

Create and Innovate

Imagine inventing a jetpack to fly to school! Or adding a sidecar to a bike for a pet to ride along. Makers turn ideas into objects. They create, or make, things. They innovate what they make, too. Innovate means to make something better or try something new. When makers create and innovate, they make the world better. They can help people, animals, and even the planet!

Steps

1. Explore innovation
2. Make something for someone else
3. Create for good
4. Get down to business
5. Share your creation

Purpose

When I've earned this badge, I'll know how to create objects that help others.



Words to Know

Create: To make something.

Design thinking process:

The steps makers take to solve problems and create objects. They define the need, brainstorm solutions, design (make a plan), build, test, redesign, and share.

Feature: Any part of an object that is useful, fun, or different from other similar objects.

Function: The purpose or use of an object.

Innovate: To make something better or try something new.

Maker: A person who creates art or designs objects.

Marketing: To promote or sell a product with advertisements and other materials.

Need: Something you must have to survive, such as food and water.

Product: Something made to be sold.

Prototype: A quick way to test an idea or show it to others. It can be a sketch or a model made with everyday materials, such as cardboard, paper, string, and rubber bands.

User-centered design: Creating something by focusing on what the user wants, needs, likes, and dislikes.

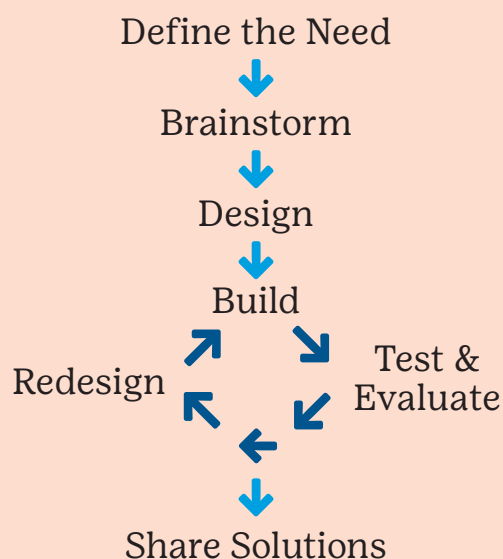
Want: Something you'd like to have, but can live without, such as candy or a toy.

Step 1: Explore innovation

Makers try different ideas to see which ones work best. They use the **design thinking process** to **create** and innovate objects. It's a set of steps to solve problems. First, they identify a problem or need. Next, they brainstorm solutions and make a plan. Then they sketch or build a model, or **prototype**, and test it.

When a prototype fails, that's great! It gives the maker information about how to **innovate** or make their design even better. They might use a different material or add a new part. Or they might even start over!

The Design Thinking Process



Choices—do one:

Solve a problem two ways. Pick a problem to solve. For example, could you create a safe way for an indoor cat to be outdoors? Or a way to keep track of your backpack? Sketch and compare two of your ideas. Which do you think would work better? Which design looks better to you? If you can, build prototypes of your ideas.

Brainstorm solutions. Make a list of problems you find at home, at school, or in your neighborhood. For example, is there litter in the park? Do bees need flowers to pollinate? Then play a game with your friends to brainstorm solutions. Choose a problem from the list. Toss or roll a ball to a friend to share a solution, like “build trash cans” or “plant flower boxes.” Then have them toss the ball to someone new to share another idea.

Innovate something. Have you ever thought, “I like this, but it could be better”? Choose something you use a lot, like a backpack, toy, or hat. How can you make it even better? Maybe you’d change the color of the backpack. Maybe you’d create a special case for a toy or add a patch on a hat. Draw the object and label the changes you’d make to innovate it.

Step 2: Make something for someone else

Makers create objects to solve problems. Whoever uses the object is called the user. The user could be one person, a pet, or a group of people.

When makers create something by focusing on what their user wants and needs, that's called **user-centered design**. A **need** is something you must have to survive, like food and water. A **want** is something you'd like but don't need. For example, mittens *need* to be warm, but you might *want* them to be blue. To learn about their users, makers might talk to them, do research, or have them test prototypes.



Choices—do one:

Make something beautiful. Beauty can inspire! Beautiful objects can make people happy. Choose a user. What do they find beautiful? What's something you could create? You could make something for your community, such as a mural or a garden. Or make something for a person, like a suncatcher. What would your user want it to have? What does it need to work?

Make something useful. Choose a user to help. What do they need? Brainstorm what you know about them. Are they often chilly? Make a blanket. Do they wear glasses? Make a case. What does the object need to work? What will make it special for your user?

Make something else. Choose a user and make something special for them. What do they care about? What do they like? Do they have a favorite animal? Make a felt animal. Do they like to cook or bake? Make a special plate. What does the object need to work? What will make it something your user likes and wants to use?

Explore what you need to know about your user and create a plan on the next page!



All About My User

My user is: _____

I am making (Check one!)

☐ Something beautiful ☐ Something useful ☐ Something else

Needs

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Wants

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Likes

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Dislikes

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Write and draw your ideas here!

Step 3: Create for good

Makers have the power to help. They can turn ideas into inventions that help people and the planet. They might solve problems for themselves. They might create for friends, family, plants, or animals. **Function** is what an object is meant to do. It’s how the object will solve the problem. For example, a coin purse holds change. A garden provides fruit and vegetables.

An object needs specific parts to work and function. A **feature** is any part of an object that is useful, fun, or different from similar objects. Special features make it something your user needs and wants. A handle can turn a cup into a mug! A favorite color can make the cup something the user likes.

Choices—do one:

Make for yourself. What could help you? Do you want to be more organized or express yourself in a new way? Make something

for yourself that solves a problem. Maybe you build a shelf for your books. Or make a journal to write your ideas. How can you create something special just for YOU? Can you add a favorite color or a special feature?

Make for your community. A community is a group of people with something in common. Choose a community you belong to, like your neighborhood, school, or Girl Scouts. What is something your community needs? Brainstorm ideas. If you can, ask community members. Maybe your school could use a buddy bench. Maybe your neighborhood could use a little library. Choose what to create. What parts will it need to function? What special features could you add?

Make for the outdoors. How can you help nature? What could you make to help plants or animals? You could build a community garden or seed bank. You could create a first aid kit. Solve a problem by making something for the outdoors. Who will you help? What would they want and need?



Technology for Good

Technology is machines that help us do things. Digital technology includes computers, tablets, and smartphones. With technology, makers can...

Identify a need.

They can research needs online, create a digital survey to ask users what they want and need, or connect with them and experts through social media.

Design, build, and test their ideas.

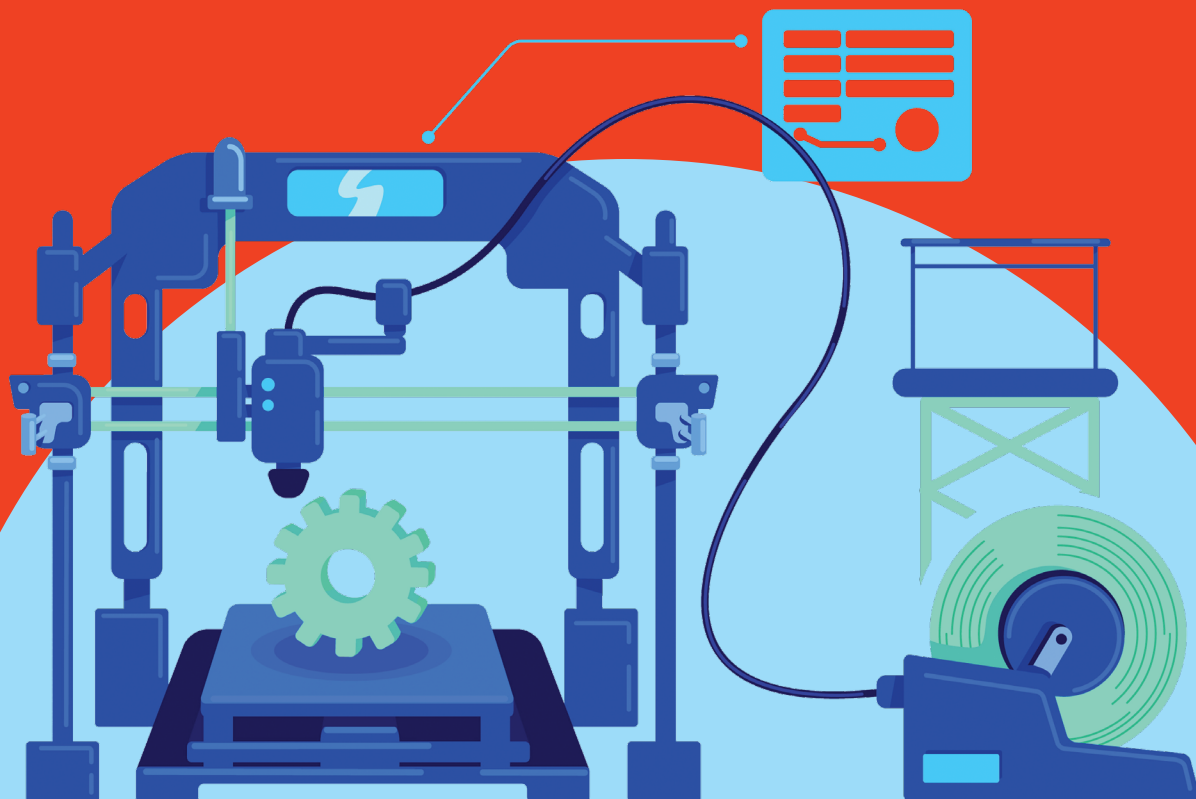
They can use computers and other technology to digitally sketch, build, and test their ideas.

Make objects faster and more easily.

They can use machines like 3-D printers and laser cutters to create objects and prototypes faster than hand tools like saws, hammers, and drills.

Share what they've made.

They can make packaging for their creations to then advertise or sell online.



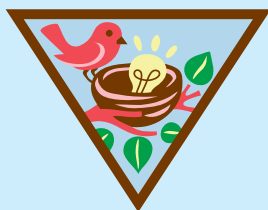
Step 4: Get down to business

Makers have great ideas. Sometimes they create a business to sell what they've made. What they want people to buy is called a **product**. The business might make money or even help people.

How do makers grow their idea from one product into a business? They might create a brand or logo. They might create packaging and ads. They might create more of what they've made or come up with new creations.

Want to learn more about building your own business?

Check out the Budding Entrepreneur badge for Brownies!



Choices—do one:

Package it. Packaging is the box, wrapper, or container that something comes in when you buy it. Make packaging for something you've made in this badge. What do you want others to know about it? How can you show this with your packaging? Use a box or bag. Add words or a see-through window. Sketch your idea and then package your creation.

Advertise it. Make an ad to share something you've made in this badge with others.

Will you create a print ad, such as for a magazine or poster? Will you make a digital ad, such as an online video or TV commercial? Pick the kind of ad you think will work best. Sketch your idea. Let your user know why it's something they might want and need. Then make your ad.

Expand it. You've made one thing to solve one problem for one user—how can you think bigger? Could you solve other problems with the object? Could you make it work for different users? Could you make a line with different colors or similar objects? Imagine a way to expand your creation. You might make more, make it for others, or make something brand new! Sketch your idea and then make it.



Start to build your business on the next page!

Build Your Business

My business name is _____

Products

What do you create?

-
-
-

What else could you create?

-
-
-

User and Target Audience

Who is your user(s)?

-
-
-

People you want to be your users are your target audience.
Who else could you create for?

-
-
-

Brand Personality

What's a short, catchy phrase or slogan for your business?

-
-

Draw a logo, or small picture, to show others your business.

Business Plan

What's the goal for your business?

-
-

How can you advertise and sell what you make?

-
-

Step 5: Share your creation

You've started to build a business around your creations. Now is the time to share what you've made. How will you let others know?

You can share your ideas in lots of ways. When you teach others about your creation, you share your skills. When you test your creation, you gather information to fix and make it better. When you pitch your creation to experts, you connect with people who can help you grow your business.

Choices—do one:

Test it. Share your creation with other people. Have your users try it out if you can. Ask for feedback. What did they like? What worked and what didn't? Brainstorm how to innovate it. Then, if you have extra materials, use what you learn to make changes.

Teach it. Show folks how it's done. Invite people to make one of your creations. Consider different ways people might learn a skill. Teach them about user-centered design. Help them make a prototype and test it. Encourage them to experiment and innovate. It's what makers do!

Pitch it. You've got one minute to tell someone about your creation. What will you say and do? Will you show a presentation? Will you demonstrate how it works? Make and practice a short pitch to share your creation. Then share it with others for feedback.

► **For more fun:** Innovate it. What did you learn from sharing your creation? What works well? What could you make even better? Use what you learned to rebuild your creation.





5 Ways to Market What You've Made

Marketing is how makers sell their products. When you market your product, you show and tell people about what it does. You help them understand why they might want or need it.

For example, with help from an adult, you might...

1. Do a demonstration to show people how it works.
2. Ask friends or family to talk about it online.
3. Give samples for people to try it out.
4. Make posters or stickers to advertise it.
5. Make a video about it.





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