Design to invent something to enhance the quality of someone else's life. This lesson is great to do as a follow up to Innovations and Household Items and to do as a long term project, while youth completed lessons 3 and 4.

Exploring STEM Careers

This lesson prompts youth to explore their own skills and interests related to the world of work. Youth will learn their Holland Codes, take a career survey, and consider future careers and job zones. The online version also explores career interests related to Ocean Science careers and can be done as an extension.

Save the Soup

This lesson engages youth in an engineering design challenge to make a life-jacket for a can of soup. This is a fun challenge that youth can do on their own or with family and friends in a team-based challenge. Participants can post an image of their life jacket to social media and tag Oregon State University's Regional Class Research Vessel Program (<https://www.facebook.com/rcrvprogram/>).

More information and opportunities to engage with iNVENT via live online events can be found here: <https://precollege.oregonstate.edu/be-inventor-iinvent>. We will be hosting an end of the year event to spotlight awesome Oregon inventors please email us at precollege@oregonstate.edu to be included in the event! As more “offline” materials are created and are made available in Spanish, they will be posted here <https://precollege.oregonstate.edu/iinvent-materials>. Check back for updates!

Sincerely,
iNVENT Staff



iINVENT Materials List

Materials needed for the Human Centered Design project will vary based on students needs/wants. If monetary support is offered, stipends, reimbursements, or general engineering (motors, soldering, wires, 3D printers) may be what you need. However, these materials are not required. **These low resource activities incorporate what youth may already have access to at home. The materials are the same for the offline and online versions of the camp. Offline will require printed handouts and lessons.**

If your youth will be participating in the online program, we ask that they have access to a Chromebook, laptop/PC, and the internet. Information for the online program can be found here: <https://precollege.oregonstate.edu/be-inventor-iinvent>.

Invention Project & General Materials

Activity Worksheets/handouts (provided)

Variety of Craft Supplies (per household):

Drawing Supplies, Markers, Ribbons/String, Soup or Vegetable Cans, Paper Cups, Straws, Paper Towels, Water Bottle, Rubber Bands, Paper Clips, Tape, Balloons, Stickers, Glue, Wood Blocks, Foam Pieces, Foil, Construction Paper, Pipe Cleaners

Human Centered Design: Masks and Project

Activity Worksheets/handouts (provided)

Materials to make a Mask (per youth):

Household Items, Cloth, String/Rubber band

Invention Project (per youth):

Paper Cups, Straws, Paper Towels, Rubber Bands, Paper Clips, Tape, Balloons, Plastic Bags, Glue, Corks, Foam Pieces, String, Foil, Pipe Cleaners, Small Containers, Miscellaneous Items

Exploring STEM Careers

Activity Worksheets/handouts (provided)

Save the Soup

Activity Worksheets/handouts (provided)

Materials for the challenge:

Can of Soup, Tub of water, Stop watch (phone, clock, timer, etc),

Materials to build the life jacket with:

Markers, Ribbons/String, Paper Cups, Straws, Paper Towels, Water Bottle, Rubber Bands, Paper Clips, Tape, Balloons, Stickers, Glue, Wood Blocks, Foam Pieces, Foil, Construction Paper, Pipe Cleaners, Foam



iINVENT Materials List

To Create an Invention Kit (1-2 youth)

To create an invention kit to support youth at home these items are suggested, many of these items may already be at the youth's home:

Item	Quantity	Activity
Pencils/pens	5	All
Scratch paper	20	All
Markers/Colored Pencils	1 pack	All
Foil Sheets	10	All
Sheets of Colored Paper	20	All
Rubber Bands	25 (assorted sizes)	All
Glue	1	All
Paper Clips	25	All
Masking Tape	1 roll	All
Duct Tape	1 roll	All
Large Tub (for water)	1	Save the Soup
Balloons	5	All
Foam Squares	4 lg sheets	All
Can of Soup	1	Save the Soup
String	1 roll	Save the Soup
Cups	5	All
Straws	10	All



iINVENT Materials List

Item	Quantity	Activity
Scissors	1	All
Cardboard	5 small pieces, or 1 big sheet	All
Handouts	Provided online digitally, but students may prefer a printed version	Optional, All
Timer	1	Optional, May already have
Hot Glue (optional)	20 sticks+gun	Optional, All
Empty Water Bottle	1	Optional, All
Assorted Decorative Materials	Stickers, ribbons, paint, pipe cleaners, googly eyes, etc.	Optional, Invention Project
Assorted Building Materials	Blocks, wood, cardboard, repurposed materials	Optional, Invention Project
Assorted Electrical Materials	Wires, LEDs, batteries, soldering supplies, gears, motors, sandwich boards, etc.	Optional, Invention Project



Career Interest Inventory

Learning about yourself is the most important step in your search for a job or career. A Career Interest Inventory helps you relate your interests and abilities to career choices. The following survey will link your career interests to related high school courses.

Step 1: Mark the items within each category that describe you.

Step 2: Total the number of items checked for each category.

Realistic			Total -- R
Are You:	Can You:	Like To:	
Handy	Fix things	Build things	
Active, enjoy sports	Read a drawing	Work outdoors	
Good with animals	Play a sport	Work with tools	
Good with tools	Put up a tent	Use your hands	

Investigative			Total -- I
Are You:	Can You:	Like To:	
Interested in learning	Use facts to answer questions	Find things	
One who asks questions	Think	Use computers	
Alert	Solve math problems	Work alone	
One who likes science	Use a microscope	Read about computers	

Artistic			Total -- A
Are You:	Can You:	Like To:	
Artistic	Sketch, draw, paint	Attend concerts, art exhibits	
Able to imagine new things	Play a musical instrument	Read	
Able to think of new ideas	Write stories, sing, act, dance	Work on crafts, make things	
Yourself	Decorate your room	Take pictures	



Career Interest Inventory

Social				Total -- S
Are You:	Can You:	Like To:		
Friendly	Teach a child	Work with other people		
Helpful	Tell people what you need	Help people		
A people person	Cooperate with others	Play team sports		
Kind	Plan an activity	Participate in meetings		

Enterprising				Total -- E
Are You:	Can You:	Like To:		
Confident	Sell things	Make decisions		
Able to be firm	Talk to people	Plan get-togethers with friends		
Active	Organize activities	Meet important people		
Able to argue	Start projects	Win an award		

Conventional				Total -- C
Are You:	Can You:	Like To:		
Neat and clean	Follow school rules	Use computers		
Accurate	Keep records	Work with numbers		
Careful to be neat	Write letters	Be exact with words, numbers		
Careful to do things right	Use a computer	Follow directions		