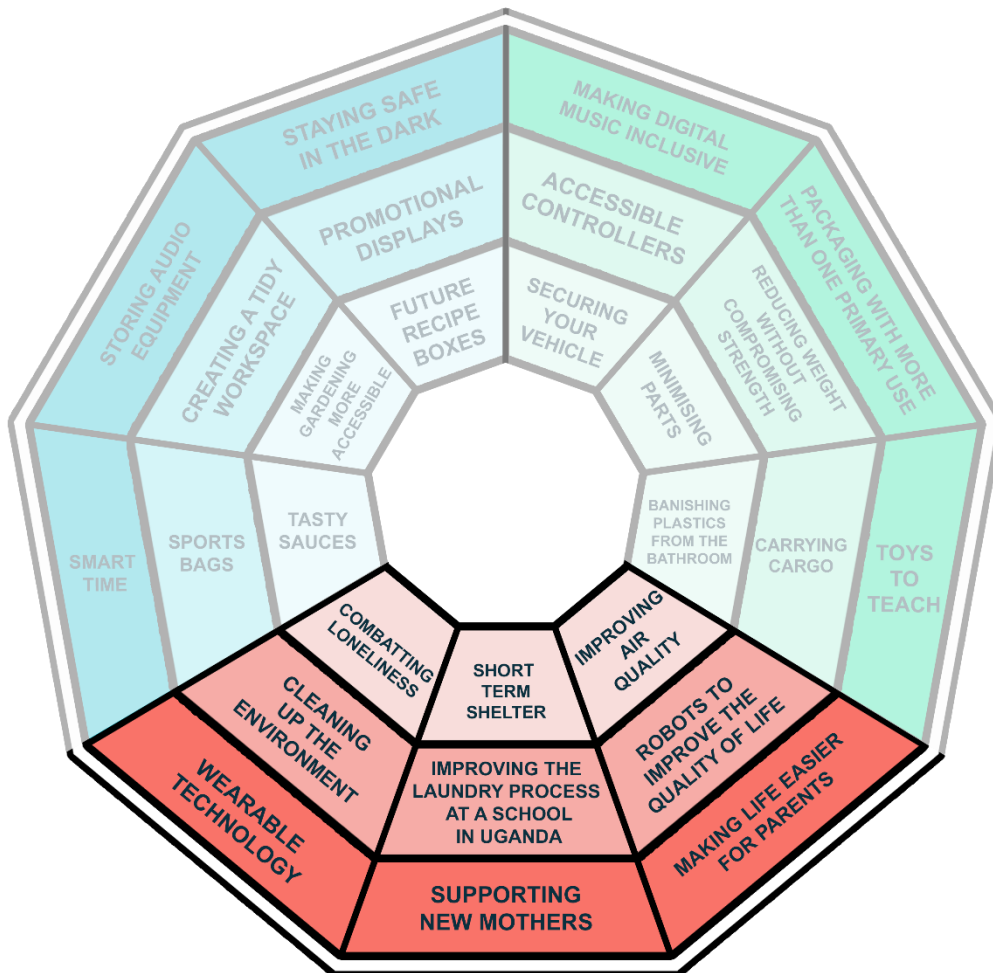


INSPIRED BY INDUSTRY

Combatting loneliness

#InspiredbyElse



Introduction

This context has been created to allow for a range of opportunities for students to explore how we can address solutions to combat loneliness. Students can identify any situation where a product or service might address and alleviate some of the problems associated with loneliness. This might be a digital approach, a physical product, or a combination of the two.

Materials

Because of this very open context, and the range of approaches students can take, there is the scope to use a wide range of materials; analogue and digital. In some ways, the exploration of how humans interact with technologies is the key to the brief focusing on user interfaces (UI and experience (UX) with physical accessories being secondary or a proof of concept. There is the opportunity to look at how digital technologies are integrated with physical products such as phones and tablets, interactive toys or even robotics. This is one context where the materials used can be decided by the teachers or the students without compromising the potential outcomes.

Potential outcomes

Whilst Else are a company who focus primarily on digital solutions, the solution can be a physical product. However, this context is different from more traditional approaches to teaching D&T as the design and prototyping process might also include, or focus solely on, a purely digital solution such as a user interface for an app or service. To cover aspects of the curriculum, this could be a combination of both digital and physical outcomes. The teacher may decide to take a more conceptual route and look at a non-working prototype, exploring CAD and rapid prototyping to create physical solutions while also looking at how we interact with products through a user interface which also needs designing and realising in some form.

It is important that students are given some freedom within this context and so outcomes should vary between students / groups. You may decide to limit your class to 2-3 outcomes as mentioned above. It might also be a good group project, or a cross curricular project with computer science.

Examples may include (but not be limited to):

A talking toy for children.

An interactive device to converse with and entertain adults

An app and/or device to improve mental well being

A lifestyle product that encourages people to work together

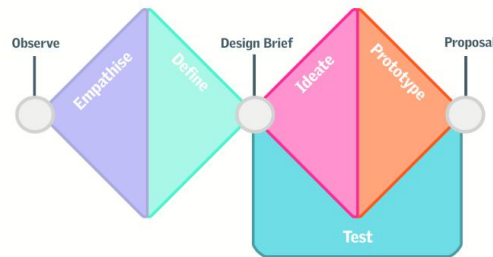
A cooperative game or toy for adults

Consider any situation where a person might experience a sense of loneliness and how you could address this. Bear in mind that concepts of loneliness will vary between people and of different ages. Loneliness could also be linked to boredom so even a 'fidget toy' might temporarily distract someone from feeling lonely.

Consider sharing work on social media using the hashtag #InspiredbyElse

Design cycle

The design cycle shown can be worked through in a range of orders. It's advised that the areas are revisited throughout the process depending on your time. We advise that a graphical representation of thinking convergent and then divergent be shown to your students.



The following are some tips as to the type of activities you could do with your students

Empathize stage

- Students should be introduced to this term if not already familiar.
- Access to users who have experienced loneliness is useful. Also consider that expanding the function of a product through modular, expandable and multi-functional approaches is another way of looking at the context.
- At the start of the context, students should be thinking wide with their thoughts, exploring the problem and not deciding too soon what they 'want to make', but observing what is happening and identifying problems.
- Trying various aspects as a group can also be useful – using and analysing existing solutions for example, then sharing thoughts and feedback.
- Whilst not the same company, this [VIDEO](#) from Red Bull shows the process that goes into making a bolt, and the subsequent importance of it. So, even if students are designing something that feels rather trivial, the impact can be significant.
- Collaboration software such as Miro, or Google/Microsoft collaboration can be good to use to collate ideas from all.
- Students should get as much information to help them later in the challenge. They may present this in any way they wish.
- When looking at a range of different applications it is an opportunity for students to look at Gantt charts and similar, to identify comment features or attributes as well as planning their time and highlight any possible issues that may arise.

Define stage

- This is where students try to get the real root of the problem and decide what they are going to do.
- It would help to provide students with a brief. Ideally in late KS3, they should be encouraged to create their own design brief following their initial investigations. This will allow them to focus on one aspect of loneliness and ways to combat it.
- There may be a whole range of problems identified. Identifying the user and their needs as well as constraints or barriers to making lighter equipment may help.
- Remember that Else focus mainly on digital products, but their videos and support are there for inspiration; your students can focus on any aspect of combatting loneliness they think is suitable.

- For this stage, you may possibly constrain it to ensure students are working with materials and processes you wish to cover in the unit of work. There will still be plenty of opportunity for designs, testing, iteration etc.
- Whilst it may not be applicable at this stage initially, students may benefit from the production of a specification to provide some 'guide rails' for their designs allowing to focus on addressing the problem.

Ideate stage

- For the ideation stage, you may be drawing on existing ideas (e.g., improving an existing product) rather than starting from scratch.
- Consider giving students the initial freedom of how to approach their ideas. For example, it may be CAD, a card model or a sketch. Giving students autonomy of how to approach their designs will prevent them feeling restricted. Working in groups can help generate creative ideas.
- You may wish to show students examples of where products have been created to combat loneliness. These could range from books to sports equipment and interactive robots. The problem is the focus with existing solutions being used for inspiration at this point.. used and possibly collapsible structures used in portable shelters.
- Consider pre-making and demonstrating/testing a few designs. For example, create some mocked up interfaces for a physical product or visual templates if it is a digital solution such as an app.
- Encourage students to annotate elements of their drawings – things like WHY it's that big, WHY it's that shape, WHY it has holes where it does (for example), How they are proposing to create or 'deliver' a product, the finish, colours, materials etc.
- A range of techniques such as 2D, 3D, Exploded and cross sections are good. It is likely that for this unit, 3D drawings may not be the most useful viewpoint for the product being designed, and instead, 2D digital formats might be more effective at conveying the workflow.
- CAD programs will be of great use here. Many have easy-to-use simulation elements and photorealistic rendering. Some CAD programs also have generative design which can create stronger, lighter versions of your designs.
- Generative AI could also be used to envisage how a product might look when developed. Use these to get further inspiration for your own ideas, please do not offer them as your own creative work.

Prototype stage

- Getting students to realise when and why to make a prototype is key. What are they looking to prove / disprove? Linking the prototype method with the problem is a good task. In the video they suggest the process for creating a strawman structure for an app or website. This would only be useful for digital solutions to the context.
- Physical prototypes may be mechanical or structural models, test rigs, mock ups, painted models, or CAD models and/or assemblies.
- The following are all suitable CAD programs:
 - AUTODESK free for schools/students. Mac & Windows
 - CREO free for schools/students (PC only)
 - FREECAD free for schools/students

- [ONSHAPE](#) free for schools/students
- [SKETCHUP](#) free for schools/students
- [SOLIDEDGE](#) free for schools/students
- [SOLIDWORKS](#) free for schools/students
- There are some good Autodesk Fusion tutorials [HERE](#) and TinkerCad [HERE](#)
- Consider asking stakeholders to give some feedback on the prototypes, as they are being developed and at the testing stage.
- Whilst the CAD models produced may be fairly simplistic in their nature, it is an opportunity to explore different techniques with students such as using mechanical assemblies, frame structures, creating shells etc to replicate stretched fabric and using these elements to add additional strength. Again, you may produce some in advance to showcase the difference they can make to a product when subjected to external forces.
- Investigating properties of materials lends itself well to this context. Students will naturally test items in the next stage, and so learning about a range of properties is useful.
- The assignment of actual materials to models is necessary if both FEA and generative design are to work correctly. You could use this opportunity to introduce theory of materials properties to this context.
- A digital approach to the context could make use of photo manipulation software such as Photoshop, or drawing software like Procreate or Illustrator.
- Consider looking at free software like [Figma](#) that will allow you create your own working apps.

Test stage

- Although this is the final stage of the design cycle, encourage students to evaluate throughout and act on their feedback (and consider the feedback of others too). It is not a final thing, but a step to improve further.
- Test in as many different scenarios and environments as possible to ensure you get realistic feedback. Observe how users are interacting with the product and use these observations to add more detail to your questions for feedback. Remember that observing in person could defeat the purpose of seeing how your solution combats loneliness.
- Consider whether you need to test with static or dynamic tests, and show students the difference between these. This [short video](#) helps to explain, using a can to illustrate it.
- Be sure to record the testing results, either in data form, written test or use digital audio and video to record. You may wish to get students to do lab-testing (testing in the classroom) and also field testing (testing with a user).
- With destructive testing it is important to ensure safety at all times as products may react in unexpected ways. For example, if students are to test the strength of their structures by hanging weights from it, get the students to attempt to write a risk assessment for the test. This will be similar to what is done in science, and ensure they adhere to all relevant PPE and safety procedures when carrying out supervised tests.
- Draw on approaches from science here. It may be worth speaking with a science colleague to replicate how students predict and record experiments. Doing this using similar methods will help to reinforce the learning.

Focused Tasks

'Creating user interfaces'	'Smart toys'	'Create an app'	'Cooperation'
Using the videos in the context for inspiration, explore the creation of a graphic user interface (GUI) using digital tools such as Photoshop, illustrator, or simple CAD tools to create unique elements for a user interface. Alternatively, design a physical user interface for a product using those same tools and rapid prototyping technologies.	One approach could be to make a toy to keep a child from getting lonely. Look at the current products on the market and technologies such as AI and embedded electronics. Create conceptual designs for a smart toy that could keep a child or young person company when they feel lonely.	Using this free site: https://www.figma.com/ design and create an app that could combat loneliness. Use the material and videos in this context to understand how Else use digital software and apply this to your own ideas for combatting loneliness.	Spending time with others can combat loneliness. Generate ideas for games or activities that would require at least two people to cooperate. This could be a board game or something more physical such as an item of sports equipment. The options are almost endless, but the focus is on helping people spend quality time together.

Investigative and Evaluative Activities

'The internet of things'	'User experiences'	'How technology helps us'
We live in a connected world where our phones, TV's, game consoles and phones are all interconnected. Did you know your fridge can connect to the internet and order items as they are used? Investigate the Internet of Things (IOT) and see just how far-reaching online connectivity can be. How can this technology be used in your own designs for this context?	They say that good design is invisible, and this can be seen in the way we interact with technology. Why is it something like an iPhone is so easy to use, while some technologies are confusing and complicated? This is the user experience and, despite things just 'working', a lot of thought and designing has gone into making them that way. Compare and contrast a range of user experiences you have with items of technology. Use the chart on the following slides to rate them and how good the user experience is.	We can take technology for granted, and it is often highlighted negatively for things like gaming, social media etc. However, it can also make our lives better. Research technologies that we cannot live without and how they actually make our lives better. What are the factors that make these technologies received more positively?

