



Who says all the fun has to happen at The Tech Interactive? This DIY design activity can be done with inexpensive store-bought supplies and things you find around the house!

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## Introduction

Have you ever gotten a new shirt that ends up being itchy, uncomfortable or just doesn't fit right? Imagine if it had actually been designed for your needs with a user-centered design process. This process focuses on building empathy, and is used to design everything from clothing and chairs to cars and apps. In this activity, you will play the role of a product designer, identify a user and get to know their individual needs. You will create a design concept for a face mask, focusing on its fit and comfort.

## Design Challenge

Protect a toy by drawing a design concept for a mask designed to its unique face and head shape.



### Alternate Design Challenge

Make this a collaborative activity! Instead of designing for a toy, interview either a family member or friend. Use what you learn to sketch a design concept for a face mask tailored to their needs. *Look out for the blue boxes in this guide to follow along with this alternate challenge.*

### Subject:

Design Thinking

### Ages:

8+

### Time:

30 minutes

### Key concepts:

User-centered design, concept, concept sketching, user interviews

## Materials

- Paper
- Something to write with
- A stuffed animal or similar toy (or another person)
- (Optional) Colors (markers, pencils, crayons, etc.)



### Notes for Adults:

- The purpose of this activity is not to make functional face masks that can be worn as protective equipment. Information on protective face masks for you and your family can be found on this [Centers for Disease Control web page](#).
- We realize that during this activity, your child may have questions about health and safety. Hear from Stanford Children's Health experts on [how to talk to kids about COVID-19](#).
- Want to learn more about how face masks prevent the spreading of COVID-19? Check out [this video](#) from Stanford Children's Health on the science behind masks.

## Instructions

### Get to know your user

Before you start designing, you need to learn about your user's needs! This can be done through both observations and interviews. As you learn more about them, write down anything you think may affect the face mask design so you can refer to these notes later.

### Observe your user

Start with any observations you can make by looking at your user. What features does your user have that could affect your mask design? For example, does your toy have ears on top of their head or a snout?



Look for any accessories your user might be wearing that could affect the shape of the mask (e.g., glasses, large earrings, etc.).

### Interview your user

Use your imagination to create a backstory for your toy that could answer the sample questions below. If you would like to practice interviewing, ask someone in your house to pretend to be the toy and act out the interview. Make sure to write down the toy's backstory or "responses" so you will have all the details during testing.



Use the sample questions on the next page as a starting point for your own five-minute interview with your user. Ask open-ended questions that do NOT result in a yes/no answer. This will lead them to share stories that could inspire unique designs!

To see an example, check out [this video](#) for a user interview with Dr. Mulgrew, a Stanford Children's Health pediatrician.



## User-Centered Design

A user-centered design process focuses on understanding the user through interviews and/or observations, then designing a solution to best fit their needs. Designers often use sketches of their ideas — or design concepts — to show the user their ideas for solutions and get feedback. Getting feedback is essential for designers to fully understand their user and create the product that works best for them.

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## Sample Interview Questions

### Daily life:

- Describe your typical day.
- Where and how long would you be wearing the mask?
- What kind of activities will you do while wearing the mask?

### Pain points:

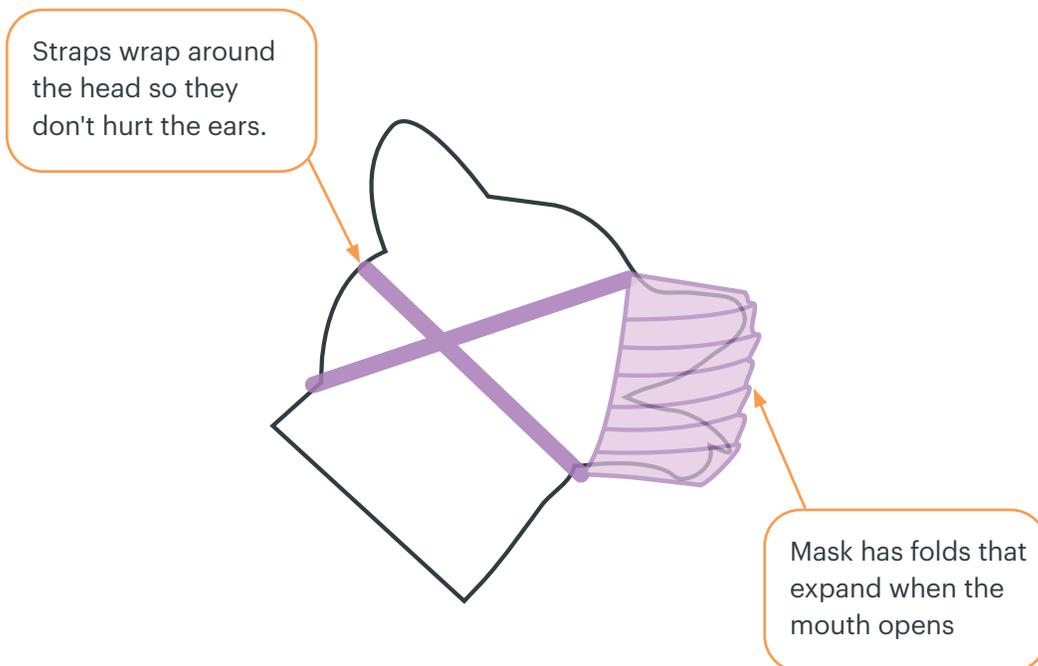
- Are you already wearing a mask? If so, what is problematic about the design you currently use?
- If you have not been wearing a mask already, what do you think will make the design uncomfortable or unpleasant to wear?

### Positives and gains:

- If you have been wearing a mask, what do you like? What works well about its design? Why?
- What features would you like the mask to have and why?

## Develop your design concept

Now that you have some information from your user, you can start to create your design concept. Concept sketches are a good way to get your ideas down on paper. They are also useful for explaining details to your user, as shown in the example below.



At the end of this PDF are face templates that you could use to create your sketches. Don't forget to add any facial features (e.g., glasses, hair, etc.) that you will need to keep in mind as you design their mask.

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## Testing and feedback

Revisit your user's backstory and ask yourself if the user would be able to put the mask on and continue with their day. How does it help or hinder them as they do daily tasks? You could also give your notes on your user's backstory to someone else in your house and have them act the part as they look at your sketches.



Gathering feedback is important in user-centered design, as the user is your best source for learning what needs to be adjusted, added or changed in your next iteration, or version. Show your user the design sketches you created and ask for their feedback.

## Iterate

Now that you have gathered feedback from your user, you can revise the design. Try to repeat the process a couple times. Getting feedback more than once can help develop details that were vague, or even forgotten, in the previous design. Each iteration you create will strengthen and improve your design!

## Explore More

- **Creating a digital concept sketch:** Use your favorite drawing app or check out these digital prototyping/drawing apps:
  - The default photo editing app on your phone or tablet.
  - Annotate (Android), Scribble Lite (iOS)
- **Build a prototype/model:** Try using paper and other materials like hair ties and pipe cleaners (chenille stems) to create the general shape and form of your design. While this won't be a functional prototype, it may still help you better convey your overall design concept.



## Tips on getting feedback

- **Emphasize the design goals:**  
Remind the user you are looking for feedback on whether their needs for fit and comfort are addressed in the design. This will help the user know what to focus on while giving feedback.
- **Get specific:**  
Asking "why" as a follow-up question is a good way to encourage your user to provide more detailed information. Having specific examples will help you make changes to the design.

**Share Your Results!** Keep us posted about your design challenges on social media with **#TheTechatHome**.

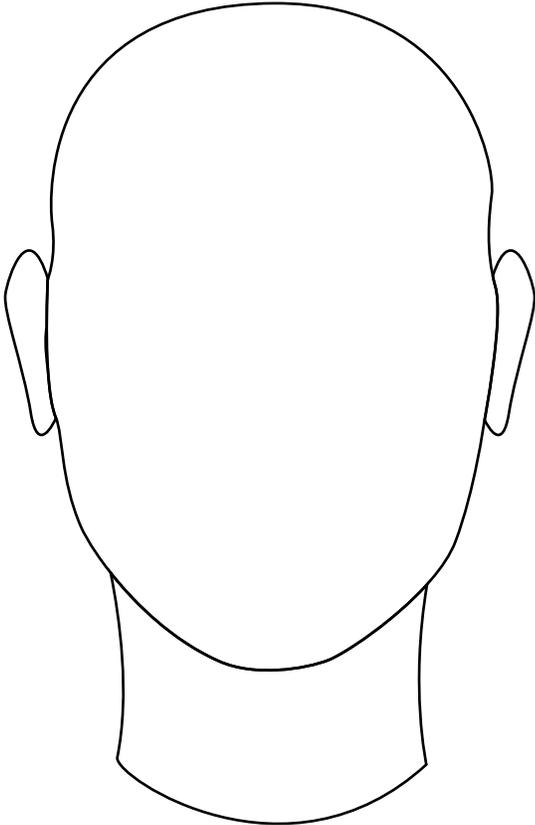
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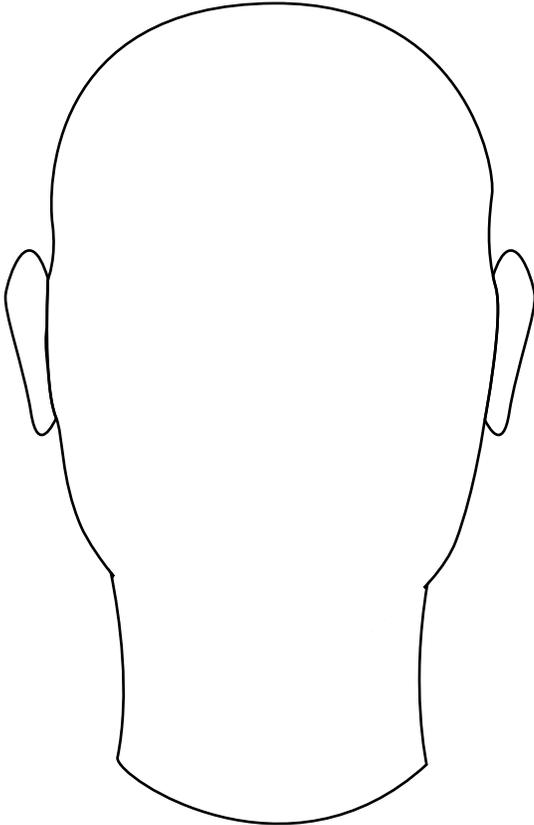
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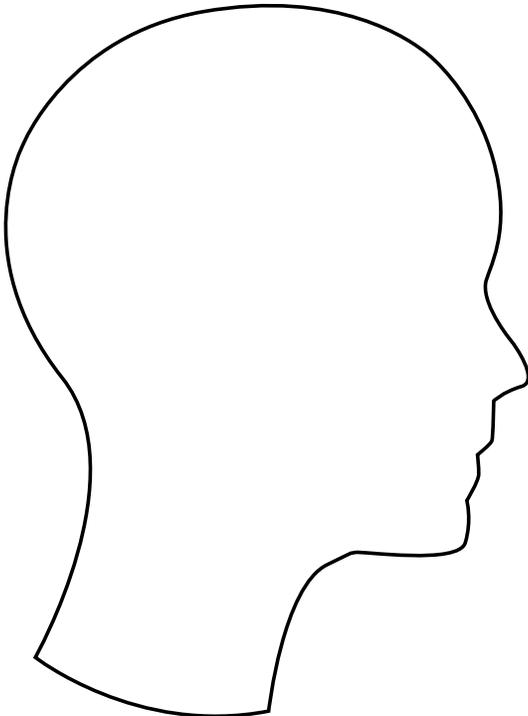
# Front



# Back



# Side



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