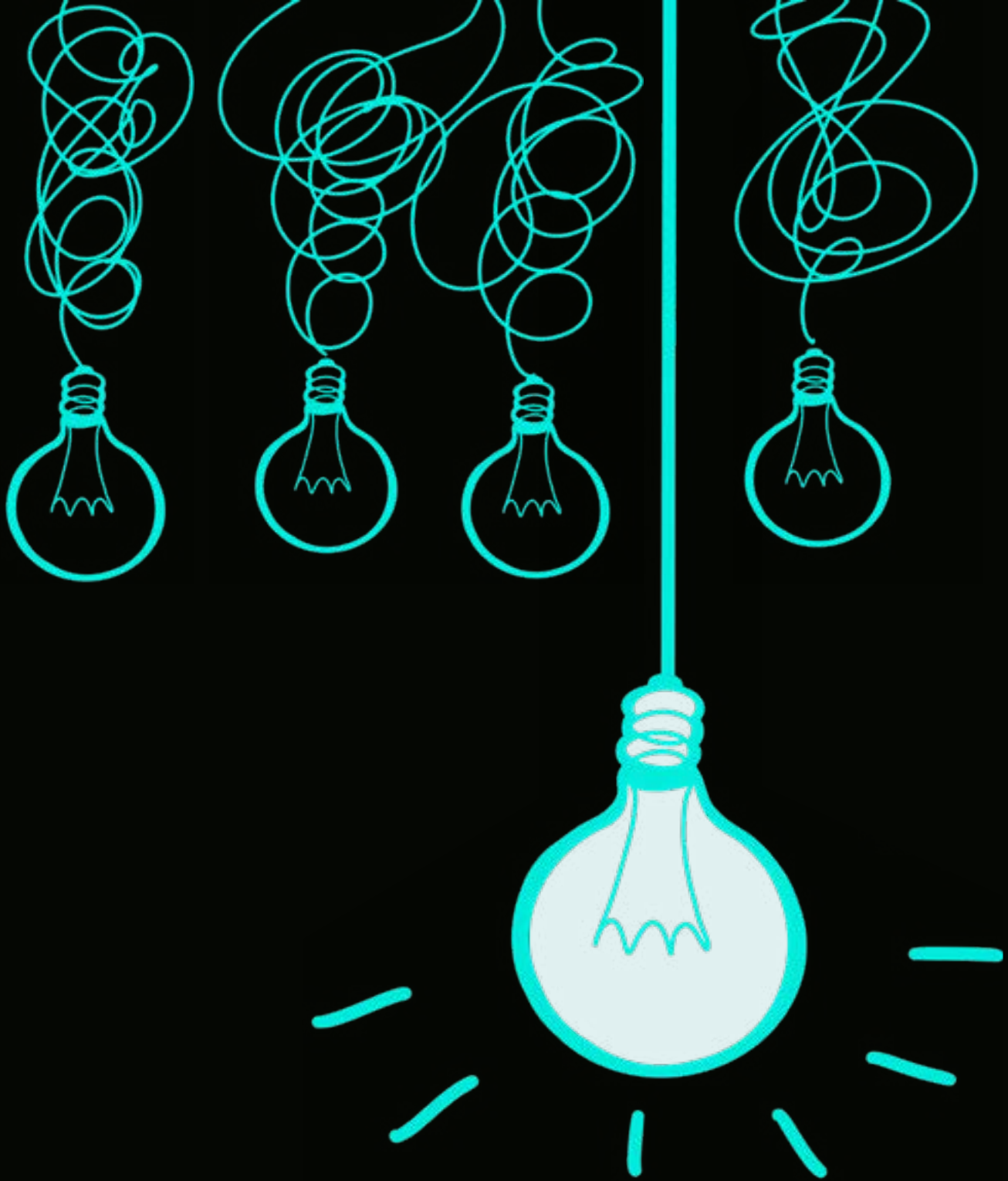


RSA



RSA Pupil Design Awards

**TEACHER
RESOURCE
PACK 2020-21**



“The competition has been an amazing opportunity. I've gained so much, including the experience of being interviewed which will help me in the future”



Finalist, 2019/20 Pupil Design Awards

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Introduction

This Teacher Resource Pack has been designed to support you in delivering the RSA Pupil Design Awards. In the pack you will find a seven-week scheme of work, supported by activities and resources from our partners, design education specialists, Fixperts.

The RSA Pupil Design Awards

The RSA believes in a world where everyone is able to participate in creating a better future. Through our ideas, research and a 30,000 strong Fellowship we are a global community of proactive problem solvers. Uniting people and ideas to resolve the challenges of our time. The Pupil Design Awards aims to encourage young people to do exactly this. The Pupil Design Awards is a national design competition for secondary school and sixth-form pupils aged 11-17. Now in its sixth year, it provides an opportunity for pupils to learn and apply design principles and develop imaginative solutions to pressing social issues. The Pupil Design Awards is open to all schools in England and is free to enter.

The Pupil Design Awards is modelled on the RSA's prestigious Student Design Awards for university students. We provide a range of briefs that are related to important social issues and ask entrants to choose one and develop an innovative proposal based on the brief. The design process requires pupils to identify different design opportunities and refine their ideas through research and development. Proposals are submitted at the end of the academic year and a winner for each brief is judged by our expert panel.

Advocating for design

Through the Pupil Design Awards, we advocate for the role of design and innovation in education to bring about positive social change. We aim to:

- broaden definitions of how design can be applied
- introduce social design and design thinking to teachers and pupils
- build creative confidence in young people

Our Support

We run a teacher induction event in partnership with Fixperts, an organisation which does brilliant work to encourage young people to get more involved in design. This event provides high-quality professional development for teachers and enables them to use different approaches to support their students to think and act like social designers.

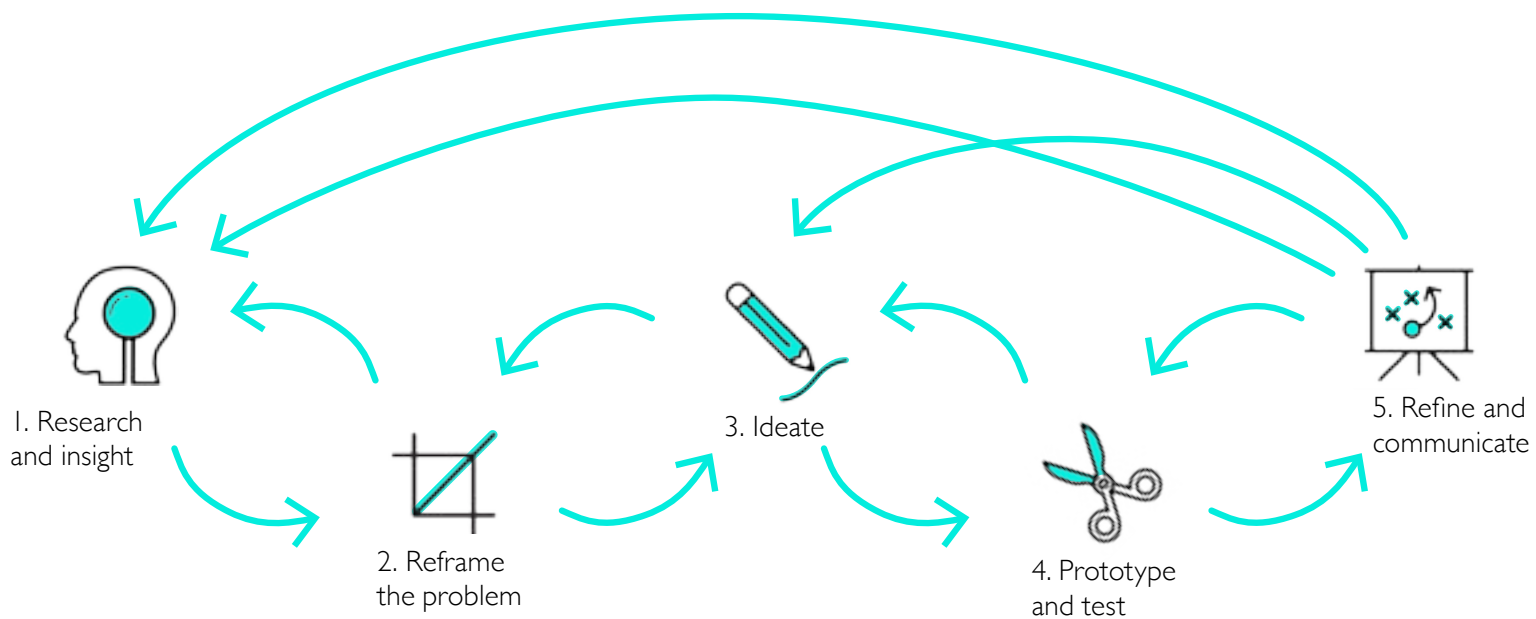
Schools also receive a fully resourced, seven-week scheme of work from the RSA. This means the Awards can be delivered as part of a structured co-curricular club, integrated into the curriculum, or offered as an ongoing enrichment activity. Each week, sessions focus on a specific aspect of the design process so that students are fully supported through the process. Finally, we draw on our amazing network of design mentors to visit schools and support pupils as they develop their ideas. Each mentor has won an RSA Student Design Award, a competition that has launched the careers of thousands of incredible designers, such as Jony Ive, the former Chief Design Officer at Apple. Our mentors not only aim to help pupils submit the best possible entry for the competition but also to provide inspiration for a diverse range of careers in design.

The 2020/21 RSA Pupil Design Awards are brought to you by The Comino Foundation and the RSA.

With additional support from Fixperts.

We believe that design is about more than making beautiful things. Design can be used to solve problems and improve people's lives. This is what we call **social design**. This pack aims to support you in encouraging your pupils to develop the mindsets that are integral to arriving at innovative, impactful ideas. The RSA Pupil Design Awards is about pupils going on a journey through the design thinking process, that builds their ability to creatively solve problems with insights from their peers and the world around them.

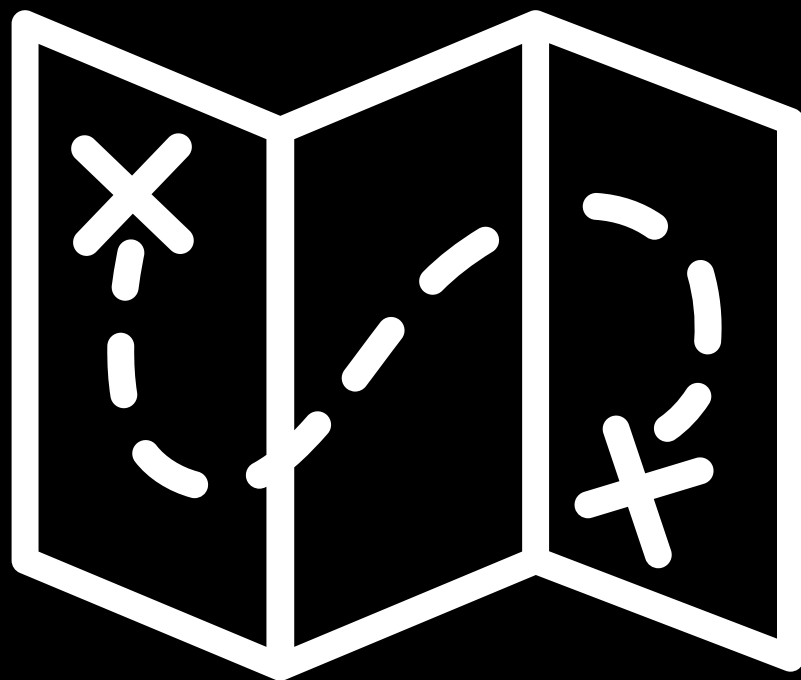
The non-linear design thinking process



PART 1

TEACHER

OVERVIEW



Timeline

September

**Pupil Design Awards
launch**

November

Teacher workshops

February-March

Mentor visits

April

Submissions open

May

Submissions close

June-July

**Judging sessions
& awards ceremony**

Submission Criteria

Pupils' proposals will be evaluated based on the following criteria:

1

Social and environmental impact:

- How can it make a positive difference to people or the natural world?
- How will it use materials and resources in a sustainable way?

2

Rigorous research and compelling insights:

- Have you undertaken first hand research by identifying the needs and motivations of people affected by the problem in your brief? Have you conducted research into the wider context of the problem on the internet or through reading material?
- How does your proposal build on the insights you have gained from your research?
- How does your proposal respond to the needs and motivations of people identified through your research?
- How did you develop your proposal by incorporating feedback and testing new ideas through prototyping and iterating?

3

Viability:

- Have you considered how your proposal will work in practice?
- Have you considered the cost of your proposal?
- What potential challenges have you identified that might prevent your proposal working in practice, and how could these be overcome?
- How would you measure the success of your proposal if it became a reality?

4

Creativity and innovation:

- What makes your proposal different from existing solutions? How might it be better or more useful?
- What unexpected or surprising elements are included in your proposal? What value do these add to the idea?

How to submit pupils' work

Pupils can enter as a team or individually. To enter your pupils' work into the Pupil Design Awards they will need to present their proposal on **six A3 boards**. These six boards need to tell the story of their design thinking process from research to final idea. The judges will be looking for the story of how their design developed over time. When the judges first look at their work, they won't be there to explain it, so their six boards need to do all the explaining!

Remember, this is the Pupil Design Awards, so make sure pupils think about how their boards look. We don't just want pages of writing. Include sketches, photos, technical drawings and images of any models/ prototypes they have created.

The six boards:

1: Research

What design brief are you tackling?

What research have you done to investigate the challenge and understand how the people/ environment are affected?

How did you conduct some primary research to understand the issue better?

2: Findings

What is the specific problem you are focusing on?

What were your key findings from your research?

What were your insights from your research?

3: Ideation

How have you explored potential ideas?

What ideas did you decide to explore further?

What was successful/ unsuccessful about them?

4: Testing & Development

How did you test your idea?

Who did you ask for feedback?

How did you incorporate feedback into your proposal?

5: Impact

How could your proposal work in the real world?

What could be the challenges you might face when putting your proposal into the real world?

What positive impact will your proposal have?

6: Final Idea

Tell us about your final idea in one statement.

Who is your proposal aimed at and why?

What makes it different to existing solutions?

Judging Process

The Pupil Design Awards will be judged in three categories: Year 7&8, 9&10 and Year 12. All entries must be made via our website www.thersa.org/pda and the final deadline for submissions is the 28th May - check our website for updates.

The judging process is divided into two stages and the panellists for each category will include Student Design Award Alumni, Royal Designers for Industry, practising designers and RSA staff. The judges will look at all of the projects entered and using the judging criteria they will select three to five projects per age category to be shortlisted.

Deadline

- The final deadline for entries is the 28th May 2020.

Judging Stage 1: Shortlisting

- The judges look at all of the submissions.
- Using the judging criteria, they select a handful of projects per category to be shortlisted.
- The RSA team contacts all competition entrants to let them know whether or not they have been shortlisted.

Judging Stage 2: Presentation & Awards Ceremony

- If your pupils' work is shortlisted, you will be invited to the final presentation event in July.
- Pupils will have the opportunity to present their projects to the judges in any way that they choose. There will then be some time for the judges to ask questions.
- Pupils should feel confident enough to talk about their project in front of others.
- The Awards Ceremony will take place on the same day.

Scheme of Work

Note: We believe that ideation is an important part of the design process. Your pupils can revisit and build upon their ideas board every week.

Week 1

Objective	Outcome	Resources
To (i) introduce design thinking, (ii) explore social design, and (iii) introduce the competition briefs	<ol style="list-style-type: none">1 Pupils have formed their groups or decided to work individually.2 Pupils have chosen a brief.3 Pupils begin to have an idea of the challenges they will research further.	<ul style="list-style-type: none">— The three competition briefs— Fixperts 'Brief Hunting' activity

Week 2

Objective	Outcome	Resources
To (i) research information for the chosen brief, (ii) identify a target audience, and (iii) delegate research responsibilities amongst the team	<ol style="list-style-type: none">1 Pupils should understand how to select research relevant to their context.2 Pupils should be able to identify areas where further investigation is needed before developing design ideas.3 Pupils should be able to identify, explain the characteristics of, and justify their choice of target audience in relation to their chosen brief.	<ul style="list-style-type: none">— Pupil Response Sheet— Fixperts 'Customisation' activity

Week 3

Objective	Outcome	Resources
To (i) plan the research pupils will carry out with real people / organisations, (ii) devise research questions	<ol style="list-style-type: none">1 Pupils should understand how to plan primary research activities, and should have a plan for carrying out user research independently after this lesson.2 Pupils should be able to analyse successes and weaknesses in interview technique and apply this knowledge to carrying out their own interviews.	<ul style="list-style-type: none">— Researching with people worksheets— Fixperts 'Levels of Listening' activity— Tell Stories activity

Week 4

Objective	Outcome	Resources
To (i) identify initial ideas for the project based on research findings and (ii) describe or visualise ideas	<p>3 Pupils should be able to use their research to develop their ideas, demonstrating that the idea is clearly linked to information gathered during research activities.</p> <p>4 Pupils should be able use a variety of methods to help generate a wide range of ideas.</p> <p>5 Pupils should be able to communicate their ideas to someone else in different ways.</p>	<ul style="list-style-type: none">— Fixperts 'Idea Generation' activity— Examples of mind maps and product design sketches

Week 5

Objective	Outcome	Resources
To (i) test ideas against target audience feedback, (ii) develop initial ideas towards a single, final idea	<p>6 Pupils should demonstrate a critical approach to testing and evaluating their ideas.</p> <p>7 Pupils should use the feedback of others in addition to their own opinions to test and evaluate their ideas.</p> <p>8 Pupils should apply the result of their testing and evaluation to identify clear ways to develop their ideas further.</p>	<ul style="list-style-type: none">— Fixperts 'Designing the Detail' activity— Fixperts 'Sticky Storyboard' activity— Fixperts 'Brief Specific' activities

Week 6

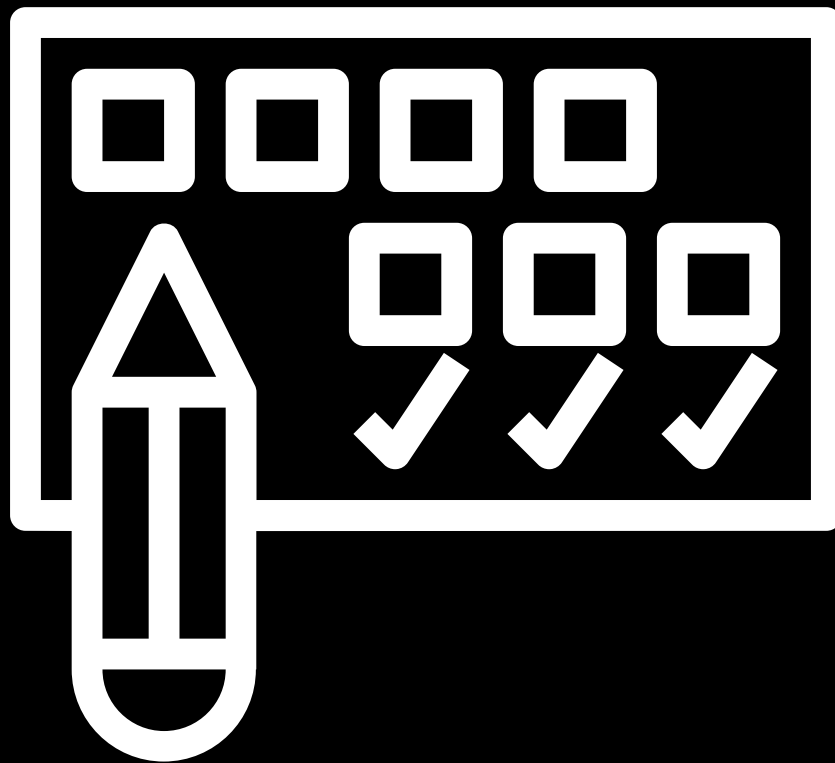
Objective	Outcome	Resources
To build, refine and complete final idea	<p>9 Pupils should take action based on feedback from their target audience and peers.</p> <p>10 Pupils' proposals should clearly reflect the needs of their target audience.</p>	<ul style="list-style-type: none">— Examples of previous submissions

Week 7

Objective	Outcome	Resources
Create final portfolio by completing submission boards Refining presentation until students are confident in their submission	<p>11 Pupils should be able to use advice and success criteria to make decisions about the communication of their project.</p> <p>12 Pupils should be able to communicate effectively by telling a story visually through their boards.</p>	<ul style="list-style-type: none">— Submission Criteria

PART 2

LESSON PLANS

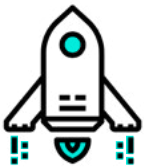


Lesson Plan:

Week 1

Forming a group & choosing a brief

Objective	Outcome	Resources
To introduce design thinking and social design	1 Pupils have formed their groups or decided to work individually	— 'IDEO Empathy Mindset' video
To understand that design can be used to solve problems	2 Pupils have chosen a brief	— 'The Power of Design' video
Introduce the competition briefs	3 Pupils begin to have an idea of the challenges they will research further	— 'How to Approach a Brief' video — The three competition briefs — Fixperts 'Brief Hunting' activity



Ideas for Starter Activities

Pupils to brainstorm: how has design improved the way we live in today's world? Examples might include: clothing, internet, telephones, fridges, water bottles, etc. When taking feedback from class, explore ideas such as: what problems did the creator respond to, what role design might have played in the process, what mindset might have been needed.

Introduce the Pupil Design Awards competition: defining what a brief is, how pupils will be working using design thinking, and the competition final in July.

Show two videos:

- 1** 'IDEO Empathy Mindset' video, which demonstrates that empathising with people's needs and motivations, and keeping those you're designing for at the heart of your work, is the best way of understanding the context and complexities of social issues (can be found on YouTube).

- 2** 'The Power of Design' video from Student Design Awards alumni Emma Southgate, who reflects on the way design thinking can be harnessed to tackle problems ranging from household needs to big, social challenges (can be found on our website theresa.org/pda).

Follow this with a Q & A session on the key mindsets and attributes of designers.

Note: if you have time, you could follow up with the 'IDEO Design Kit: Mindsets' videos on YouTube, which covers seven key ways to think about design.



Ideas for Main Activities

Many pupils will want to jump straight into creating design ideas. It's okay to reward some of these ideas. However, don't jump straight into final proposals. At this stage we want to get them thinking about identifying challenges to solve - not jumping straight into ideas for an unidentified problem:

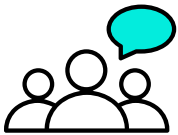
You could: show 'How to Approach a Brief' - a short video about tackling new briefs by Andrew Grant RDI.

You could: run the **Fixperts 'Brief Hunting'** activity with the class to get them comfortable with identifying problems before generating ideas.

Introduce **the three briefs** to the class: these can be read aloud from the Competition Pack.

Pupils can work in groups or pairs to **mind map** a summary of each brief, and the potential issues or problems that could be relevant to each brief.

Appoint one person as the scribe and at the end of the session ask another group member to present back to the room the challenges that they identified.



Ideas for Plenary Activities

If working in a group, pupils to record who is in their team members, which brief they will be responding to, and what their discussion has been during the lesson – including what they already know about the issue, initial ideas around who they might want to speak to for further research, and possible ideas they might have started to think about.

Encourage pupils to question their assumptions about the challenges they have identified. This will allow them to start thinking about what they want to explore further.

Note: it would be useful to keep a record of which groups pupils are in (or whether they are working individually) and which brief they have chosen.

Lesson Plan:

Week 2

Secondary Research: Finding Information and an Audience

Objective	Outcome	Resources
To research information for the chosen brief	1 Pupils should understand how to select research relevant to their context	— A computer room or access to computer for each group.
To identify a target audience	2 Pupils should be able to identify areas where further investigation is needed before developing design ideas	— Pupil Response Sheets
To delegate research responsibilities	3 Pupils should be able to identify, explain the characteristics of, and justify their choice of target audience in relation to their chosen brief	— Fixperts 'Customisation' activity

By now, pupils will have chosen which project brief they will be working on and completed mind maps that explore the various challenges they could focus on for their project. This week is about researching appropriate information to learn more about the issues.



Ideas for Starter Activities

Pupils to brainstorm, individually: (i) what brief are they focusing on, (ii) what issues will they need to research or learn more about, (iii) what are the different sources of information available to them?

Teacher to take feedback, defining 'secondary research' and the range of sources it might include - e.g. textbooks, newspapers, specific internet sites, published data.



Ideas for Main Activities

Based on insights gained in the starter activity, pupils should decide which secondary research activity they will each carry out.

Pupils should spend time researching more about the brief they are responding to and what possible solutions already exist.

After carrying out secondary research, pause to discuss how this can be used as a basis for primary research, and introduce the concept of a target audience.

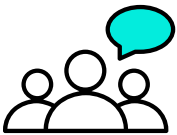
Pupils should discuss who their target audience is and what characteristics they have.

Conduct secondary research: findings can be recorded on the Pupil Response worksheet, which requires notes on:

- General research on the issue: where the information has come from, what has been discovered.
- Identifying opportunities: who might the target audience be for this brief? Who could pupils talk to find out more? E.g. from their local community, relevant organisations, or within school.
- Possible proposals: generating different ideas that could be developed further.

Discuss with the class how desk-based research can be used as the basis for effective primary research (or user-focused research). Pupils should be able to identify their target audience and what opportunities might exist to learn more about them.

Use Fixperts 'Customisation' activity to explore designing for different users and understanding different users' needs. *Note: this activity is designed to take 1.5 hours.*



Ideas for Plenary Activities

Pin these worksheets (and any other ways ideas have been recorded) to an 'ideas board' that has been set up in the classroom to capture your pupils' thinking.

Lesson Plan:

Week 3

Planning Primary Research

Objective	Outcome	Resources
To plan the research pupils will carry out with real people / organisations To devise research questions	1 Pupils should understand how to plan primary research activities, and should have a plan for carrying out user research independently after this lesson 2 Pupils should be able to analyse successes and weaknesses in interview technique, and apply this knowledge to carrying out their own interviews.	— Researching with People worksheets — Fixperts 'Level of Listening' activity — Tell Stories Template

This next phase of research will build upon the previous session, where pupils will now identify people they can arrange to interview or places where they can undertake visits in order to observe, question and experience. Consideration should be given to practicalities of interviewing, especially when interviewing off school premises.



Ideas for Starter Activities

Pupils to brainstorm: thinking back to their secondary research, create a list of potential people they could speak to learn more about the issues in their brief. It might help to think about

(i) within school, (ii) in the local community, (iii) regional or national organisations who might focus on the issue.



Ideas for Main Activities

Use the **'Researching with People' worksheet** so pupils can start to translate some of their insights from research into questions they want to explore further when they are conducting human-centred research. They also need to consider the best form of communication to reach their interviewees; e.g. face-to face interview, telephone call, Skype, WhatsApp, Facetime, letter, text, email etc.

Run the **Fixperts 'Levels of Listening' activity** to help students develop their primary research skills and learn how to get the most useful information out of a conversation with someone in their target audience.

Pupils complete the **'Tell Stories' worksheet**. They will need to complete this sheet after each interview to help them summarise their research findings. Capturing what they have learnt and what they would like to explore further will be key in developing their designs and communicating their design journey on their submission boards.



Ideas for Plenary Activities

Pupils to create a list of questions to ask their target audience, which will help them to understand these people's experience of the challenge students are seeking to address.

Pupils to write down who will conduct interviews (if in a group), when they will be conducted, and how they will record responses.

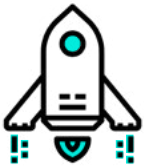
Lesson Plan:

Week 4

Developing Initial Research

Objective	Outcome	Resources
Identify and form initial ideas for the project based on research findings	1 Pupils should be able to use their research to develop their ideas, demonstrating that the idea is clearly linked to information gathered during research activities.	— Fixperts 'Idea Generation' activity
Describe or visualise ideas	2 Pupils should be able use a variety of methods to help them generate a wide range of ideas.	— Examples of mind maps and product design sketches
	3 Pupils should be able to communicate their ideas to someone else in different ways.	

Depending on time available: teachers may choose to use the Fixperts 'Idea Generation' techniques to get pupils developing and exchanging ideas in a design context. This can be particularly helpful to get pupils to develop ideas to issues they have identified. The activity is designed to take one hour.



Ideas for Starter Activities

Pupils to summarise the key themes, ideas, or issues they have found from their primary research on one large sheet of paper.



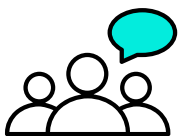
Ideas for Main Activities

Design Sprint! Can the pupils come up with five ideas in ten minutes to solve one or more of the challenges they have identified from their research so far?

To help to define initial ideas, visualise them in an appropriate manner i.e. storyboard the idea if it is a campaign or service, use drawings or sketches if it is a product.

Pupils can present back to the class, and the class can suggest ideas back.

Pupils should now spend time developing their idea, writing down and brainstorming: (i) what are the main features of the idea, (ii) how does the idea connect to their research findings, (iii) what impact might the idea have in the real world and how/why (iv) what will success look like with this idea, (v) what challenges might the idea face in the real world.



Ideas for Plenary Activities

Pupils prepare and deliver a one-minute mock presentation that discusses the idea and the research that led to the idea being created. Each

team or individual records the feedback they receive from teacher and peers.

Lesson Plan:

Week 5

Testing & Development

Objective	Outcome	Resources
To test ideas against target audience feedback, developing initial ideas towards a final one	<ol style="list-style-type: none">1 Pupils should demonstrate a critical approach to testing and evaluating their ideas.2 Pupils should use the feedback of others in addition to their own opinions to test and evaluate their ideas.3 Pupils should apply the result of their testing and evaluation to identify clear ways to develop their ideas further.	<ul style="list-style-type: none">— Fixperts 'Designing the Details' activity— Fixperts 'Sticky Storyboard' activity— Fixperts 'Brief Specific' activities

After this lesson, it is important that pupils go back to their target audience and get feedback on their idea. This will enable them to iterate their design further in the next sessions. As a result, it's important that pupils leave this lesson with a clear plan for how and when to get feedback.



Ideas for Starter Activities

Ask pupils to summarise three things they can remember from the 'IDEO Empathy Mindset' video from week one.

Revisit the mindsets that are necessary for becoming a successful design thinker. Explain that incorporating the lessons they have learned from research into revised designs is central to creating better proposals.



Ideas for Main Activities

Class discussion: building on the starter activity, ask pupils to revisit their initial ideas and think about how they meet the needs their primary research identified, test these assumptions with the teacher and peers in other groups. Give pupils 10 minutes to revisit and discuss their ideas (focusing on how their ideas are addressing the specific issues they have identified) and then ask each group or individual to share with the class for feedback.

Note: at this stage you could use the Fixperts activity called 'Designing the Detail'. This is a 1 hour activity and the focus is design thinking. Pupils are encouraged to prototype ideas and work iteratively on their projects.

Pupils to create a rough draft of the stories they want to tell on their submission boards.

Note: use Fixperts activity 'Sticky Storyboards' to support this if you have time.



Ideas for Plenary Activities

Discuss and review findings in groups from the testing that has happened so far.

Create a plan for gathering feedback: if working in groups, who will be responsible for getting feedback, when will it be done, and how will it be recorded?

Lesson Plan:

Week 6

Final Idea

Objective	Outcome	Resources
Build, refine and finalise design	<ol style="list-style-type: none">1 Pupils should take action based on feedback from their target audience and peers.2 Pupils' ideas should clearly reflect the needs of their target audience.	— Examples of previous submissions



Ideas for Starter Activities

Each group or pupil summarises the main bits of feedback they have received from their target audience (everyone should have at least three pieces of information).

Looking at the feedback - identify any changes/refinements needed in final design development based on feedback from research.



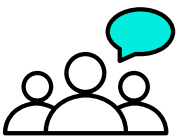
Ideas for Main Activities

Pupils to work in groups and carry out the refinements to their ideas, based on the feedback collected since the last lesson.

Work on the final submission boards.

Each team or individual completes a one-minute mock presentation that presents the final idea and the research that led to the idea being created. The teacher can then provide four minutes of feedback.

Note: if you did not have time last week, you could use the Fixperts 'Sticky Storyboards' activity here. The focus of this activity is to support pupils with presenting their work.



Ideas for Plenary Activities

Peer review final idea and record feedback.

Lesson Plan:

Week 7

Presenting Your Work

Objective	Outcome	Resources
Create final portfolio by completing submission boards	1 Pupils should be able to use advice and success criteria to make decisions about the communication of their project.	— Submission Criteria
Refining presentation until pupils are confident in their submission	2 Pupils should be able to communicate effectively by telling a story visually through their submission boards.	



Ideas for Starter Activities

Discuss and review the judging and assessment criteria in groups. How can this be applied to their own projects? What were the

comments from their mentor - have these been incorporated into the design and the presentation of their idea?



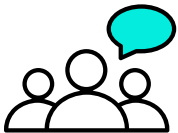
Ideas for Main Activities

Compile final submission sheets ensuring the design process is clear, well annotated and presented in line with the assessment criteria.

Check for the narrative of each submission - do the six boards tell a story of how the design was created and why it will be an effective proposal?

Give pupils copies of the submission criteria and each group or individual can peer assess other entries before giving feedback.

Make sure work is clean and neat. Do not add the name of the school on the submission boards. You will provide this information using the online submission form.



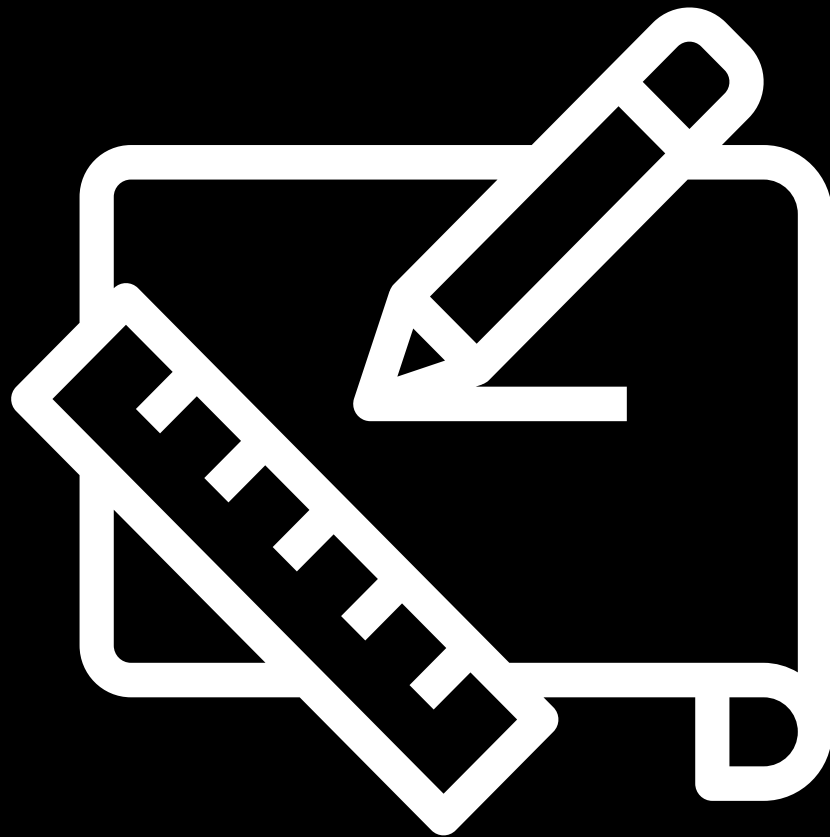
Ideas for Plenary Activities

Presentation to peers of final submission sheets. Use this experience to practise for the presentation to judges if selected.

PART 3

LESSON

RESOURCES



WEEK

1

Fixperts – Brief hunting



Fixperts

Fixperts is brought to you by FixEd, the network for people who want to fix the future.

Find further teaching resources and information at www.fixing.education



Fixperts activity

Brief hunting

Context

- This short activity asks learners to use their critical skills to evaluate potential design briefs and responses. It is devised to support learning at the Getting Started stage of a Fixperts project, or can be used as a stand-alone activity.

Learning objectives

- Finding a brief: Students will learn how to use observation to identify real and relevant problems to solve.
 - Human-centred design: This activity teaches a human-centred approach to designing, starting with people rather than products.
-

Preparation

Duration

30 minutes

Location

Any classroom
- no specialist
equipment needed

Materials

'What's your problem?' template
Plain paper
Pens and pencils
Category labels

Activities

Introduction

Time: 10 minutes

As a class, discuss the idea that designing can be a form of problem solving, and useful and successful products are often designed as a response to problems people have. Designers are often presented with a problem from their client, and must use this starting point to develop their design brief.

Activity 1:

Time: 5 minutes

Using the 'What's your problem?' template, students should list all the problems, annoyances and irritations they have experienced during the day so far.

Activity 2:

Time: 5 minutes

Swapping problem sheets with a partner, students should create a design solution to one of the problems identified. These ideas should be annotated to explain design decisions.

Activity 3:

Time: 10 minutes

Students should present their solutions to the class, so that everyone can see the variety of approaches people use to solve problems.

Plenary

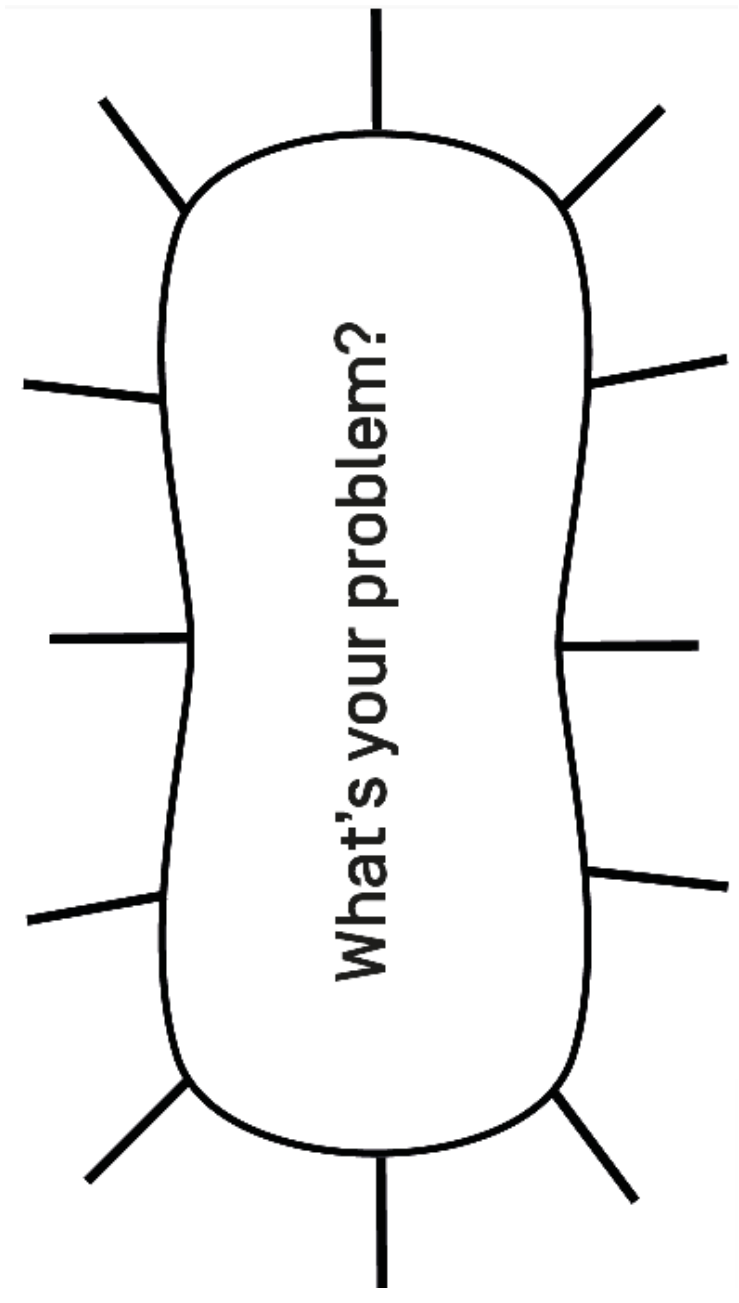
Time: 5 minutes

Using the category labels, as students to place their ideas into one of 3 piles:
Lifestyle changes
Products - could make in school
Products - need further expertise/facilities to make

Explain that all are valid design responses. When teaching as part of a full Fixperts project, explain that Fixperts should aim for design briefs that fit into category 2. This will allow them to learn the most and achieve the most during their project.

Stretch and challenge

Students may be aware of the concept of 'life hacks'. Discuss this as a form of human-centred design. Can students identify any life hacks that have become commercially manufactured products?



Lifestyle changes

Products - could make in school

Products - need further expertise/ facilities to make

WEEK 2

Pupil Response Sheet

1. Research on brief subject

Where did my research

What I have discovered

2. Identify opportunities

Other people we can talk to to find out more

3. Research Possible Solution: Could it be a product, service or campaign?

My findings

Fixperts – Customisation activity



Fixperts

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Find further teaching resources and information at www.fixing.education



Fixperts activity guideline: Customisation

Aims of workshop

- Highlight the importance of designing for different users
- Develop skills in understanding and designing for users' needs
- Introduce the idea of 'fixing' as adaptation to a range of contexts

Objectives

- Customise an existing product to meet the needs of a specific user
 - Work together to create fast prototypes of design ideas
 - Articulate thought processes and reflect on design decisions through short presentations
-

Materials

All locally available at low cost; see shopping list

Duration

Minimum 1.5 hours

Location

Workshop with access to tools (power tools if possible, but hand tools are sufficient)

Accompanying resources

Introduction to Fixing (ppt)

Customisation inspiration and user profiles (ppt)

Customisation activity summary (pdf)

Workshop outline

Introduction

Time: 10 minutes

Watch the **Introduction to Fixing** presentation together. With each slide direct questions to the class – What's the image? What's the fix? Lead into introducing Fixperts, explaining briefly what Fixperts is. Show one film.

Context

Understanding types of fixing e.g. repairing something broken, solving a problem, improving a product, customising something to work better for a specific use or changing users behaviour.

Activity 1: Product analysis

Time: 5 minutes

Divide the class into teams of 3-4 learners. Each team is given a simple wooden broom. The basic design of the broom hasn't changed in years. Ask the teams to spend 5 minutes creating a quick analysis of the broom – how it's put together, how it works, why they think the design remains unchanged. Would they change or improve anything? What would that be?

Activity 2: Introducing the user

Time: 15+ minutes

Offer a **target user description** to each team. Ask the teams to read the description carefully and discuss how the broom could be customised, modified and hacked to meet their user's needs. Each team should develop a proposal for their unique broom design, and an idea how they would like to execute it.

At this stage encourage learners to use drawing and annotation to communicate and develop their ideas. Use large sheets of sugar paper so all team members can contribute simultaneously.

Use the **Broom inspiration** presentation as needed, showing relevant images when a team seems stuck on one idea or is too cautious to depart from the original broom. The slides can also play in a loop in the background for students to engage with as they choose.

Activity 3: Workshop

Time: 40+ minutes

Prototyping

Emphasise to learners they only have one broom to work with so should make sure they know what they would like to do before they make any irreversible changes to it.

Learners work independently on prototyping their broom design. Encourage teamwork, role allocating and sharing of tasks so everyone is involved. Make sure learners are using equipment correctly and safely.

Activity 4: Summing up

Time: 5+ minutes

Presentation

Learners can use the **project summary** worksheet provided to sum up their broom design and describe the process. This can be done by one or two learners while others finish up the prototyping. Based on this, teams should plan a quick presentation, no longer than 3 minutes, of their design to the rest of the class.

Activity 5: Presentation

Time: as required according to number of students

Each team presents their design to the rest of the class, introducing their user, and explaining their approach to customising the broom to fit their needs. Restrict this to maximum 3 minutes (use a timer!).

Sum up, highlighting the importance of understanding the user's needs when designing.

Target user descriptions

Your user: Teenager

Has to sweep once a week or she doesn't get pocket money. Hates it because she thinks it's a waste of time, can't be bothered to bend down, can't use her phone to listen to music or message her mates while sweeping. She doesn't see the point as the floor gets dirty again anyway.

Your user: Nursery school carer

He wants to encourage the children to play a role in keeping their space clean. Young children love to play but get easily distracted if a task is boring or repetitive. Children are more likely to engage if the activity is fun, rewarding and playful, perhaps challenging but not too difficult.

Your user: School cleaner

She has to clean a very large space daily. In addition to a broom, she often carries a dustpan, rubbish bags, keys and dust cloths. The building has no lift; so she has to climb up and down stairs lugging her equipment around with her.

Your user: Older person

He is living alone and is independent; he wants to remain as independent as possible. He can't bend down comfortably as bending both his back and knees are painful. He tires easily when physically active and can't stand for long periods.

Your user: Fitness fanatic

She's very health-conscious and uses every opportunity to exercise. She's a total technology geek who likes to measure activity levels, heart rate and calorie burn. With a busy lifestyle, she doesn't have a lot of free time.

Customisation: shopping list

Here are some suggested materials for customising a broom. These can easily be substituted with your preferred alternatives.

Simple wooden brooms [1 per team] [\[These are a good example.\]](#)

Materials for customising brooms:

Knives, cutting mats & safety rulers

Scissors

Glue guns & refills

Adhesive vinyl

Elastic bands

Cable ties

Webbing

String

Hinges & fixings [screws/bolts]

Cup hooks

Dowel [square & round section]

Tubing

Wheels

Corrugated card

Foam

Drawing pins

Plasticine

Masking tape [or duct tape]

Sellotape

String

Wire

Access to workshop hand tools and machines

Acrylic paint & brushes

Materials for sketching

Paper [A4 / A3, sugar paper for team idea development]

Pencils, markers

Customisation activity: Project summary

Use this worksheet to record
your design process

Our team:

Our challenge was...

Describe your design brief

We are designing for...

Describe who your user is and what their unique needs are

We explored different ideas...

Show some of your sketches and models

Things that didn't work so well...

Show examples of things that didn't work and explain why

We think this is our best design...

Show/sketch your final model and explain your idea

WEEK

3

Fixperts – Ideas generation workshop



Fixperts

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Fixperts workshop

Ideas generation

Aims of workshop

- Develop and loosen creative thinking skills
- Demonstrate the value of using tools and techniques to generate varied creative ideas
- Encourage a constructive relationship with feedback and criticism

Objectives

- Experience a range of idea generation techniques including brainstorming, collaboration and analogy
 - Articulate, share and exchange ideas in a designing context
-

Materials

A4 paper, A3 paper, pens & pencils, modelling materials. Selection of images for activities 2 and 4.

Duration

Minimum 1 hour for full workshop including 3 of the 5 possible activities. Individual activities can be run in isolation.

Location

Any classroom

Accompanying resources

Scamper [ppt]

Workshop outline

Introduction

Time: 5 minutes

Ideas don't just appear. Coming up with ideas can be challenging and sometimes frustrating too. Discuss with learners different methods they may have used in the past to help generate ideas. Question what is most difficult about coming up with ideas – where do they usually get stuck?

Activity 1: Crazy 8

Time: 15 minutes

This is a quick exercise designed to free inhibitions when coming up with ideas, loosening up thinking and forcing students to be less precious about their ideas. **The focus here is on quantity not quality!**

Method:

- Everyone gets a blank A4 sheet of paper, and folds it in half three times. When opened, the paper is divided into 8 equal panels.
- Set a simple design problem or question to the entire class. For example: carrying a baby, housing a pet, crossing a road safely, improving visibility of a cyclist in traffic.
- Set a timer for 5 minutes – everyone needs to generate 8 different ideas in this timeframe – that's about 40 seconds per idea! Sketches will naturally be very rough, which is good. If stuck, encourage learners to draw the same idea with one variation.
- Share a few ideas from each table.

Activity 2: 4x4

Time: 15 minutes

Hand out images of products paired with images of restricted movement. For example: products: a cup, a pen, a paper clip, a thick paperback book, toothpaste tube, football. Restrictions: broken arm, arthritic fingers, people with limb loss.

Method:

- Play in individuals or teams – each gets a blank sheet of A3 paper and folds into 4 quarters.
- Set timer to 2 minutes. For each pairing, ask individuals / teams to suggest quick solutions through sketches on one large sheet of paper per table. E.g. A spade and a broken arm = a spade that can be used with one arm (handle for hand, pressure rest for elbow).
- Once the time is up, each sheet of paper and scenario moves to next group, and the timer is set again. They may alter one thing in the product, e.g. ergonomics, how it solves the problem – could it change entirely? This aims to bring the groups together, to let people feel free with ideas and to show how far an idea can progress.
- Repeat for 4 individuals / teams, then return sheet of paper to first team for discussion. Compare the 4 solutions and question which is more appropriate – encourage analysis and criticism of each idea.

Activity 3: Everyday scenarios

Time: 15 minutes

Brushing your teeth, tying your hair up, putting on clothes, making tea, changing the bedding...

Method:

- Everyone is given a scenario and 2 minutes to explore it through words and sketches, perhaps a comic strip or diagram.
- Next, groups are given 5 minutes to consider the scenario using only one hand. What would the problems be?
- Groups suggest an idea to fix one of the problems they've highlighted and present back to the class.

Activity 4: Analogies

Time: 15 minutes

Problems are often solved by using inspiration from seemingly unrelated situations, such as sonar navigation (inspired by communication between marine animals), the take-off ramp on aircraft carriers (inspired by ski jumps), or Velcro (inspired by plant burrs transported on animal fur). This approach is called 'Design by Analogy' – the transfer of an idea from one context to another.

Method:

- Set a simple design problem (as before). Hand out images of familiar objects, for example: escalator, telescope, parachute, porcupine, dolphin, sycamore seeds.
- Give students 10 minutes to sketch or model an idea to solve the problem, inspired by one of the objects given.
- Present solutions in small groups.

Activity 5: SCAMPER

Time: 15 minutes

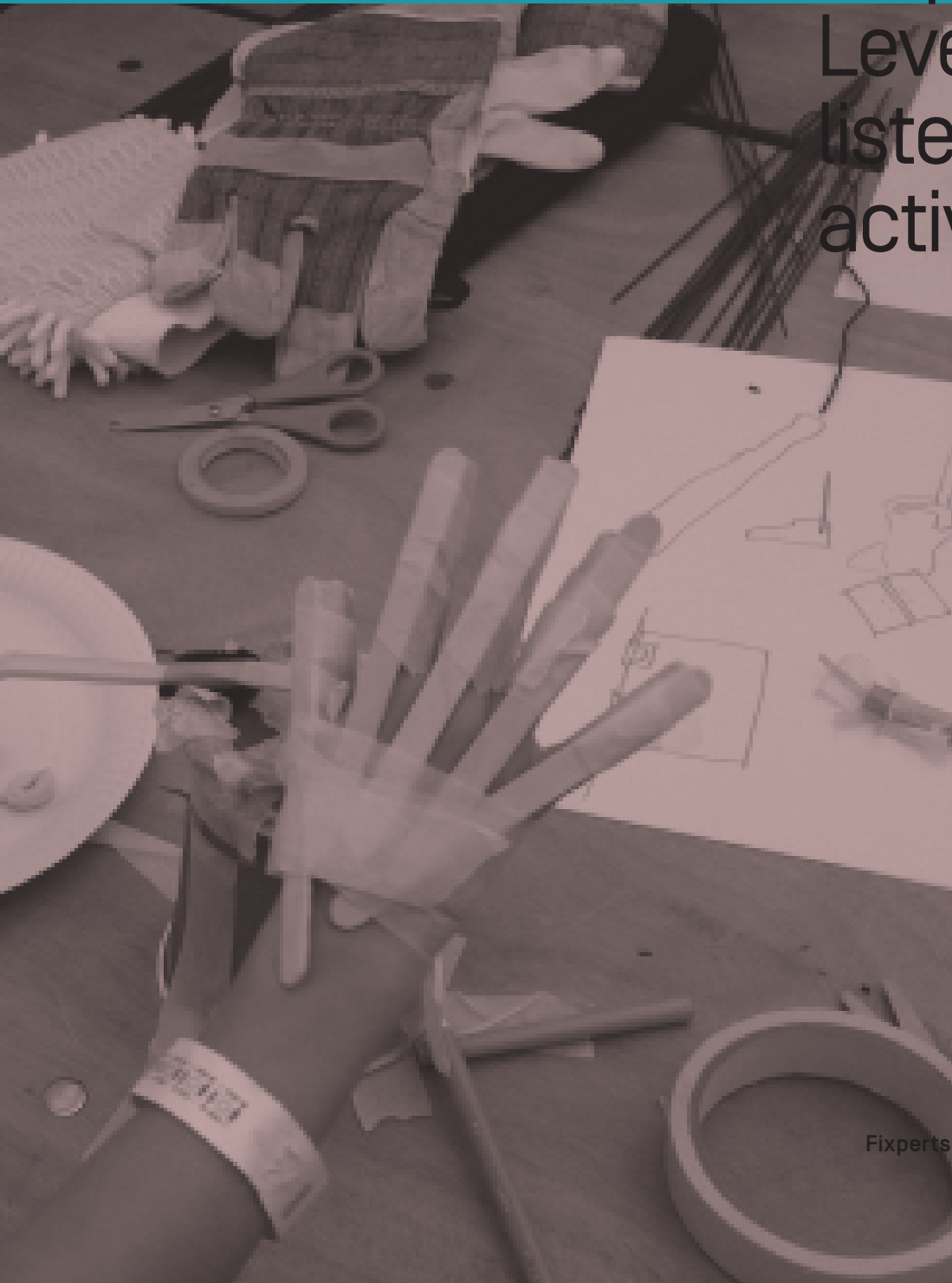
Introduce the SCAMPER exercise using the powerpoint presentation. Taking the favourite idea generated during the workshop see what happens when SCAMPER is used.

Plenary

Time: 5 minutes

In pairs, discuss if there was a favourite method of generating ideas experienced during the lesson. Ask learners to explain how these methods might help with the issues they identified at the start of the lesson, and how they can be used in their Fixperts project.

Fixperts – Levels of listening activity



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Fixperts activity

Levels of listening

Context

- This activity is designed to support the learning in the Getting Started stage of the project. It can be taught as part of a longer Fixperts project, or used as a stand-alone activity.

Learning objectives

- User research: Students will learn how to use primary research skills to identify the needs of a user, encouraging them to start with people rather than products when designing.
 - Working with a Fix Partner: This activity teaches students to get the most useful information out of a conversation with a user or client (their Fix Partner), developing their understanding, insight and empathy.
-

Preparation

Duration

30 minutes

Location

Any classroom
- no specialist
equipment needed

Materials

Levels of listening
presentation
Paper and pens
for note-taking

Activities

Introduction

Time: 5 minutes

Introduce the idea of a conversation as a form of research. What forms does this come in? (i.e. interview, survey, focus group). This activity teaches researchers to listen to more than just the content of what is said during an interview.

Activity 1:

Time: 10 minutes

Put students into groups of 4. Each one has a different role:

1. Interviewee
2. Observe the language used
3. Observe body language
4. Listen to the meaning

Use the presentation to explain what should be done for each role. Using the script, roles 2, 3 & 4 should take it in turns to ask questions from their chosen script, making notes during the interview.

Activity 2:

Time: 15 minutes

After the interview, the interviewee has 5 minutes to make notes and write advice/feedback for the interviewers.

The interviewers should compare notes and ascertain the most truthful interpretation of the interview.

Activity 3:

Time: 5 minutes

All group members should feed back to the group, justifying their points using evidence from their notes.

Plenary

Time: 5 minutes

As a class, discuss how much information was gained from each of the forms of listening. Share good techniques for interviewing, with reference to the type of information Fixperts would need to gain from initial conversations with a Fix Partner.

Stretch and challenge

Pupils often stick to the questions they've planned in an interview, even if they can see the interviewee is struggling. Discuss how the interview could be adapted to gain better results from the interviewee. Problems to address might include the interviewee giving stereotypical rather than truthful answers, not having an answer so making something up, or saying what they think you want to hear.

Set the same interviewing challenge to have a conversation with someone the student doesn't know, such as a member of the school staff or community. This pushes them outside of their comfort zone, practising their professionalism, as well as making it harder to interpret the conversation.

WEEK

4

Fixperts – Ideas generation workshop



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Fixperts workshop

Ideas generation

Aims of workshop

- Develop and loosen creative thinking skills
- Demonstrate the value of using tools and techniques to generate varied creative ideas
- Encourage a constructive relationship with feedback and criticism

Objectives

- Experience a range of idea generation techniques including brainstorming, collaboration and analogy
 - Articulate, share and exchange ideas in a designing context
-

Materials

A4 paper, A3 paper, pens & pencils, modelling materials. Selection of images for activities 2 and 4.

Duration

Minimum 1 hour for full workshop including 3 of the 5 possible activities. Individual activities can be run in isolation.

Location

Any classroom

Accompanying resources

Scamper [ppt]

Workshop outline

Introduction

Time: 5 minutes

Ideas don't just appear. Coming up with ideas can be challenging and sometimes frustrating too. Discuss with learners different methods they may have used in the past to help generate ideas. Question what is most difficult about coming up with ideas – where do they usually get stuck?

Activity 1: Crazy 8

Time: 15 minutes

This is a quick exercise designed to free inhibitions when coming up with ideas, loosening up thinking and forcing students to be less precious about their ideas. **The focus here is on quantity not quality!**

Method:

- Everyone gets a blank A4 sheet of paper, and folds it in half three times. When opened, the paper is divided into 8 equal panels.
- Set a simple design problem or question to the entire class. For example: carrying a baby, housing a pet, crossing a road safely, improving visibility of a cyclist in traffic.
- Set a timer for 5 minutes – everyone needs to generate 8 different ideas in this timeframe – that's about 40 seconds per idea! Sketches will naturally be very rough, which is good. If stuck, encourage learners to draw the same idea with one variation.
- Share a few ideas from each table.

Activity 2: 4x4

Time: 15 minutes

Hand out images of products paired with images of restricted movement. For example: products: a cup, a pen, a paper clip, a thick paperback book, toothpaste tube, football. Restrictions: broken arm, arthritic fingers, people with limb loss.

Method:

- Play in individuals or teams – each gets a blank sheet of A3 paper and folds into 4 quarters.
- Set timer to 2 minutes. For each pairing, ask individuals / teams to suggest quick solutions through sketches on one large sheet of paper per table. E.g. A spade and a broken arm = a spade that can be used with one arm (handle for hand, pressure rest for elbow).
- Once the time is up, each sheet of paper and scenario moves to next group, and the timer is set again. They may alter one thing in the product, e.g. ergonomics, how it solves the problem – could it change entirely? This aims to bring the groups together, to let people feel free with ideas and to show how far an idea can progress.
- Repeat for 4 individuals / teams, then return sheet of paper to first team for discussion. Compare the 4 solutions and question which is more appropriate – encourage analysis and criticism of each idea.

Activity 3: Everyday scenarios

Time: 15 minutes

Brushing your teeth, tying your hair up, putting on clothes, making tea, changing the bedding...

Method:

- Everyone is given a scenario and 2 minutes to explore it through words and sketches, perhaps a comic strip or diagram.
- Next, groups are given 5 minutes to consider the scenario using only one hand. What would the problems be?
- Groups suggest an idea to fix one of the problems they've highlighted and present back to the class.

Activity 4: Analogies

Time: 15 minutes

Problems are often solved by using inspiration from seemingly unrelated situations, such as sonar navigation (inspired by communication between marine animals), the take-off ramp on aircraft carriers (inspired by ski jumps), or Velcro (inspired by plant burrs transported on animal fur). This approach is called 'Design by Analogy' – the transfer of an idea from one context to another.

Method:

- Set a simple design problem (as before). Hand out images of familiar objects, for example: escalator, telescope, parachute, porcupine, dolphin, sycamore seeds.
- Give students 10 minutes to sketch or model an idea to solve the problem, inspired by one of the objects given.
- Present solutions in small groups.

Activity 5: SCAMPER

Time: 15 minutes

Introduce the SCAMPER exercise using the powerpoint presentation. Taking the favourite idea generated during the workshop see what happens when SCAMPER is used.

Plenary

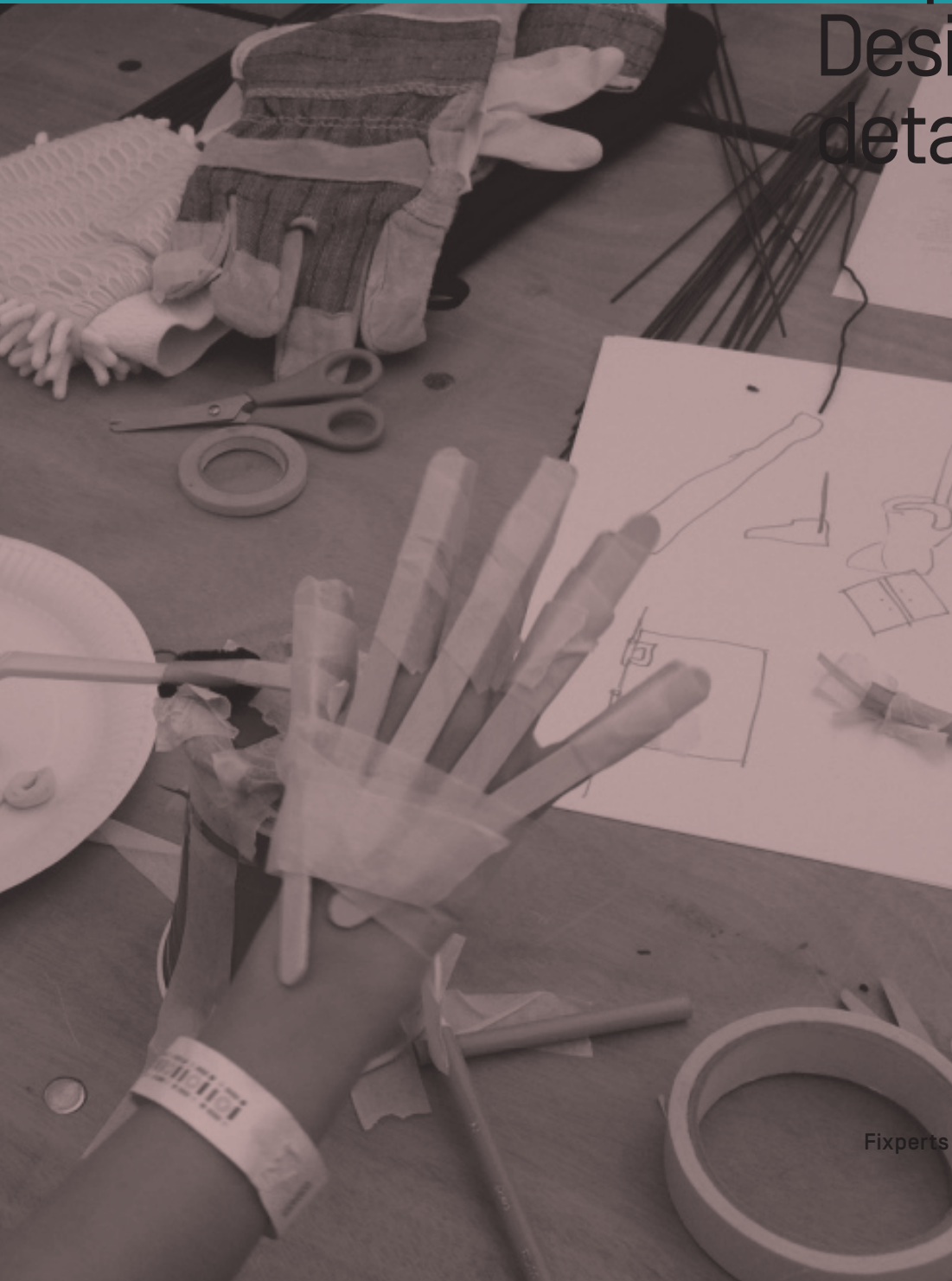
Time: 5 minutes

In pairs, discuss if there was a favourite method of generating ideas experienced during the lesson. Ask learners to explain how these methods might help with the issues they identified at the start of the lesson, and how they can be used in their Fixperts project.

WEEK

5

Fixperts – Designing the detail



Fixperts

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Fixperts activity

Designing the detail

Context

- This activity is designed to enhance the learning of the Getting Started and the Development stages of the project. It can be taught as part of a longer Fixperts project, or used as a stand-alone activity.

Learning objectives

- Human centred design: This activity introduces inclusive design, considering how to design for people with additional needs.
- Iterative designing: This activity necessitates fast modelling and testing of ideas, repeated multiple times to refine the final product.
- Prototyping: Students will learn how to use a prototype effectively both for testing a concept and for gaining user feedback.
- Resilience: By developing and testing ideas, students build their resilience against failure and learn to use failure to positively improve their work.
- Innovation: Students will see how creating many iterations of an idea leads to innovation in their work.
- Decision Making and Critical Thinking
This activity encourages students to use critical thinking skills to make design decisions to improve their work.

Preparation

Duration

1 hour

Materials

Paper cups

Scissors

Location

Any classroom

- no specialist
equipment needed

Glue

Pens and pencils

Masking tape

Card

Modelling clay

Activities

Introduction

Time: 10 minutes

Students should work in pairs. One student should simulate a hand restriction by taping several fingers together and try to carry out everyday activities (such as writing, drinking and eating, or tying shoes). The other student should make observation of the challenges and annoyances the restriction brings. As a class, discuss emotion related to an inability to do something.

Activity 1:

Time: 10 minutes

Students are tasked to redesign a paper cup to make it easier to use with their hand restriction. Set a timer for 5 minutes.

After the time is up, students should test and evaluate the function of their cup.

Activity 2:

Time: 15 minutes

Students should now improve their cup design based on the results of their evaluation. Again, they should have 5 minutes to complete the task.

After 5 minutes, discuss with the class the emotions related to the usual aesthetics of inclusive designs. Students may identify that inclusively designed products can often look like baby products, with extra handles, rubberised parts and bright colours.

Give students time to evaluate the aesthetics of their cup in light of this discussion.

Activity 3:

Time: 5 minutes

Students now have a final opportunity to improve and refine their cup design.

Activity 4:

Time: 15 minutes

Each pair should present their final cup to other students, explaining the various iterations of their design and justifying the design decisions they made.

Plenary

Time: 5 minutes

As a class, discuss how it felt when their ideas failed. Ask them to recall their original ideas in comparison to their final design, facilitating a discussion about failure, resilience and innovation.

Stretch and challenge

Discuss with students the difference between 'inclusive' and 'exclusive' design. Inclusive design accommodates all users. Exclusive design is only suitable for a specific user (customised or bespoke products are often exclusive). Debate whether one approach is better than the other, and where and if both approaches are needed.

Fixperts – Sticky Storyboard



Fixperts

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Fixperts activity

Sticky storyboard

Context

- This activity is designed to support the learning in the Presentation stage of the project. It can be taught as part of a longer Fixperts project, or used as a stand-alone activity. It can also be used as a quick method of planning a Fix film.

Learning objectives

- Reflection: Students will learn to be reflective about the work to identify successes and where they could improve. The reflective mindset developed in this activity is used throughout the Fixperts project.
- Editing: This activity teaches students to refine their ideas by editing down to the key elements needed to communicate successfully. This transferable skill is also used in design development, such as simplifying a design idea to achieve maximum function with minimum materials].
- Sharing: The Stretch and Challenge part of this activity introduces the idea of 'open source' within the design community. Students will see the similarity between sharing their own Fixperts project on a small scale through making a Fix Film and open source design.

Preperation

Duration

30 minutes

Materials

Rolls of stickers

Pens and pencils

Location

Any classroom

- no specialist

equipment needed

Activities

Introduction

Time: 5 minutes

Storyboards are used to plan films, organising what scenes to include, the order and the type of shot. As a class, discuss how the process of a design project can be told as a story.

Activity 1:

Time: 10 minutes

Give students a story to tell in a visual format. For older students, ask them to explain a social or cultural topic in a documentary style. For younger students, familiar stories such as fairy tales could be used.

This activity can be done in groups or individually. Students should use a roll of stickers to create their story. Draw each part of the story on a new sticker on the roll, so that the story can be read by unraveling the roll one sticker at a time.

Activity 2:

Time: 5 minutes

Edit the story by removing stickers which don't contribute to the core understanding.

Pleenary

Time: 10 minutes

Present ideas in groups of 4. Within each group, vote for the biggest risk taker.

Stretch and challenge

Time: 5 minutes

Explain the advent of 'open source' approaches to software used for physical design, also called open design. As well as sharing design processes openly and sharing digital design files to make products using CNC machines and 3D printers. Why might this approach appeal to the design community? What are the implications? How do Fix Films fit into this culture?

It allows for adapting and customising a design to fit a specific situation or person. It also means direct access between designers and users. It allows for open innovation where development happens between versions and the knowledge is shared. This kind of sharing is sometimes called and done through Creative Commons which is an alternative to IP intellectual property. Open source is also associated with creating and allowing access to people that would otherwise not be able to afford the information or the product which might improve their life quality.

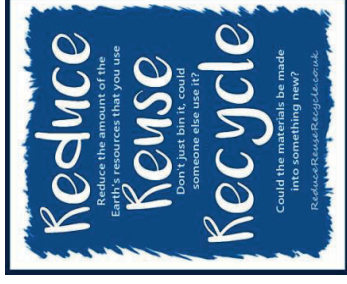
PREVIOUS SUBMISSIONS

Climate Emergency

We are tackling the design brief about Climate Emergency. We would like to engage and support our local neighbourhoods to respond and adapt to the challenges of Climate Change. Global Warming is becoming more and more of a issue that we are all aware of and have been for the last 30 years, yet we have dismissed this. The New Generation are now discussing the issues, however only few minor changes have occurred, and some are being developed. For example, Electric Cars are being developed to attempt to stop petroleum emissions, however at this moment in time Electric Cars are charged during the night, and the electricity used in Electric Cars, is made by burning coal. The CO2 emissions of one Electric Car causes more damage to the environment than the petroleum cars do.

Climate Change is happening all over the world, from rising sea levels in America and warmer temperatures in the poles to huge fires in Australia wiping out an estimated 1.25 billion wild animals including a variety of indigenous species like kangaroos, koalas, and wombats. Rising sea levels are forcing people to migrate as ice caps are melting in the poles also causing loss of habitats there. Luckily for us, we can easily move somewhere else but for those in the poles, it is not that simple. Also, increases in ocean temperatures are destroying aquatic environments such as coral reefs which are home to more than a quarter of all marine species. Reefs also provide protection from flooding and sustain fishing and tourism industries. Australia is reaching temperatures of 45 Degrees Celsius and winter temperatures in the Arctic have risen by 4 Degrees Celsius in the last 50 years.

This is extremely important to us and so it should be for everyone.



Reduce, Reuse and Recycle

7 million tonnes of wasted food is thrown away in the UK every year, at an estimated cost per household of £470. Approximately 50% of this wasted food comes from our homes.

Yet the majority of this food could have been eaten.

A large percentage of UK household's still do not recycle enough and throw everything that they consider 'rubbish' in their ordinary bin. If everyone increases the amount in practicing the three R's it can mean that there is firstly less waste meaning there are smaller landfills, which means that less CO2 is produced (created by the microbial populations rapidly degrading the landfill waste), meaning less global warming.

When recycling, you are reducing the amount of greenhouse gas emissions as manufacturers are not needing to mine raw materials as they already have the materials, it just needs repurposing. Recycling also reduces the amount of energy required to manufacture certain products which can then make the prices cheaper for the consumers as less energy is consumed or paid for. Also, recycling paper specifically helps to reduce the amount of deforestation as this used paper can be remade into new purposeful ones instead of trees being cut down which helps us to combat global warming however instead, carbon emissions are being created chopping the trees down but this means there are less plants to replace the CO2.

Chewing Gum is wasteful?

During our research, we found how harmful chewing gum can be for our environment. Did you know that, 80-90% of chewing gum is not disposed of properly and that it is the second most common form of litter after cigarette butts. Chewing gum is made from polymers which are synthetic plastics, that do not biodegrade quickly, this means that when it is tossed on the pavement, it remains there until it is removed which can be costly. Littered gum can also find its way into the food chain, it has been found in fish where it can gather toxins over time. This is terrible for our environment.

However, we can do something about it. Whilst researching about this topic, we found out that a person called Annabell Rebello has figured out a way to recycle chewing gum. As we said before, chewing gum is made from synthetic plastics which can be made into different products. Annabell has made things such as plates, spoons, cups and more out of this. Doing this, means that we can not only keep our streets clean and pretty but we can also save money on cleaning it off the streets.

Design Brief

For our product we have decided upon producing gloves made out of gum. During researching about recycling, we found Annabell Rebello who had achieved a way to recycle gum into products of her own. We wanted to do this as when researching we found that chewing gum is detrimental to our environment although it is a social habit to chew it but saw the positive impact this could make to our world. By getting people to put their gum in bins or in our gum bins it can mean that less gum is on the street and that means that the council will clean the streets less allowing more money to be spent on other important issues.

The world spends **\$25 billion a year on chewing gum**, this means that we go through 5 billion pieces of gum every year. In fact, an insightful fact we found previously, it is the second most common form of litter after cigarette butts.

Chewing gum is made from polymers which are synthetic plastics, that do not biodegrade. When it is tossed on the pavement, it remains there until it is removed which **costs £150 million** in England alone to clean up. This money could go towards developing better healthcare, education and much more. Littered gum can also find its way into the food chain, it has been found in fish where it can gather toxins over time.

The NHS are wasting on average **£5.6 million per year** on medical gloves, it is said this figure can already easily be reduced to cheaper gloves. But also, what if they were made out of recycled gum? This would not only decrease the litter percentage and create a greener planet, but it would also leave the Government more money to look after our environment and leave more money for the NHS.

Whilst researching on the online Oxford University Library we found an article stating that TPE (Thermoplastic Elastomer) or Synthetic Rubber (Polyisobutylene) can be made from recycling gum, this can also be used in the rubber and plastic industry.



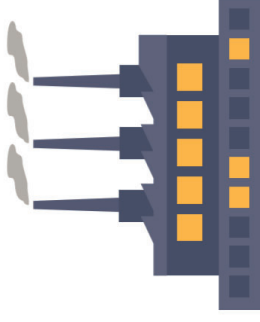
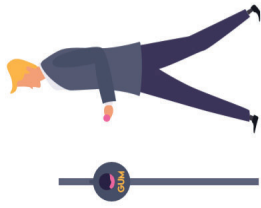
Hospitals wasting £5.6 million a year on expensive rubber gloves, NHS leaders reveal



Why Medical Gloves?

We specifically chose to produce medical gloves to make out of recycled gum because when researching on the internet, we saw that the NHS have been spending too much money on medical gloves so we decided to merge the two problems together. Like we have mentioned before, it is supposed that the NHS spends £5.6 million every year on medical gloves and I am hoping that we can make this figure smaller and the product sustainable. As we do not need to collect much of the raw materials and that we can get it mostly for free, I immediately know that it will be cheaper to do. However, I am unsure of the manufacturing process and how much that will cost.

Recycling Gum



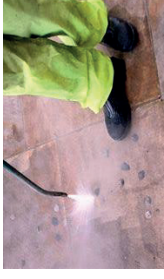
Cleaning the streets

So much gum is littered on the streets, 9 out of 10 paving stones in the UK have gum stuck on them. The councils have attempted to remove this, with a combination of water and chemicals (which is commonly used). This use of large amounts of water is unsustainable and the chemicals are bad for the environment. Even when councils have managed to clear gum from the street there is always an oily permanent grubby stain left behind. If we stopped anyone from even putting the gum on the floor we can already have a prettier, cleaner environmentally friendly country.

More Insightful research

From our previous board we have found out a lot of insightful information such as we go through 5 billion pieces of gum every year but 80-90% of that does not get disposed of properly. This is disgusting to think of and lead us think further about helping to reduce this number.

During our researching, we also found an insightful project in Dublin, where they wanted to highlight the amount of gum littering. They placed lots and lots of shoes in the middle of a street to also raise awareness how litter can cause damage to the environment and add towards the air pollution.



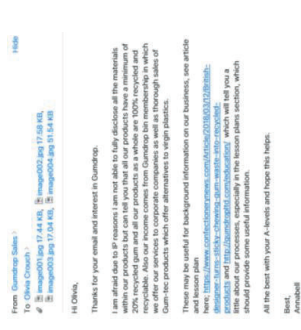
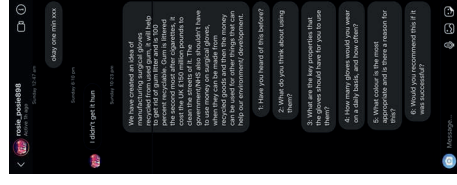
Our inspiration

Our inspiration, Annabell Rebello, was the first person ever to establish how to make products out of chewing gum, she creates products such as: stationary, sports equipment, tupperware, spoorks and combs. There has also been shoes made out of recycled gum.

Annabell uses injection moulding to make her products, however this would have to be different for us as we need to make gloves. In order to collect the gum used to make her products she made gumdrop bins where you can simply drop your chewed gum into. 1 Gumdrop bin full of disposed chewing gum can make up to 3 new Gumdrop bins. We think that this idea would still be great for us but we would increase the amount of bins targeting more of the midlands as we noticed on her website there was not many here. In our previous research board Annabell told us that her products contain 20% gum, this may not sound like a lot to you but this amount can still make a difference.

Primary Research

We have recently messaged and emailed two people suited to our product to ask them a few questions about it Olivia firstly emailed Annabell (established Gum-tec) and then Tiah messaged an Obstetrician for her advice as well. It was very interesting as to their advice on it.

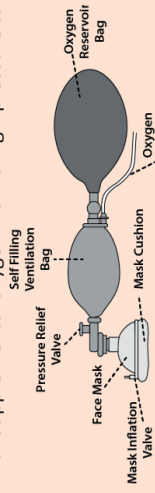


Experimenting with preiving ideas

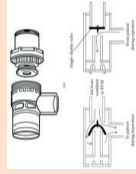
Oxygen resuscitator

Bag-Valve-Mask.

- A manual resuscitator (also known as a Bag-Valve-Mask) consists of a mask and a large hand-squeezed plastic bulb using ambient air, or with supplemental oxygen from a high-pressure tank.



- Basic BVM ventilation is most often the only option for airway management.
- This product would unfortunately be hard to recycle because there is more than one different material in the whole thing. We could, on the other hand, manufacture the face mask or ventilation bag individually in rubber as these parts are needed to be cushioning or squeezed, similar properties to rubber, this can be seen in rubber foam cushions or squeezable dog toys.
- This equipment is used in healthcare meaning that it is extremely important for the NHS to have. We could create parts of this to be gum making the equipment less expensive (more money for other things) and also it is good for the environment.

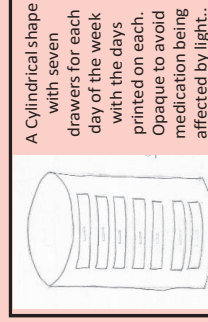


- Oxygen resuscitators have an ingenious mechanism where their valves are one-way to allow oxygen in and carbon dioxide out at the other end. When the oxygen is pushed in, it forces the valve open and when the bag is stretched out the oxygen flow stops and the valve closes stopping any gases moving out of the wrong end.
- Anyhow, these resuscitators can be difficult to make and not in much demand for people to have as they have really dangerous consequences for people who have these used on which does make them less successful.

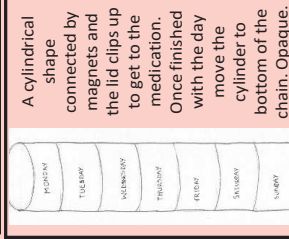
Pill boxes

Usually plastic, but could they be made with gum?

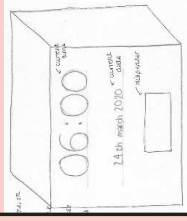
- Pill boxes came into our idea range, because it is one of the popular items in a contemporary audience, so if they were made out of used gum instead of plastic, could you imagine the amount of plastic we would be able to avoid using. Recycling gum to create pill boxes/organizers is a good idea, because they are widely used all over the United Kingdom, as many people intake a variety of medicines daily (of which many are incapable of organizing or defining the right drugs they need to use).
- Pill boxes are very useful, as they remind people to take their medication on the required day and possibly at a time. We have come up with four ideas that we could use, however we are yet to discover which will be the most efficient for the desired audience. It will also have to contain mostly recycled gum, otherwise it would defeat the objective which is to help save the environment. We have drawn out our ideas below.
- We have discovered that surgical gloves are used more regularly than pill boxes, as pill boxes are not disposed after using once, but surgical gloves are for sanitary reasons, and therefore we should base our project on surgical gloves.



This is a colourful pill box targeted at younger ages to make the box seem more fun. It is opened by pressing down on the lid to pop open and the same to close. Includes A.M and P.M.



This is a clock with a pill dispenser built in so that when the alarm goes off, a set dispenser opens and gives one dose of the right medication. The alarm does not go off until pills are lifted from the dispenser. The machine also warns when medication is running low. The clock is 24-hour and also displays the date.



Rubber gloves

- Vinyl vs nitrile vs latex gloves:

For nitrile gloves	Against nitrile gloves
Less permeable than vinyl meaning less bacteria gets to the skin	More expensive
Highly elastic	Not biodegradable
Extremely strong, durable and flexible	
More value for money	
Form fitting	
High resistance to punctures and chemicals	
Allergy free	

For latex gloves	Against latex gloves
All natural trusted material	Not suitable for people with latex allergies
Biodegradable	Costs fluctuate based on natural resources
Fits like a second skin	Lower resistance to punctures and chemicals
Reliable performance: protects against infection and contamination	Does not provide protection against petroleum-based products
Flexible fit	

For vinyl gloves	Against vinyl gloves
They provide great protection for a low price and are great in low-risk environments	Harmful to the environment if disposed of incorrectly
Synthetic polymer	Do not offer much chemical resistance
Allergy free	Are susceptible to punctures
	Doesn't fit as well as latex or nitrile
	Offer less dexterity due to a looser fit

- For what purpose are the gloves?

- Gardening
- Surgical
- Medical
- Cleaning

- After our research, we have found that latex is the best out of the three except for it being a source of allergy. This is unfortunate as it can be harmful to patients with allergies to latex, causing doctors the need to ask if they have the allergy. This may be resolved by using nitrile gloves however these are expensive and bad for the environment. BUT, our rubber gloves could possibly change this conundrum.
- Rubber gloves have the risk of being allergic to some people but also they have the risk of not being hygienic enough which can create a lot of trouble manufacturing.
- On the other hand, gloves have a very important role in the NHS and there are too high prices that need to be lowered which makes this idea so successful.

Main feedback

At college we have been visited by a RSA colleague where she individually gave us advice on how to improve our boards. We have also asked a doctor about this idea and she really approves of it so long that they are a light colour, to see any blood etc., and it is properly sanitised.

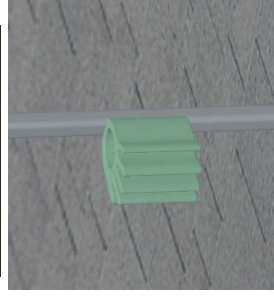
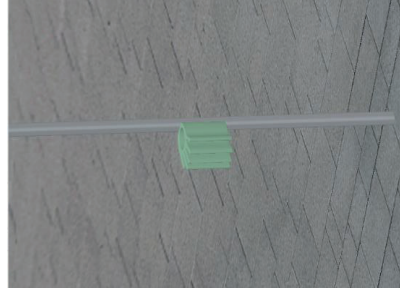
Our main feedback from these people or from others have been such as;

- Include more of the process of making the gloves
- How will you collect the gum
- Show more design in your boards

We have acted on this by;

- Researching more on and including the manufacture of gloves in board two
- We have answered this question in this very board by testing it out
- We have created an illustrative storyboard shown in board two of the process and have used tones of colours that are aesthetic.

Testing the design:



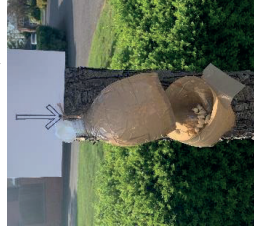
This is a model of a design of a gum bin made in CAD inventor in order to help us to see the idea in 3D form and play around with seeing what works and what looks good. This bin's purpose is to collect chewing gum ONLY off of the streets in order to use to create my bin. We like this design as it symbolises people putting gum in the bin in order to create a glove. As people fill the bin with gum, the glove becomes complete. We would use our recycled gum to make these bins as well as the gloves

feedback

before



after



Testing the purpose:

We had the idea to test the idea of a gum bin in our area which will help to see whether the idea would work. Olivia created a sample bin out of lemonade bottles which would perfectly work for our test. At first we put a small dog bag to line the bin but soon found that it was not working appropriately. We then placed these around our neighbourhood with a coordinating sign telling people to place their gum in the bin. We left it for a week and checking it everyday to note the progress of it. By the end of the week, we found that it was successful in that there had been pieces of gum in there, yet it was unsuccessful because it had been used for other rubbish than just gum. This may have been because of people's attitude towards it, or it may have been due to us not advertising it in the clearest way that we could have done. We did place a sign on the bin but this was still not enough. We know that a lot of people were also questioning why it was there which could be solved through communication on our sign. For next time, we will definitely make sure everyone knows that this bin is for collecting gum ONLY and knows the meaning behind it as we think it would make them think more about their actions. We would also obviously create our bin to be more aesthetically pleasing just like our CAD model made out of recycled gum instead of a reused bottle.

Evaluating the proposal

The proposal's impact

Our proposal will successfully positively impact the world by decreasing the amount of littered gum and hopefully falling down the ranking of second most litter. This will, in time, make our streets clean and pretty meaning that the council does not need to spend money on cleaning the stuck gum on the pavements therefore meaning that this money can be spent on more important areas such as healthcare, especially considering the COVID-19 situation the world has now.



How could it work in the real world?

Our proposal could work in the real world by firstly placing our gum bins in the Midlands, which I feel is not covered by Annabell Rebello (mentioned in board 1 and 2). These will then be cleaned out regularly in order to make sure the bins do not overflow or become rotten. We will need to make sure everyone understands the use of the bins and that everyone knows that they are there. We would firstly contact the council to ask for permission of these bins around city centres. We would also ask supermarkets or big stores for a bin subscription from them which would of course benefit them such as keeping their pavements clean and giving them a good status. After getting permission from the council and others, we would place these bins around the areas making sure they are evenly spread. Next, we would inform people in the area about the bins, why they are there and where they are. This could be done by leafletting or through social media (which marks the most of our target audiences) to make sure everyone understands and knows about it as few people do not use social media such as the elder generation.



Less litter, less pollution and making the world a cleaner place.

As we then collect the gum off of the streets we will then be manufacturing this into medical gloves and selling them on to the NHS for an assuring cheaper price than what they buy now as we do not need to buy some of our raw materials. A source in 2017 told that hospitals paid between 35p and £16.47 for the same pack of 12 gloves. Showing that hospitals need a new price system to keep prices down and spent appropriately. We can offer this.

The challenges we may face

We have considered the challenges that we may face, and have improved our designs or plans to work around these challenges. One may be that people are putting everyday rubbish in our bins. Although we cannot stop people from doing this, we can try to prevent it by making the hole for the bins big enough to put your gum into and small enough so that people cannot fit their other rubbish in their too. However, some challenges may not be easily solvable, such as the council does not let us to put the gum bins in a certain area or we do not get the amount of gum put in the bins for us to use and manufacture with as we planned. Hopefully, we could solve these problems by visiting the council multiple times to get our point across or advertise our bins more in newspaper articles, on radio stations, or even on the television on talk shows to get us known to the public. We completely understand that we will come across multiple challenges but we are sure that we can fight against them.

Final idea for review

Our final project idea proposal, outlined in the five previous presentation boards, relates to the reduction of chewing gum waste in our environment by repurposing this waste into new environmentally-friendly surgical gloves. Although, these new gloves would be disposable, they are not made from plastic or fossil fuels and therefore contribute less to global heating and human-induced environmental degradation. Surgical gloves will consistently be required by doctors, nurses and other health professionals therefore, new and innovative solutions are required to combat this waste. The specifics of our final product, include; beige in colour, stretchy so that one size of gloves fits all, and completely sterile to ensure the medical area is not harmed by bacterial germs.



Final Idea Proposal

What makes it different to existing solutions?

Currently there is only one main UK company which utilizes waste gum for other purposes (GumDrop) however, it is mainly used to make office supplies e.g. rulers. Our idea is revolutionary and contrary to their idea as we intend to use gum, to make gloves which are required to be used and therefore more commonly and frequently used across the UK.



Tell us about your final idea in one statement

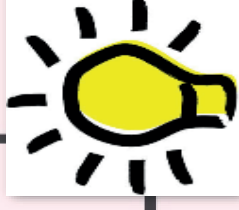
Our final idea is an invention that will create a happier environment, by people putting their gum in our bins this not only makes our world prettier but recycling gum means we can reuse the waste and put it towards a great cause, our NHS.

Who is your proposal aimed at, and why?

Our gloves are aimed at medical practitioners who often are required to use surgical gloves e.g. obstetricians (of which we interviewed). Our current aims are relating to the NHS due to the fact that a large percentage of government revenue is spent on the NHS and therefore any decreases in cost or increases in efficiency would be extremely beneficial. However, we would still envisage their use by private healthcare professionals considering the environmental positives of our project. This would allow the government to put aside money to gain a happier and healthier Earth.



Warning



PUPIL
DESIGN
AWARDS

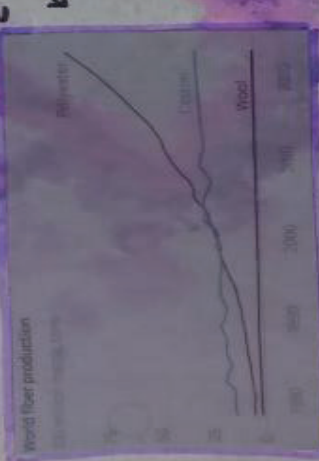
There were three main reasons we chose this brief:

- The current demand of the fashion industry, with 80,000 jobs in the UK and the industry accounting to £26 billion in the UK alone
- Fast fashion has become more popular, with the rise in sales creating a wide range of issues. Needing to be solved.
- As consumers ourselves we realised how little we really know about what we are buying and the process it had gone to get to us

Ayma Ahmed
Aaliyah Feroz
Maryam Arshad



The industry of fast fashion is growing steadily and it is causing many people factories and environments a lot of damage



The biggest problem is the CO2 emissions with the fashion industry releasing 1.2 billion tonnes per year



The biggest problem is the amount of clothing bought compared to the sustainability of the clothing is more damaging and each stage involves a lot of labour and each stage involves damaging processes

polyester = 5 kg per carbon for ones shirt
cotton = 2.1 kg per shirt

The biggest problem is shipping materials and clothing are extremely damaging. only 15% ends up being reused

- Ideas we researched:
- The lifecycle of materials
 - Production of clothing
 - Where do clothes come from?
 - Ethical vs unethical clothing.
 - Sustainability

The biggest problem is that audiences and customers are drawn to non-sustainable clothing due to cheaper prices

Clothes are transported by land, air and sea

The process to make a garment is very expensive and involves many hours of labour and each stage involves damaging processes

The biggest problem is the end of the life as only 15% ends up being reused

however prices are quite expensive and the brands are not advertised as frequently

There are many brands starting to work on being more sustainable.

companies such as In&M, Conle, and Levis focus on sustainability



We based our research on every stage of an item being made, from the material being sourced to the item being bought. so we looked into materials, branding, transportation and the life cycle of garments.

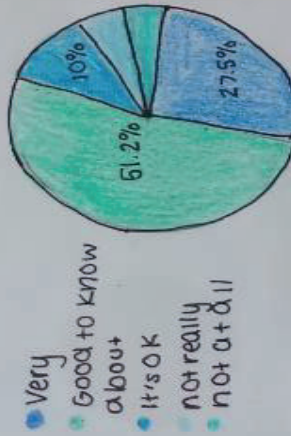
human

The major issues discovered:

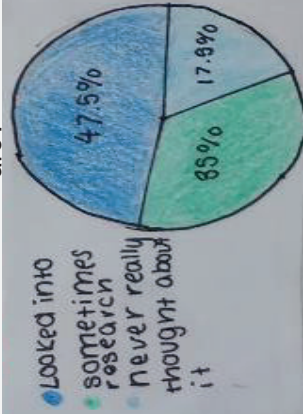
- RESEARCH -

asking our pupils...

How important is knowing how sustainable a brand is when buying a product?



Do you know how sustainable brands are?

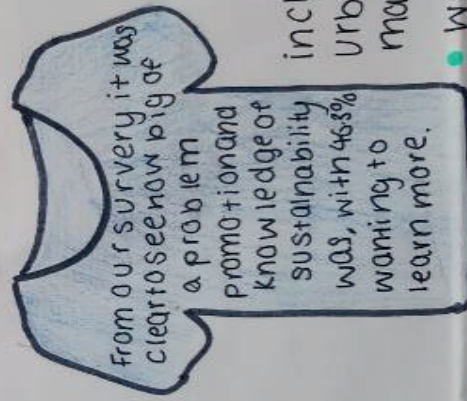


Do you think fashion brands prioritise brand sustainability?

We conducted a survey questioning people about their knowledge and interests surrounding the topic of brand sustainability. We received 80 responses, highlighting the problems found with the way brands promoted sustainability, the prioritisation of branding and the lack of understanding

contacting brands...

- we emailed 8 major high street brands including M&S, new look, Urban Outfitters, ASOS and many more.



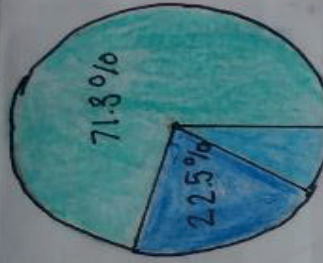
- we asked the question what do you do as a company to become / or be sustainable.

- Brands mentioned their efforts to make packaging and producing more sustainable products but the brands did not mention any plans to improve the transportation process.
- After questioning pupils it was clear that brand sustainability was not advertised enough

We decided to base our ideas around these issues

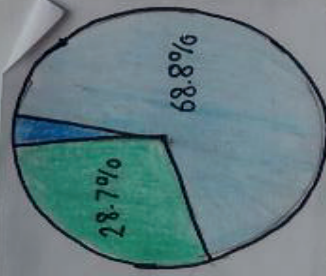
Some further research we did was ask 20 people about each stage of a garments life. We found that many people knew a lot about materials and brands and the issues surrounding them. However, people did not know about the issues and the process of transportation so we decided to also incorporate this into our ideas.

Do you think fashion brands prioritise brand sustainability?



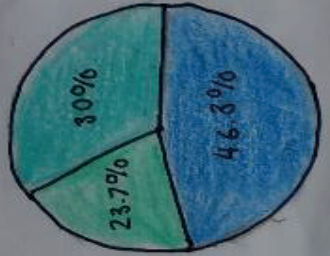
no
some do
yes

Do you think brand sustainability is advertised enough?



no
maybe
yes

Is brand sustainability something you would like to explore further into?



maybe
yes
no

was, with 46% wanting to learn more.

do you do as a company to become / or be sustainable.

- we received a wide range of answers, all which showed they contribute positively to the world around us
- but many of the goals, problems and solutions mentioned were unknown to the general public. We realised that this gap in knowledge was a major problem to the consumers and that we needed to focus on getting this view point out.

- companies like ASOS have fully recyclable bags and plastic bags but due to the lack of communication and knowledge many people don't know this.

OVERVIEW

combining our results from our brand contact and survey we realised that the lack of awareness and advertisement and knowledge of brands sustainability is hindering so many positive impacts on our planet. We therefore decided to focus on improving this.

*some of
the
responses
we got
from
contacting
brands ...*

Thanks for contacting us today, we're always happy to answer questions on green issues.

There are several issues which come under the umbrella of eco-friendly - so I've chosen a selection covering animal welfare, plastics and recycling.

At ASOS we firmly believe that animals should not suffer in the name of fashion or cosmetics. We're members of the Fur Free Alliance of Retailers and in 2012 won an RSPCA Good Business award for fashion innovation.

As for micro plastics: there is a lot of research being done in the industry on microplastics and microfibrils. We are participating in the research and working with experts to understand how we can reduce the environmental impact of natural and synthetic fibres. ASOS is continuously seeking more sustainable alternatives to conventional textile fibres and supporting innovative new materials in our products. For more information on our Sustainable Sourcing Programme, visit our [PLC site](#).

And finally on recycling:
Our boxes and bags are 100% recyclable .

Our boxes are made with 100% recycled material and bags are made with a mix of new and recycled material – we're working on increasing the amount of recycled material that makes up the bags, plus using less plastic to make each bag.

We're working on initiatives that will make it easier for people to recycle their bags – watch this space.

URBAN OUTFITTERS

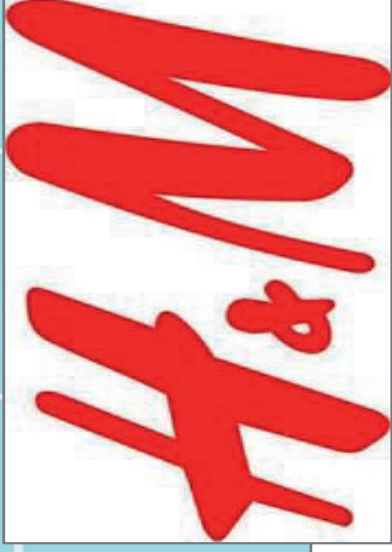
Hi there ,

Thank you for your email.

Unfortunately, we are not at liberty to disclose our supplier contact information. Our suppliers have a privacy clause with our company, barring us from releasing contact information.

I appreciate your understanding in this matter and apologise for any inconvenience this may cause.

If you've any further queries please get back in touch - we'd be happy to help!



Thank you for your interest in our brand H&M.

"The H&M Group's sustainability work is integrated into our culture and values. We believe a long-term approach is a must when it comes to dealing with complex sustainability issues, and we work to ensure that sustainability is integrated into all aspects of everything we do."

Please click [here](#) to find out more what we already did to be friendly to our environment and also what we planned for the future.

I hope this information was helpful.

Should you have any questions, please don't hesitate to ask.

Thank you for your email.

I understand your query outlined in your email and would like to help you with this.

Reducing, Reusing and Recycling all that we do to the best of our abilities is a far-reaching challenge. Our impact on the environment is an essential part of a sustainable business. As well as complying with all mandatory requirements.

As a retailer, we consume valuable resources and produce waste. It is our responsibility to ensure our consumption and disposal is proportionate and efficient? not only to reduce our environmental footprint, but to lower costs and thereby improve our ability to endure economically.

Debenhams have created five focus areas to ensure we minimise our impact on the environment, namely: energy, emissions, waste, water and sustain.

Please click the link given below for more information:

<http://sustainability.debenhamsplc.com/environment/>

I hope this is of some help.

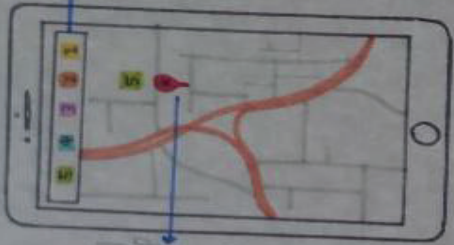
Kind regards,

Rohit

Debenhams Customer Services

Debenhams

an app

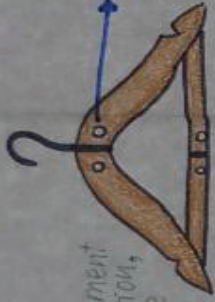


Users will see a map with the brands collect to them + each will have a different colour rating.

The app rates high street and local brands on how sustainable they are.

Brands will be rated based on their product packaging, goals in terms of sustainable fashion and material types and sources.

hangers



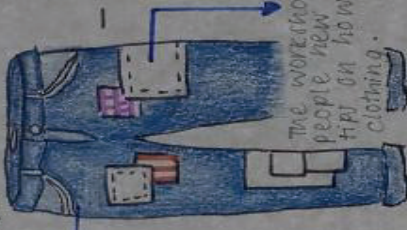
During garment transportation, hangers are used to move clothing. Hangers are also widely used in stores to over 100 million are thrown each year.

Foldable hangers take up less space and can easily be reused instead of being thrown away.

Tickets can be attached onto hangers using velcro-improving its sustainable usage.

a workshop

The workshop will include fashion tips and how to use clothes to create house hold products.



The workshop will give people new and original tips on how to DIY old clothing.

Helps people find a use for old clothing which would otherwise contribute to waste in landfill.
Helps spread awareness to stop the practice of fast fashion and prove that old clothes can be refurbished and new.

ideas

a tag

A tag that is used in fashion chains and high street shops.

Encourage them to recycle and introduce them to more sustainable ways of garment disposal.

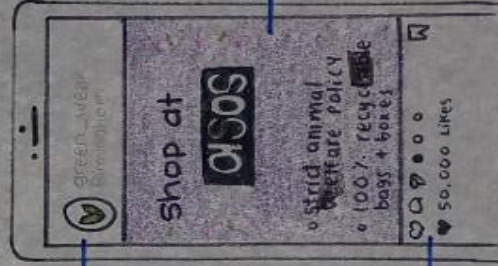


made of recycled cardboard

Information on where to recycle and donate clothes - this is personalised to the area of the store.

an instagram account

An Instagram account that helps promote brands that makes positive changes to create a better + more sustainable fashion industry.

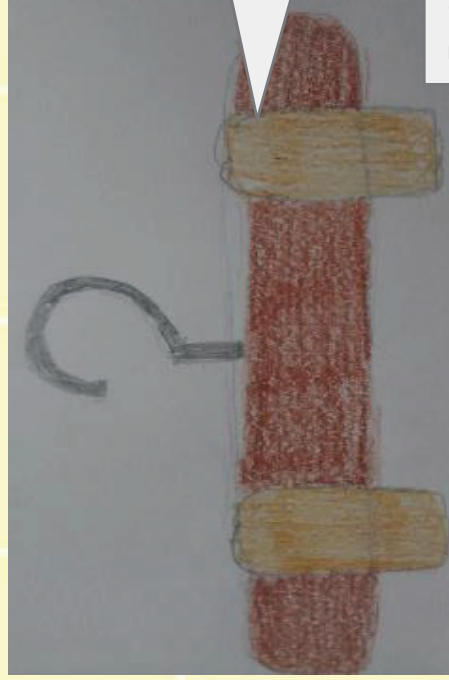
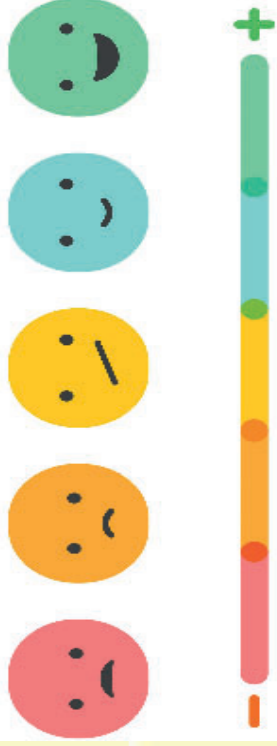


Spreads awareness to younger generation.

It will give updates on latest events and petitions relating to fashion.

Allows people to interact with brands and have a say.

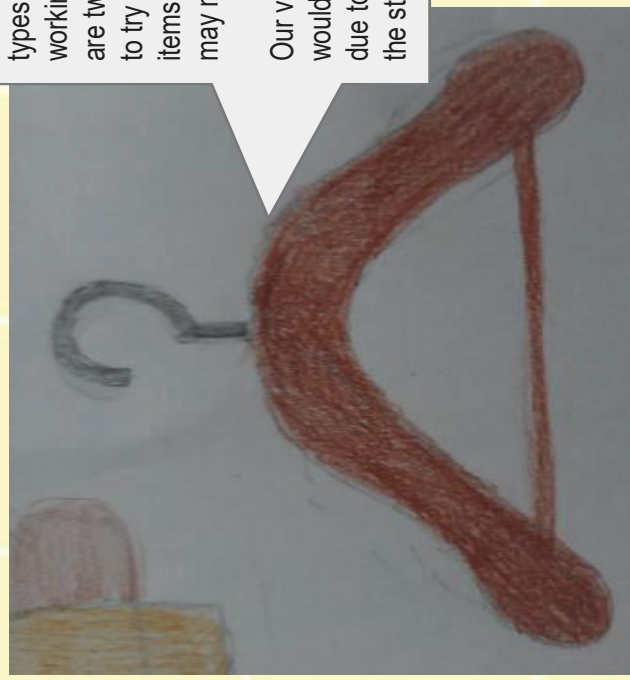
our first steps of testing and developing...



Employee views: Not typical to the design we would have in store and generally is impractical due to the amount of time wasted unhooking clothing.

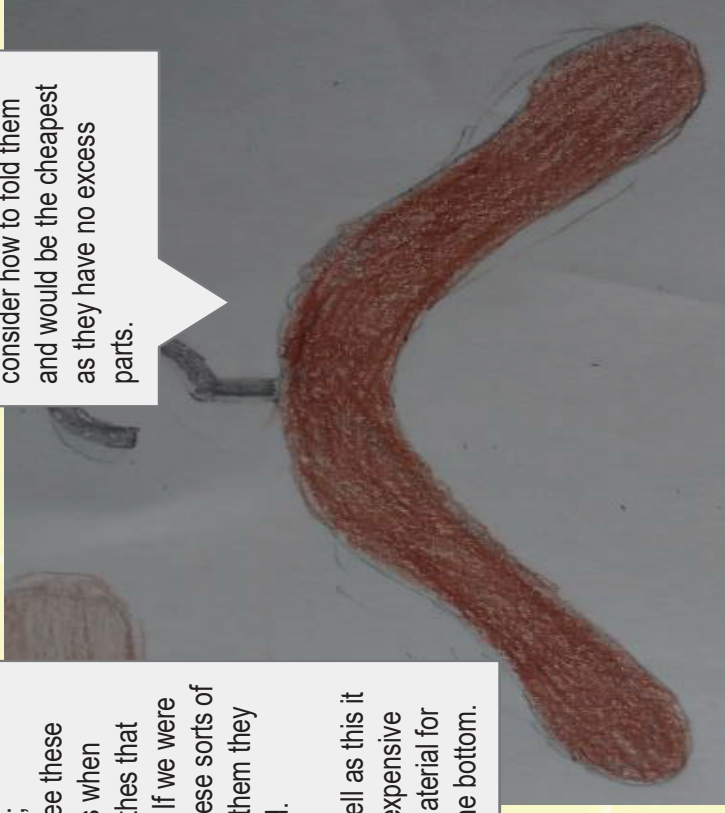
Employees views I can see these working for us folding them.: These are the typical hangers we would use in our store! They are the easiest for us to store and reuse.

Our views: We agree these are the easiest for us to consider how to fold them and would be the cheapest as they have no excess parts.



Employee views; We only really see these types of hangers when working with clothes that are two pieced. If we were to try and fold these sorts of items and store them they may not be used.

Our views: As well as this it would be more expensive due to excess material for the strip along the bottom.



Feedback from a clothes shop worker:

'We are always throwing our hangers after their first use as we just don't have the space and quality of hangers to be reusing them. However, with this I can see that we could easily store in and it would be durable. My only concerns are with the style of hangers that you will use as each type has its own benefits but also can slow the speed of the work force'

So we decided to do was propose three ideas to the employee to see what they would feel would work best for them.

testing and developing

considering materials

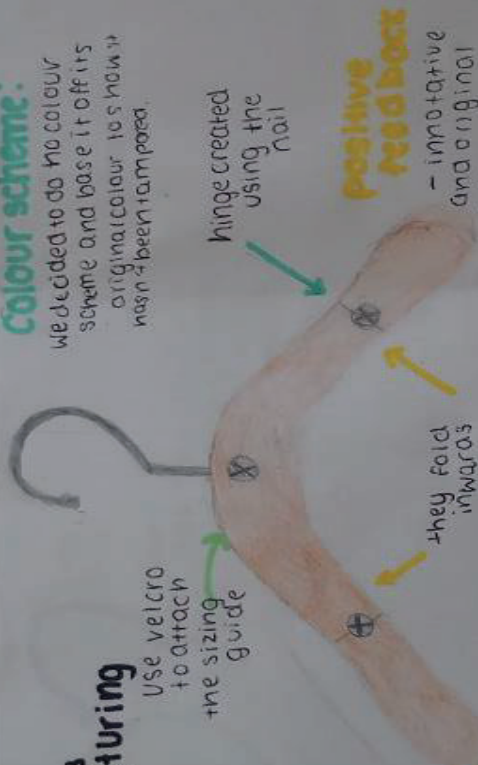
Bamboo - is sturdy and long-lasting so is ideal for sustainability however is very costly

Cardboard - is extremely cheap but is not ideal for a product that is designed to be reused again and again.

Wood - is cheaper than bamboo and has similar qualities of sturdiness and long-lasting.

Colour scheme:

We decided to do no colour scheme and base it off its original colour as how it has been tampered.



our target audience is high street shops and their manufacturing process

more a bout label
 - it will be made using velcro
 ↳ velcro means it can be removed

Q a gap
 - the gap will allow the sticker to slide in and out easily
 - it can also be removed when being folded.

I ideas
 - using a sheet of plastic the plastic will make sure the sticker doesn't become damaged
 - means the packaging/sticker can be removed and it can be replaced with the other sticker

Q & A: Feedback

What will the company do after using the hanger once?
 → As the hangers are foldable they can be stored for later use either for transporting or in store.

Do the hangers come in different sizes e.g. adults and children?
 → To begin with we would focus on adults sized hangers but as we develop we may branch out into smaller sizes.

How will this be more sustainable?

→ These hangers are designed to be re-used with attachable sizing guides that can be interchanged. They will also be made of wood which we will source from local wood items meaning they will not be prone to breaking.
 How will you ensure the hangers work?
 They will have a lock made when straightened allowing them to support the item of clothing. The hinges will use a nail so it will have a more structure a support system.

How will you ensure the hangers work?
 They will have a lock made when straightened allowing them to support the item of clothing. The hinges will use a nail so it will have a more structure a support system.



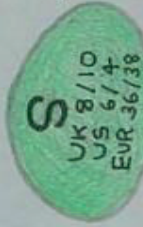
▲ the prototype - we created a prototype to see how in practice the mechanism and hinges were. We also used this as our prototype to receive feedback.



Final Idea

Labels — VELCRO

- Sizing labels will be attached using velcro
 - ↳ easily removable + reusable



→ Labels will have a velcro backing

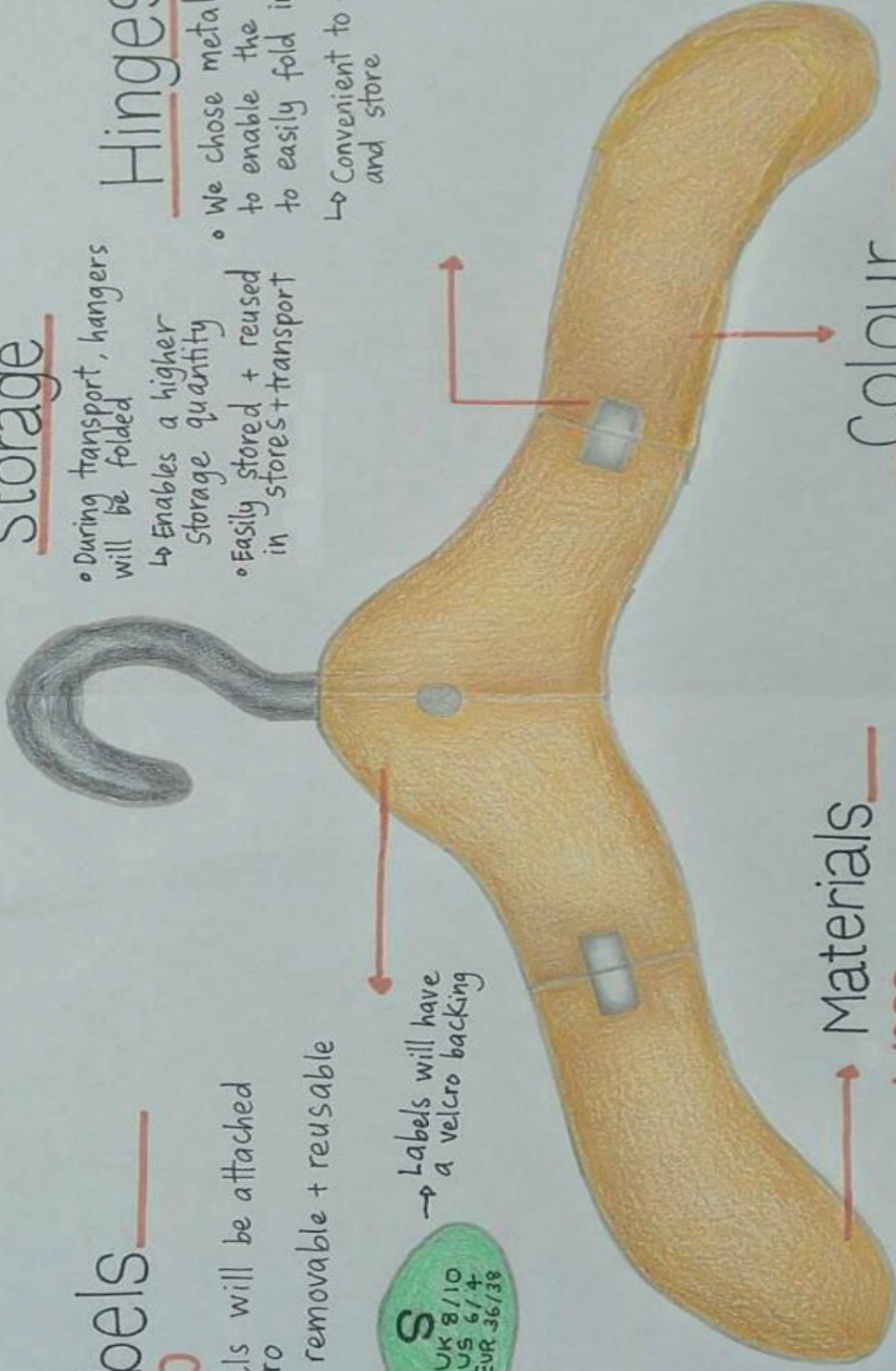
- During transport, hangers will be folded

Storage

- ↳ Enables a higher storage quantity
- Easily stored + reused in stores + transport

Hinges

- We chose metal hinges to enable the hanger to easily fold inwards
 - ↳ Convenient to transport and store



Materials — WOOD

- It is a cost-effective material
- Sturdy and long lasting material
- Relatively light in weight
 - ↳ effective for transport

Colour — NATURAL WOOD

- We kept the original colour to convey qualities of sustainability, nature and simplicity.

Use

- The hanger will function as an ordinary hanger
 - ↳ HOWEVER, it will not be prone to breaking or damage
- used in garment transport + stores

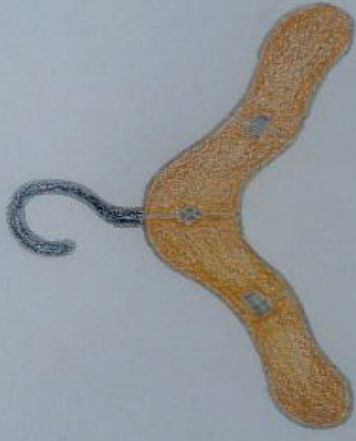
the pitch

THE ISSUE:

The fashion industry uses many steps to make a garment and there is one object that is relied on in almost every stage: the hanger. The big issue with these hangers is that they are thrown away after their first use, in fact over 100 million are thrown away each year. So we decided to combat this issue and find a more sustainable approach.

OUR SOLUTION:

We have created a multipurpose reusable hanger designed to be used in stores and for transportation. With features such as the velcro label for the sizing guides allowing it to be applied and removed when necessary and its foldable hinges meaning it can be stored for later use, it will help decrease the high demand of single use hangers.

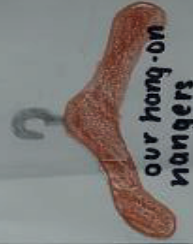


hang-on

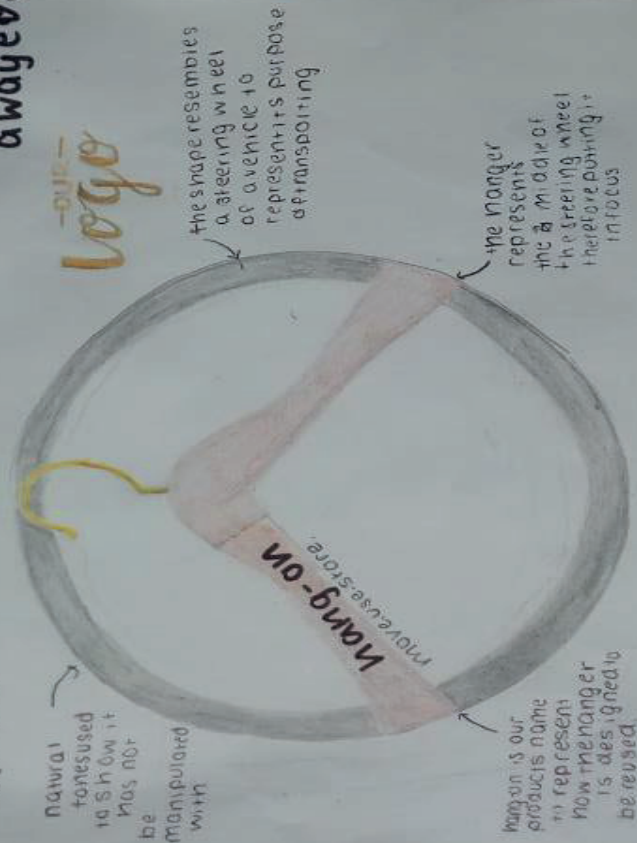
100 MILLION+
hangers are thrown
away every single year



ADAPTATION:
FOLDABLE
HINGES



ADAPTATION:
VELCRO
LABEL



Funding → we would approach brands focused on sustainability such as H&M conscious to help fund our product as well as this we could use recycled wood from disregarded items.

**Reducing sleep disturbance
due to screen time**

INTRODUCTION:

Technology can be used responsibly to support young people in ways that develop positive relationships in education, industry and jobs but also in devices and social media. While technology encourages positive relationships with learning and is very helpful in schools, it can also benefit young people by educating them about the world around them through the news and websites with similar purposes. Technology is very useful in industry and creates many job opportunities that particularly attract young people and is also a good way to connect with young employees in a way they're comfortable with and used to. Social media is a great way for young people to have a voice and spread awareness of global issues they feel strongly about, but there are many adolescents still using technology irresponsibly which can often end up causing more harm than good.

PROBLEM:

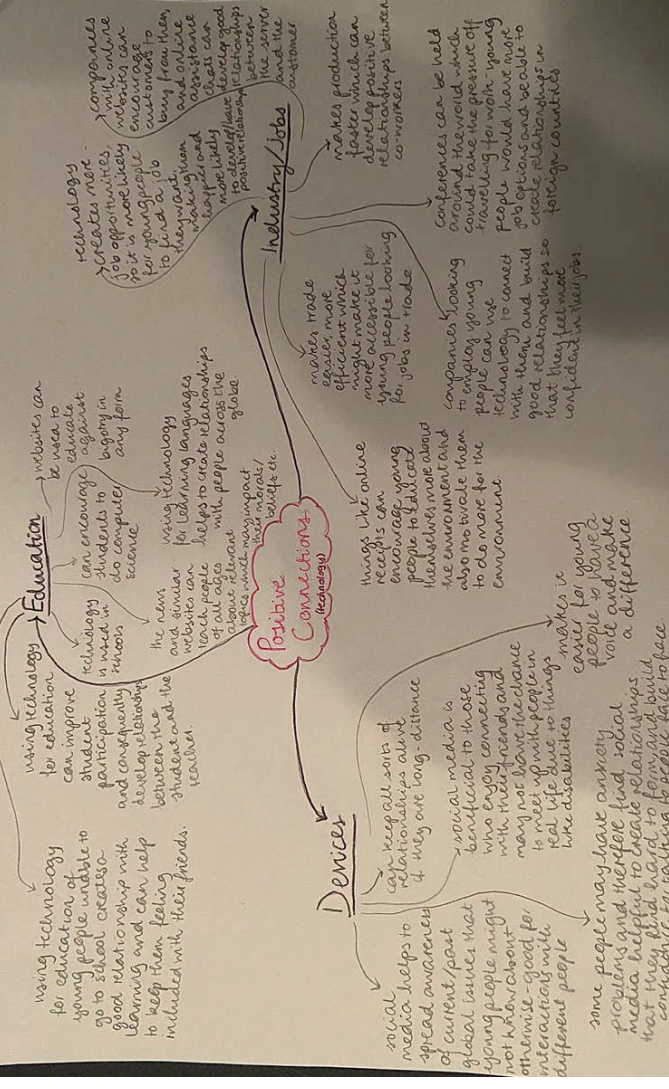
Many young people aren't educated enough to use technology responsibly, which creates negative relationships rather than positive ones. I need to design a proposal which tackles this problem so youths are not discouraged to use technology giving how beneficial and rewarding technology can be when used correctly, responsibly and safely. Problems existing at the moment involving technology include abuse, bigotry and online hate spread through the use of social media; students abusing their privileges of using devices for learning which makes technology more of a distraction; technology causing young people to stay awake later/become sleep-deprived for various reasons; and irresponsible use of technology in young people having an impact on their future employment and job possibilities.

EVIDENCE OF PROBLEM:

According to CareerBuilder's 2016 social media recruitment survey, 60% of employers use social networking sites to research job candidates. More than 2 in 5 employers said they are less likely to interview job candidates if they're unable to find information about the person online. And nearly half of hiring managers who screen candidates via social networks said they've found information that caused them not to hire a person, according to the same survey. This highlights how social media activity can have a greater impact on your future than you realise, which is why using it responsibly is so important. It has also been proven that devices such as mobile phones and tablets keep you awake because they suppress melatonin, keep your brain alert and interrupt sleep with alerts. There are ways to combat these problems, but a lot of young people experience these problems nevertheless. It is widely known that social media allows a largely uncensored collection of public opinion and calls to action, including acts of violence, hatred and bigotry. Even though platforms like YouTube have taken steps to reduce this online hate, it is never fully eliminated in any sector, so something has to be done to support young people using technology responsibly and not destructively.

IDENTIFIED STAKEHOLDERS:

My product will be aimed at young people, specifically teenagers and young adults aging from 13-21. I should also consider how my product will affect parents, teachers and co-workers as these are the people most likely to notice any improvements with my product, and also to have good experience and perspectives on the use of technology in young people.



RESEARCH TO DO:

CLIENT INTERVIEW: I need to find a client with a good experience using technology, who is impacted by it positively and negatively every day. I need to understand their product requirements to be able to start designing a proposal that will benefit them.

EXISTING PRODUCTS:

At the moment, the main way of tackling online hate is to get involved in projects such as the European online youth campaign - the No Hate Speech Movement. These projects do help, but there are limitations in what they can achieve. Similarly, there are websites online which give advice on how to use technology in ways that sleep and job opportunities aren't compromised, but most teenagers and young adults will completely ignore this advice, so the problem continues to exist.

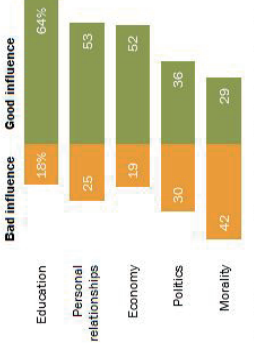
STAKEHOLDER SURVEY:

I need to conduct a survey for young people to find out what they consider the biggest problem with technology not being used responsibly in ways that develop positive relationships. With this information, I can start to gauge an idea of what kind of product I want to make to target this problem.

CONCLUSION/NEXT STEPS:

Using the survey and client interview, I can decide on which problem I am going to address which will enable me to start designing an appropriate product.

Internet Influence Seen as Positive in Emerging and Developing Nations; Morality an Exception
Median saying increasing use of internet has had a...



Note: Medians across 32 emerging and developing nations. Those who answered "No influence" are not shown.
Source: Spring 2014 Global Attitudes survey.
PEW RESEARCH CENTER

I have chosen to focus my secondary research on how technology causes sleep disturbance and distracts from education, as these were highlighted as issues in my survey.

Sleep disturbance - when sleep is interrupted by various factors that can be physical/emotional/environmental. I will be looking at the impact of technology which is an environmental disturbance, but can in some ways be emotional too if technology has affected someone on a personal level.

Distracting from education - when technology gets in the way of students' education whether that be technical issues with laptops, the internet providing ways for students to lose concentration in lessons, and technology with devices such as mobile phones and laptops causing students to procrastinate rather than work.

SLEEP DISTURBANCE:

- Light from screens shining into your eyes sends signals to your brain that interfere with the production of melatonin, a chemical needed for sleep.
- This means that when we use technology, we are inadvertently preventing ourselves from getting good quality sleep but also making it harder for ourselves to drop off to sleep in the first place.
- Technology also affects sleep because it provides interruptions in the form of notifications and apps that mean people are drawn out of bed to their screens.
- If mobile phones are left in the bedroom at night, then not only is there increased radiation but there are also apps ready to take away time meant for sleep.
- Repeated use of a bright screen in the evening over five nights can delay the body clock by 1.5 hours, the Sleep Health Foundation says.
- This results in a delayed sleep-wake pattern, making it harder to wake up for studying. Then, a lack of good quality sleep can make studying harder on top of this - so this creates lots of problems in educational and working environments.
- My target age group that my product will be aimed at is 13-21, and teenagers particularly suffer with technology impacting their sleep.
- This is because teenagers already have a delayed sleep-wake pattern and tend to need more sleep. Not only is it blue light affecting them, but also the desire to stay involved and keep up with everything on social media.
- Currently, the only solutions for this problem are leaving devices in a different room at night, changing the brightness and tone of your screen, taking an hour off screens before bed and wearing blue light blocking glasses
- If teenagers applied all of these solutions together, the technology would have much less of a negative impact on their sleep.
- However, an hour off screens is becoming more and more impractical when considering how much work or studying is done using technology.
- Changing the brightness/tone of screens or wearing blue light blocking glasses only tackles a bit of the problem because the activity still stimulates the brain and notifications still entice young people into using their phones/devices.
- There needs to be a solution that tackles the large majority of these problems in a way that is practical and achievable for the client group.

Source: ABC health and wellbeing - Cathy Johnson - October 2016

EDUCATION DISTRACTION:

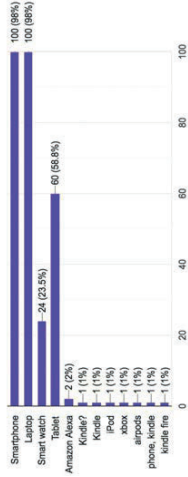
- The Use of technology in class allows for wider access to learning resources, ease of collaborating in groups and sharing information, and taking notes more efficiently.
- However, students using their laptops during classroom lectures can be spotted playing computer games, shopping online, browsing through social media, working on assignments for other classes or doing various other activities not relevant to the class.
- In one survey at six different universities, college students reported using their phones an average of 11 times per day in class. In another study, 92% of college students reported using their phones to send text messages during class.
- This demonstrates how technology can very often negatively impact education because it provides us with so many distractions.
- There are so many benefits to using technology in education, so it is important that a solution to its distracting nature is found before technology becomes more harmful than beneficial in education.
- Social media, unlimited websites and millions of apps mean that technology can very easily get in the way of students trying to work or study.
- Even if one student is concentrated, a phone or laptop can be a distraction to their learning, and so even focused students are negatively affected by technology.
- There are ways to get around these distractions: by turning off alerts, closing tabs and switching off devices.
- Some teachers will ban technology in their classes altogether, but then the benefits of technology are lost.
- In some lessons, technology cannot be got rid of because it is a key device in learning. A solution needs to be found so that students can continue to use technology, but so that the teachers are confident that it is because they are doing work and not other activities.
- Technology has become so vital and ubiquitous in our learning that it can't be eliminated as a solution.
- A number of teachers are finding that video is a way of keeping students focused even though it is still technology, so I should keep that in mind as I continue my research or start designing.
- The solution must eliminate the possibility of distraction and instead encourage learning and studying, which technology so often takes away from.

Sources: The college of New Jersey's student newspaper - Kristen Frohlich - May 2017, Panopto - ban all technology in the classroom except one - July 2018, HigherEd Jobs - Alison Herget - August 2017

QUESTIONNAIRE RESULTS:

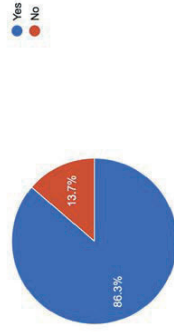
Which of these devices do you own?

102 responses



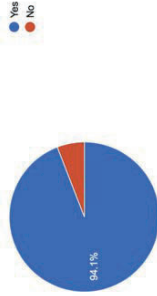
Do you think technology encourages positive connections?

102 responses



Do you think you use technology responsibly in ways that support positive connections?

102 responses



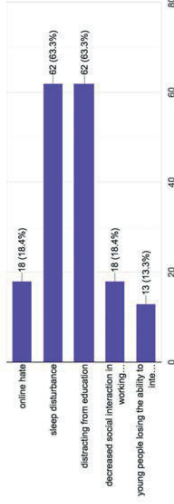
Which of these problems relating to technology do you feel is the most important/prevalent?

102 responses



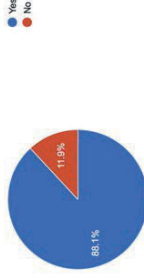
Which of these problems have personally impacted you?

98 responses



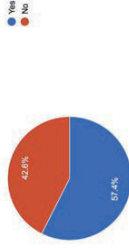
Do you think that those problems can be solved?

101 responses



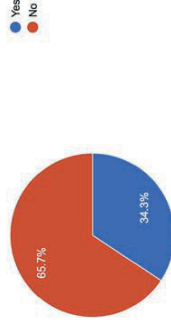
Do you experience any of these problems on a daily basis?

101 responses



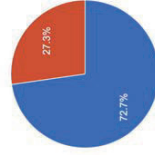
Do you notice technology preventing you from social interaction?

102 responses



Does the school / working environment help or hinder social interaction when technology is involved?

99 responses



RESPONSE ANALYSIS:

- From the responses, I can see that smartphones and laptops are the most used and therefore the biggest contributors to the problems people are experiencing
- The majority - 94.1% - of people feel that they do use technology responsibly in ways that support positive connections
- The most important/prevalent issues pertaining to the use of technology were highlighted as: online hate (36.9%), sleep disturbance (16.5%), distracting from education (24.3%) and young people losing the ability to interact with others face-to-face (14.6)
- Of these same problems, sleep disturbance (63.6%) and distracting from education (62.6%) have both impacted the most people
- Over half of the people (57.4%) experience those problems on a daily basis
- 34.3% notice technology preventing them from social interaction but only 27.3% thought that the school/working environment hinders social interaction
- These results tell me that the issue I want to solve will be either online hate, sleep disturbance, distracting from education or young people losing the ability to interact with others face-to-face

NEXT STEPS/CONCLUSION:

- Sleep disturbance and distracting from education came out as the most impactful, so I would like to focus my next research on these topics
- I want my continued research to still keep in mind that technology does have the power to decrease social interaction and that many people felt this was an important issue.

NEXT STEPS/ CONCLUSIONS:

I have six initial design concepts to build on, which all have different aspects and elements that have not been completely considered or evaluated in terms of practicality. I need to develop three of my designs, thinking about the different aspects that I could change or improve. After I have developed three designs I can then choose one as my final design.

2

holder cuts just above plug socket and is mounted onto the wall

could come in a variety of shapes and colours

would use a simple lock mechanism to keep phone in place

through bluetooth, once the phone is plugged and locked in, the digital alarm clock will then automatically set the alarm

22:00

this means that phone has to be plugged and locked in for alarm to work

once phone is plugged in, it is slotted into the holder which locks it in to minimise use at night

3

phone is not completely inaccessible

you will be able to see notifications as they pop up because its made out of a shaded but transparent material

lock mechanisms will hold phone in place so that while the phone is charging, it cant be removed from the holder.

lock mechanisms: will hold phone in place so that while the phone is charging, it cant be removed from the holder.

when phone is charging, it can be slid into the plug holder next to the plug

this helps prevent phone use at night because it cant be used whilst charging, and most of phones at night will charge our will attach onto wall next to a plug socket

4

cloud shaped diffuser - curved shapes are more calming and less obtrusive so are better for the sleeping environment

diffuser is lavender scented; lavender has been proven to lower heart rate, reduce anxiety and aid sleep

diffuser can only work while phone is plugged in and switched off - which is what people will do at night

has a flat base so can be placed on different surfaces

soft blue light appears when diffuser is on, which (through bluetooth) will only be when phone is plugged in and switched off

1

beam of light is red until phone is plugged in to charge

this concept is based off the information that the most popular time to charge your phone is at night

light beam is attached onto charger

once phone is plugged in, light turns blue

this will encourage people to plug their phones in at night because red is a disturbing colour which they will want to remove from the environment

alternate design is circular and more compact which could be better for travel

the plug acts as a charger as well as the light.

5

phone opts plugged in to charge, and through bluetooth a software in the plant will recognise this

bamboo palm helps clean the air and is good for sleep

in general, plants can boost your mood, enhance your creativity and productivity and reduce your stress levels - which a lack of sleep could be affecting.

once the plants has sensed that the phone is charging, the hydration regulator in the plant pot will assess the plants health

light will then come on red if it is dehydrated and blue if the plant is well hydrated.

light will only come on when phone is plugged in.

holder shields the phone from view so notifications wont be seen or obstruct

↳ this could help block blue light and radiation (which delays sleep)

could come in a variety of colours but always with the red beam

can also be used as a normal charger throughout the day which could help with screen time potentially

plug connects to holder which charges the phone when its in the holder

6

cloud shaped diffuser - curved shapes are more calming and less obtrusive so are better for the sleeping environment

diffuser is lavender scented; lavender has been proven to lower heart rate, reduce anxiety and aid sleep

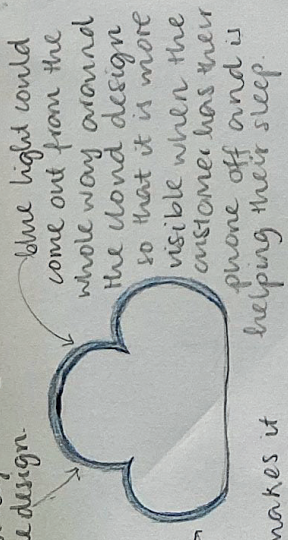
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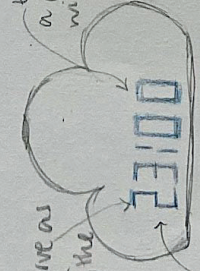
Initial design concepts

still a very simple design



also makes it much easier to know when diffuser is on.

blue light could come out from the whole way around the cloud design so that it is more visible when the customer has their phone off and is helping their sleep.



can serve as a clock during the day time lights up at a pre-set time which will remind you to plug your phone in / switch it off

once phone is off, diffuser will then turn on which will encourage sleep if the smell of lavender becomes associated with bedtime for the customer.

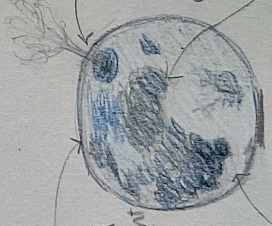


image of moon associated with the night and sleep. diffuser is a blue moon instead of a cloud as an alternate design

dark blue light comes on once phone is off to show that the diffuser is now on. pale blue background light comes on at designated bedtime to encourage the customer to switch off their phone

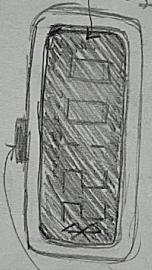
2



at designated bedtime, alarm clock will light up red as a visible sign for the customer to turn their phone off / plug it in for the night.

once phone is off, red light will turn blue, which will mean that the alarm has been set

turning the phone back on after it has been switched off will turn alarm clock red again, which will be disturbing

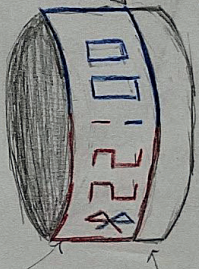


shade flips over from behind the alarm clock to shield any light from the alarm clock from disturbing the customer.

button that brings out the shade will only pop up and become accessible once phone is switched off

red and blue light system will still work until this button is pressed

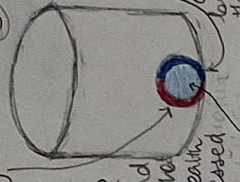
uses the same red/blue light system as previous two versions



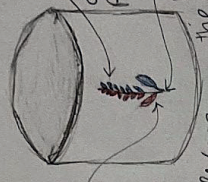
this section of the clock would spin around once phone is off, alarm is set and red light was turned blue

this will lower the brightness and visibility of the blue light in order to minimise sleep disturbance. circular alternative design could be better for travel

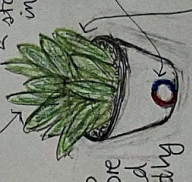
5



if the red light comes on at a preset time, the customer will see that they need to switch their phone off and go to bed so the plant's health can be assessed. once their phone is off, the blue light will come on to show that the plant pot is checking the hydration of the plant. if it is well hydrated, it is too dry, and a very dark blue if it is over-hydrated. instead of light coming on once phone is plugged in, the red light could come on at a pre-set bedtime to encourage the customer to sleep but also look after the plant.



in this design, the light would illuminate a flower rather than a plain cable/ring. the light would turn on red at designated time and blue once phone is off. to show hydration levels of the plant, the leaf could be only partially, half, or completely illuminated.



the plant could be aloe vera, so that it is more compact and travel-friendly. while it might not be good to put it in a suitcase, its size means it is more portable for taking it on short trips. smaller size means it's easier to store or use as decor in the bedroom. it would still have the same light system as in the first design. aloe vera is also sleep aiding just like the banister palm.

NEXT STEPS/CONCLUSIONS:

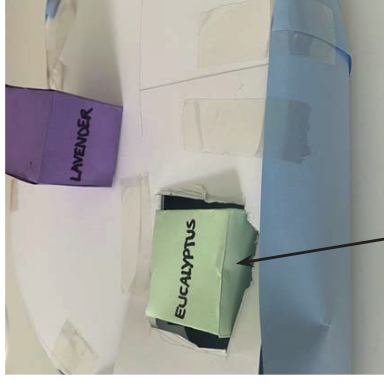
Now that I have developed three designs, I need to make some prototypes to enable me to see any problems in the designs and further develop them. I can adapt my designs to make different iterations where I try to solve these problems by creating prototypes. I have chosen to further develop only the diffuser and the alarm clock.



Original prototype where light is only emitted from the bottom of the diffuser. The lavender scent comes out from the top and is already installed within the diffuser



With this design the light stretches the full way around the diffuser so that the design is more visual and could therefore be more effective



This prototype has a section in the back where the chosen scent pod can be inserted. This will make the diffuser more personalised and suitable for more people. I have chosen lavender and eucalyptus for their sleep aiding properties but there is a wide range of different scents that could potentially be included

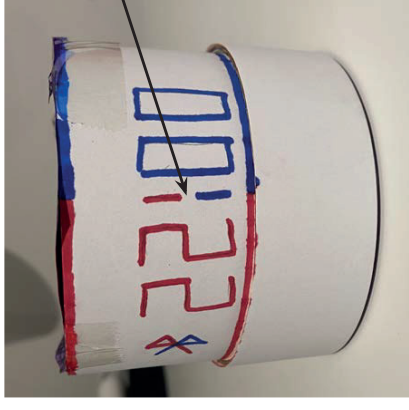


FEEDBACK FROM CLIENT AND CONCLUSIONS/NEXT STEPS (diffuser):

Good to have the choice of scent but only one scent should be used at a time. A brightness setting might be useful so that the customer has more control over the light because some people are more sensitive to light than others. Could include a USB port.

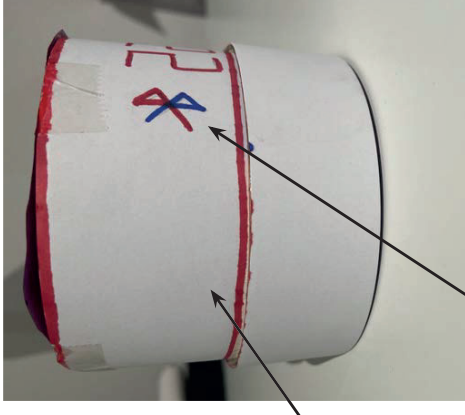
FEEDBACK FROM CLIENT AND CONCLUSIONS/NEXT STEPS (alarm clock):

Has a variety of alarm clock features which would make it very useful. A charging/USB port could further increase its usability however it shouldn't be used to charge the phone during the night. A brightness setting feature would be useful as it does incorporate a lot of light in the design.



3rd design from development page, uses red/blue light system to signal bedtime and when the phone is off

The top section can twist around away from view so that the light isn't distracting once it turns to blue. You would just see the blue light around the rim rather than the light from the numbers as well as the lining around the edge



Bluetooth signal will show when your phone is connected (red for off, blue for connected) so that you can play music out of it as well. Music has been proven to help people sleep, and there is a standard speaker built in



Here, the alarm clock has an alarm clock symbol to show when the alarm is set. This will happen automatically when the phone is off and the light changes to blue, but it is a clear sign that the alarm is on. The alarm cannot be set if the phone isn't off

DIFFUSER IN USE:

- When the diffuser is first set up, it should be connected to the customer's phone via bluetooth.
- An option should come up on the phone to set a 'bedtime'.
- At this bedtime, the blue light will come on.
- To turn the diffuser on, the customer must switch of their phone. The diffuser will recognise this through the bluetooth and turn the diffuser on, also unlocking the button to change the brightness of the blue light.
- After the diffuser has been on for an hour, it will turn off because it shouldn't be left on any longer for health concerns.
- Automatically turning off saves energy, making this diffuser both safe and more environmentally friendly in the long run.
- Similarly, the blue light will also turn off after an hour of the diffuser being on, but pressing the brightness button will turn the lights back on again if the customer wakes up and wants the light.

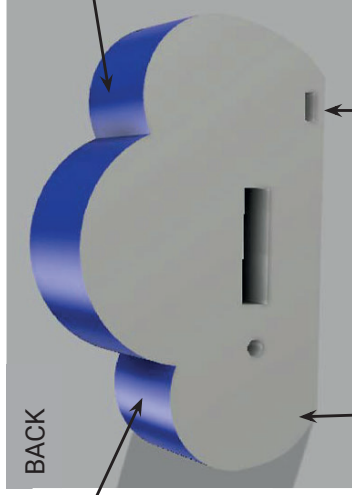


I have also added a USB port so that the diffuser is more multi-functional and therefore more useful to travel with.

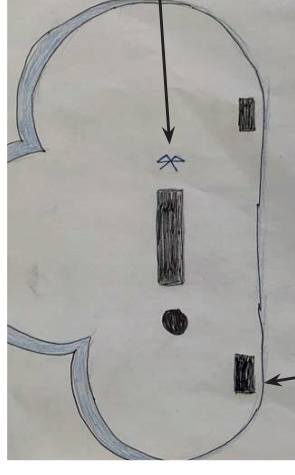
As suggested by my client, I have added a button that can be pressed up to 5 times for 5 different light brightness levels. However, this button will only function once the customer's phone is off, so that they can eliminate all distractions (the phone and the light from the diffuser) at the same time.

The light will be energy saving LEDs so that it lasts a long time as it will be used every night.

It should have another one of these USB ports on the left because it needs to be plugged in. Having two ports is useful as you can move it around more, and use it as a charger throughout the day.

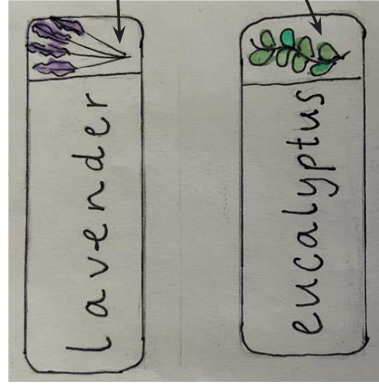


I decided to have the blue lights go around the whole diffuser as the light wouldn't be very visible if it only came out from the bottom.



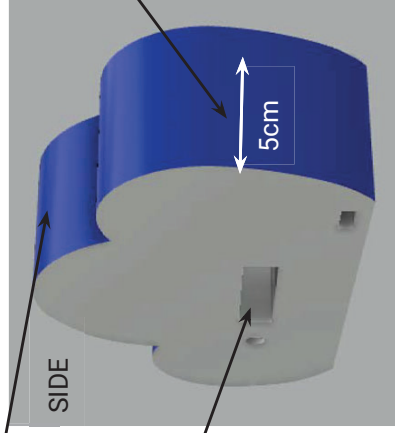
Additionally this sketch shows the bluetooth symbol which will light up when it recognises the phone to be turned off.

This sketch shows the second USB port at the base of the diffuser, which makes it easily accessible for wires and plugs whilst keeping them hidden.



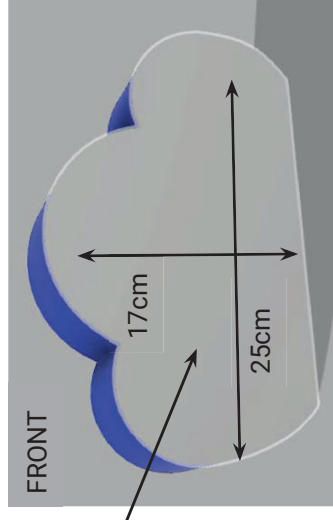
These oil bottles/containers can be slotted into the back of the diffuser in the rectangular space on the back. The customer can choose which oil they prefer and that oil would always be with the diffuser.

This darker shade of blue is calming and not too bright, making it appropriate to be in a bedroom.



This depth is not too bulky, but ensures that the light is visible from a distance.

These measurements mean that the diffuser is a suitable size to be travel-friendly, but can also look good as a decoration and can fit the different components into the back.



MATERIALS:

- From doing some research, I have found out that plastic diffusers are not as good as glass ones because they can cause mould, release plastic particles and are less environmentally friendly. However, to create the cloud appearance I would need to use some plastic and bioplastic would not be durable enough. Therefore, the diffuser could be composed of two sections: an inner glass section for the water and where you put the oil in, and a plastic outer section with the USB ports, slot for oil bottle, brightness button and LED lighting.
- The outer section would use a thermoforming plastic so there is no risk if the LEDs become too hot.

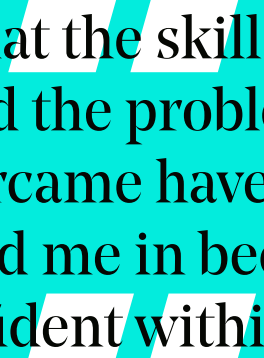
Here to help

If you have any questions, you can get in touch in the following ways:

- 1** With the RSA Pupil Design Awards team:
pupildesignawards@rsa.org.uk
- 2** Once you have been assigned a mentor and they are preparing to visit the school, feel free to contact them with any specific issues regarding the design process that you would like them to address.

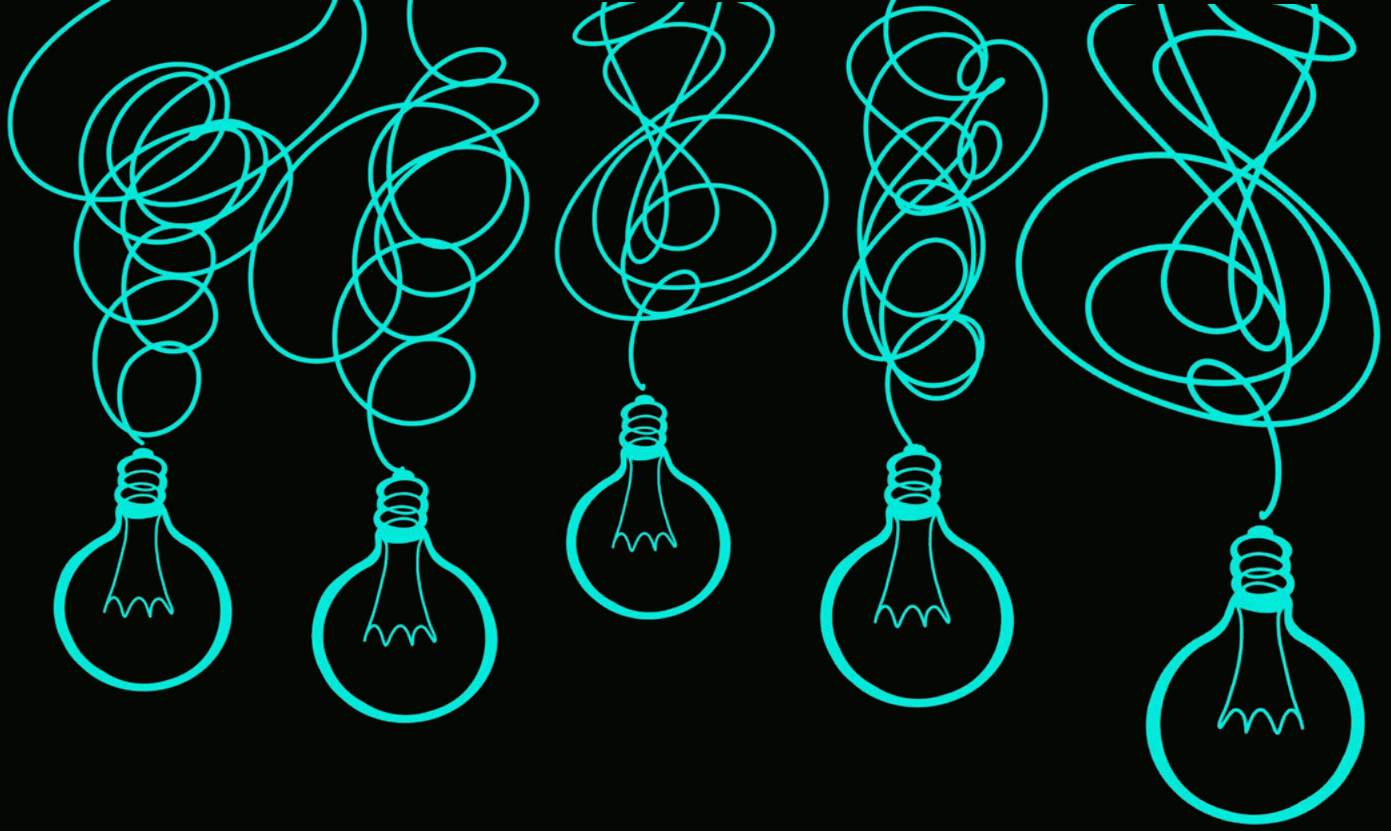
We look forward to seeing your pupils' entries!

The RSA Pupil Design Awards Team



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The Pupil Design Awards is a competition run by the RSA, a registered charity in England, Wales (212424) and Scotland (SC037784)

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