

“There’s a better way. Find it.”

–Thomas Edison, inventor of the lightbulb

Developed in partnership with Jump Associates



Product Designer

A product is anything developed by one person for another. An innovation is an invention that improves people’s lives, like a smartphone or a waterproof fabric for a tent. Some innovations are entirely new, and some take a product that already exists and make it better. In this badge, *you’ll* come up with an innovative product!

Steps

1. Observe what makes a great product
2. Be an innovation detective
3. Figure out what’s working and what’s not
4. Innovate to find solutions
5. Mess up so you can try again!

Purpose

When I’ve earned this badge, I’ll know how to think like a product designer.

Every step has three choices. Do ONE choice to complete each step. Inspired? Do more!

Tips Before Takeoff

- ▶ **Product innovators** can have great ideas at any time—so they keep notebooks with them all the time. While you're earning this badge, try keeping your own innovator's notebook to write down all your amazing ideas. Even better? Take pictures of people using products to keep your idea wheels spinning. That's how great ideas grow!
- ▶ You can do the first three steps with the same product, or with different products each time.

STEP 1 Observe what makes a great product

Every day, we rely on a lot of things to make our lives easier, like school buses, chairs, and shoes. Some of these products we love, and some we dislike. So what makes a product great? Pick one choice to choose a product. Then make a callout chart like the one for the backpack. Label the parts of the product, then call out five things that make it great and five things you want to change.

CHOICES - DO ONE:

- Choose a product you use at school. It might be your desk, a pen, or a notebook.
OR
- Choose a product from a hobby. Whether you're a soccer star, play the flute, or love to read books, your hobby likely uses some equipment.
OR
- Choose a home product. It might be a sponge used to wash dishes, a rake used for leaves in the yard, or the TV in the living room.

Could use headphones holder on the strap

I like the color



This pocket isn't big enough

People often use **callouts** to explain visuals, especially when they want to point out something in particular. This is an example callout chart for a backpack. Your chart will have 10 callouts in total. What does the product tell you about the people who use it?

GREAT INNOVATORS!

often exercise their brains by making connections between seemingly unrelated objects. What do these sets of objects have in common? (There can be more than one answer!)

KITE | DOG | COMPUTER

You can play with them.

WATER | RAIN | ICE

They're all forms of water.



UMBRELLA | HAT | SUNGLASSES



They all block the sun.

CHEETAH | PANTY HOSE | SPY

They are all hard to detect.

PHONE | CHALK | INTERNET

They're all ways to communicate.



ELEPHANT | TREE | CAR



They all have trunks.





Who Invented the Chocolate Chip Cookie?

Ruth Wakefield owned an inn in Massachusetts where she would cook meals for her guests. In 1930, Ruth wanted to make a batch of chocolate cookies from a recipe that called for baker's chocolate—but she didn't have any. So she cut up a bar of semisweet chocolate and added it to the batter instead. She thought it would melt like baker's chocolate and blend entirely into the cookies. But it didn't! When the cookies came out of the oven, the chocolate bits had softened, but weren't completely melted. Ruth served them anyway, and the delicious chocolate chip cookie was born.

STEP 2 Be an innovation detective

It's not always easy to tell why a product works and why it doesn't. Observing people using the product can be the best way to figure it out. If using a part of the product is difficult, it could be a sign that the product needs innovation!

CHOICES - DO ONE:

Observe. Watch a friend or family member use a product, and jot down at least five things they do. For example, does a shopping cart always seem to be stuck to the cart in front of it when you pull on it at the supermarket? Then try the product yourself and write down your reactions.

OR

Interview. Ask a friend or family member how they use their favorite product. Find out what they like, what they don't like, and whether they sometimes use another product to do the same thing. For example, if your grandfather loves his cassette player, find out if he uses an MP3 player sometimes and why. Next, use the product and write down your reactions.

OR

Photograph. Take pictures of a friend, family member, or neighbor using a product. If they're using a backpack: How are they taking it off and on? How do they put their things inside? How do they close it? Write down actions that seem odd or surprising. Then try the product and list your reactions in your notebook.



STEP

3 Figure out what's working and what's not

When you tie your shoes, you probably do things in the same order each time. You have to put the shoes on, then lace them up, then tie the laces. If you tie the laces before you put on the shoes, it just won't work! Innovators study every step of how people use products to uncover and solve problems.

CHOICES - DO ONE:

Step by step. Watch a friend or family member using a product, and write down their actions step by step. For example, if an adult is driving a car, what do they do first? Do they put on their seat belt, then put the car in gear, and then turn the ignition key? Circle or mark the steps they had trouble with.

OR

Draw the product. Label each part of the product, what it's for, and how it's used. For example, a backpack has a handle for carrying by hand, but some people also clip pens to it. Sometimes problems occur when a part is used differently from how it's meant to be used. Mark the areas where the user had trouble or made an adjustment to make it work for them.

OR

Analyze a group of products. Often, existing products all address the same problem—or overlook it. Collect at least five similar products, and compare them. For example, if you picked cereal boxes, you might find that some cereals offer vitamins, and others seem more like dessert. What does that tell you about the problems that cereals solve? Now write down two problems the products solve, and two problems that have been overlooked.

More to Explore

Zoom in on one step. Break down the itty-bitty steps within a step. Can you find clues to problems you didn't notice in the bigger steps?

Refillable Water Bottles

These bottles come in a lot of shapes and sizes. Many of them have specific characteristics that help them solve specific problems.



Challenge How It's Done!

Just because we always do something a certain way doesn't mean it's the best or only way to do it. Innovators identify jobs that need doing, then look for new or different ways to do them.

For example, if someone spills grape juice on the carpet, the job is to get the stain out of the carpet. Here are a few ways to remove the stain. Can you think of more?

- **Create** a superstrong vacuum
- **Use** salt to absorb the juice
- **Develop** a special cleaning solution
- **Create** carpet tiles, and replace tiles when they get dirty
- **Invent** a carpet or rug you can wash in the washing machine
- **Have** a dog or pet lap up the juice
- **Cover** the stain with a throw rug



STEP 4 Innovate to find solutions

Choose the product you looked at in steps 1, 2, and 3 that could use the most improvement. If you found more than one problem with the product, pick one to focus on. Try one of these activities to come up with as many solutions as you can.

CHOICES - DO ONE:

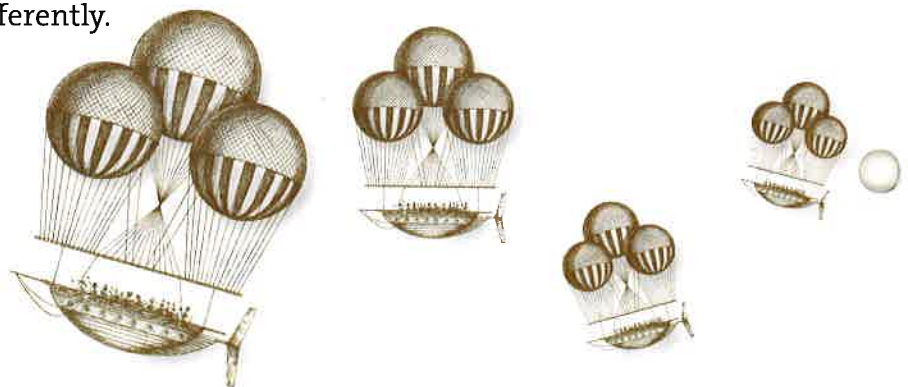
From terrible to terrific! Sometimes coming up with the wrong way to solve a problem can help get to the right way. Jot down or draw five ways to make your product's problem worse! Now look at each "wrong" idea and jot down or draw the opposite idea. For example, a terrible backpack might have thin straps that dig into the wearer's shoulders, but a terrific backpack has wide, cushy straps.

OR

Troubleshoot. Troubleshooting is searching for the cause of a problem so you can fix it. Try to identify what's causing trouble with your product and brainstorm five ideas to make that part better. If your problem is that everything in your backpack gets mixed up, troubleshoot by finding ways to make more or better compartments.

OR

Fire the product, keep the job! Every product has a job to do. A backpack's job is to transport your books. Instead of using a backpack, someone could use a suitcase, a horse, or a helpful friend! Come up with five ways to get the job done without your product. These will get you thinking about your product differently.





Add the Badge to Your Journey

To earn your Try Out! award, you'll keep a Role Call Log as you explore all the different roles you play.

Be sure to list "product designer" and describe what you've enjoyed from trying on this role!

Now that I've earned this badge, I can give service by:

- Showing a younger sibling or Girl Scout how to make one of her toys even more fun to play with
- Helping make a product easier to use for a grandparent or older neighbor
- Sending a helpful letter to a company letting them know what I think about one of their products



I'm inspired to: