

Make:able Challenge

Workbook

Team Name

PrintLab

AUTODESK

www.makeablechallenge.com

This optional workbook is designed to support you throughout the Make:able Challenge. Each section corresponds to a chapter of the online toolkit, where you'll find guidance, methods and examples to help you through the design process.

Start by browsing the relevant toolkit chapter, then use the workbook to plan your activities, record findings and document your progress. You can move between the toolkit and workbook as you work, completing whichever parts are useful for your project.

The workbook can be completed digitally using Adobe Acrobat Reader (free) or Acrobat Pro, or printed and filled in by hand. Other PDF readers may support text fields and checkboxes, but Adobe Acrobat is required to upload images. Keep your answers concise and within the spaces provided. Additional notes, sketches and photographs can be kept separately.

Introduction

01

Start by exploring the Introduction chapter of the online toolkit to understand the challenge. Then add your team name to the workbook cover and use this section to assign team roles, record your end user's details and plan an approximate timeline. Remember to allow time to involve your end user throughout the challenge.

Team Roles

Project Manager .....

Lead Designer .....

Video Creator .....

....

....

End User

Name

.....

Timeline

Preparation + Inspiration → *Empathy + Idea Generation* → *Design, Make + Iterate* → *Submission Preparation*

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Checklist

- ☐ I have read the brief and explored the toolkit.
- ☐ I have assembled a team and allocated roles.
- ☐ I have identified an end user to design for.
- ☐ I have outlined an approximate timeline.

Notes

Get Inspired

02

Explore the Get Inspired chapter of the online toolkit to learn about 3D printing for assistive technology and browse previous Make:able projects. Record anything that inspires you in this section, including interesting ideas, creative approaches and ways teams have worked with their end users.

3D Printing + Assistive Technology



Why 3D printing for assistive technology?

Case Study Reviews

Case Study 1

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Things that inspired me...

01 .....

02 .....

Case Study 2

.....

Things that inspired me...

01 .....

02 .....

Case Study 3

.....

Things that inspired me...

01 .....

02 .....

Checklist

- ☐ I can explain the benefits of using 3D printing to create assistive devices.
- ☐ I have explored several example submissions and recorded anything that inspired me.

Notes

Develop Empathy 03

Explore the Develop Empathy chapter of the online toolkit to discover methods for understanding your end user. Use this page to record what you already know, choose suitable empathy methods, consider useful tips and plan how you'll carry out and document your activities.

Understanding Your End User



What do you already know about your end user's needs, abilities and everyday experiences?

Empathy Methods

Methods to use in the empathy phase.

 Online Research ☐

 User Interview ☐

 Simulations ☐

 Observations ☐

 Challenge Map ☐

 Empathy Map ☐

 ..... ☐

 ..... ☐

Empathy Tips

Key things to remember/consider when developing empathy.

01 .....

02 .....

03 .....

Documentation Strategy

How will you record your activities? Consider photos, videos and notes.

Plan

When + Where? .....

Who + What? .....

After carrying out your empathy activities, use this page to summarise what you did and record up to four key insights about your end user's needs, preferences and everyday experiences. Include photographs or screenshots to support your findings where possible.

Summary of Experience

Insights

Insight 1

Insight 2

Insight 3

Insight 4

Explore Step 2: Define in the online toolkit, then use your empathy findings to write up to four How Might We questions. Tick the challenge you'd like to focus on, then list your initial design criteria based on what you've learnt about your end user. You can revisit and refine these as your project develops.



Challenge Framing

..... ☐

..... ☐

How might we...

..... ☐

..... ☐



Initial Design Criteria

Criteria 1

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Criteria 2

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Criteria 3

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Criteria 4

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Criteria 5

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Criteria 6

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Checklist

- ☐ I have used different methods to understand my end user's needs and experiences.
- ☐ I have used my findings to define a design challenge and establish initial design criteria.

Notes

Idea Generation 04

Explore the Idea Generation chapter of the online toolkit to discover methods for generating and selecting ideas. Use this page to choose suitable methods, consider useful tips and plan how you'll document your activities. Remember to involve your end user wherever possible.

Ideation Methods

Methods to use in the idea generation phase.

 Icon Sketching ☐

 Mind Mapping ☐

 ..... ☐

 Group Brainstorm ☐

 Feature Combinations ☐

 ..... ☐

 Priority Diagramming ☐

 Dot Voting ☐

 ..... ☐

Ideation Tips

Key things to remember/consider when generating ideas.

01 .....

02 .....

03 .....

Documentation Strategy

How the idea generation phase will be documented.

After completing your idea generation activities, use this page to document your work. Add up to four images showing your ideas and how you explored them, such as sketches, mind maps or brainstorming activities. Use the bottom-right image to show your selected key idea, then summarise your ideas and describe the key idea you've chosen to develop further.

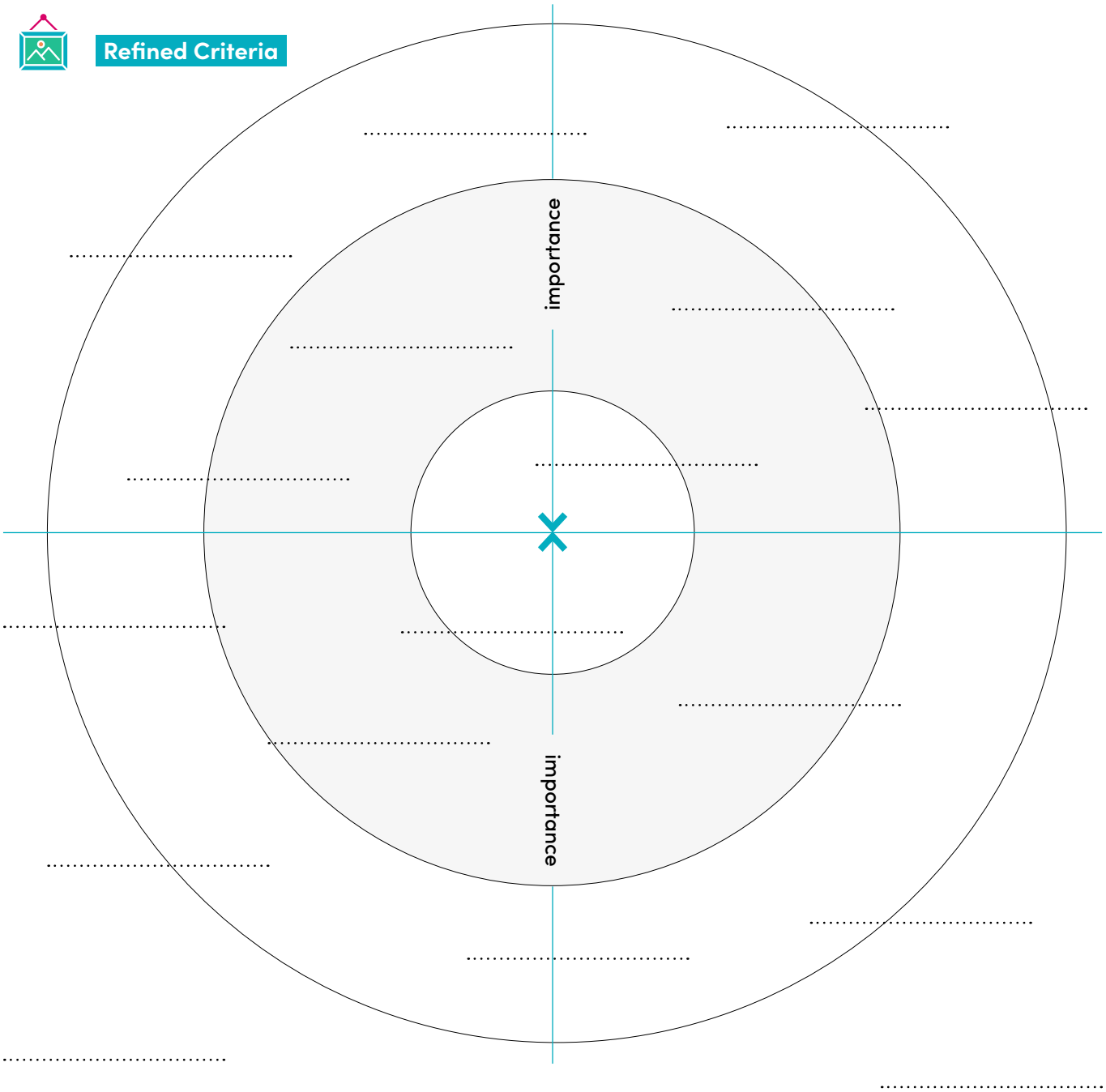
Ideas

Summary of Ideas

The Key Idea

Explore Step 2: Select in the online toolkit, then bring across the initial design criteria from Develop Empathy. Add or refine criteria based on your selected idea, considering size, weight, ergonomics, aesthetics and cost. Use the diagram to prioritise your criteria, placing the most important towards the centre and less important ones towards the outside.

Refined Criteria



Checklist

- [ ] I have generated a broad range of ideas based on my end user's needs and the defined challenge.
- [ ] I have evaluated my ideas and selected a key idea to develop.
- [ ] I have revisited and refined my design criteria based on my selected idea.

Notes

Design + Make

05

Explore the Design + Make chapter of the online toolkit to discover methods for developing your selected idea and creating an initial 3D printed prototype. Use this page to choose suitable methods, consider useful tips and plan how you'll document your design and making activities.

Prototyping Methods

Methods to use in the prototype phase.

 Sketching ☐

 Rough Modelling ☐

 ..... ☐

 Real-time Prototyping ☐

 Split Model Testing ☐

 ..... ☐

 3D CAD ☑

 3D Printing ☑

 ..... ☐

Prototyping Tips

Key things to remember/consider when creating a prototype.

01 .....

02 .....

03 .....

Documentation Strategy

How the prototype phase will be documented.

After completing your design and making activities, use this page to document how you developed your initial prototype. Add up to four images showing key stages of your process, such as sketches, rough models, 3D CAD screenshots and 3D printing. Then summarise the process, including any important decisions or changes you made along the way.

Prototyping Process

Summary of Process

Add a photograph of your initial 3D printed prototype, then briefly describe what it does and how it works. Identify up to three key features that address your end user's needs. This is your first prototype, so don't worry if there are still things to improve.

Prototype Description

Key Features

Feature 1

Feature 2

Feature 3

Checklist

- [ ] I have developed my selected idea through sketches, rough models or other suitable methods.
- [ ] I have created a 3D printable digital model of my developed design.
- [ ] I have manufactured an initial 3D printed prototype that I can test and improve.

Notes

Test + Iterate

06

Explore the Test + Iterate chapter of the online toolkit to discover methods for testing your prototype and making improvements. Use this page to choose suitable methods, consider useful tips and plan how you'll document your testing and iteration activities.

Iteration Methods

Methods to use in the iteration phase.

 User Testing ☐

 Evaluation Matrix ☐

 Roleplay/Simulation ☐  ..... ☐

 Importance Difficulty Matrix ☐  ..... ☐

Iteration Tips

Key things to remember/consider when testing and iterating.

01 .....

02 .....

03 .....

Documentation Strategy

How the iteration phase will be documented.

After testing your prototype, use these pages to document the improvements you make. For each iteration, add up to two images showing your testing, design changes or updated prototype, then briefly explain what you changed and why. You can document up to four iterations, but don't worry if you complete fewer.

Iterations

Iteration 1



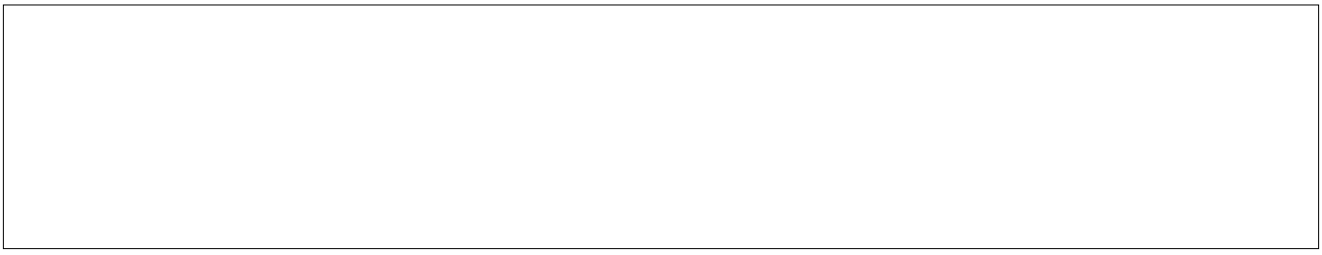
Iteration 2



Iteration 3



Iteration 4



Once you've finished testing and improving your design, use this page to showcase your final product. Give it a name and add photographs, renders or other images that highlight its key features. Where possible, include images showing the product being used by your end user.

The Final Product

Product Name

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Summarise your final product, explaining how it works and how it meets your end user's needs. Then list up to five key features that make your design effective.



Final Product Summary

Key Features

Feature 1

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Feature 2

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Feature 3

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Feature 4

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Feature 5

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Checklist

- ☐ I have tested and evaluated my prototype, gathered feedback from my end user and identified areas for improvement.
- ☐ I have used my findings to improve my design, creating and testing further prototypes to develop a final solution that meets my end user's needs.

Notes

Share your Story

07

Explore the Share Your Story chapter of the online toolkit for inspiration and guidance on creating your submission video. Use this page to plan your video editing software, narration style and music, then note three useful tips to remember when creating your video.

Video Editing Software



Clipchamp

☐



iMovie

☐



CapCut

☐



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☐

Main Narration Style



Voice over on top of footage

☐



Interview style - talking to the camera

☐



Text narration - no voice over or talking

☐



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☐

Main Music Format



Background music

☐



No music

☐



Switch between music and footage audio

☐



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☐

Video Editing Tips

Key things to remember/consider when creating your submission video.

01 .....

02 .....

03 .....

Use these pages to plan your submission video using a storyboard. Add an image or sketch for each scene, then briefly describe what you'll show or say. Think about how the scenes flow together to tell the story of your design journey. You don't have to use all 12 scenes.

Storyboard

Scene 1

Scene 2

Scene 3

Scene 4

Scene 5

Scene 6

Scene 7

Scene 8

Scene 9

Scene 10

Scene 11

Scene 12

As you prepare to submit your project, use the checklist below to make sure everything is ready and track your progress. Then reflect on your Make:able journey. What did you learn, what challenges did you overcome, and what are you most proud of?

Checklist

- [ ] I have created my final submission video and generated a shareable link that can be accessed by the Make:able team.
- [ ] I have captured a high-quality image of my finished solution and prepared any additional files required for my submission.
- [ ] I have completed and collected any relevant consent forms.
- [ ] I have submitted my project through the online form in the Share Your Story toolkit.



Challenge Reflection