



Product Designer

“There’s a better way. Find it.”

–Thomas Edison,
inventor
of the
lightbulb

Developed in
partnership with
Jump Associates

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.

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



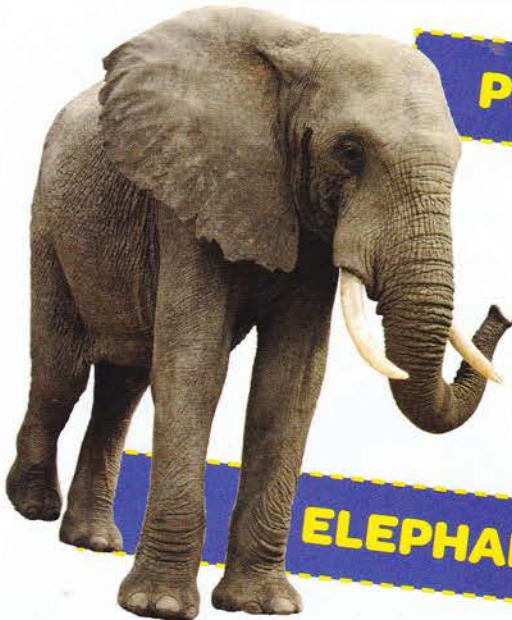
They all block the sun.

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

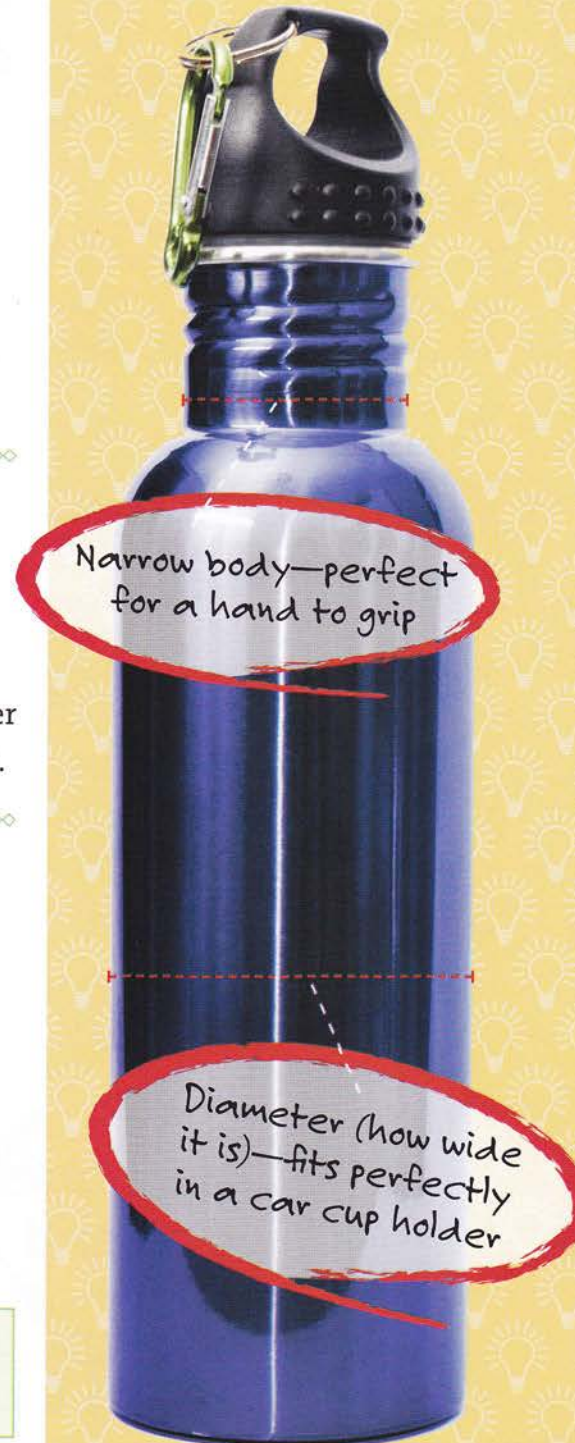
Analyze a group of products. Often, existing products all address the same problem—or overlook it. Collect at least five similar products, and compare them. For example, if you picked cereal boxes, you might find that some cereals offer vitamins, and others seem more like dessert. What does that tell 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
- **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.





STEP 5 Mess up so you can try again!

When making a product better, coming up with ideas is only the first step. Innovators aren't worried when their ideas aren't perfect, because the best products are developed over time, with lots of feedback from people who use them. Here, pick your best idea and find out why it doesn't work perfectly. Then, keep innovating!

CHOICES - DO ONE:

Draw your idea. Draw how your idea solves the problem and makes the product easier and better than it was before. Call out the parts as you did in step 1. Then ask a friend, family member, or neighbor what they think. Do they think it'll work? Update your drawing to include their feedback.

OR

Build a prototype. A prototype is what innovators call a 3D model. Using cardboard, paper, dough, fabric, or other appropriate material, build a model of what your idea would look like and how it would work. Ask a group for feedback, then modify your prototype with their suggestions.

OR

Make your change on the original product or a similar product. Test it out yourself, then demonstrate how it works to a parent, friend, or Girl Scout sister. Do they think the product is improved? What changes would they make? Draw what you'd change about the product based on their feedback.

FOR MORE FUN: Take photos of people using your product for your notebook!

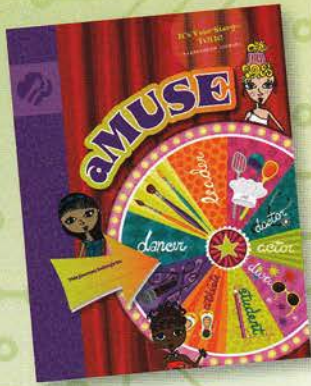
There's No Such Thing as Failure!

Innovators constantly try to make their ideas even better. So never get discouraged when someone tells you something they don't like about your idea or if your idea doesn't work perfectly the first time you try it. Mistakes are the easiest way to learn what it will take to make the next version of your idea even better!

More to Explore

Share your drawing, change, or prototype with the person you interviewed or observed in step 2. As a user of the product, do they think your idea will work? After you hear what they have to say, sketch a new and improved product in your innovator's notebook. For more fun, share that idea, too. That's what innovation is about!





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: