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Revitalising the Design Museum's Handling Object Collection

Benjamin Schooler
Worcester Polytechnic Institute

Kaitlyn Kathleen Valla
Worcester Polytechnic Institute

Natalie Thompson
Worcester Polytechnic Institute

Nicholas Maio
Worcester Polytechnic Institute

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Revitalising the Design Museum's Handling Object Collection



By:

Nicholas Maio

Benjamin Schooler

Natalie Thompson

Kaitlyn Valla



Revitalising the Design Museum's Handling Object Collection

An Interactive Qualifying Project Report
submitted to the Faculty
of the

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the
Degree of Bachelor of Science
by

Nicholas Maio

Benjamin Schooler

Natalie Thompson

Kaitlyn Valla

Date: 26 April 2017

David Houston
the Design Museum

Professors Adrienne Hall-Phillips and Joshua Rosenstock
Worcester Polytechnic Institute

This report represents work of WPI undergraduate students submitted to the faculty as evidence of a degree requirement. WPI routinely publishes these reports on its web site without editorial or peer review. For more information about the projects program at WPI, see

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Abstract

The Design Museum in London has a unique handling object collection that is used in its learning workshops. These learning workshops complement and extend the U.K. national curriculum's goals for the students' design learning. Our project focused on helping the museum organise and present their handling collection. We created a database that was intuitive and informative for their staff and educators to help organise the items. We revitalised the information sheets for the objects in an effort to make them more accessible and memorable for students that attend the workshops. Finally, we curated the handling object collection in two different exhibits that are designed to show how items in the handling object collection are relevant and applicable to our daily lives.

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Authorship Page

This section contains information about the primary author(s) and editor(s) for each section. All group members contributed equally in the writing of this report.

Abstract:

Primary author: Kaitlyn Valla

Primary editors: Nicholas Maio, Benjamin Schooler, Natalie Thompson

Executive Summary:

Primary author: Benjamin Schooler, Kaitlyn Valla

Primary editors: Natalie Thompson, Nicholas Maio

Chapter 1: Introduction

Primary author: Nicholas Maio, Benjamin Schooler, Natalie Thompson, Kaitlyn Valla

Primary editor: Natalie Thompson

Chapter 2: Literature Review introduction

Primary author: Natalie Thompson

Primary editor: Nicholas Maio

Section 2.1: Museums

Primary author: Nicholas Maio

Primary editor: Benjamin Schooler

Section 2.2: Learning and Knowledge Theory in Museums

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 2.2.1: A 1984 Study on Learning Styles: Visual Learning

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 2.2.2: A Child's Colour Preference

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 2.2.3: Object-based Learning

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 2.2.4: The U.K. National Curriculum

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 2.3: Exhibits

Primary author: Natalie Thompson

Primary editor: Nicholas Maio

Section 2.4: Museum Databases

Primary author: Benjamin Schooler

Primary editor: Kaitlyn Valla

Section 2.4.1: Organisation of Databases

Primary author: Benjamin Schooler

Primary editor: Kaitlyn Valla

Section 2.4.2: Intuitiveness of User Interface

Primary author: Benjamin Schooler

Primary editor: Kaitlyn Valla

Section 2.4.3: User Guides
Primary author: Natalie Thompson
Primary editor: Nicholas Maio

Section 2.5: The Design Museum
Primary author: Nicholas Maio
Primary editor: Benjamin Schooler

Section 2.5.1: Exhibits at the Design Museum
Primary author: Nicholas Maio
Primary editor: Benjamin Schooler

Section 2.5.2: Design in the Context of the Design Museum
Primary author: Nicholas Maio
Primary editor: Natalie Thompson

Section 2.5.3: Workshops in the Design Museum
Primary author: Nicholas Maio
Primary editor: Kaitlyn Valla

Section 2.5.4: The Design Museum's Handling Object Collection
Primary author: Nicholas Maio
Primary editor: Natalie Thompson

Chapter 3: Methodology introduction
Primary author: Nicholas Maio
Primary editor: Benjamin Schooler

Section 3.1: Database
Primary author: Nicholas Maio, Benjamin Schooler, Natalie Thompson, Kaitlyn Valla
Primary editor: Nicholas Maio

Section 3.1.1: Interviews
Primary author: Natalie Thompson
Primary editor: Nicholas Maio

Section 3.1.2: Testing and Finalisation of the Database
Primary author: Benjamin Schooler
Primary editor: Natalie Thompson

Section 3.2: Information Sheets
Primary author: Natalie Thompson
Primary editor: Nicholas Maio

Section 3.2.1: Prototypes
Primary author: Nicholas Maio
Primary editor: Benjamin Schooler

Section 3.2.2: Surveys of Self-Guided School Groups
Primary author: Benjamin Schooler
Primary editor: Kaitlyn Valla

Section 3.2.3: Sticky-Note Survey to Determine Information Sheet Preference
Primary author: Benjamin Schooler
Primary editor: Nicholas Maio

Section 3.2.4: Interviews
Primary author: Nicholas Maio
Primary editor: Benjamin Schooler

Section 3.2.5: Finalise Sheets

Primary author: Nicholas Maio

Primary editor: Kaitlyn Valla

Section 3.3: Exhibit Curation

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 3.3.1: Observation

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 3.3.2: Interviews

Primary author: Nicholas Maio, Natalie Thompson

Primary editor: Benjamin Schooler

Section 3.3.3: Finalising the Exhibition

Primary author: Natalie Thompson

Primary editor: Kaitlyn Valla

Section 3.4: Ethical Considerations

Primary author: Natalie Thompson

Primary editor: Nicholas Maio

Chapter 4: Results introduction

Primary author: Nicholas Maio

Primary editor: Benjamin Schooler

Section 4.1: Database

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 4.1.1: Database Selection

Primary author: Nicholas Maio

Primary editor: Benjamin Schooler

Section 4.1.2: Database Features

Primary author: Natalie Thompson

Primary editor: Nicholas Maio

Section 4.1.3: Database Content

Primary author: Kaitlyn Valla

Primary editor: Nicholas Maio

Section 4.2: Information Sheets

Primary author: Nicholas Maio

Primary editor: Benjamin Schooler

Section 4.2.1: Prototype Testing

Primary author: Natalie Thompson

Primary editor: Kaitlyn Valla

Section 4.2.2: Prototype Selection

Primary author: Nicholas Maio

Primary editor: Benjamin Schooler

Section 4.2.3: Information Sheet Finalisation

Primary author: Kaitlyn Valla

Primary editor: Natalie Thompson

Section 4.3: Curation

Primary author: Benjamin Schooler
Primary editor: Nicholas Maio

Section 4.3.1: Context and Storytelling
Primary author: Natalie Thompson
Primary editor: Benjamin Schooler

Section 4.3.2: The Work in Progress Shelves
Primary author: Nicholas Maio
Primary editor: Kaitlyn Valla

Section 4.3.3: The Creative Workshop
Primary author: Nicholas Maio
Primary editor: Benjamin Schooler

Chapter 5: Discussion introduction
Primary author: Benjamin Schooler
Primary editor: Nicholas Maio

Section 5.1: Database Design
Primary author: Benjamin Schooler
Primary editor: Natalie Thompson

Section 5.2: Final Information Sheets
Primary author: Natalie Thompson
Primary editor: Nicholas Maio

Section 5.3: Curation and Context
Primary author: Kaitlyn Valla
Primary editor: Natalie Thompson

Section 5.4: Recommendations
Primary author: Benjamin Schooler
Primary editor: Natalie Thompson

Section 5.5: Limitations and Future Research
Primary author: Benjamin Schooler
Primary editor: Kaitlyn Valla

Chapter 6: Conclusions
Primary author: Benjamin Schooler
Primary editor: Nicholas Maio

Section 6.1: Reflections
Primary author: Nicholas Maio, Benjamin Schooler, Natalie Thompson, Kaitlyn Valla
Primary editor: Kaitlyn Valla

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Executive Summary

Studies have shown that interaction with objects and other forms of hands-on activity enhance the cognitive development of children (Andre, Durksen, & Volman, 2016). Many museums are embracing hands-on learning through the introduction of handling object collections. These handling object collections consist of a multitude of objects which the museum visitors are allowed to touch and interact with. The Design Museum in London has a handling collection of its own that contains many common household objects and is used in the museum's learning workshops for schools to teach about design. We were tasked with helping the Design Museum in London organise and revitalise its handling object collection in three different ways. First, we created a database for the handling object collection in order to help the museum educators and staff keep track of and organise their collection. Second, we recreated the information sheets that already existed for the objects to improve their educational value. Our goal with this objective was to create information sheets about the objects that were engaging and memorable. Our final objective was to curate the handling object collection into two distinct exhibits. One of the exhibits would be housed in the creative workshop learning space at the Design Museum while the other exhibit was displayed on the main exhibition floor in the Design Museum's flagship exhibit, Designer Maker User. Before we could begin mocking up our database, information sheets, or exhibitions we needed to do a lot of background research in order to make informed decisions and relevant prototypes. Our research began by looking into various learning theories and styles relevant in the museum setting.

Museums are informal learning settings which are important for individuals who want to fill a gap in their knowledge or fulfil curiosity about a certain subject. When deciding on how the museum intends to present their information, they utilise the theory of knowledge and the theory of learning. These theories exist on a spectrum that defines knowledge as either something that exists independent of the person learning it or as something that exists only after the learner has experienced it. The intersection of these theories creates four different learning styles and museums most notably utilise the discovery and constructivist points of view which allow museum visitors to build on their past experiences while expanding their knowledge base. The focus of this project was primarily on how children experience discovery learning and prior research indicated that most children learn best when presented with visuals. Moreover, children respond best when presented with visuals that contain bright colours.

Along with visual presentations, tactile learning is very important when imparting information on young children and for this, many museums are embracing the concept of object-based learning through the use of handling collections. The Design Museum in London has a handling collection that they use in educational workshops which serves to ‘complement and extend’ the U.K. national curriculum’s compulsory subjects art and design and design and technology (Catherine Ritman-Smith, Head of Programme for Formal Learning at the Design Museum, personal communication, 10 April 2017).

Museums often capitalise on these learning strategies in their exhibits but they must also consider how engaging the exhibit is in order for the exhibit to reach its educational potential. It is important that museum visitors are able to relate to the exhibit on a personal level. It is also important that the exhibit is memorable so that it can leave a lasting impression on the visitor. The relevance and applicability to the museum visitor’s everyday life and the memorability of the exhibit are all ideas that we will need to keep in mind when designing our own exhibit.

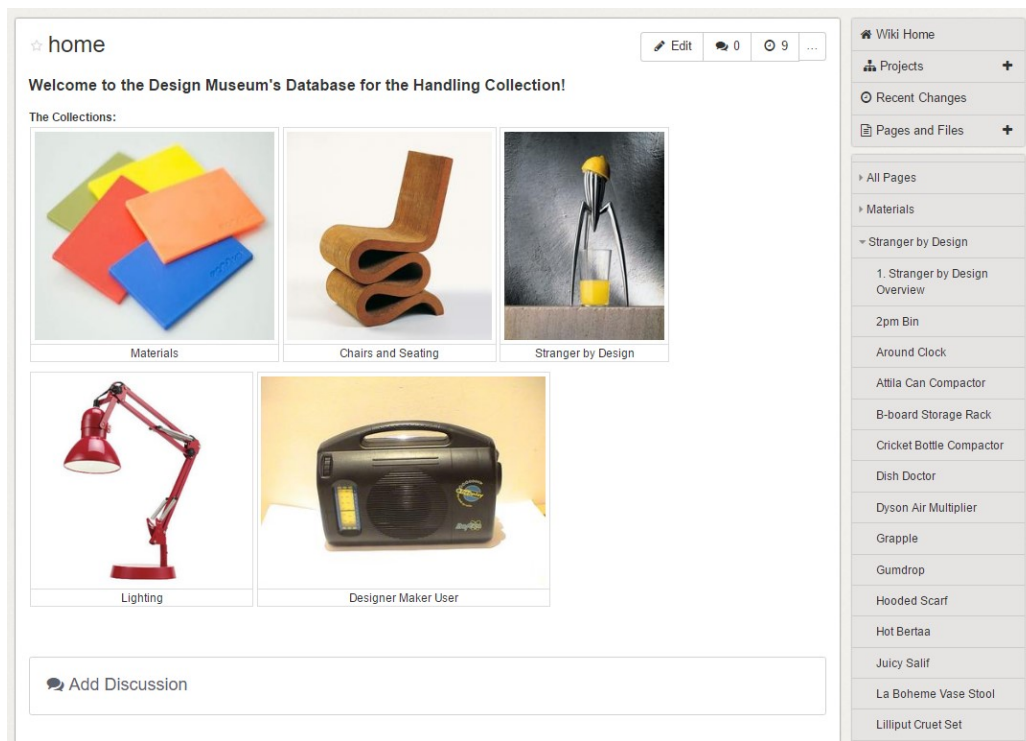
We performed extensive research into different museum databasing systems and their ease of use and intuitiveness. We sought to determine the sorts of information that would be necessary to include in our own database while thinking about the sorts of things that make a database easy to use. We also needed to consider new users of the database after we left London and this inspired research into the creation of a user guide for our database. The user guides we found for other museum databases were often a simple icons on the webpage that, when clicked, would show the user a simple instructional guide on how to use the database. Once we had completed our research we felt that we had enough information to go forward into the prototyping phase.

Upon arriving in London, we began to research different databasing systems that would fulfil the needs of the Design Museum. By conducting interviews with the various staff and educators that would interact with the database, we were able to determine which features our database needed to have. These features were: searchability by keyword, image-based searching, the ability to update object condition in real time, and extensive information about the objects that includes links to external webpages that would offer more information. After testing Wikia, Google Sites, and Wikispaces, we found that Wikispaces best suited our needs. Wikia was not selected because it contained multiple random advertisements that detracted from the overall appearance of the site. We were also unable to control who had permission to view or edit pages

in Wikia. Google Sites did not meet our needs because it was not freely searchable, we could not modify permissions, and we were unable to edit the HTML code of the website to add the additional features that the Design Museum requested.

After deciding on Wikispaces we then made further edits to the webpage by adding personalised widgets via new HTML code. We were able to embed a Google Form that will be used to keep track of the condition of the objects in the handling collection. We were also able to edit the homepage of the website so that the database could be searchable by the image of the objects rather than by the name of the object. All of these additions to the Wikispaces page were made at the request of the Design Museum staff and educators during the extensive interview process that occurred throughout the entire design process for our database. The homepage of our final database is shown in Figure 1.

Figure 1: Final Database Homepage



Before we landed in London, we had created three prototype information sheets based on our previous research. Most notably, our prototype information sheets were visually appealing with bright colours and soft borders. Once we arrived in London, we began to make changes to our prototypes based on interviews with Design Museum staff and educators as well as observations of the educational workshops and surveys of students. The most notable concept

that stood out from our data collection was that context is very important when presenting information to children. Context, for our purposes, is defined as the relevancy and applicability to someone’s life and is important because it helps relate an object or concept to someone which can help them remember and learn from that object or concept. We were also able to evolve each sheet based on feedback from staff and from students. This feedback led to changes in things like layout, style, and content.

This process was very helpful in helping us make improvements to our information sheets, however, it did not demonstrate that one information sheet was superior to another. Therefore, we had to conduct another survey which would help us select a specific prototype to be finalised and presented to the Design Museum. We conducted a poll of museum visitors and asked them to vote on which information sheet layout they found most interesting and accessible for children. From this survey, we found that our third prototype was the most popular. This prototype was a horizontal layout which was relatively simple and had a large picture of the object. Once this prototype was selected, we made small finalisation changes and presented it to the Design Museum for use in their workshops. The final information sheet format is shown in Figures 2 and 3.

Figure 2: Final Information Sheet (Front)

**the
DESIGN
MUSEUM**

background

Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1990. Alessi pulled it from market in 1997 because of its many flaws in functionality. For example, many people tried to fill it through the small spout instead of through the larger handle. They said "You shouldn't need an instruction manual to operate a kettle."

what it's made of

Aluminum body, plastic handle. The body was cast and the handle was injection moulded.

why is it at the Design Museum?

This kettle is an example of an object for which function follows form. It shows that often focusing too much on the aesthetics of an object can get in the way of it's usefulness.

product name:

Hot Bertaa



£120

manufactured by:

ALESSI

function

Kettle


Flip paper to see it in use

Philippe Starck for Alessi in 1990

Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitra.

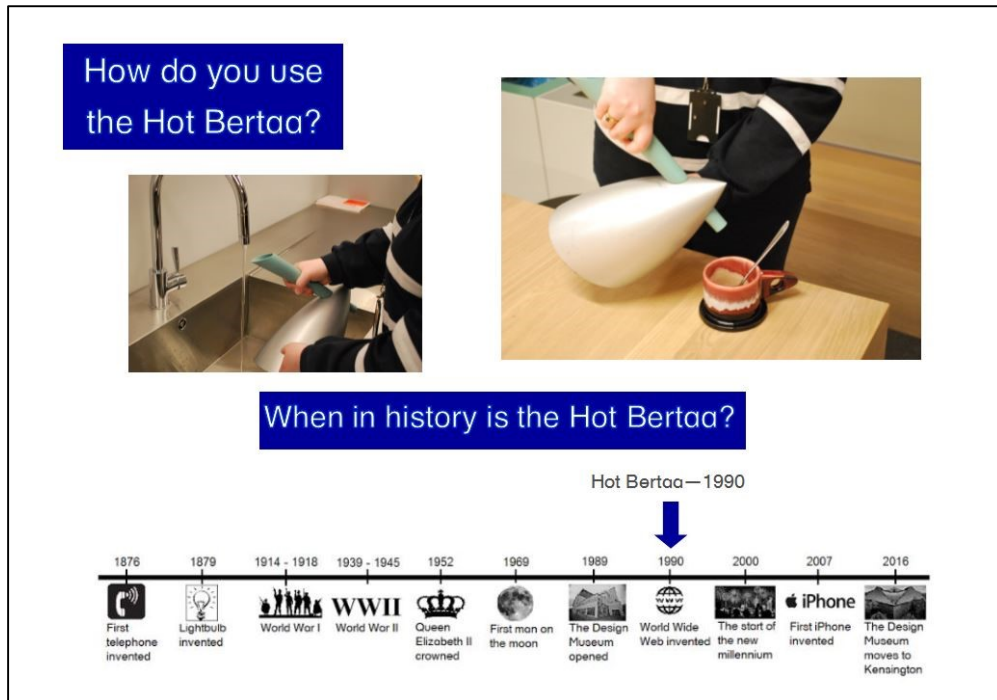
FRA





strengths	weaknesses
<ul style="list-style-type: none"> Very aesthetic design 	<ul style="list-style-type: none"> The handle puts your hand too close to the hot metal body The kettle spills very easily Somewhat expensive

Figure 3: Final Information Sheet (Back)

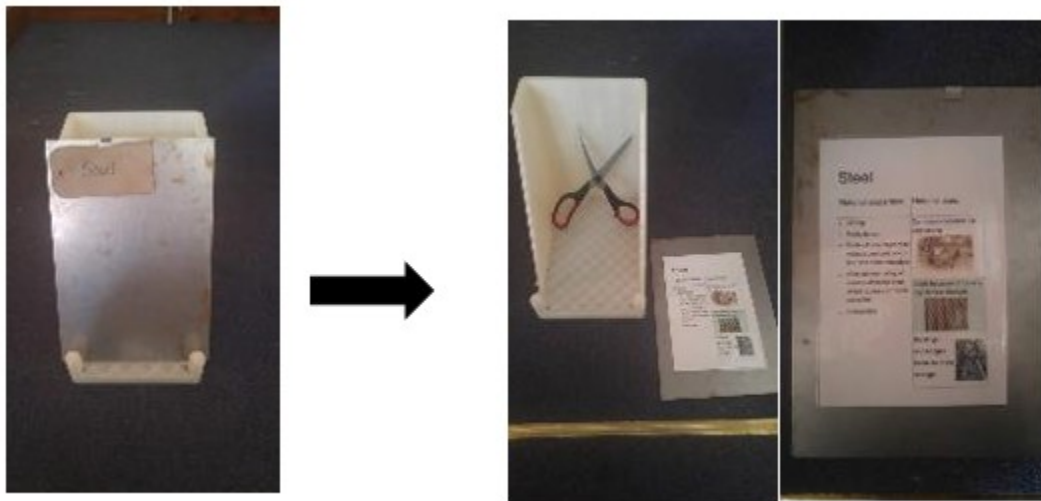


To execute the last deliverable of our project, the curation of two exhibits displaying the handling collection, we conducted extensive interviews with curatorial staff and observations of museum visitors. Using these two methods, we found several common threads which guided our curation process. First, we found from curatorial staff at the Design Museum and other museums that it is important that an exhibit tells a story. This story creates a singular and consistent narrative that relates to every object within the exhibit. Additionally, we found that context is again a very important thing to keep in mind while curating an exhibit. Along with a singular narrative, context helps relate the exhibit to the exhibit viewer. We also wanted to figure out how to present the exhibits. We decided to observe our audience, which we found to be students and families with young children, in order to find out what type of exhibit they would be most likely to engage with. From these observations, we found that students and families were very likely to engage with interactive exhibits as compared to the rest of the museum visitors.

With these concepts in mind, we started to come up with the ideas for our exhibit. For the exhibit on the main museum floor which dealt with materials, we wanted to demonstrate the use of materials in everyday products and the reasons these materials were selected for those products. This narrative would be used throughout the exhibit to demonstrate this desired

concept of material use. We presented this in an interactive way by displaying the material covering a case which contains a common object made out of that material. This material can be removed and handled by a museum visitor to reveal the common object within the case. Figure 4 shows this concept.

Figure 4: Display Case Concept



Additionally, we curated the learning handling collection in display cabinets in the creative workshops generally used as a setting to teach student groups about design using the handling collection. These display cabinets could not be interacted with by museum visitors or students, but we were still able to contextualise the collection and tell a story. We did this by separating the cabinets into the rooms of the house. Each cabinet section would house a number of objects which would generally be found in their respective rooms. In back of the cabinets would be a backdrop depicting each room. This would contextualise the objects for people viewing the collection for the first time. The display fits each object within a singular narrative which flows throughout the exhibit. An example workshop cabinet setting is shown in Figure 5.

Figure 5: Implemented Workshop Cabinet Outdoor Scene



We have completed each of our three deliverables, create a database, recreate information sheets, and curate two exhibits. We believe that the final products which we have presented to the Design Museum will give new life to the handling collection. In the future, this collection will be better organised and more accessible. Additionally, the workshops will be much improved with our new information sheets which are valuable educational tools. Finally, the museum now has a great way of presenting the handling collection in the creative workshops and on the main museum floor which helps extend the collection to a wider museum audience.

Chapter 1: Introduction

Studies have shown that interaction with objects and other forms of hands-on activity enhance the cognitive development of children (Andre, Durksen, & Volman, 2016). Hands-on interaction can be difficult to incorporate into a formal lecture-centred learning setting, a feat that can be accomplished through an informal learning setting. Museums, as a free-form and unstructured culmination of information, are a prime example of an informal learning setting. Many museums are starting to use handling object collections in their educational divisions. A handling object, an object that visitors can pick up and touch, typically meets the need for a particular learning objective as developed by museum educational staff. For example, some museums may offer the visitors the opportunity to touch and interact with an ancient fossil or cultural mask. Some institutions that use these collections include University College London's many on-campus museums, the Museum of London, and the Horniman Museum and Gardens (UCL; Museum of London; Horniman Museum and Gardens, n.d.).

Despite their many educational advantages, handling collections come with some intrinsic challenges. The first challenge is the organisation of the handling collections because they have many distinct and dynamic pieces. The objects are often moved around and taken out of the collection for use in educational settings. This creates the need for an organisational system to keep track of the collection. The next challenge is to present information that differentiates each object while still fitting it into the overall collection. This helps unify the collection in order to make it more compelling for its audience. The final challenge is displaying the objects in a way that tells a unique and engaging story. These collections need to be displayed for the audience in a way that is both educational and accessible in a physical and intellectual manner. To emphasize how relevant these objects are, they are often displayed in such a way that their audience can relate to them, demonstrating how the object fits within the context of the audience's life.

The Design Museum in London is currently using their handling object collection in a series of educational workshops to help students ages 7-19 learn about the world of design, designing, and designers. However, in order to fully embrace the benefits of object-oriented learning, the museum must address the presented challenges. First, the museum must optimise the organisation of their collection. Currently, there is no database for museum staff to use in

order to easily organise and keep track of the objects used in these workshops. Instead, the museum relies on binders of information sheets that the museum educators use to facilitate the presentation of the objects. Second, there is potential that has not yet been realised within the sheets themselves. For example, the sheets are often unnecessarily lengthy, inaccurate, and not child-friendly. Finally, the museum could enrich the educational value of the handling object collection through an improved presentation of the collection's exhibits. Currently, the handling object collection is merely stored in a cabinet and lacks a meaningful narrative.

Our group worked with the Design Museum's handling collection in order to optimise the collection's educational potential. Our first objective was to advance the organisation of the collection by creating a database for the museum staff. Our next objective was to interpret the collection for students by creating improved information sheets for the objects. Efforts to improve the information sheets involved surveys of the school children and general museum visitors as well as interviews of Design Museum staff and educators. Our last objective was to curate the handling collection in a way that is informative, memorable, and inspiring. We defined these three desired attributes through the observation of museum visitors and students. Additionally, we interviewed museum curatorial staff to learn more about the curation process. Using their input and the data that we collected, we came up with innovative recommendations for the Design Museum.

Chapter 2: Literature Review

This chapter provides an overview of the learning theory associated with the creation of museum exhibits and the current research on museum databases. The learning and knowledge theory section will provide a description of how students learn best both in a classroom and in a museum. The exhibits section describes how to make a museum exhibit engaging and memorable to the visitor. The museum databases section describes how to design a database in a way that is easily searchable and usable for museum staff. This section also reviews current database usage in museums. This chapter concludes by providing a description of the London Design Museum and its handling collection.

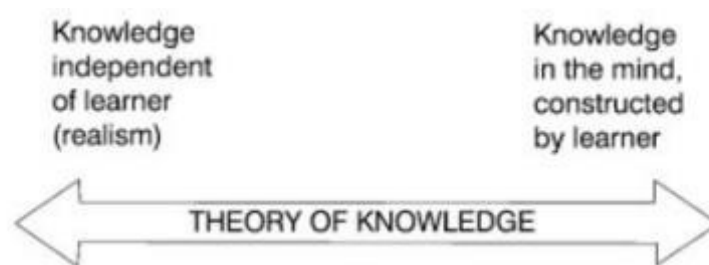
2.1: Museums

People visit museums to fill a gap in their knowledge and to fulfil curiosity about a given subject. For this reason, a museum is a great place to bring a child. Museums help create a sense of wonder about the world and how it works which makes for an exceptional environment for learning about art and design.

2.2: Learning and Knowledge Theory in Museums

Learning in general can be divided into two key types: formal and informal. Formal learning is what we associate with classroom learning, whereas informal learning is what takes place in different settings such as museums (Andre, et al., 2016). For a more abstract view of learning, there is the theory of knowledge as well as the theory of learning. The theory of knowledge is a spectrum with ends that define knowledge as either a concrete item to be obtained or as something that only exists after the learner experiences it (see Figure 1).

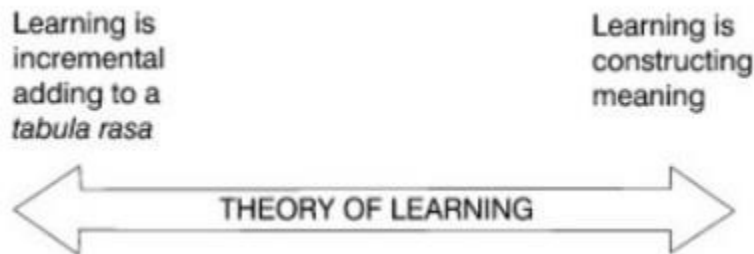
Figure 1: The Theory of Knowledge Spectrum



Source: Adapted from Hein, 1995. Reprinted without permission.

The theory of learning exists on a spectrum with one end that is made up of those who believe that learning is the accumulation of small bits of information on a *tabula rasa* (see Figure 2) (Hein, 1995).

Figure 2: The Theory of Learning Spectrum

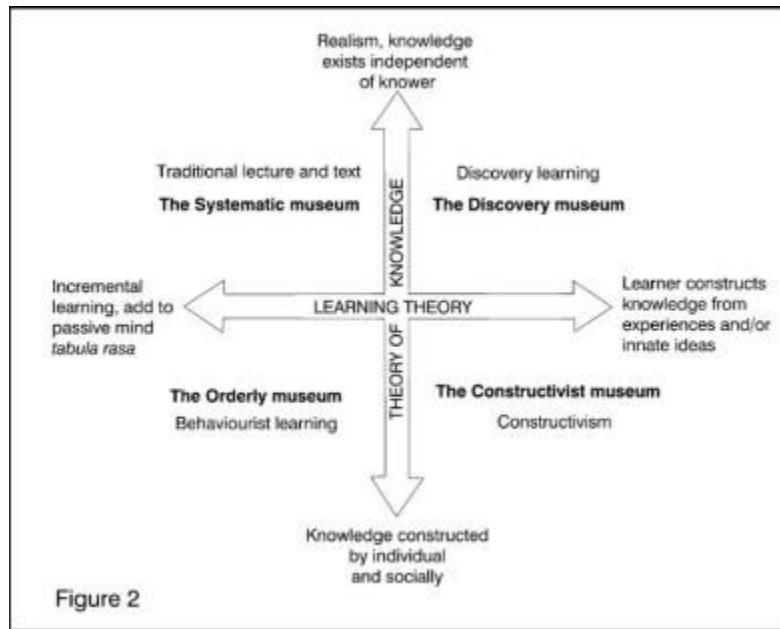


Source: Adapted from Hein, 1995. Reprinted without permission.

Tabula rasa is defined by Merriam Webster's Dictionary as, 'the mind in its hypothetical primary blank or empty state before receiving outside impressions.' On the other end of the theory of learning spectrum are those who believe that learning exists as the construction of meaning. An example of the construction of meaning is as follows: one could say that the abstract concept of fear is only learned after the pupil experiences it and can thus construct their own meaning of the concept.

The perpendicular intersection of these spectra lead to the creation of multiple learning practices which can be related back to museum learning (see Figure 3) (Hein, 1995).

Figure 3: The Intersection of Learning Theory and the Theory of Knowledge



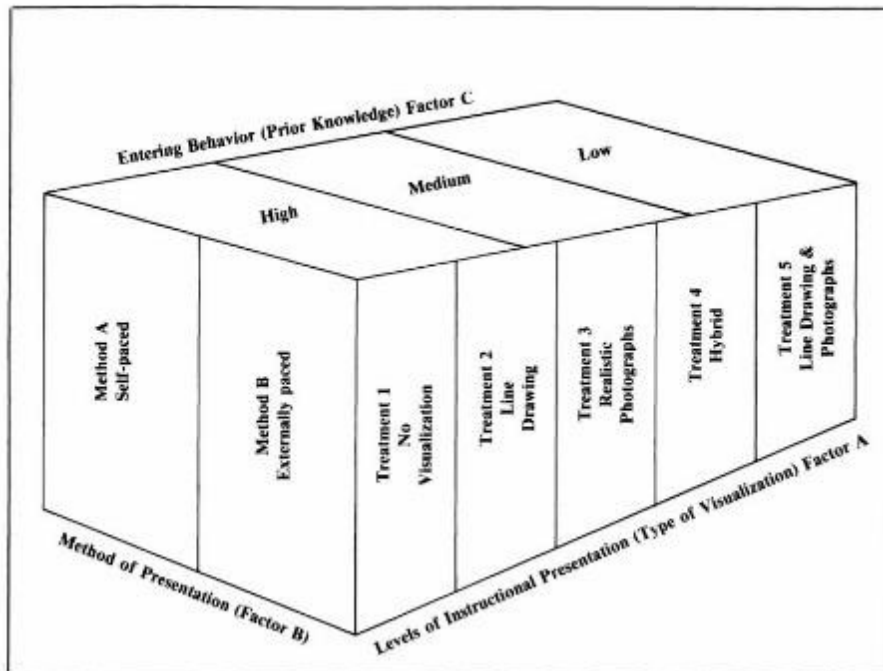
Source: Adapted from Hein, 1995. Reprinted without permission.

There exist four distinct teaching points of view: systematic, orderly, discovery, and constructivist. Systematic and orderly learning involves more structured teaching styles such as lectures. Discovery and constructivist learning styles focus more on the learner’s ability to form their own conclusions and build on their past experiences. The constructivist and discovery points of view are intrinsic to a museum’s teaching style. A decade long study of children’s education in a museum setting concluded that the most important aspects to focus on are interactivity and scaffolding of the knowledge (Andre et al., 2016). In this study, the children’s learning was enhanced when they were allowed to interact with their peers, the exhibition, or their parents. The research shows it is also important that the child experience the museum in the presence of a knowledgeable adult who could help facilitate the understanding of the material. Ultimately, it is of paramount importance for museums to recognise, ‘the need...to transform themselves from ‘being about something to being for somebody’ (Andre et al., 2016, p. 2). Next we will discuss a study which investigated the visual vs. verbal learning styles of children.

2.2.1: A 1984 Study on Learning Styles: Visual Learning

A comprehensive study done in 1984 described the different learning styles of 414 tenth grade public school children. The children were divided into experimental groups that were then assessed based on the quality of their learning retention when faced with a specific set of experimental conditions as illustrated in Figure 4.

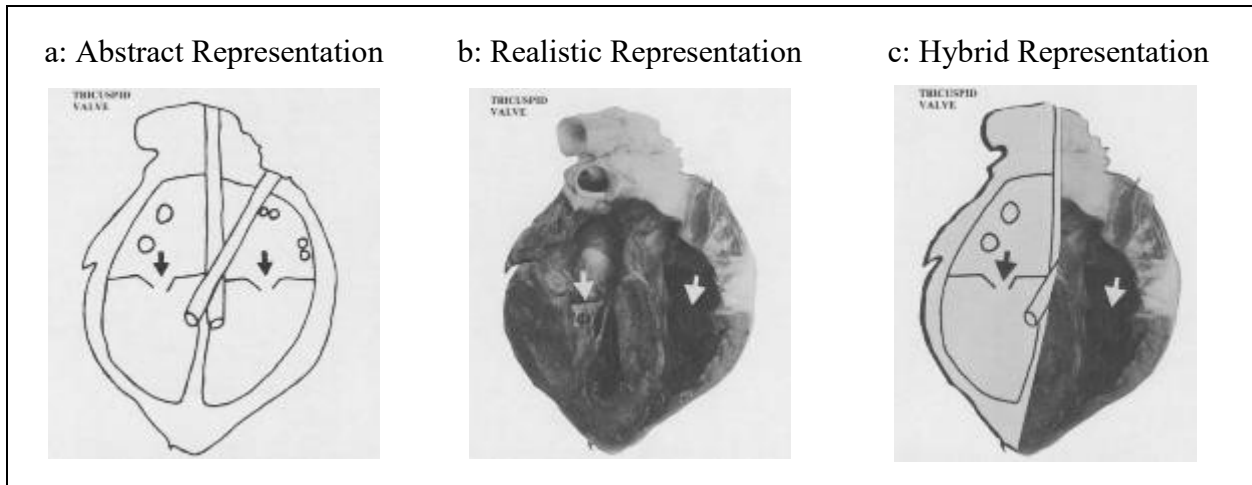
Figure 4: Visual Representation of the Variables Tested in the 1984 Study



Source: Adapted from Joseph & Dwyer, 1984. Reprinted without permission.

Four of these groups were formed based on the presentation of the information: a verbal presentation, an abstract visual presentation (see Figure 5a.), a realistic visual presentation (see Figure 5b.), and a hybrid of the abstract and realistic presentations (see Figure 5c.).

Figure 5: Visual Learning Tools



Source: Adapted from Joseph & Dwyer, 1984. Reprinted without permission.

Students were assessed for their prior knowledge of the topic and split into two groups based on whether they would learn the information presented to them in a self-directed manner or a facilitated manner.

On a test given immediately afterward, students who were a part of the facilitated instruction scored significantly higher on an evaluation of knowledge retention than those who were self-directed. The study also showed that, regardless of prior knowledge level, showing the visual presentations was significantly more effective for knowledge retention than showing the verbal presentations. In an evaluation of long-term knowledge retention, the results suggest that any type of visual demonstration was best for those with little prior knowledge of the subject being taught. For those with moderate to high prior knowledge of the subject matter, the visual display that was a combination of both the abstract and the realistic presentations proved the most effective in long-term retention (Joseph & Dwyer, 1984). Overall, the results of this study suggest that the use of visuals is very important to children's knowledge retention.

2.2.2: A Child's Colour Preference

A large part of successful visual learning is making the visuals attractive for students. Strong evidence suggests that children have a preference for particular colours: both male and female children have a preference for bright colours (red, blue, yellow, etc.) over dark colours

(black, brown, grey) (Boyatzis & Varghese, 1994). Burkitt, Barrett, & Davis (2003) found similar results regarding colour preference as illustrated in Figure 6.

Figure 6: Visual Representation of Children’s Colour Preferences



Created using data collected by Burkitt et al, 2003 (see Appendix 1);
Note: Red (most liked) → Black (least liked)

That same study also found that children form negative associations with the colours that they dislike. When asked to colour in a picture that was described as pleasant, children would use the colours that they had previously ranked as liking more. Conversely, when children were asked to colour in a picture where the subject was described as nasty, they used the colours that they reported disliking (Burkitt et al, 2003). In addition to successful visual learning, tactile learning is very important in a museum setting. Many museums are embracing object-based learning to accommodate this tactile learning style.

2.2.3: Object-based Learning

Many museums offer a unique experience through their handling collections which are sets of objects that are available for museum visitors to touch and interact with. Research done at University College London, led by Dr. Helen Chatterjee, looked into the benefits of object-based learning. The results of this research revealed that most of the students surveyed believed that object-based learning was more effective than the typical lecture style of learning which is prevalent in educational curriculums. (Hannan, Duhs, & Chatterjee, 2013).

2.2.4: The U.K. National Curriculum

According to the U.K. government website (2016), the U.K. national educational curriculum is divided into what are referred to as ‘key stages,’ as can be seen in Table 1.

Table 1: Key Stages as Defined by the UK National Curriculum

	Key Stage 1	Key Stage 2	Key Stage 3	Key Stage 4
Age range (years)	5-7	8-11	12-14	15-16

Starting at key stage 1, students are taught the following compulsory subjects: English, maths, science, design & technology, history, geography, art & design, music, physical education, computing, and ancient & modern foreign languages. The compulsory subjects ‘design & technology’ and ‘art & design’ are important for the following reasons according to the U.K. Department of Education:

Design & Technology:

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and [other’s] needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to creativity, culture, wealth and well-being of the nation (design and technology, 2013).

Art & Design:

Art, craft, and design embody some of the highest forms of human creativity. A high-quality art and design education should engage, inspire and challenge pupils, equipping them with the knowledge and skills to experiment, invent and create their own works of art, craft and design. As pupils progress, they should be able to think critically and develop a more rigorous understanding of art and design. They should also know how

art and design both reflect and shape our history, and contribute to the culture, creativity and wealth of our nation (art and design, 2013).

The teaching of these subjects is enhanced through activities such as field trips to museums. Each subject is further divided into particular ‘aims.’ One of the aims of the design & technology subject is to, ‘build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users’ (design and technology, 2013). The art & design subject has many aims that focus on the development of artistic ability. Most notably, the U.K. Department of Education uses this subject to make sure that its students ‘know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms’ (art and design, 2013). Museums are uniquely qualified to achieve these goals. According to Catherine Ritman-Smith, Head of Programme for Formal Learning at the Design Museum, the goal of the Design Museum’s learning department is ‘complementing and extending’ the UK national curriculum.

2.3: Exhibits

Museums informally educate through movement in space (Peponis & Wineman, 2010). That is, instead of a teacher giving a student a lecture, that student must learn by him/herself through observing objects or paintings and even reading the occasional plaque. As a consequence of this, there are two parties responsible for the amount a museum visitor learns: the visitor and the museum itself. Science museums, for example, are challenged with having to compensate for no formal teaching and no accountability of the students (Allen, 2004). These issues extend to most other museums as well. Therefore, there is a need for the exhibits themselves to be engaging and memorable to reach their educational potential.

One study found that engaging exhibits tended to create a cosy ‘feeling’ amongst the visitors (Hilpert, 2003). A museum exhibit that is engaging often has a variety of features that affect how long visitors spend at exhibits. These features include ‘interactives, multisensory stimulation, [and] role-playing prompts,’ with ‘interactives’ being the most important factor (Bell, Harvey, Loomis, & Marino, 1998).

An exhibit needs to be memorable in order to have a lasting and valuable impression on its audience. Several aspects about exhibits can make them memorable. One such aspect is

humour. Humour can create a desire to participate, which is essential for learning (McKenna-Cress & Kamien, 2013). Another crucial aspect is that the experience exceeds the expectation. One study found that if a tourist's experience was better than they expected it to be, then that experience was more memorable (Ritchie & Tung, 2011).

2.4: Museum Databases

The learning potential of a museum is substantial because of the variety and extent of its content. With all this material comes the challenge of keeping track of it. One solution to this problem is a database. A database is a collection of information which is organised and accessible (Oxford, 2017; Hernandez, 2013). Some important properties of a good database are that it must be logical, consistent, and be populated for a specific purpose (Watt, 2014). Some examples of good databases that we might find in everyday life are some E-Commerce sites such as Amazon, eBay, or Etsy (Hernandez, 2013). These sites are effective databases because they are easily searchable, intuitive, and informative.

Many museums use databases for users such as researchers, students, or staff to navigate their collection. One of these museums is the British Museum in London. Their database includes over 3.5 million different objects and is being added to at a rate of about 2,000 images every week (British Museum, 2017). Another notable museum with a database is the Smithsonian National Museum of Natural History. This database includes about 8 million catalogue records ("Smithsonian collection," 2017).

2.4.1: Organisation of Databases

A well-structured database must be intuitive. An intuitive system is one that a user can interact with naturally and requires little conscious reasoning (Oxford, 2017). Therefore, this reasoning or logic must be built into the system in a way that properly aligns with the way the user thinks (Watt, 2014).

There are also some traits that can impair the usability of a database. Some databases too closely resemble a data entry system (Churcher, 2012). This mistake would manifest itself in a database that requires a large amount of user input to find an item. This can be a good option when looking for one specific item. However, when browsing a category without a specific item or when one does not know all of the information about an item, the database becomes very

tricky to navigate (Churcher, 2012). This is exaggerated when the amount of items in the database grows. To put this into perspective, imagine having to fill out an ‘advanced search’ form every time you use Google. Unfortunately the British Museum’s database has this flaw because the user is not presented with a full list of categories which may make it difficult to find certain items.

2.4.2: Intuitiveness of User Interface

The organisational intuitiveness of a database is also extremely important for the user. A database should be logical from a visual perspective. This visual User Interface (UI) is one of the main factors of the database’s usability and can be defined as ‘[the] means of communication between a human user and a computer system’ (Butterfield & Ngondi, 2016). For something to be usable, it must be easy to learn, be quick to use, and do what the user wants (Johnson, 2008). The first two requirements can be directly linked to the UI. Ignoring any of these three facets will lead to a user experience that is unproductive and possibly a search that is inconclusive.

In a study utilising eye-tracking technology, it was found that users have a preconception of the layout of a web-based UI (Baharum & Jaafar, 2014). This means that someone who is designing a database with the goal that it is easy to learn and quick to use can draw inspiration from a number of other successful websites. There they would find a format that a user is likely to intuitively understand. For example, someone creating a website would want to put the ‘back-button’ on the top left of a page and they would want to put the ‘login’ on the top right. It is important to not reinvent the wheel when planning the layout of a page.

2.4.3: User Guides

A museum database needs a user guide to instruct current and future employees how to operate it. User guides are important because they provide every individual with the information needed to use a system. The first thing one needs to keep in mind when writing a user guide is the user. Who are they? How old are they? Why do they want to use this system? Why are they using this guide? Do they have a specific question or just want general knowledge? The answer to every one of these questions changes how the user guide is written (Grimm, 1987).

User guides cater to many different audiences, from the novice to the expert. For a novice audience, one should make no assumptions, write as concisely as possible, and keep examples

short. However, for an experienced audience, one should focus on working examples, while relying on a base knowledge that the user has (Haramundanis, 1992). Being aware of what the user has in their current skill set is very important because it lets one know how much background is necessary. A very experienced user might get bored by a long background section telling them information they already know, and this could damage the user guide's reputation (Sides, 1999).

In the museum context, there are many examples of database user guides. The British Museum's database user guide is simply a page on their website with simple instructions on how to efficiently search as well as descriptions of the different categories in the database. Similarly, the University of Florida Vertebrate Palaeontology Collection database's user guide has a small 'how to use this database' button which expands on the webpage with a few paragraphs of instructions and examples. The advantage of this approach is that the user does not have to change webpages to learn how to use the database. A lot of museums have been able to use and implement database user guides effectively, aiding in the experience of interacting with the collections.

2.5: The Design Museum

The London Design Museum fully embraces the learning aspects of a museum for people of all ages. The Design Museum was founded in 1989 and was originally located on the Thames River near Tower Bridge in a banana warehouse. In 2011, founder Sir Terence Conran donated £17.5 million in order to move the museum to a larger and more suitable location (Dowd, 2016). In November 2016, the museum was moved to Kensington High Street (see Appendix 2, 3).

The Design Museum's overall mission is 'To create the most inspiring, exciting and engaging [design museum] in the world' (The Design Museum's DNA, n.d.). According to the museum's core values, it wishes to be:

- 1. Welcoming:** Making everyone feel welcome, like it is the perfect place for them to be.
- 2. Collaborative:** Working with others to help everyone understand the value of design.
- 3. Enterprising:** Working hard to make the museum financially successful and building a strong notoriety.
- 4. Provocative:** Challenging everyone to rethink and advance their outlook on design (The Design Museum's DNA, n.d.).

At the Design Museum, they try to make things simple by organising everything they do clearly, intellectually, and memorably. They also make things personal with every visitor by making every interaction meaningful and conversational. Additionally, the Design Museum keeps its visitors engaged with a vast offering of educational opportunities. For example, school children can compete in ‘Design Ventura’, a competition where children design a product with a budget of five pounds. The best design gets sold in the gift shop.

2.5.1: Exhibits at the Design Museum

The museum has a diverse selection of exhibits for visitors to see. The museum has several free exhibits that allow any person to walk into the museum and discover something about design. The flagship exhibit of the Design Museum is a free exhibit entitled Designer Maker User. This exhibit takes the visitor through the history of design in context. It covers topics such as home living, technology, and politics. There are also a few smaller free exhibits for the general visitor. One is the Designers in Residence exhibit. This displays the work of several designers who are commissioned by the museum every year. As of March 2017, the exhibit featured work from Rain Wu, Andrea de Chirico, Clementine Blakemore, and Alix Bizet. One notable article in the exhibit was a hoodie made of human hair made to represent the culture and diversity of the community in which the hair was sourced. There was also a hairdryer made of components sourced from an area of only a few city blocks (Design Museum Exhibitions, 2017).

In addition to the free exhibits, there are several temporary paid exhibitions that are offered to museum visitors to explore the world of design in depth. At the time of writing this, there were two of these exhibits at the Design Museum. The first is Fear and Love: Reactions to a Complex World. This exhibit explores the emotions of fear and love in the context of modern society. One part of this exhibit displays a large robotic arm which has sensors allowing it to track visitors as they move around it. The robot is meant to display the fear of sentient beings while also displaying the potential emotional connection between humans and machines. The second paid exhibit is Imagine Moscow. This exhibit explores the bold visions of architects and designers during the Russian Revolution in the 1920s and 1930s. It displays designs for buildings as well as some propaganda used at the time (Design Museum Exhibitions, 2017).

2.5.2: Design in the Context of the Design Museum

All exhibits at the Design Museum are created through its vision. Before we explain the Design Museum's vision, we must first discuss design within the context of the Design Museum. Design has three distinct perspectives: design, designing, and designers as defined by Catherine Ritman-Smith, Head of Programme for Formal Learning at the Design Museum.

Design refers to the form of an object that has been made with purpose to solve a problem. For example, the problem could be an inability to conveniently transport water. This would lead to the design of an object: the water bottle (Catherine Ritman-Smith, personal communication, 26 January 2017). The Design Museum focuses on all types of design, from fashion and furniture to graphic design and photography. The exhibits rarely focus on one type because it allows the museum to show how varied the world of design is and in how many ways design can be relevant to our lives.

Designing is the process of solving a specific problem. It is very different from artistry because it has a specific purpose and function. Additionally, it aims to solve a specific problem through a very iterative process which involves taking an idea out of one's head and evolving it to suit a need. Designing is about expressing and exploring. Design is a very playful topic which is why it fits naturally with children (Catherine Ritman-Smith, personal communication, 26 January 2017).

The Design Museum wants every visitor to feel like a designer and even offers multiple workshops that visitors can attend in order to learn more about design.

2.5.3: Workshops at the Design Museum

These workshops were created to help children and attendees learn about different materials and how to design with them. This is typically facilitated by means of interacting with handling objects (Catherine Ritman-Smith, personal communication, 26 January 2017). Figure 7 shows children interacting with the objects and learning how to design.

Figure 7: The Learning Workshop



Acquired from David Houston. Reprinted with permission.

These workshops are usually attended by students whose ages range from 7-19 years old and each session has about 8 to 30 students. The Design Museum is able to conduct three workshops per day, four days per week over the 30 week term of school in the UK. This gives them a potential of 360 workshop sessions per academic year. In the year of 2017 through the month of April, the Design Museum has had 86 sessions booked by schools. A more detailed report of the booked sessions can be found in Appendix 4.

The workshops use handling objects to allow children to be able to recognise and appreciate the design of the world around them. Each workshop session starts by introducing the attending students to the Design Museum and its mission. Next, they explore the topic. For example, if it's a 'Lighting' workshop then they talk about what different types of lighting there are and their function. Then the children explore the objects and learn about how they were designed and why. Finally, they are given the opportunity to design their own product.

2.5.4: The Design Museum's Handling Object Collection

The Design Museum is unique because it has an extensive handling collection in which almost every object in the display is available for purchase commercially. This handling collection allows the visitors to feel the objects and develop an understanding of how they are made. The handling object collection consists of many different types of items that fall into one of five distinct categories: a) Chairs and Seating, b) Designer Maker User, c) Lighting, d) Materials - Smart and Sustainable, and e) Stranger by Design.

Figure 8a-e. Handling objects examples



The Chairs and Seating collection consists of various sitting mechanisms that demonstrate what a chair is. This collection contains more than chairs built specifically for appearance or function. One of the star pieces of this collection is the Wiggly Chair (see Figure 8a). This chair is made out of cardboard and was designed to demonstrate the many different applications of everyday materials. Another piece in this collection is a strap called 'Vitra Chairless' that wraps around your knees and your back, allowing you to sit anywhere. This collection helps the visitors rethink their impression of what a chair is and realise that a chair can be more than the conventional straight backed four-legged model.

The Designer Maker User collection is connected to the main exhibit at the Design Museum of the same name. In it are several objects that are on display in the main exhibition. Among these objects is the Juicy Salif (Figure 8b) which was designed for form rather than function. This means that it does not perform its task as well as it could, but it does look incredible. This object is commonly used as a decoration rather than a lemon juicer.

The Lighting collection has interesting illumination methods from all time periods. From mini solar powered lights to the Anglepoise (Figure 8c), a desk lamp with suspension built-in for ease of adjustment, this collection contains both a history of lighting and an exploration of what a light is.

The Materials collection displays sheets and chunks of various materials and includes interesting ways to use each. One example is Nitinol (Figure 8d). This metal can be deformed easily when it is cold, but when heated up reforms to its original shape.

Finally, the Stranger by Design collection displays objects that were designed to look differently than how they function. For example, Figure 8e displays a toilet brush that was designed to look like a plastic potted plant. This design disguises a commonplace ‘ugly’ object as something entirely different.

In order to improve the quality and usability of the handling collection, the Design Museum is looking to develop a database, reconstruct their information sheets, and curate two different exhibits for the collection.

Chapter 3: Methodology

For this project, we presented and organised the Design Museum’s current handling object collection in a way that is both informative and memorable. In order to complete this task, we observed multiple workshops, created prototypes, and conducted various interviews. From this information, we were able to determine what is informative and memorable so that we could make educated decisions while building the system to present and organise the handling object collection. To do this, we created a database for the handling collection, made information sheets for the objects in the collection, and curated two exhibits in the spaces provided by the museum. Figure 9 displays a graphical representation of our objectives. Figure 10 illustrates a detailed timeline of our methodology.

Figure 9: Graphical Representation of the Relationships between Objectives and Tasks

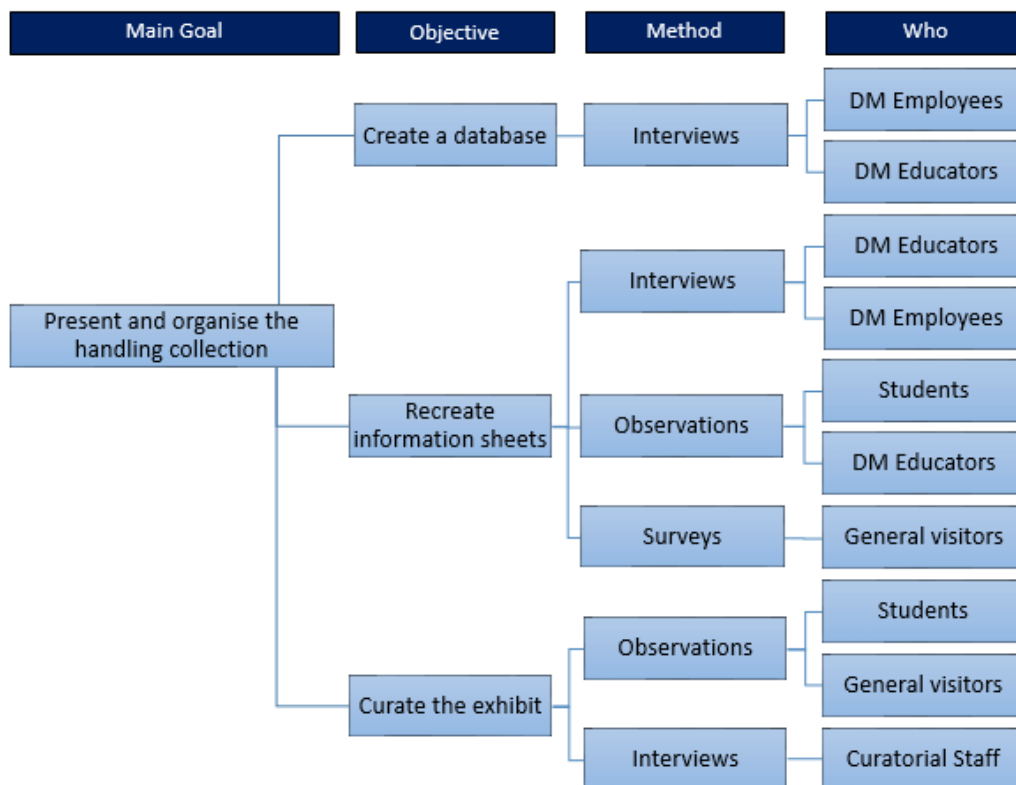
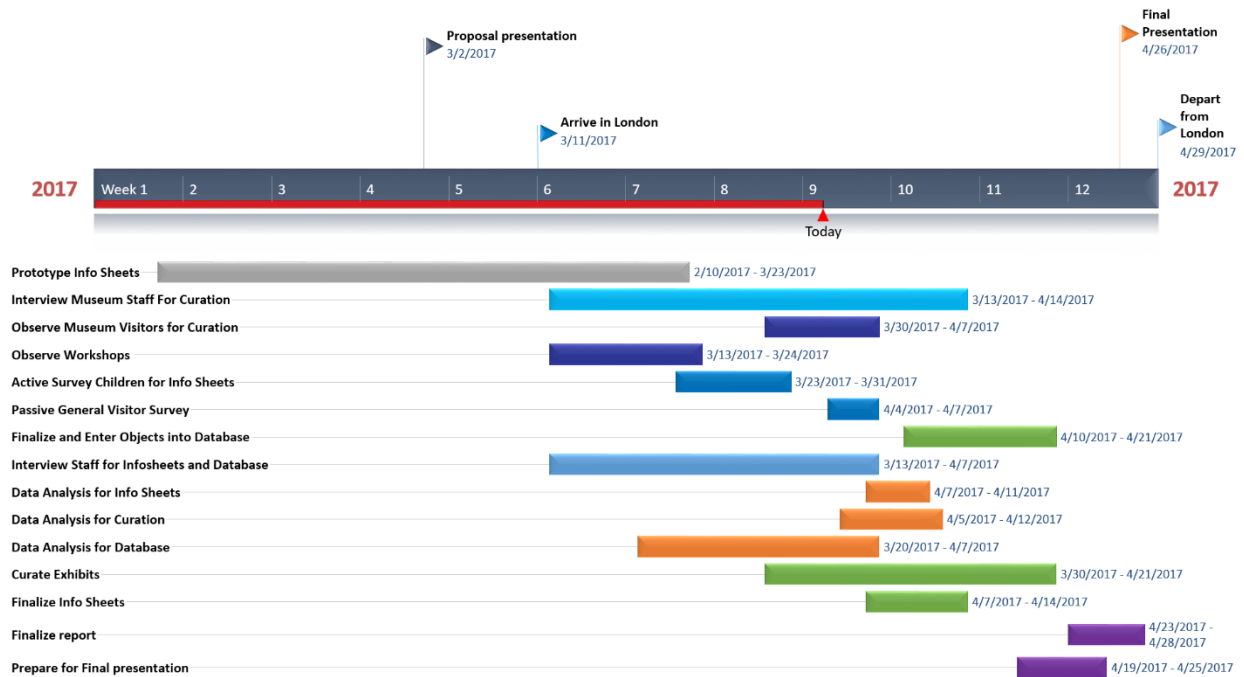


Figure 10: Detailed Timeline of Design Museum Project



3.1: Database

At the beginning of this project, the Design Museum did not have a database to facilitate the organisation of its handling object collection. We were tasked with creating a database for their staff that is intuitive and informative and a user guide to instruct future users how to operate the database. The user guide walks the user through creating a new entry, locating a specific object, and various other functions of the database. It employs screenshots of the database to help the user understand how to operate it.

3.1.1: Interviews

In order to ascertain the best look and feel for a database that would suit the Design Museum’s needs, we conducted interviews with the employees as well as the freelance educators at the Design Museum. We interviewed these people in the first three weeks of our seven week project. For the database, we selected interviews over other information collection methods such as surveys and focus groups, for two reasons. First, interviews allow for the interviewer to go more in depth into the topic, whereas, surveys do not allow for long in-depth answers. Instead, surveys focus on multiple choice or objective fill in the blank questions. Second, interviews are a

shorter time commitment than focus groups. Focus groups are good in that there are multiple people being ‘interviewed’ at once and thus cross-talk amongst the participants tends to facilitate a rich conversation about the topic. However, focus groups are a time consuming endeavour with inherent logistical challenges and we felt that more valuable information on databases would be gained through personal interviews.

We started by interviewing the employees that will be directly involved in updating, maintaining, and cataloguing future objects. Then we interviewed the educators that are going to be interacting with the database as users. We asked questions to assess how they will interact with the database, what features are important to include in the database, and if/why they are excited about the database. For a complete list of questions see Appendix 5.

We used the information gained from these interviews to gauge what the staff members wanted in a database. Concurrent with the interview process, we searched for free database platforms. We then tested the platforms and selected the one that best allowed us to fulfil the wishes of the staff members while incorporating our research on what makes a database intuitive.

3.1.2: Testing and Finalisation of the Database

Using the information from the interviews, we started to mock up a database. We made attempts using Wikia, Wikispaces, and Google Sheets. After beginning to build a database in all three systems, it became clear that Wikispaces would best fit the desired functionality of the museum staff. Then, we presented our final mock-up to the staff for review and showed them how it works. We asked them questions like ‘What would you add?’, ‘What would you take away?’, and ‘What would make this database easier to use?’ A full list of questions can be found in Appendix 6. Using this new information, we finalised the database and created a comprehensive user guide which would show the staff how to use different functions of the database such as changing the condition, changing the location, or adding a new object.

3.2: Information Sheets

The next main project objective was to improve the information sheets that the Design Museum uses to teach their handling object workshops. These workshops use objects to teach the participants about design. Based on previous research, we decided what colour the information


sheets would be, what the general layout would be, and, perhaps most importantly, what information would be present on them.

3.2.1: Prototypes

We had to be able to recognise the shortcomings with the old information sheets in order to move forward with new and improved sheets. Figure 11 shows the Leaf Light information sheet from the handling object collection.

Figure 11: Old Leaf Light Information Sheet

Handling Collection: Eco/ Lighting

Product Name:	Leaf light	
Designer/retailer:	Yves Behar for Herman Miller	
Date and Price:	2006/ £295	
Function:	Table light	
Company/ Designer		
<p>Béhar is a terrific example of a designer who understands the mix of problem-solving and creativity necessary to make genuinely better products.</p> <p>The striking Leaf light puts the control in your hands—actually, in your fingertips. To adjust the intensity or change the light colour from warm to cool, just slide a finger along a groove in the lamp base.</p> <p>"Leaf is designed to give the user a full spectrum of choices to express light's magical and sensory variations," says designer Yves Béhar. "It allows the human senses to become engaged by allowing the user to choose the intensity and colour of light which best suits a functional need, mood or location."</p> <p>Best of all, the Leaf uses only 8-9 Watts of energy, about 40% less than compact fluorescent bulbs, and with a life-expectancy of 100,000 hours of use, you'll enjoy not having to change bulbs for about as long as you own the lamp.</p>		
Materials & Manufacturing Processes		
<ul style="list-style-type: none"> • Aluminium (pressed) • LED lighting system • Height 530mm/ Diameter 220mm/ Weight 2.3kg 		
Aesthetics		
Slimline/ sculptural/ stylish		
Target Market & Advertising/Where sold		
Contemporary interiors/ collectors http://pinkapple.designs.co.uk www.wellworking.co.uk		
Any other Information/Brand Promise		
Leaf is made of 40-80% recycled materials (plastic) and is up to 96% recyclable at the end of its useful life		
Strengths:		Weaknesses:
96% recyclable at end of life Quality high end product Not hot to the touch Functional and stylish Can change lighting to suit mood Uses LED's- energy efficient		Expensive Large and heavy product

This leaf light seems like an incredible light that has multiple functionalities, however much of the 'wow' factor is taken away when you have to read a lot of cumbersome information in order

to understand what makes the light unique. First, we needed to differentiate necessary and unnecessary information so that only the needed information was on the sheets. Then, we had to decide how advanced the vocabulary could be so that children do not have to read any complicated words. The layout of these sheets was partially inspired by looking at popular websites such as Facebook and YouTube. In each of these websites, there are soft borders between each section, instead of harsh outlining borders. We believe this promotes an easy viewing experience while still differentiating between sections. Also, it is important to design with grids because it helps create a balanced worksheet. A worksheet designed with grids makes the user feel like the page has a sense of order and connectivity between each element (Staff, 2013). We brought a few prototypes of information sheets to the Design Museum workshops to have the employees and children decide which information sheet prototypes were most easily understood. These new and improved information sheets were the culmination of all of our research. Our three initial prototypes can be seen in Figure 12 a., b., and c., respectively.

Figure 12: Initial Prototype Information Sheets

a. Prototype #1

WIGGLE CHAIR
Frank Gehry For Easy Edge Inc.

The Designer & Company

- Frank Gehry was one of the first designers to produce cardboard furniture, having created the Wiggle side chair in 1972. Manufacturers had been seeking an alternative to plastic since the 1950s but struggled to find anything that could compete with its light flexibility.
- The Wiggle chair and table were hugely successful but Gehry was unhappy because the price did not conform to his philosophy that furniture should be affordable to all.

Characteristic Details

- Size: 85 x 42.5 x 60, seat height: 45.5 cm
- Material: corrugated cardboard, fibreboard, round timber
- Unusual, sturdy, and sculptural
- Designed to be affordable

Pros

- Affordable
- Very strong

Cons

- Uncomfortable

the DESIGN MUSEUM

Designer Maker User

£630

b. Prototype #2

WIGGLE CHAIR

BY Frank Gehry For Easy Edge Inc.

COMPANY & DESIGNER INFORMATION

- Manufacturers had been seeking an alternative to plastic since the 1950s but struggled to find anything that could compete with its light flexibility.
- Frank Gehry was one of the first designers to produce cardboard furniture to start ending the plastic industry.

PRICE:
£630

CHARACTERISTIC DETAILS

- 85 x 42.5 x 60 cm
- Seat height: 45.5 cm
- Unusual, sturdy, and sculptural
- Designed to be affordable

STRENGTHS:

- Affordable
- Very strong

WEAKNESSES:

- Uncomfortable

c. Prototype #3

the DESIGN MUSEUM **WIGGLE CHAIR**
Frank Gehry For Easy Edge Inc.

The Designer & Company

Frank Gehry was one of the first designers to produce cardboard furniture, having created the Wiggle side chair in 1972. Manufacturers had been seeking an alternative to plastic since the 1950s but struggled to find anything that could compete with its light flexibility.

So What Happened?

The Wiggle chair and table were hugely successful but Gehry was unhappy because the price did not conform to his philosophy that furniture should be affordable to all.

Characteristic Details

- Size: 85 x 42.5 x 60, seat height: 45.5 cm
- Material: corrugated cardboard, fibreboard, round timber
- Unusual, sturdy, and sculptural
- Designed to be affordable

Pros

- Affordable
- Very strong

Cons

- Uncomfortable

£630

Designer Maker User

We analysed these prototypes throughout our time in London and this analysis can be found in the following sections. After each round of analysis, we edited the information sheets according to the data collected.

3.2.2: Surveys of School Groups

We surveyed our target audience, school-aged children, in order to gain qualitative data. We conducted mini-workshop activities with students that came into the Design Museum's learning centre as well as with self-guided school groups. In these activities, we used objects from the handling collection and the prototype information sheets which were previously created. First, we presented the children with a few copies of one prototype with the corresponding handling object. Then we told them that they could interact with the object and learn about it using the information sheets. We then took away the information sheet and asked a few questions about the object. A complete list of questions as well as a more detailed procedure for these surveys can be found in Appendix 7. The goal of these questions was to figure out what types of information were most engaging for the students as well as which fields of each prototype the students were able to remember.

Once we analysed some preliminary data from about 20 of these activities, we made changes to each prototype in order to improve the effectiveness of each sheet. We then started a new round of active surveys with a new group of school-aged children. These activities were very similar to the first set, but with the more refined prototypes. This allowed for us to get more data to help us select the best format. We asked each group of students to pick one prototype to learn from as a group. This was done in order to see which information sheet was most immediately interesting or attractive. Once the group selected their sheet, we conducted an identical activity as the one above with each group. This information allowed us to edit our sheets, however, we still did not have a clearly chosen sheet layout.

3.2.3: Sticky-Note Survey to Determine Information Sheet Preference

Once we surveyed school groups, which gave us qualitative feedback for the sheets, we wanted a more quantitative data collection method to help us select a final layout for the sheet. We chose a method which would allow us to gather a large amount of data points fairly quickly. We wanted to limit our own interaction with the subjects of the survey because non-facilitator led learning mirrors how the sheets will be used in the workshops.

To fulfil these goals, we conducted a passive survey. For this survey, we presented the three prototype information sheets on a table in the main museum exhibit, Designer Maker User. We accompanied these with an invitation for the visitors to pick their favourite information sheet

by placing a sticky note underneath it. Images of our data collection set-up can be seen in Figure 13.

Figure 13: Information Sheet Preference Data Collection Set-Up



We collected and counted the Post-its after each day. We took down the survey after three days and a total of 129 votes.

3.2.4: Interviews

We interviewed the Design Museum educators during the first three weeks of our project to find out information such as why they teach the workshops, what they hope the students will take away from the workshops, and what information about the objects the students respond to best. These interviews were done directly before or after the workshops depending on the educator's free time. For a complete list of questions, see Appendix 8.

Additionally, we interviewed multiple people from the education departments of the Museum of London and the Horniman Museum and Gardens to see how other museums help their students remember what they learn. We also asked about what types of information sheets they use, if any, and what types of information they put onto them.

3.2.5: Finalise Information Sheets

After about four weeks in London, we finished surveying the children and Design Museum freelancers about the information sheets. With this feedback and the feedback from our various surveys, we created our final information sheets and presented a number of objects in this format. These final information sheets were completed by about the sixth week in the term.

3.3: Exhibit Curation

Our final objective was to curate two different exhibits that encompass the Design Museum's handling object collection. When curating an exhibit it is essential to consider the presentation of the information and how that influences the audience's experience. An effective museum exhibit should be both informative and memorable. The line between what is informative and what is memorable is not a straightforward divide. What is memorable to one visitor may not be to another, but it is the memorable material that makes the informative material stick. Our project group decided that determining what is generally memorable to museum visitors at the Design Museum is of paramount importance to our project.

3.3.1: Observation

When tackling the objective of creating a well-structured, entertaining, and informative handling object exhibit, the data collected on memorability was invaluable to our final product. We measured memorability through observation of museum visitors.

Observations of the museum visitors was a crucial part of our social research that helped us determine what particular aspects of a museum stand out to visitors the most. Observations of the visitors were structured and began in the third week after arriving in London (see Appendix 9 for the Observation Checklist used). Our observation involved discretely following a group through the museum as the group engages with the exhibits at their own pace.

We measured the memorability of the information given in the tour based on the perceived engagement of the visitors when presented with certain information. While we were observing the visitors, we made note of whether or not the aspects of the exhibit that attracted them the most were interactive. Judging based on a combination of time spent at the different sections of the exhibit and how we perceived the visitor's interaction, we determined which features were most engaging. These observations focused most on the engagement levels of children and teenagers, namely those who fall into the age range of 7 to 19 years old; the ages of the students in the workshops.

3.3.2: Interviews

We interviewed the Design Museum curatorial staff in order to draw on their expertise to aid us in our journey of designing an exhibit. Our team interviewed them in the first two weeks

to establish a good foundation of this designing process. Our goal was to gain information such as how they design their exhibits. Throughout the extent of our project, we continued to consult them on curating points as they came up, but this was on a more casual basis.

In addition to the Design Museum curatorial staff, we explored various museums around London in our first few weeks in order to see if they had a handling object collection and to see how they organise and display it. Additionally, we interviewed the people responsible for the handling object collections and asked them questions similar to the Interview Questions for Museum Exhibit Organisers located in Appendix 10.

All of this feedback helped us get a better understanding of what makes an exhibit engaging and a great overall experience for the visitors so that it could be applied to the Design Museum's exhibits.

3.3.3: Finalising the Exhibition

Beginning in week four, we analysed our data from the above methods and designed the two exhibits. Our design was completed by the end of week six. Our first step was determining how we want to tell the exhibit's story. We utilised the information gathered from the curatorial staff to formulate the narrative of the objects. Additionally, we used the information gathered from our observations to determine which parts of the other exhibits are most engaging. We implemented those aspects into our final design. The last step was physically designing and structuring the exhibit. From our background research and gathered data, we were able to curate two exhibits in a way that is informative, memorable, and engaging.

3.4: Ethical Considerations

There were a number of ethical considerations of this project because we interacted with school aged children. There was minimal risk to all subjects. Data collected was used for research purposes only. Interviews with school aged children were not conducted. We did not disclose any identifiable information about the subjects. Survey data collected from school children was collected in the presence of their teachers. Any interviews collected from adults was kept under lock and key and destroyed at the completion of this project.

Chapter 4: Results

Our project has three distinct objectives: create a database, recreate information sheets, and curate two different exhibits at the Design Museum. Although these three tasks are very different, they have one major idea that is similar throughout: context. For our purposes, context is the relation of an object or concept, in a museum setting, to a person's everyday life in order to enable the full understanding of that object or concept. This is important because this full understanding allows visitors to make the most out of their experience while fulfilling the educational goals of the museum.

4.1: Database

As of the January 2017, the Design Museum did not have an organisational system for their handling objects. We conducted interviews with staff at museums such as the Horniman Museum and Gardens and the Museum of London to see what organisational systems are being used at other museums. At these museums, they use a very cumbersome organisational system called Mimsy which, although it does work, the employees do not like it. We interviewed a member of the collections staff at the Design Museum, and found that they currently use a heavy system similar to Mimsy for the main exhibition (this does not include the handling collection). They also have discontent for the complexity of the organisational software and wanted a lighter system. A 'lighter' system would be one that requires a minimal amount of data entry for the users of the database. Museum database systems such as Mimsy contain many descriptive fields about each object, many of which are unnecessary for the purposes of the handling collection.

4.1.1: Database Selection

Before creating a database that would fully fulfil the Design Museum's needs and desires, we first had to establish the aforementioned needs and desires. Based on interviews conducted within the first three weeks of our project with Design Museum staff and educators, we found that the museum had five criteria for their database.

First, they wanted it to be easy to search. A member of the Design Museum's learning staff expressed interest in the database being searchable by 'object type, function, and name of designer.' We found that the best way to achieve this was through the use of descriptive tags in the database to be used as keywords when searching for an object. Second, they wanted the

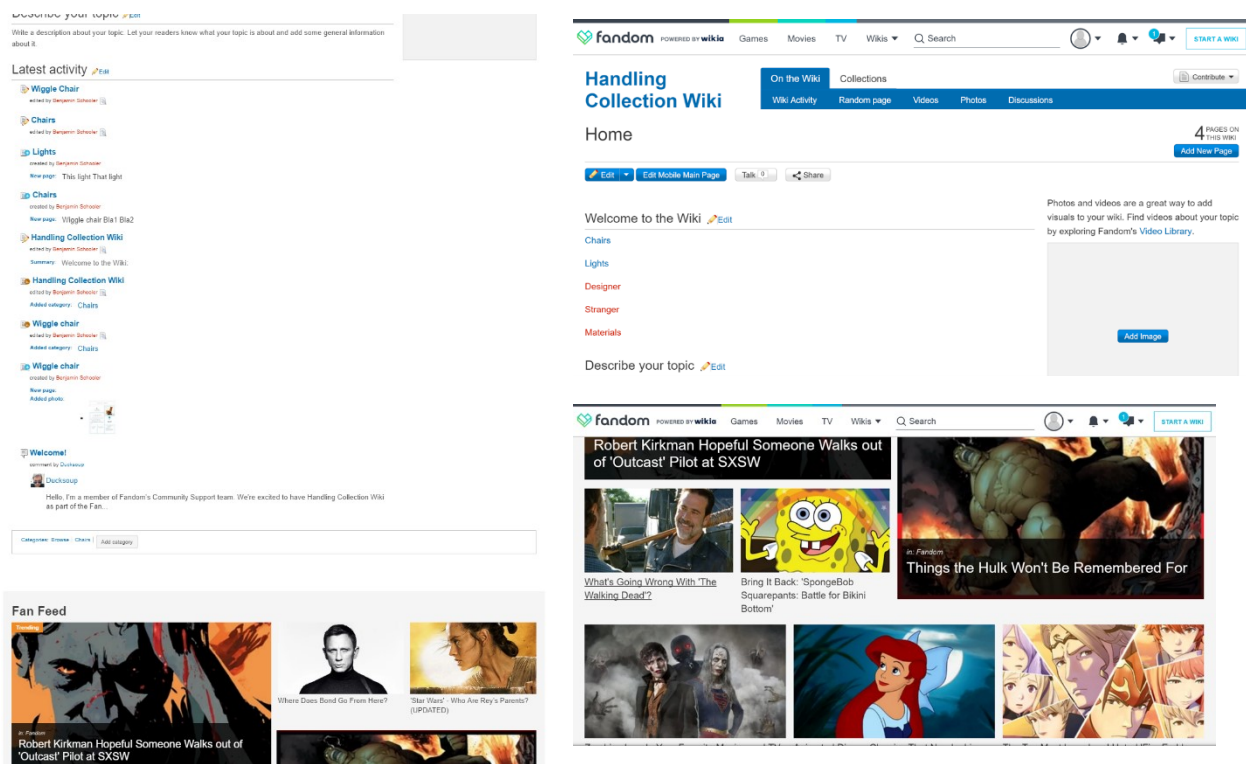
database to have a good appearance. David Houston, Learning Producer of Formal Learning, expressed a concern for the appearance of the database in an interview by saying if the database does not look appealing or ‘looks too academic [the Design Museum educators will] stray away from it.’ Third, the Design Museum needed a database system that allowed different members to have different levels of access with respect to editing and viewing. We found that this can be done if the system uses modifiable permissions. David Houston expressed that a freelancer should be able to view the information but should not be able to change the content of the page. Fourth, David Houston specified that the database should not rely on a temporary budget as a change in the budget could cause the database to be shut down. From this, we found that the best way to evade this budget problem would be to use a free and reliable software. Finally, the Design Museum staff will be adding objects to the database as more objects are acquired. As such, we found that the database needs to be easy to update. Some museum staff expressed concern over the complexity and potential time commitment of adding an object to the database. We found that this will be an expanding database and would require a system that is easy to add to. In addition to these five criteria, we found through our preliminary database research that this database needed to be easy to customise with HTML code in order to fully fulfil any of the requested features. In order to test systems against all of these criteria, we started to mock up prototype databases using three different systems: Wikia, Google Sites, and Wikispaces. We compared each system to each other against these six criteria In Table 2 is a chart showing how each of these systems fulfilled the criteria.

Table 2: Comparing Database Prototypes

	Wikia	Google Sites	Wikispaces
Easy to search	✓		✓
Good appearance		✓	✓
Modifiable permissions			✓
Free to use and share	✓	✓	✓
Easy to edit	✓	✓	✓
Easy to customise with HTML	✓		✓

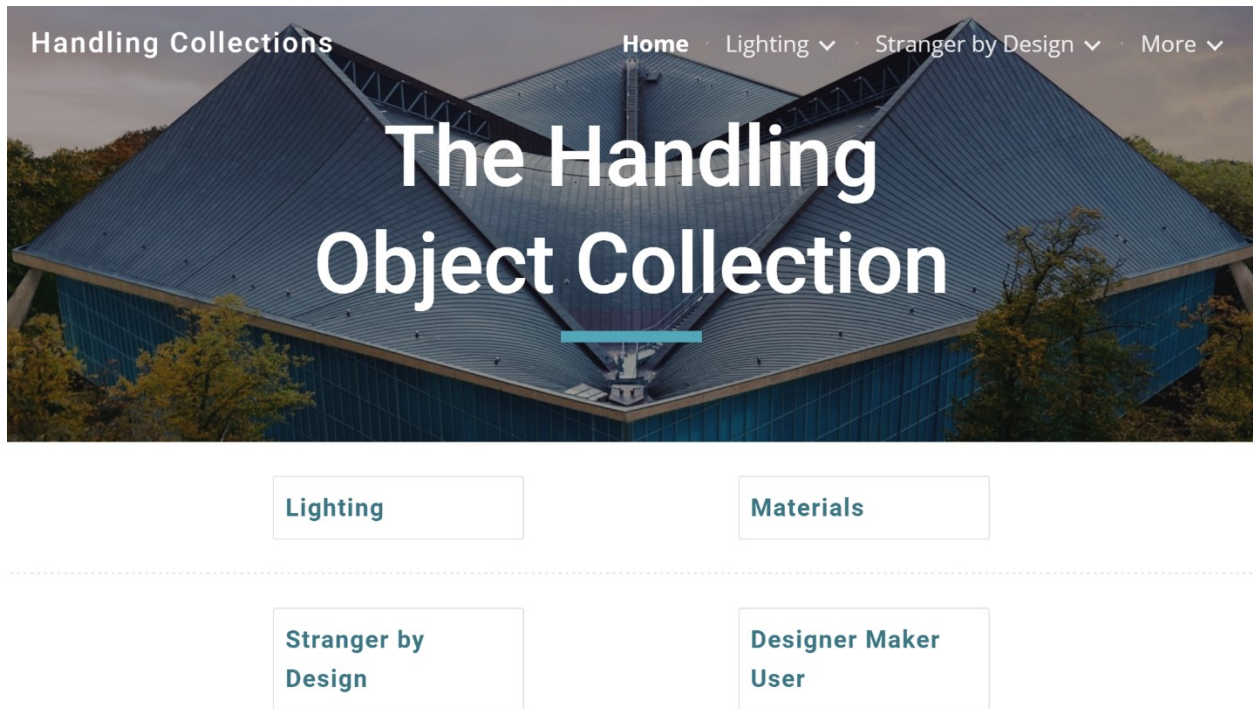
Beginning with Wikia, we will describe each of these systems and how they performed the specified criteria. Wikia is a popular wiki system that is often used to create fan pages. We found that one major drawback of Wikia was the amount of permanent advertisements that led to a messy appearance as shown in Figure 14. Another major drawback of Wikia was the lack of ability to control editing and viewing permissions. This website is viewable and editable by everyone in the public which fails to meet the needs of the Design Museum.

Figure 14: Screenshots of Prototype Wikia Database



Our second database option was Google Sites. As can be seen in Figure 15, the appearance of this system was much better than Wikia. However, Google Sites failed on several other necessary criteria. For example, the current version of Google Sites lacks a search function. In addition, Google Sites did not allow us to edit the permissions and lacked customisability via HTML. This lack of customisability would impede our ability to make the necessary features that would fulfil the Design Museum’s needs.

Figure 15: Screenshot of Prototype Google Sites Database



Lastly, the database that we ended up using was Wikispaces. This system successfully fulfilled every specified criterion. Using our knowledge of HTML code, we were able to successfully add additional features through the use of customised widgets.

4.1.2: Database Features

We then interviewed Design Museum staff to see what characteristics they would like to be in the database. As mentioned in the previous chapter, the Design Museum educational staff wanted to be able to search the database using many different flexible categories. We implemented a tagging system into our database. This feature allows the users to find objects in the collection by searching different keywords.

In addition, the Design Museum staff wanted a field for updating the condition of an object so that an educator would be able to see which objects were broken or not. We found that the only method of having an updatable condition that would remember its data when the page was refreshed was Google Forms. We added a Google Form with a spreadsheet response in order

to allow the user to see the condition of the object or to update the object's condition. In Figure 16 is an example of our condition updater for an object.

Figure 16: Condition Updater Function of the Database

OBJECT INFORMATION:

Updates may take up to 5 minutes to show in the form. You may need to refresh the page.

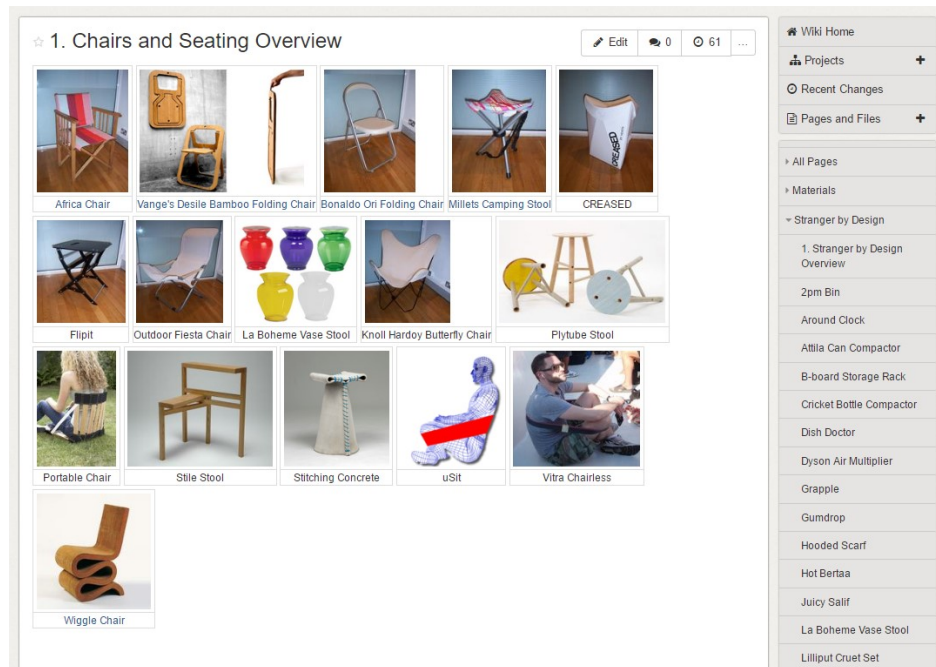
Wiggle Chair (responses) : Form Responses 1			
Timestamp	Condition of the object	What is your name?	What is wrong with the object?
4/13/2017 16:43:17	Unusable	Nick	Side has a crack along it

Form Responses 1 >
<

Update Condition

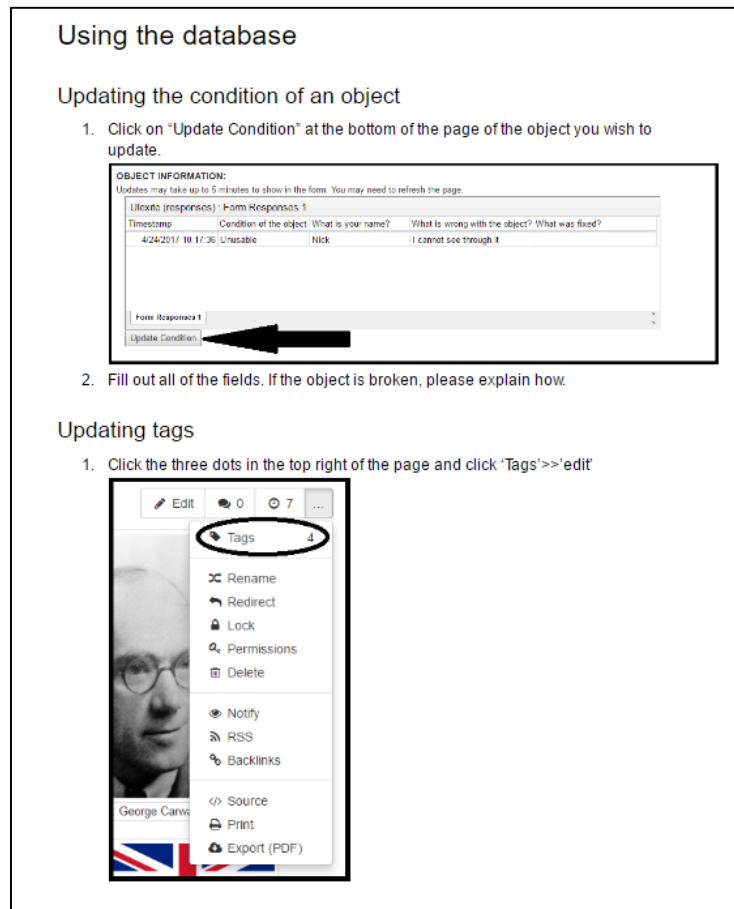
Furthermore, one Design Museum staff member suggested that it might be easier to find an object by its image rather than its name. We found that one way of implementing this search by image feature is through the addition of an overview page that contains pictures of all of the objects within the collection. If a user wants to find an object but cannot remember its name then they can simply look at a list of pictures and find the object that they want. Figure 17 shows the implementation of this idea.

Figure 17: Screenshot of the Chairs and Seating Overview Page



After interviewing staff at the Design Museum, we found that previous work on museum databases has struggled because the creators of the database are rarely the people who end up using it. This means that the people meant to use the database may not have a way of figuring out how it works. This issue led to the creation of a user guide which comprehensively explains the use of each feature. Our database is designed to be further developed and populated, so we included explanations of how to enter new objects and edit existing ones. We also included explanations of how to search, tag, and update the condition of the objects. The user guide uses visual guides based on screenshots of the website. Figure 18 shows a step in the user guide. A complete user guide for the database can be found in Appendix 11.

Figure 18: Updating the Tags and Condition of an Object



4.1.3: Database Content

In order to populate the database with the desired information, we conducted interviews with museum staff and educators to gauge which sorts of information they would benefit from most. We used the information from the pre-existing information sheets to begin populating the database but in addition to that we found that many of the staff members said they would benefit from the inclusion of external website links. We also discovered that the staff would like information about the handling objects beyond what is presented on the information sheets. This information includes, but is not limited to, background about the designer, the designer's other work, and the original price of the object on the date that it was first marketed. Some of this information can be seen in Figure 19.

Figure 19: Screenshot of an Object Page on the Database

The screenshot shows a database entry for the 'Wiggle Chair'. The page has a dark header with navigation links like 'HandlingCollection > Home', a search bar, and user information. Below the header, the title 'Wiggle Chair' is displayed with edit, comment, and view statistics. Two images are shown: a product shot of the chair and a photo of designer Frank Gehry sitting on it. Text on the page includes the manufacturer 'Easy Edge inc.', function 'Chair', year '1972', price '£675', and a background story about Gehry's use of cardboard. A Canadian flag icon indicates the designer's birthplace. A sidebar on the right contains a navigation menu with categories like 'Wiki Home', 'Projects', 'Recent Changes', and a list of related items such as 'Africa Chair' and 'Bamboo Folding Chair'.

Moreover, David Houston suggested populating the object's database pages with interesting stories about the objects that the Design Museum educators could use in the workshops. These stories would be meant to provide the educators with context when presenting the objects in the workshops.

4.2: Information Sheets

Our second objective was the revitalisation of the Design Museum's information sheets. We arrived in London with three prototype information sheets and as the project progressed we were able to modify the sheets with the help of outside input until we chose a final design. To accomplish this, we observed three creative workshops in our first week to see how these sheets were used. The first workshop handed out the information sheets after the objects were introduced, but the school children were not interested in reading and learning from them. The following two workshops that we observed did not use the information sheets at all.

Further, after interviewing various educational staff at the Horniman Museum and Gardens, the Museum of London, and the Design Museum, we again found that context as it

relates to everyday life is very important as an educational tool to be used alongside a collection. We also interviewed the staff specifically involved in the learning department at the Design Museum to determine which types of information would be most valuable to place on the sheets. David Houston, our project sponsor and Producer of Formal Learning at the Design Museum, mentioned that the designer's background and nationality is very important for the students to learn. Given the information that we gathered from our interviews, the following categories were added to our prototype information sheets: product name, function, material the product is made from, strengths and weaknesses of the product, background of the product, designer name and biography, and manufacturer. Once our initial prototypes were finalised, we moved onto the testing phase.

4.2.1: Prototype Testing

Based on the feedback from our surveys with approximately 100 students, we found each prototype information sheet needed a lot of tweaking to become a better educational tool. These students were either a part of a self-guided group, a school group visiting the Design Museum without a tour guide, or participants of the Design Museum's workshops. They ranged from year 6 to year 12 and were from schools located around London as well as several international schools.

Students typically did not retain the name of the object. However, they immediately knew where the designer was from when asked. They also did not know how the object was used even after reading the information sheet. When we added a picture of the object in use, we found that the students were more likely to understand how the object worked. We found that adding a section titled 'why is it at the Design Museum?' to the information sheets helped the students put the object into context. Many of the students had trouble identifying the time period that the object was from. Once we added a timeline, the students showed a better understanding of when each object was designed. This timeline can be found in Figure 20. The initial and final pictures of each of the information sheets can be seen in Figures 21, 22 and 23.

Figure 20: Timeline of Major Events

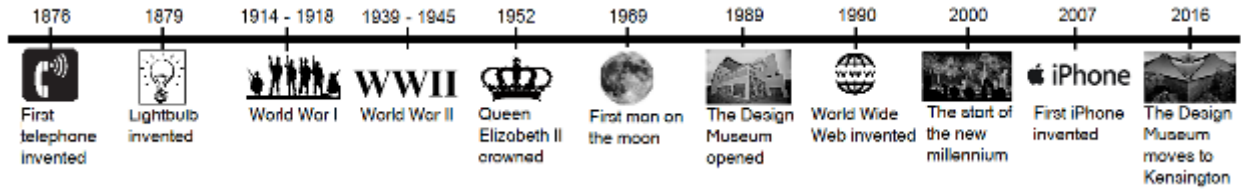


Figure 21: Prototype #1 Initial and Final

the DESIGN MUSEUM

HOT BERTAA

Stranger by Design Made by Philippe Starck in 1999



Manufactured By: ALESSI

Function: Kettle

Material: Aluminum body, plastic handle

Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1999 to 1997. Alessi pulled it from market in 1997 because of its many flaws in functionality. They said "You shouldn't need an instruction manual to operate a kettle."

Strengths	Weaknesses
-Very aesthetic design	-The handle puts your hand too close to the hot metal body
	-The kettle spills very easily
	-Somewhat expensive

Why's it of the Design Process?

This design focused on the aesthetics of the object rather than the usability. It shows that often focusing too much on the aesthetics of an object can get in the way of its usefulness.

PH  - Philippe Starck

Philippe Starck, born in 1949, is a french product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitso.



the DESIGN MUSEUM

HOT BERTAA

Stranger by Design Made by Philippe Starck in 1999

Product Name: Hot Bertaa

Manufactured By: ALESSI

Function: Kettle

Material: Aluminum body, plastic handle

Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1999 to 1997. Alessi pulled it from market in 1997 because of its many flaws in functionality. They said "You shouldn't need an instruction manual to operate a kettle."



C120

Strengths	Weaknesses	Why's it of the Design Process?
- Very aesthetic design	- The handle puts your hand too close to the hot metal body	- The design focused on the aesthetics of the object rather than the usability. It shows that often focusing too much on the aesthetics of an object can get in the way of its usefulness.
	- The kettle spills very easily	
	- Somewhat expensive	

PH  - Philippe Starck

Philippe Starck, born in 1949, is a french product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitso.



The Hot Bertaa



Timeline of Major Events

Figure 22: Prototype #2 Initial and Final

Initial Prototype (Left):

- Product:** HOT BERTAA, ALESSI PHILIPPE STARCK | £120
- Background:** Hot Bertaa was designed as a kettle by Philippe Starck and manufactured by Alessi from 1990 to 1997. Alessi pulled Hot Bertaa from the market because of its flaws in functionality. Alessi states, "you shouldn't need an instruction manual to operate a kettle."
- Function:** Kettle
- What's it made of:** Aluminum body, Plastic handle.
- Strengths:** Very aesthetically pleasing design.
- Weaknesses:** The handle puts your hand too close to the hot metal body. The kettle spills easily. Somewhat expensive.
- Designer:** PHILIPPE STARCK - FRA
- Timeline:** A horizontal timeline from 1920 to 2010, with a blue arrow pointing to the year 1990.

Final Prototype (Right):

- Product title:** HOT BERTAA, designer: Philippe Starck, manufacturer: Alessi - £120
- Background:** Hot Bertaa was designed as a kettle by Philippe Starck and manufactured by Alessi from 1990 to 1997. Alessi pulled Hot Bertaa from the market because of its flaws in functionality. Alessi states, "you shouldn't need an instruction manual to operate a kettle."
- Function:** Kettle
- What's it made of?:** Aluminum body, Plastic handle.
- Strengths:**
 - Very aesthetically pleasing design
- Weaknesses:**
 - The handle puts your hand too close to the hot metal body
 - The kettle spills easily
 - Somewhat expensive
- Designer:** Philippe Starck - FRA
- Timeline:** A horizontal timeline from 1920 to 2010, with a blue arrow pointing to the year 1990. Key events are marked with icons: 1920 (Ford Model T), 1929 (Wall Street Crash), 1939 (WWII), 1945 (Nuclear Bomb), 1957 (Eurovision Song Contest), 1969 (Moon Landing), 1976 (Vietnam War), 1981 (Personal Computer), 1990 (Hot Bertaa), 2007 (iPhone), 2010 (Twitter).

Figure 23: Prototype #3 Initial and Final

Initial Prototype (Left):

- Product:** Hot Bertaa, ALESSI
- Background:** Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1990 to 1997. Alessi pulled it from market in 1997 because of its many flaws in functionality. They said "You shouldn't need an instruction manual to operate a kettle."
- Function:** Kettle
- What's it made of:** Aluminum body, Plastic handle. The body was cast and the handle was injection moulded.
- Strengths:** Very aesthetic design.
- Weaknesses:** The handle puts your hand too close to the hot metal body. The kettle spills very easily. Somewhat expensive.
- Designer:** Philippe Starck for Alessi, Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitso.
- Timeline:** A horizontal timeline from 1920 to 2010, with a blue arrow pointing to the year 1990.

Final Prototype (Right):

- Product name:** Hot Bertaa, manufactured by: ALESSI
- Background:** Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1990. Alessi pulled it from market in 1997 because of its many flaws in functionality. For example, many people tried to fill it through the small spout instead of through the larger handle. They said "You shouldn't need an instruction manual to operate a kettle."
- Function:** Kettle
- What's it made of:** Aluminum body, Plastic handle. The body was cast and the handle was injection moulded.
- Strengths:** Very aesthetic design.
- Weaknesses:** The handle puts your hand too close to the hot metal body. The kettle spills very easily. Somewhat expensive.
- Designer:** Philippe Starck for Alessi in 1990, Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitso.
- Timeline:** A horizontal timeline from 1920 to 2010, with a blue arrow pointing to the year 1990.

Through all of these student surveys, we were unable to find a distinct preference for a specific prototype information sheet. We had to conduct an additional survey for general museum visitors to select a preferred information sheet layout. This preferred prototype was then finalised and presented to the Design Museum in order to be implemented within the learning workshops.

4.2.2: Prototype Selection

In order solve the issue of not having clearly preferred information sheet, we conducted an additional survey of general museum visitors which had a return of 129 responses. These visitors were a mix of students, families, and adults without children. The youngest participants were about seven with the oldest being around the age of 70. Most of these participants approached the table in groups of two or more. The participants were told that the information sheets they were voting on were intended for children with a focus on being engaging and informative. They voted on the information sheets as shown in Figure 24a-c. Prototype #3 had a plurality of the vote (48.06%). The voting distribution can be seen in Figure 25.

Figure 24: Prototype Information Sheets

the DESIGN MUSEUM **HOT BERTAA**
Stranger by Design Made by Philippe Starck in 1990

Product Name: Hot Bertaa
Manufactured By: **ALESSI**
Function: Kettle
Material: Aluminum body, plastic handle
Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1990 to 1997. Alessi pulled it from market in 1997 because of it's many flaws in functionality. They said "You shouldn't need an instruction manual to operate a kettle."

E120

Strengths
- Very aesthetic design

Weaknesses
- The handle puts your hand too close to the hot metal body
- The kettle spills very easily
- Somewhat expensive

Witty's E of The Design Museum?
The designer focused on the aesthetics of the object rather than the usability. It shows that often focusing too much on the aesthetics of an object can get in the way of its usefulness.

Philippe Starck
Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitso.

Timeline of Major Events
1975: The machine invented
1978: Lufthansa
1984: The First
1985: WWII
1986: The first
1987: The first
1988: The first
1989: The first
1990: The first
1991: The first
1992: The first
1993: The first
1994: The first
1995: The first
1996: The first
1997: The first
1998: The first
1999: The first
2000: The first
2001: The first
2002: The first
2003: The first
2004: The first
2005: The first
2006: The first
2007: The first
2008: The first
2009: The first
2010: The first
2011: The first
2012: The first
2013: The first
2014: The first
2015: The first

a. Prototype #1 as seen by Participants

product title: HOT BERTAA
designer: Philippe Starck
manufacturer: Alessi - E120

the DESIGN MUSEUM

background
Hot Bertaa was designed as a kettle by Philippe Starck and manufactured by Alessi from 1990 to 1997. Alessi pulled Hot Bertaa from the market because of its flaws in functionality. Alessi states, "you shouldn't need an instruction manual to operate a kettle."

function
Kettle

what's it made of?
Aluminum body,
Plastic handle.

why is it at the design museum?
The Hot Bertaa kettle is an example of an object for which function follows form. It shows that often focusing too much on aesthetics of an object can get in the way of its usefulness.

manufactured by
ALESSI

strengths
- Very aesthetically pleasing design

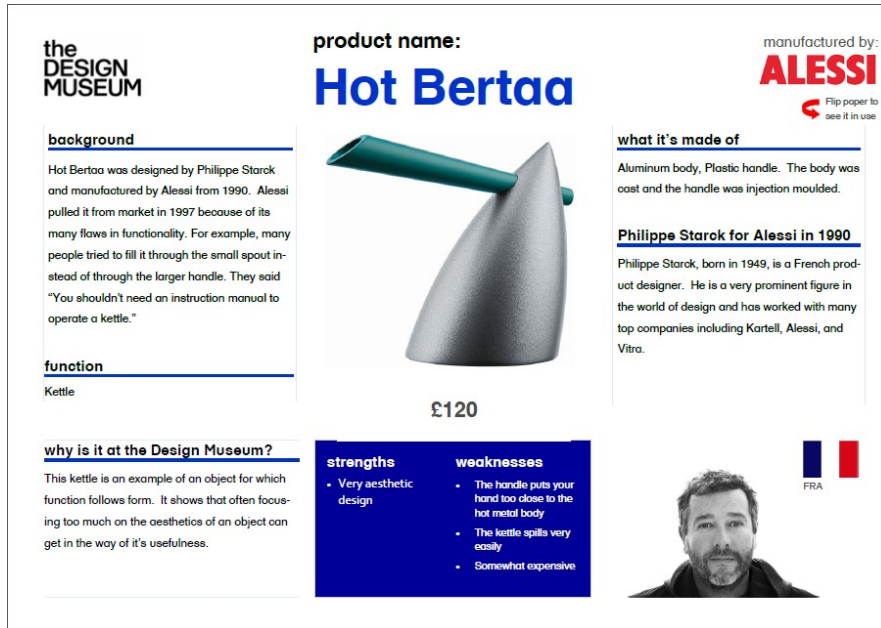
weaknesses
- The handle puts your hand too close to the hot metal body
- The kettle spills easily
- Somewhat expensive

designer: Philippe Starck
Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitso.

Produced by Alessi in 1990

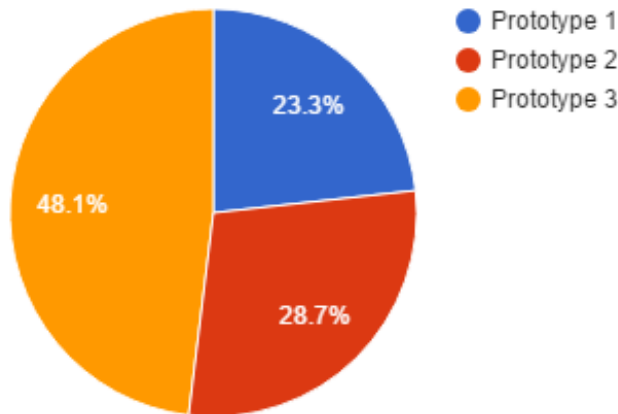
Timeline of Major Events
1975: The machine invented
1978: Lufthansa
1984: The First
1985: WWII
1986: The first
1987: The first
1988: The first
1989: The first
1990: The first
1991: The first
1992: The first
1993: The first
1994: The first
1995: The first
1996: The first
1997: The first
1998: The first
1999: The first
2000: The first
2001: The first
2002: The first
2003: The first
2004: The first
2005: The first
2006: The first
2007: The first
2008: The first
2009: The first
2010: The first
2011: The first
2012: The first
2013: The first
2014: The first
2015: The first

b. Prototype #2 as seen by Participants



c. Prototype #3 as seen by Participants

Figure 25: Voting Distribution of Preferred Information Sheet Prototype



4.2.3: Information Sheet Finalisation

Although prototype #3 was the preferred information sheet among general museum visitors, many participants showed positive feedback towards the timeline feature which was not previously included in prototype #3. However, many participants expressed that the reason they chose prototype #3 was because it was simple and clean. We found that putting the timeline on the back of the sheet satisfied both of these preferences. In addition, David Houston mentioned

that the background should include an interesting story which would make the information more memorable.

Based on all of these results, we came up with a final information sheet. The final sheet (see Figure 26 and Figure 27) is a double-sided landscape oriented information sheet that has a very simplistic feel to it through the use of spacing on the sheet. The final sheet contains categories such as:

- The product's name
- A picture of the object with the price
- Background information / story on the object
- What the object is made out of
- Pictures of how to use the object
- Strengths and weaknesses of the object
- A timeline of the major events and where the object falls on it
- The function of the object
- A picture of the designer and where he is from
- Designer's background
- Manufacturer and the year it was made

Figure 26: Final Information Sheet Front

the DESIGN MUSEUM

background

Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1990. Alessi pulled it from market in 1997 because of its many flaws in functionality. For example, many people tried to fill it through the small spout instead of through the larger handle. They said "You shouldn't need an instruction manual to operate a kettle."

function

Kettle

why is it at the Design Museum?

This kettle is an example of an object for which function follows form. It shows that often focusing too much on the aesthetics of an object can get in the way of its usefulness.

product name:

Hot Bertaa



£120

manufactured by:

ALESSI

Flip paper to see it in use

what it's made of

Aluminum body, Plastic handle. The body was cast and the handle was injection moulded.

Philippe Starck for Alessi in 1990

Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitra.

strengths

- Very aesthetic design

weaknesses

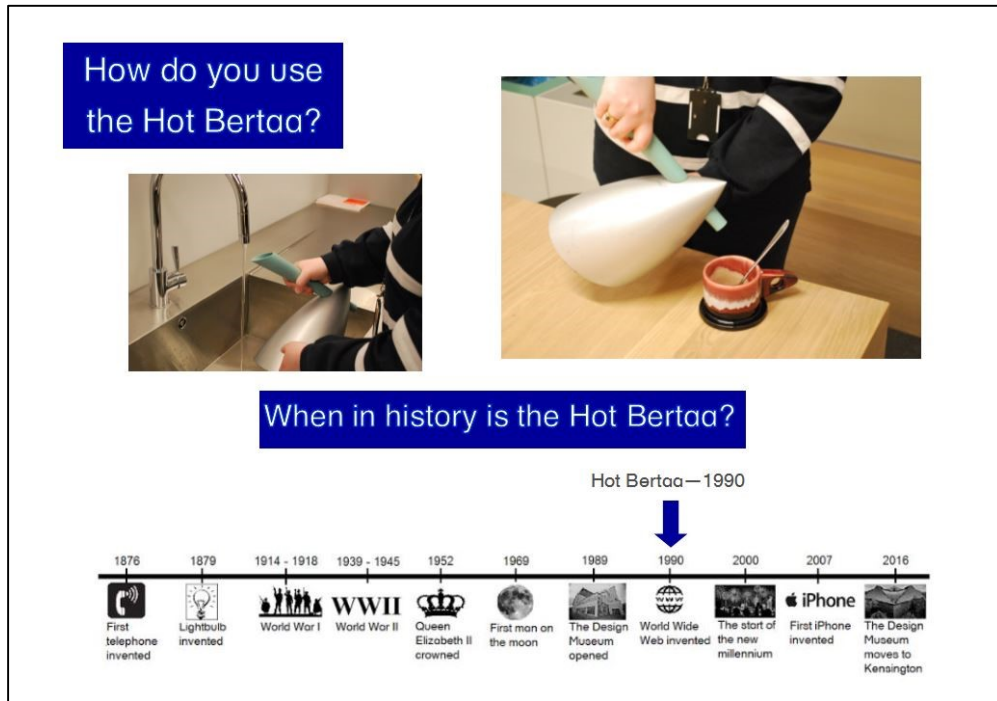
- The handle puts your hand too close to the hot metal body
- The kettle spills very easily
- Somewhat expensive





FRA

Figure 27: Final Information Sheet Back



After creating the information sheets, we realised that the population of the sheets may not be intuitive. This led to us creating a user guide for the information sheets as well in order to step the user through the process of creating a new sheet. Figure 28 shows the template page from the information sheet user guide. A complete user guide for the information sheets is shown in Appendix 12.

Figure 28: Information Sheet User Guide Template

the DESIGN MUSEUM 1

product name: 2
(Insert Product Name)

background
 (This is a background of the object. Who designed it? Who manufactured it? What is its intended use? Is there an interesting story that can be told about the object?) 4

what it's made of 8
 (Insert material and how it was manufactured. Ex: injection moulded thermoplastic resin)

why is it at the Design Museum? 10
 (Discuss the design of the object. Which is more important with this object: aesthetic or function?)

function 6
 (Insert function) 7
 (Designer Name) for (Manufacturer Name) in (Year of Production)
 (Brief biography of the designer of the product)

manufactured by: 3
 (Insert Picture of Manufacturer's logo or type name of manufacturer)

(Select this textbox and insert picture of the handling object) 5

(Insert current price of the object) 9

strengths 11
 • (what are the positive traits about this object?)
 • Strength 1
 • Strength 2

weaknesses 12
 • (what does not work about this object?)
 • Weakness 1
 • Weakness 2

3-letter country code 14
 (Flag of designer's home country)

Select these textboxes before inserting image
 Flag image should sit over top of designer image.
 (Insert picture of the designer) 13

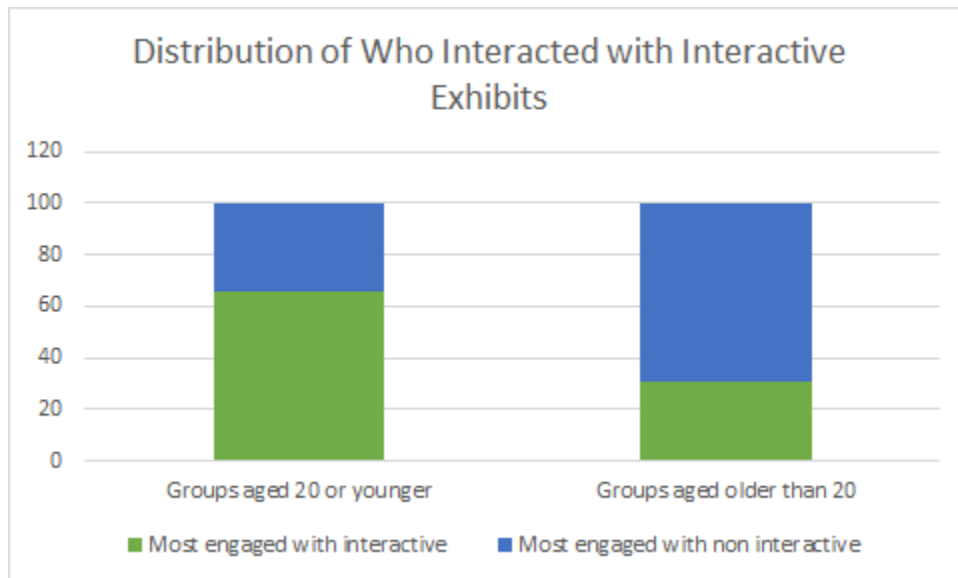
4.3: Curation

Our final objective was to curate the Design Museum’s handling collection into two distinct exhibits. We found out through interviewing various curatorial staff at the Design Museum that the materials handling collection in particular had been curated unsuccessfully in the past. We strove to remedy this through the curation of a materials handling object exhibit that had a story behind it and put the exhibit into context for the museum visitors. We also, based on interviews with the curatorial staff at the Design Museum, continued with the thread of context when curating the creative workshop space.

In addition to interviews regarding context and how to tell our story, we observed approximately 60 museum visitors in order to see who our audience was and how they interact with the exhibits. We observed people of ages ranging from 5 to 35. The group sizes varied from one to five people. The average age of everyone was 20 and the average group size was 2. We found that 50% of our groups were most engaged by an interactive exhibit. Groups with an average estimated age of 20 years old or younger were most engaged with an interactive exhibit 66% of the time. Out of all other groups, 31% were most engaged by an interactive exhibit. Most

of the people staying near the Work in Progress table were generally families with younger children and teenagers. Figure 29 shows the distribution of museum visitors that were engaged with either an interactive or a non-interactive exhibit. This data informed the curation of our exhibit.

Figure 29: Distribution of Museum Visitors Who Interacted with Interactive Exhibits



4.3.1: Context and Storytelling

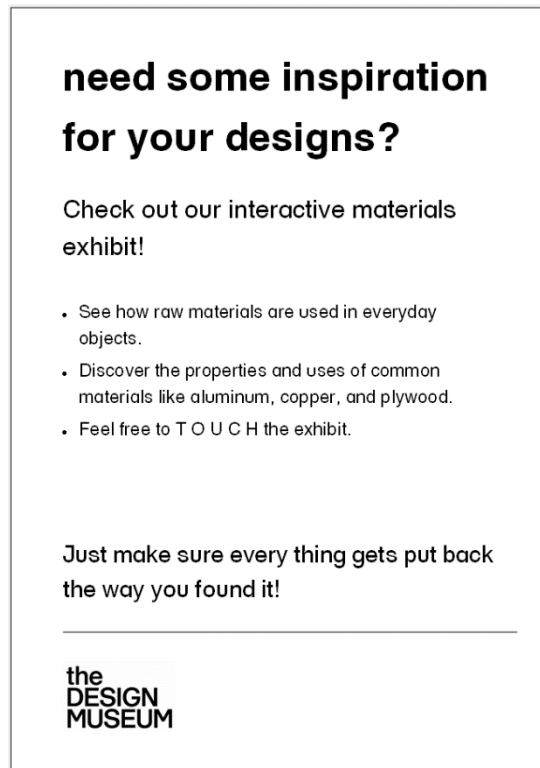
We found that contextualising and relating the story of an exhibit to the viewer is very important in the curation process. We found this from both interviews of museum staff and through the observations of museum visitors. Interviews with learning staff at both the Museum of London and the Horniman Museum and Gardens revealed that context is an important tool used by many museums to present collections in an educational manner. Additionally, we observed the Museum of London use a rope timeline to help present their collection. This was used to physically relate the age of certain objects to the age of the collection’s audience. We gained similar information from a member of the curatorial staff at the Design Museum. This staff member said that it is important to tell a story which relates to the person experiencing an exhibit. Another staff member said that the story contextualises the exhibit by grounding it within a singular and consistent narrative.

These ideas were backed up by our observations of museum visitors. We found that the visitors tended to be more engaged with exhibits which related to them. For example, we found that adults would be significantly more engaged than children with the section of the exhibit which displays famous political posters. To go back to our definition of context, these posters are more relevant and prominent in the everyday life of an adult than a child and therefore, the adults were able to engage with the exhibits better. The culmination of these observations and interviews lead us to tell relevant stories with both of our exhibits.

4.3.2: Curation of the Work in Progress Shelves

The Work in Progress area has two main components: the shelves and the table. At the table, visitors are presented with design briefs that allow them to explore their individual potential to be designers. Our curation consists of the materials handling collection at the Work in Progress shelves and will work in conjunction with the pre-existing Work in Progress table design briefs. We placed an invitation on the table to explore the materials handling collection as inspiration for their designs. This invitation can be seen in Figure 30.

Figure 30: Invitation to materials exhibit to be placed on the Work In Progress tables.



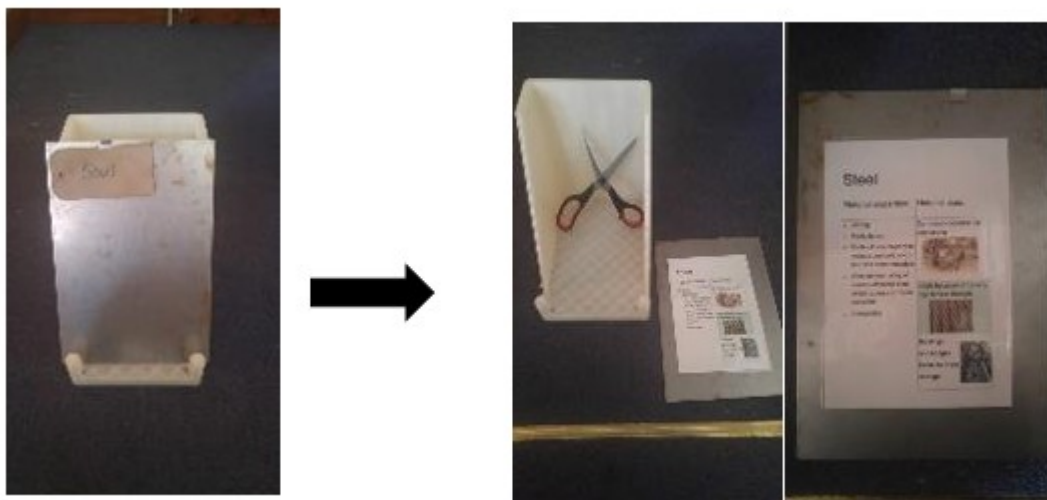
The story that we decided to use for the Work in Progress area is the story of a material transforming into a finished product. We found that we could find context in this exhibit by using final products that the general public would recognise, such as a pair of scissors. We found that the best way to show a material and a final product at the same time would be through the use of a display case as seen in Figure 31.

Figure 31: Case with Sheet and Without



The case itself was designed to be hollow so that the final product could be inside the case hiding until the museum visitor removes the sheet of material and unveils the product inside. From our interviews with the Design museum curatorial staff, we learned that 3D printing this case would be best for several reasons. First, if the case breaks it would be easy to replace it by using the 3D printer that is on display in the Design Museum’s exhibit. Second, it would make the case robust enough to withstand many people interacting with it. A more in depth visual of a display case is shown in Figure 32.

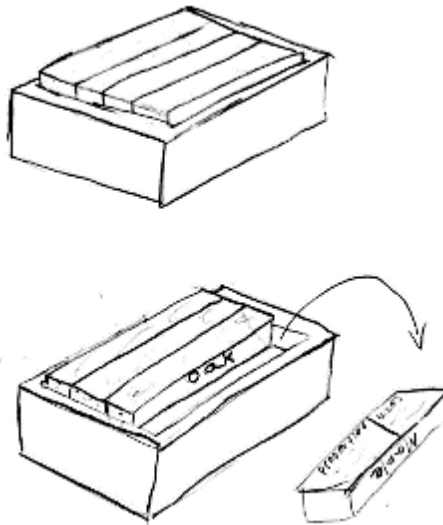
Figure 32: Display Case Concept



We found that these display cases would leave some space on the shelves. We decided to populate this space with a rotating display of the materials collection. Every few days, a different category of materials would be displayed in order to keep the exhibit fresh. Some examples of

these categories are woods, metals, tiles, acrylics, and textiles. These rotating displays would follow a similar concept to the display cases. The materials would be displayed so that visitors could interact with them. Under each material would be some information about the properties of the material and its various uses. A sketch of the wood collection can be seen in Figure 33.

Figure 33: Sketch of Rotating Wood Collection



The samples in the wood collection would be displayed in a box. The visitor could lift the sample out to study it. On the bottom of the wood sample would be the properties and uses of the wood. These are examples of this information:

Oak

Properties	Uses
<ul style="list-style-type: none"> • Good strength • Good hardness • Heavy • Resilient to fungus and insect attack 	<ul style="list-style-type: none"> • Viking ships and other old warships • Barrels for liquor such as whiskey, wine, and sherry to be aged • Construction of buildings

Maple

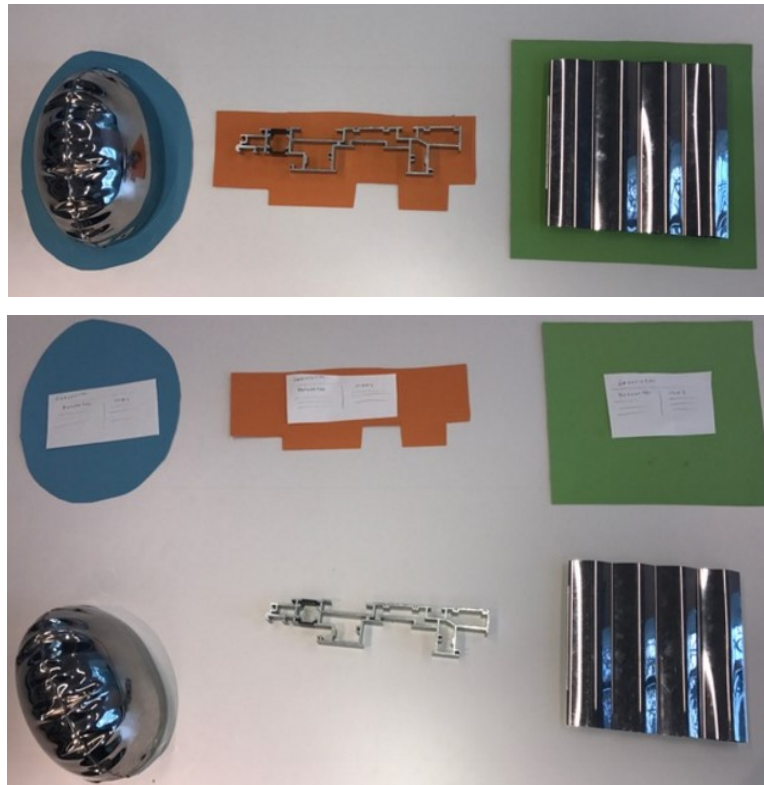
Properties	Uses
<ul style="list-style-type: none">• Carries sound waves well• Hard and strong	<ul style="list-style-type: none">• Furniture• Bowling pins• Musical instruments such as violins, violas, and cellos

Cherry

Properties	Uses
<ul style="list-style-type: none">• Easy to work• Costs more than oak or maple• Becomes dark with age	<ul style="list-style-type: none">• Furniture• Fine woodworking• Flooring

Figure 34 shows a picture of the metal forming collection.

Figure 34: Rotating Metal Collection



This part of the exhibit contains different examples of formed metal which can be picked up and studied. These objects have a piece of paper below them which outline the object so that the user knows where to put the object back. Additionally, this sheet will contain a description of the forming process and the properties and applications of that process. The information about each process is as follows:

Hydroforming

Description	
Works by pushing a liquid against a sheet of metal into a mould	
Properties	Uses
<ul style="list-style-type: none">• Works best with ductile sheet metal such as aluminium, steel, and copper• Can create lightweight parts• Can form complex shapes• More cost effective than stamping	<ul style="list-style-type: none">• Bicycle frames• Car bodies• Aircraft parts

Extruding

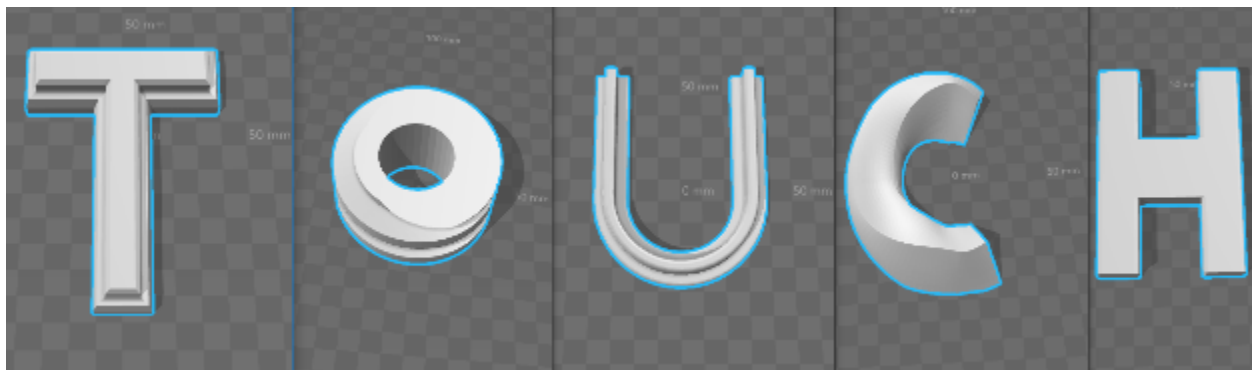
Description	
Used for parts with a constant cross section. Works by pushing a material through a metal piece of the desired cross section.	
Properties	Uses
<ul style="list-style-type: none">• Works with most common metal such as aluminium, copper, steel, and titanium.• Can also be used with plastic	<ul style="list-style-type: none">• Tubes• Rods• Easy construction of machines and robots

Welding

Description	
A process of joining two metals by applying heat. There are many different types of welding for different materials and applications.	
Properties	Uses
<ul style="list-style-type: none">• Creates strong joins• Some types of welding require experienced welders• The heat can affect metal properties and cause warping	<ul style="list-style-type: none">• Car frames• Bicycle frames• Construction of buildings

Through our observations of the exhibit as a whole, we found that many objects could not be touched and had signs indicating this. In order to differentiate our interactive exhibit from the rest of the ‘do not touch’ exhibits at the Design Museum, we found that displaying the word TOUCH was the best way of indicating this. The computer-aided design drawings of these letters can be found in Figure 35.

Figure 35: TOUCH 3D Models



We found that if the letters were displayed hanging from each other and in colour, they would be engaging. From our interviews with the Design Museum curatorial staff, we learned that hanging the letters is fine, but the string would need to be strong enough to withstand the many visitors interacting with it. Further interviews with the curatorial staff indicated another limitation of the Work in Progress exhibit was a budget of £600. In addition, the spacing of the

shelves that we were given for this exhibit was not ideal. They were placed such that there were only two shelves that were easy to access and read from out of the four total shelves.

4.3.3: The Creative Workshop

There are a total of five cabinets in the creative workshop to be curated with the handling object collection. After interviewing Design Museum educators, we found that these cabinets need to be easily accessible and organised to make it as easy as possible for the educators to organise the objects or gather objects in between workshops. We found through observing the workshop space, that the shelves could not be adjusted to any position. This would limit our freedom in terms of placing objects with different heights in the cabinets. We then decided to focus on context when curating these cabinets. We decided on a room system with objects inside to set the scene for each cabinet. There would be five different settings such as a bathroom, kitchen, office, a living room, and an outdoor scene. We picked objects which belong in each setting to put in their respective cabinets. For example, the Mr. Cold soap dispenser would go in the bathroom cabinet. In order to make the cabinets represent their respective setting, we wanted to include 3D cardboard cut-outs that would help set the scene. We found that 3D cardboard cut-outs would be too difficult to make look professional, so we found that vinyls would work very well to set the stage for the cabinets. We also found out that the Design Museum is in close contact with designers of vinyls and would be able to have them create vinyls for us. Figures 36-40 below show the vinyl designs for each setting. Figure 41 shows the outdoor scene implemented in a workshop cabinet.

Figure 36: Bathroom Vinyl Proposal

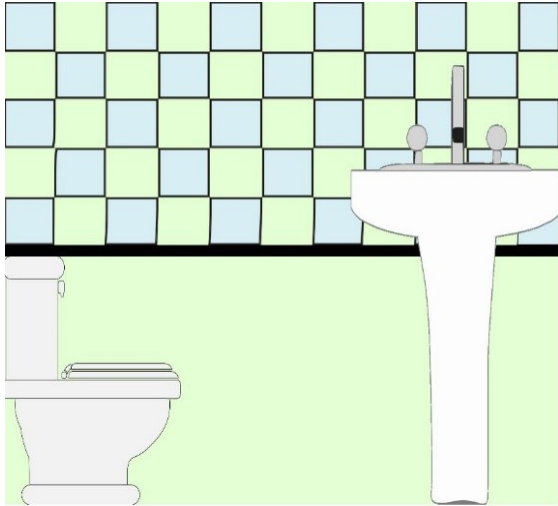


Figure 38: Office Vinyl Proposal



Figure 37: Kitchen Vinyl Proposal



Figure 39: Living Room Vinyl Proposal

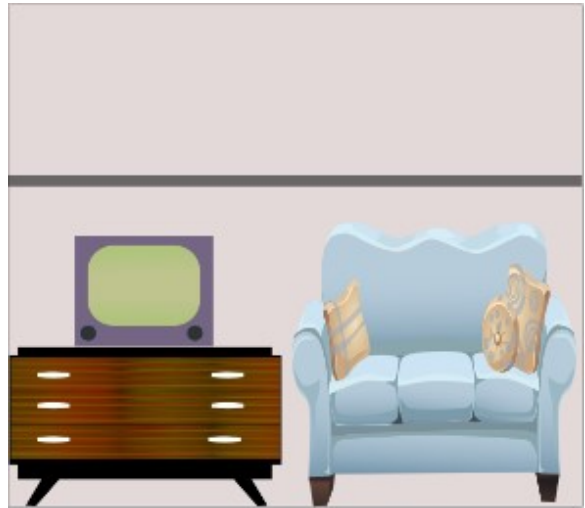


Figure 40: Outdoor Vinyl Proposal

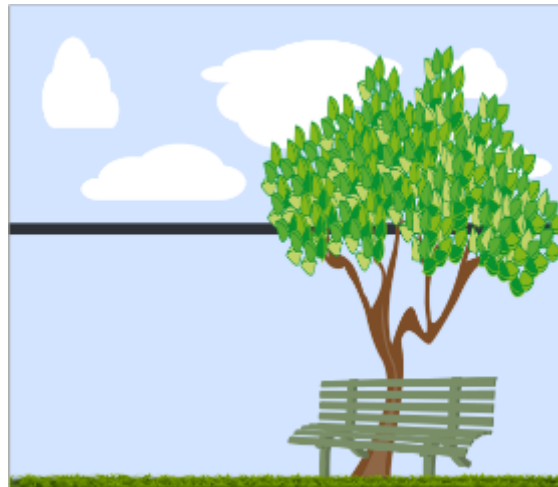


Figure 41: Implemented Workshop Cabinet Outdoor Scene



We found through observing the workshop space, that the shelves could not be adjusted to any position. This would limit our freedom in terms of placing objects with different heights in the cabinets.

Chapter 5: Discussion

In this chapter, we will explain what our findings mean and how they affected our final products. We will also discuss the future of our project including recommendations for the Design Museum. Following recommendations, we will review the limitations of the project as well as opportunities for future research and improvement. The chapter will conclude with a personal reflection by each member of the group on the project as a whole.

5.1: Database Design

Our database is a culmination of the results of our feedback from Design Museum employees and employees at other museums. We found that many museum staff were dissatisfied by the main database in their museums because of the difficulty of use, the required detail, and the inherent ‘heaviness’ of their systems. For our purposes, ‘heavy’ refers to the amount of data entry required to use the database. This means that the implementation of a lighter system of cataloguing a collection would be easier to use and more helpful for the staff. This discovery lead us in the direction of testing some website/wiki style systems for the handling collection database. These are systems designed for inexperienced users as opposed to museum collections experts and are therefore more accessible for a wider range of staff.

There were also several other needs for the employees. They wanted to know the condition of the items in the database. This means that a feature which allows anyone who is using the handling collection to update the condition of the objects in real time would be very helpful to the Design Museum staff. People are unlikely to use a feature like this if it is difficult and tedious to use. Therefore, this feature should be very simple and accessible for all of the staff using the collection.

The educational staff of the Design Museum uses the handling collection in a very diverse selection of workshops. Many times, an educator will need to pull out a number of objects which relate to a certain category which may be very different from the categories which are used in the creative workshops. This means that they need an organized way of browsing through the collection to find an object that they want. This led to the implementation of searchable tags for the objects in the database. By tagging each of the objects with many categories, the staff can search the database and easily find relevant items for their workshops.

For example, an educator looking for an everyday kitchen appliance for use in a class can search ‘kitchen’ in the database and come up with a list of kitchen objects.

Our sponsor, David Houston, informed us that we would need to create a user guide for the volunteers to easily understand the full capabilities of the database. We used many screenshots in this database because it is easier to follow than if it was only text. Three different user guides were created in order to customise the information for each specific audience. We decided to create separate user guides for each audience: editors, users, and administrators. For example, the administrator’s user guide details how to change the permissions of all members. The general users do not need access to this information, so they have a different user guide. See Appendix 11a-c for each detailed user guide.

5.2: Final Information Sheets

The old information sheets that the Design Museum was using in its creative workshops are black and white with harsh borders between the sections and not very visually appealing (see Figure 11). According to our previous research, visuals are very important in a child’s learning process. In addition, children have a preference to bright colours with black and white as two of the least preferred colours, as can be seen in Figure 4. These old information sheets did not use these fundamental principles in their design. We believe that this is why they were not used frequently in the workshops. Therefore, when designing our information sheets, we wanted to ensure that they were representative of our knowledge of children’s learning styles. These sheets needed to be colourful and have more focus on pictures rather than words. These ideas were further reinforced when we visited University College London’s Grant Museum and saw their natural history handling collection. Their information sheets were colourful and full of images.

After our interviews with other museum’s education departments, we learned that context is important when teaching children. The Museum of London used a rope timeline to illustrate how old certain objects were because long periods of time are hard to imagine for children. Therefore, comparing how long their life is to thousands of years really helped the children put this image into context. Our interviews with Design Museum employees confirmed this idea of context. This aligns perfectly with the theory that learning is best when students are allowed to construct their own meaning from information. Keeping this in mind, we decided to put in an additional section to our information sheets, titled ‘why is it at the Design Museum?’ meant to

help put items into context. In addition, partly inspired from the Museum of London, we decided to put a graphical timeline on the information sheets to help put in perspective when these objects were created when compared to major recognisable historical events such as World War I.

We designed three prototype information sheets that used all of these concepts. Prototype #1 is portrait and divided the information into three distinct horizontal sections, one about the object and its background, one about the strengths, weaknesses, and why it is in the Design Museum, and one about the designer. Prototype #2 is portrait and divided each topic into its own horizontal section with thick blue lines underlining each title. Prototype #3 is landscape and surrounds the large and central image of the object with individual sections of information.

From our student group surveys, we improved the information sheets. We put a ‘product name’ next to the name of the item because we found that not many students were able to remember the name of the product. The addition of product name is shown in Figure 42.

Figure 42: Product Name Addition to the Information Sheet



We also included a picture of the object in use, as seen in Figure 43, because we found that many students were unable to tell us how to use an object after reading the information sheet.

Figure 43: Image of the Object in Use Addition to the Information Sheet



We changed font sizes, went from bold to italic to bold again, and made numerous other small changes that made the sheets better. This was a very iterative process. We also used feedback from our sponsor, David Houston, and our advisors to help improve the sheets. All of these changes led up to our final three prototypes. With no clear winning prototype, we turned to the public to help us.

Our sticky-note survey was interesting on many counts. Initially many of the participants wanted to vote for one of the portrait information sheets, but after being told that this was for children with a focus on accessibility they switched their vote to the horizontal one. With the knowledge that the plurality of the public preferred prototype #3, we used that as our final product. Several changes were made to the content of the information sheets after this survey, but the general layout remained the same. These information sheets will be used in the creative workshops to help the children learn more about each individual object. They will be handed out after the students have explored and interacted with the object with no prior information.

We initially created a template for volunteers to use to populate the information sheets. Upon testing the template, David Houston, our sponsor, felt that volunteers would benefit from a comprehensive user guide. This user guide was created based on the template, utilising screenshots of the template and a finalised information sheet for comparison.

5.3: Curation and Context

For our final objective, the curation of the handling object exhibits, we took a lot of our inspiration from the importance of context and spent a lot of time constructing a story that we

could tell with the handling collection. The first exhibit we curated was the materials handling collection. Since the preference of our target audience tended towards interactive exhibits, we decided to make our own exhibit interactive. In addition, we found that most people interact in a meaningful way with exhibits that they can relate to. Additionally, according to our interviews with one of the head curators at the Design Museum, the importance of the materials is, '[what] you can make with it because of what it can do.' With this information in mind, we decided to use everyday objects to demonstrate the story of material choice. This idea came up when we were presented with a section of cork wood with some holes drilled out. We were told that these holes were drilled to create corks for wine bottles. Once we were told this it seemed obvious but without the finished product we wouldn't have known how that specific piece of wood was used. We thought that it would be useful to present some final objects in the materials exhibit because it would clearly demonstrate the use of materials in final products. For our exhibit, we would show the material sheets and then introduce common objects that most people would be familiar with that are made out of that material.

By doing this, we relate material selection to the museum visitor by demonstrating the concept through common items. Using common items is important because it helps to contextualise the exhibit and make it more accessible to the audience. We think that if an audience member can look at an everyday object and think 'Wow! I have that object in my house' they will be able to relate to this object more. We demonstrated the versatility of these materials by introducing different uses for the same material on the back of that particular sheet of material. Based on information gathered from our interviews, we determined that it is pertinent that we show the breadth of uses that the materials have. By doing this, we hope to get museum visitors thinking about how materials are used and why. By getting them to think critically about the materials in the Design Museum, we think that they will take that sense of 'why is this made out of that' and continue to think about materials in their everyday lives.

During the curation process of the Work in Progress area, we discussed within the group and with curatorial staff at the museum about how much of the existing materials collection we wanted to display on the shelves. The display case concept would only display five pieces of the collection which we decided wasn't enough. We chose to utilise the remainder of the space on the shelves to display a portion of the rest of the collection. We didn't want to display all of the collection at once as this would cause the shelves to become cluttered. We chose to have the

display cycle through a different group of objects every few days to solve the clutter problem and keep the exhibit fresh for returning visitors.

While the story that our exhibit tells is arguably the most important aspect of the curation, it is also important that the exhibit itself appears inviting. Based on our observations, the current space for the exhibit is not very inviting. This is because the shelves that we had been tasked with populating were very dark and did not entice museum visitors to approach them. We thought about different ways of making the exhibit more inviting to the visitors. We thought about lighting the exhibit with LED wires but we found that this would be expensive and difficult to maintain. We also thought about putting stickers around the rest of the exhibit which would lead the visitor to the interactive materials exhibit but we thought that this would be a little intrusive to the rest of the exhibition. Eventually, we decided to remedy the uninviting nature of the display with the creation of the 3D-printed 'TOUCH' sign that was created by the 3D printer on display in Designer Maker User.

We decided to connect our materials exhibit with existing activities within the museum taking place near the exhibit. We think this connection would encourage visitors that are already taking part in activities at the Work in Progress table to interact with the materials exhibit. This would enhance the educational value of the existing activities by giving the visitors an opportunity to take a deeper look into material selection.

Continuing with the overarching thread of context, we decided to curate the cabinets in the learning workshop as common rooms in a household. Our goal with the household rooms was for students to be able to connect with the objects on a personal level when they see where the objects could potentially fit in their own houses. After speaking with a curator at the Design Museum about our initial idea of non-descript cardboard models of certain household items and our not-so-successful attempt to mock-up our ideas, we decided to use vinyls on the back wall of the cabinets to portray the same original idea. Our project sponsor was very supportive of this idea as it was a more abstract way of presenting the handling objects in the learning collection. Based on our interviews, it was agreed upon that our main goal with the cabinets was to create a spectre, the illusion, of context.

Along with context, it was very important to us during the curation process that we present an exhibit that allows for the museum visitors to create their own meaning from the exhibition. We wanted them to be able to use their own personal experiences to be able to

construct meaning from our exhibits. It was important for us to design exhibits in keeping with the discovery approach to learning.

5.4: Recommendations

In completing the deliverables for the Design Museum we were able to come up with some recommendations for the museum. Our first recommendation relates to the database. In our database, there is a comments section on each object page. We suggest that this section be used by Design Museum educators to share some teaching notes from their workshops. In these comments, the educators can share the stories they told in their workshops and let other educators know what was effective and what was not. This would be a new mechanism to create a useful dialogue between educators to increase the quality of the workshops

Our next recommendation is in relation to the materials exhibit. We have found that the shelves used for this display are poorly lit and we think that better lighting would help make that section of the museum more exciting. We would recommend that the museum explores the possibility of wiring more lights to that part of the exhibit. Another important thing for the future of the exhibit we created is the upkeep. Due to the interactive nature of the display, it is possible for different materials to be put in the wrong spot. Therefore, we recommend that the Design Museum volunteers who are already in the area should keep an eye on the exhibit and make sure that the components are put back properly so that the intended organisation of the exhibit remains consistent.

Our final recommendation has to do with the display cabinets in the creative workshop. In these cabinets, there are several objects which have electrical cords which end up looking messy and getting tangled. It is important that these cords are kept in good condition as the objects are often plugged in during workshops for demonstration purposes. Therefore, we recommend that there should be a cable management system in use to keep the cables in good condition and to keep the display looking appealing. The system that we came up with involves drilling holes in the shelves and dropping the cables through the holes to the lower section of the cabinet. Then one could put a piece of paper on the lower section of the cabinet door to hide the cables while the door is closed. This would be easy for the educators to use and maintain because it requires no winding of cables and the cables are immediately hidden from view.

5.5: Limitations and Future Research

During the process of this project, our group experienced some limitations to our work. The first limitation was the IRB approval timing. It took about two and a half weeks in total, with most of this being during the first one and a half weeks into the project. This greatly hindered our ability to collect data early on as we had planned. Although we were able to complete other project work and make sure that we were able to begin data collection as soon as we got approval, this presented a big challenge for our project. This constraint was compounded by the fact that the creative workshops would not be conducted during the middle of our project for about three weeks due to school vacation. A lot of our important data collection required these workshops to be in session. The culmination of these two constraints meant that we only had two days to conduct surveys with workshop students. A future project could be improved by starting the ethical review process sooner, especially for groups working with children.

Another limitation was the schedules of the staff of the Design Museum. Since the project took place near the end of their fiscal year, many of the staff were taking vacation time. This made it challenging to schedule interviews and consultation with them. The project could be taken further if the database, information sheets, and exhibits were observed in use. That way the museum could gauge the effectiveness of these three deliverables and make improvements as necessary.

5.6: Conclusions

By the end of this project, we completed all of our deliverables for the Design Museum. We were able to present them with a database that was easy to use for staff and helpful for the organisation of the handling collection. We used the feedback of employees at the Design Museum as well as other museums to inform our creation of this database. Additionally, we created information sheets that could be used to help teach the handling collection to students. These were created to be interesting and accessible based on various data collection methods including observations, surveys, and interviews. Finally, we created the plans for two exhibits to display the handling collection. These exhibits were designed to be relevant and interactive based on the collection of data from interviews and observations of museum visitors.

5.7 Reflections

Nicholas Maio

The thing that surprised me most about the project was the sheer amount of work that had to be done to meet the needs of every person involved with our deliverables. It was interesting watching our deliverables develop from ideas to physical products that we were able to hold. It was also great to be able to bring my strengths to the project by using my experience in 3D modeling to help us create our TOUCH sign and display cases. Relative to London in general, I especially enjoyed absorbing all of the culture. My favorite historic part of London was Big Ben; the pictures truly do not show how amazing it really is. The biggest challenge for me during the project was the language barrier, even though we both were speaking English. However, after a few weeks, I managed to pick up on the different terminology and enjoyed learning it immensely.

Benjamin Schooler

Through the 14 weeks of this project, I have dived into a field about which I knew very little. This experience was very valuable to me both professionally and personally. Not only did I learn about the inner workings of a museum, I also picked up some skills which will continue to be useful in my future. I learned how to interact with people in a professional setting and I greatly improved my presentation skills. Most importantly, I learned how to be part of a well-operating group and make a long-term product which we were all proud of. Living and working in London was an impactful experience. This was the first time I've been in a foreign country without the tourist lens, and I feel that the experience was very genuine.

Natalie Thompson

This project has been one of the best experiences of my life. I learned so many things, including how a museum works and how to use a bus. I really enjoyed getting to know London a lot better. In particular, I enjoyed visiting Hyde Park, it was very peaceful and beautiful. The project was challenging for me based purely on the sheer size of the knowledge gap. It was far out of my major, experience, and expertise. As a result of this challenging project however, I learned how to research information on the fly, how to be flexible in a professional work

environment, and how to stand up for my own ideas in a meeting with a superior. Overall, this time spent in London has been amazing. I loved the time I spent here.

Kaitlyn Valla

The last seven weeks may have quite literally changed the course of my academic career. Before landing in London, I was really worried that I would be severely homesick and constantly lost. While I still managed to get lost quite a bit, I never really experienced homesickness. On the contrary, I did not want to leave London. It is my goal now to pursue my postgraduate education in London and return to the U.K. in a year. More than just loving London, I have come to feel a real ownership over this project. Seeing physical manifestations of our project is one of the most rewarding feelings I have experienced in my career at Worcester Polytechnic Institute. The culmination of our work and the success of our final presentation was a very proud moment. I felt like my group and I had tackled a project much larger than ourselves and really made it something worthy of the Design Museum.

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Appendices

Appendix 1: Quantitative Data Regarding Children's Colour Preference Ranking.

Mean affect rating refers to how the children reported the colour made them feel on a scale of 1 to 5. Mean rank ordering refers to the average rank number the colours received.

Colour	Correlation between affect rating and rank	Mean affect rating (and sd)	Mean rank ordering (and sd)
Red	-.71	4.40 (1.14)	3.18 (2.44)
Blue	-.69	4.28 (1.19)	3.41 (2.30)
Yellow	-.64	4.10 (1.21)	4.52 (2.16)
Green	-.63	3.56 (1.38)	4.80 (2.21)
Purple	-.64	3.33 (1.68)	4.94 (2.50)
Orange	-.68	3.56 (1.40)	5.27 (1.87)
Pink	-.79	2.81 (1.85)	5.88 (3.26)
White	-.64	2.65 (1.62)	6.36 (2.27)
Brown	-.59	1.56 (1.11)	8.22 (1.71)
Black	-.69	1.58 (1.18)	8.45 (2.21)

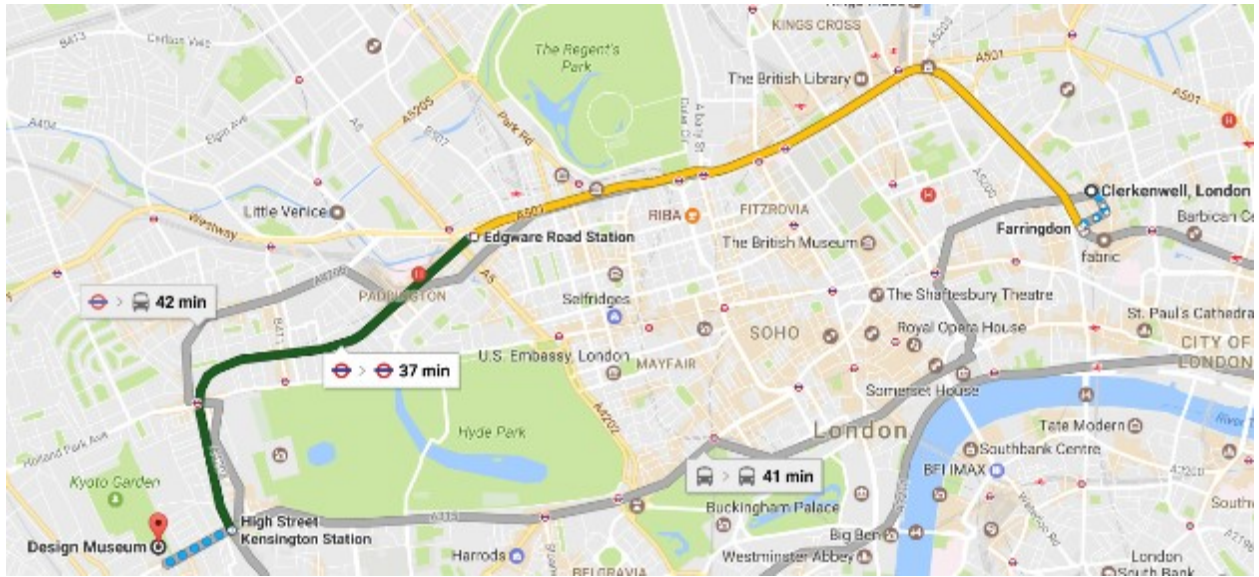
(Burkitt, Barrett, & Davis, 2003)

Appendix 2: Map of London with Old and New Locations of the Design Museum



(Map of London 32 boroughs & neighborhoods, 2017)

Appendix 3: Tube Routes from Clerkenwell to the Design Museum



(Retrieved from Google Maps)

Appendix 4: Booking of Workshop Sessions 2017

2016/2017 Academic Year

	January	February	March	April
Stranger by Design	5	6	6	1
Materials	7	4	5	3
Lighting	13	1	4	1
Designer Maker User	2	7	9	1
Chairs and Seating	3	4	2	2
Total:	30	22	26	8

Appendix 5: Interview Questions for DM Staff Using the Database

1. How important do you feel this database is?
2. Do you believe that you are going to use the database often?
3. What is a specific feature that you want to the database to have? For example, an advanced search option or image-based browsing?
4. How helpful do you feel this database will be in your day-to-day work life?
5. How important is it to you that the database is easy to use?
6. How do you currently find objects?

Appendix 6: Interview Questions for DM Staff After trying the Database

We will conduct meetings with individual freelance educators and design museum staff who will be interacting with the database in the future in a logistical and organisational sense. First, we will show them the database and how its various functions work. Then, we will let them use it and try to find and update several objects. After a few minutes we will ask them these questions and open up a discussion about the database.

Would you use this database? How well does it fit your needs?

How could it do more or less to fit your needs?

How easy is it to use?

What would help to make it easier to use for you?

What features or information would you like to add?

What features or information would you like to take away?

What didn't you understand about the use of the database and how could we explain it better?

Appendix 7: Surveying Self-Guided School Groups

Scenario 1:

We will be conducting an extension of the existing workshops, currently delivered by the Design Museum educators, during the students' free time under the instruction of the Design Museum educators and the supervision of their teachers. In this extension, we will hand the student an object that was not used in the preceding workshop along with an information sheet corresponding to that object. We will then ask the student to read the corresponding information sheet and then after a few minutes take the information sheet away from them. Then we will ask them to tell us what they found out about the object, a full list of questions can be found below. We will then tell them if they were correct or not and then explain the answers to the questions we asked.

Complete list of questions:

1. What is this object/ what is its purpose?
2. What material is this made out of?
3. Who is the designer?
4. What are the top 3 things that interested you about this object?
- 5.

Verbal Consent (to be said to child/student before participating in activity):

Your parent(s) have already given their permission for you to participate in our activity. Are you willing to take part in our activity? You may say no at any time during the activity without getting into trouble?

We asked each group of students to pick one prototype to learn from as a group

Scenario 2: Surveying self-guided schools

This will be an extension of an existing exhibit installed at the Design Museum. We will approach schools as they walk by and ask them if they are interested in taking an interactive survey. They will be fully briefed about what will happen and told that they can stop at anytime. We will ask for the teacher's verbal consent. Then we will hand their students three information sheet prototypes and ask them to pick one. We will then present the object on the information sheet that they picked and ask them to study the object and the information sheet. When they are done, we will ask them which piece of information they found the most interesting about the object. In addition, we will ask them if they have any questions about the object. This will conclude the survey. We will never take students from the exhibit floor. All surveys will be done in public with Design Museum employees nearby.

Verbal consent (to be said to child/student before participating in activity):

Your teacher(s) have already given their permission for you to participate in our activity. Are you willing to take part in our activity? You may say no at any time during the activity without getting into trouble?

Appendix 8: Interview Questions for the Design Museum Educators:

1. What do you do?
 - a. Can you take us through an average workshop from your perspective?
2. Why do you teach these workshops?
3. What is your favorite part of teaching these workshops?
4. What is the hardest part of teaching these workshops?
5. What are the main ideas that you hope the children and other museum visitors attending the workshops take away from the lessons?
6. When presenting a handling object, what do you think are the most important pieces of information about that object?
7. How do you use the information sheets in your workshops if at all?

Appendix 9: Checklist when Observing Museum Visitors

1. How large is the group?
2. What is the approximate age range of the group? (for families just put the approximate age range of the children)
3. Which display were they most engaged with?
4. Was it interactive or not?

Notes:

Appendix 10: Interview Questions for Other Museum Organisers/ Curatorial Staff

1. How long have you had the handling object collection, and is it popular in your museum?
 - a. This will help us gauge if their practices have worked and if we should implement a similar tactic in the Design Museum.
2. If you do not mind sharing, how did you come up with the idea for your handling object collection display style?
 - a. This will allow us to look at designing a handling collection display in a different light
3. How do you present your handling object collection to visitors?
4. Do you have any information sheets that are shown to the visitors when they look at the handling object collection? If so, can we see them?
 - a. This will also give us some ideas about how to format our information sheets for the Design Museum
5. Do you know which of your handling object exhibits are the most popular? Do you know why?

This will give us the best example that the museum can offer because if the exhibit is popular, it means that it is working and it is a good example to follow

Appendix 11: Database User Guide

a. Editor's User Guide

the Design Museum's Handling Collection

Database User Guide



Materials



Chairs and Seating



Stranger by Design



Lighting



Designer Maker User

Written by: Natalie Thompson

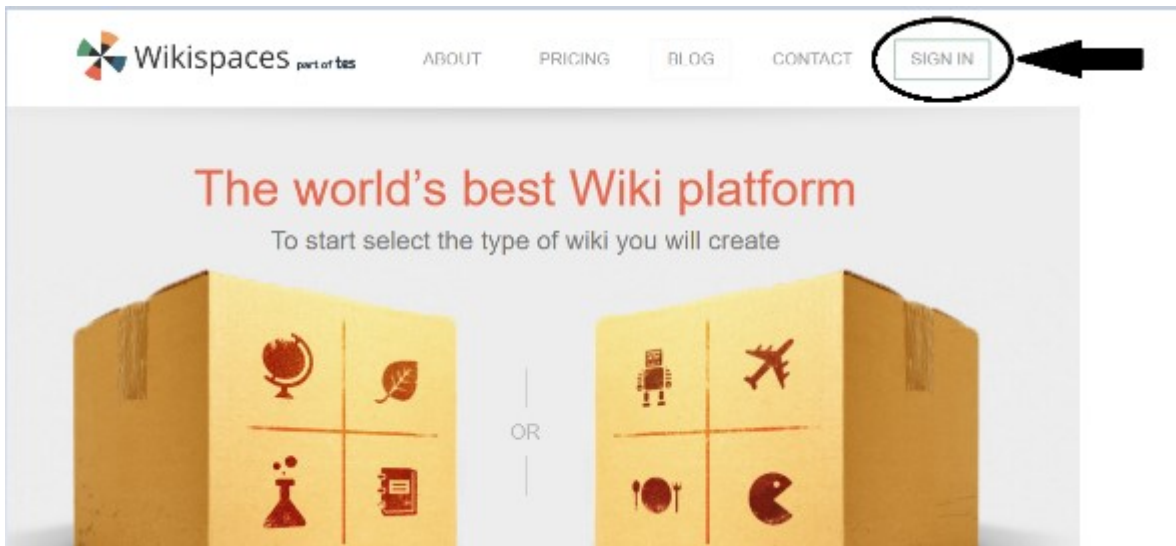
Contributors: Nicholas Maio, Benjamin Schooler, Kaitlyn Valla, David Houston

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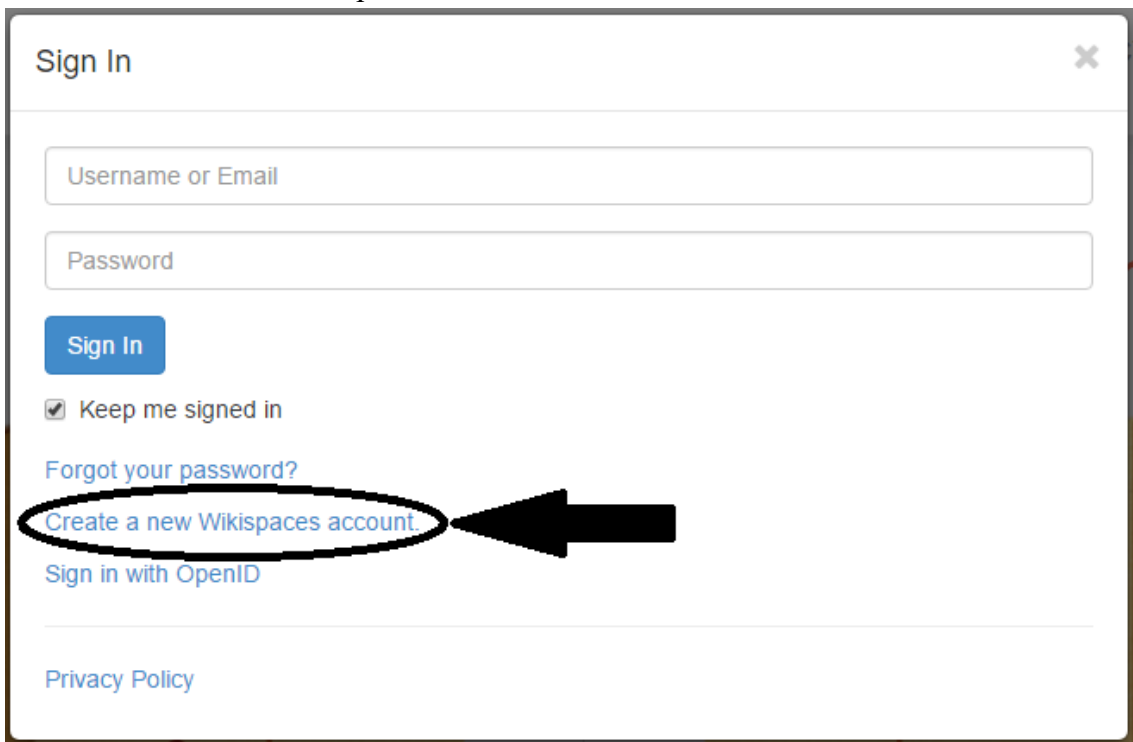
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Making an Account

1. Go to www.wikispaces.com
2. Click on “SIGN IN”



3. Select “Create a new Wikispaces account.”



4. Fill in the necessary fields.
5. Ensure that the “Make a Wiki?” field has “No” selected.
6. Click Join

Accessing the Handling Collection Database

Step one: Getting access

1. Contact the Design Museum's Producer for Schools and ask them to add you as an organiser.

Step two: Accessing the database

1. Sign in to Wikispaces.
2. Select "My Wikis"



3. Select "HandlingCollection"

How do I know if I have access or not?

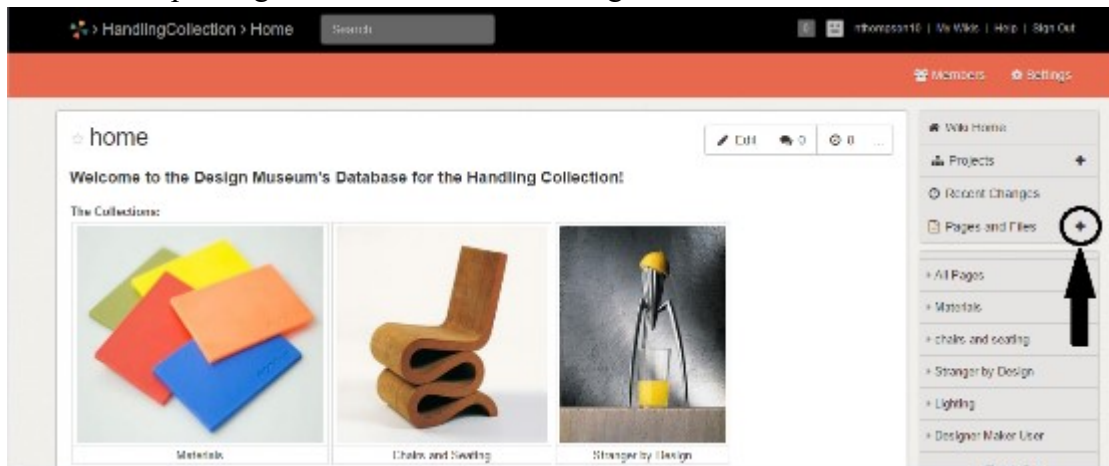
1. Try step two.
2. If "HandlingCollection" does not show up when you select "My Wikis" then you do not have access. Proceed to step one.
3. If "HandlingCollection" does show up when you select "My Wikis" then you have access.

Making a New Page

Note: If anything goes wrong make sure that the HTML looks exactly like it does in the examples.

Getting Started

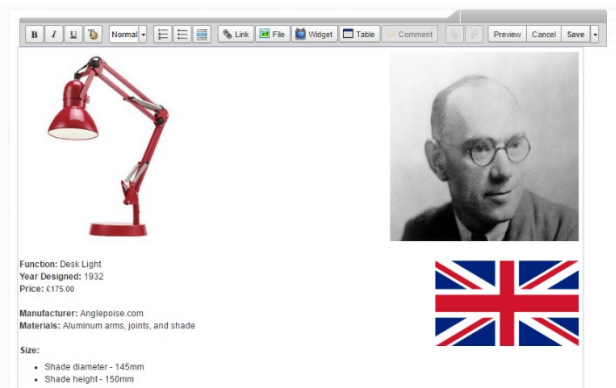
1. Click on the plus sign next to “Make a New Page”



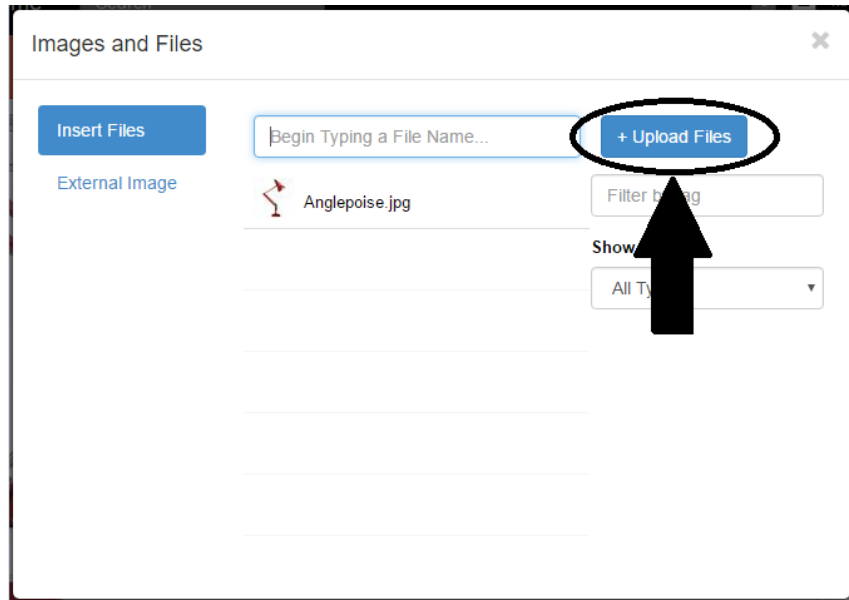
2. Fill out the necessary fields. Use the template “New Object”

Adding a picture of the object

1. Click Edit to show the screen below (note: this is an example the images and content may be different)



2. Find a picture of the object.
3. Insert picture
 - a. Select "File" from the edit menu above
 - b. Select "+Upload File"



- c. Select the file you want from your computer folders
- d. Click on the image name to insert the image.

Formatting the picture of the object

1. After inserting picture

- a. Click the down arrow next to "Save" in the top right corner of this edit screen



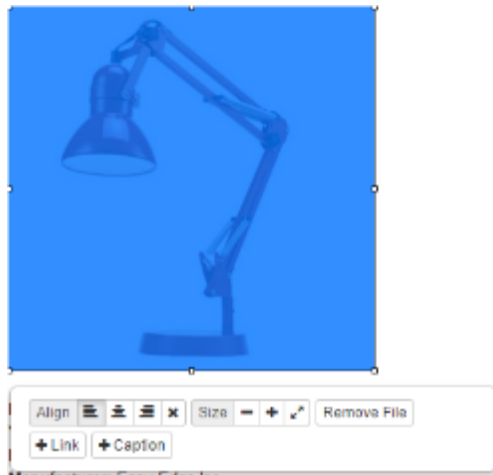
- b. Select "Wikitext Editor"
- c. Scroll to the top of the page
 - i. Press the up arrow key on your keyboard to ensure that you are at the top of the page
- d. Locate the line of code that corresponds to this picture (note: this is an example the images and content may be different)

```
[[image:anglepoise.png]]
```

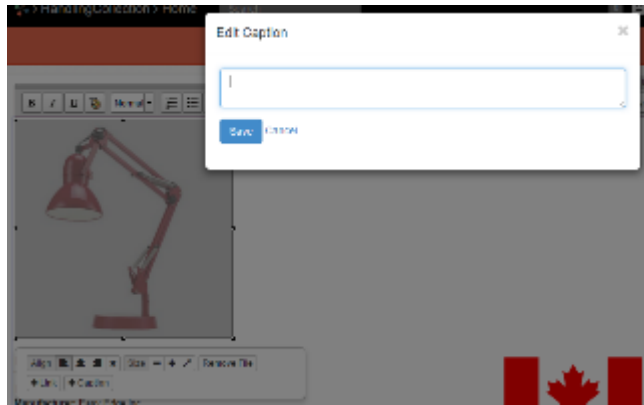


```
[[image:https://upload.wikimedia.org/wikipedia/en/thumb/c/cf/Flag_of_Canada.svg/1280px-Flag_of_Canada.svg.png width="197" height="100" align="right" caption="Designer's Place of Birth: Canada"]]  
<span style="font-family: Arial,Helvetica,sans-serif;">**Function:** Chair</span>  
<span style="font-family: Arial,Helvetica,sans-serif;">**Year Designed:** 1972</span>  
<span style="font-family: Arial,Helvetica,sans-serif;">**Price:** £675 (There is also a miniature version for sale at £219)</span>  
<span style="font-family: Arial,Helvetica,sans-serif;">Manufacturer:</span><span style="font-family: Arial,Helvetica,sans-serif;"> Easy Edge inc.</span>  
<span style="font-family: Arial,Helvetica,sans-serif;">**Materials:** Corrugated cardboard, fiberboard and round timber</span>  
<span style="font-family: Arial,Helvetica,sans-serif;">**Size:** 85 x 42.5 x 60, seat height 45.5 cms</span>
```

- e. Copy paste step 'i' below, right before the end two brackets.
 - i. height="300" align="left"
 - ii. E.g. [[image:anglepoise.png]]
→ [[image:anglepoise.png width="300" height="300" align="left"]]
- f. Switch back to "Visual Editor" in a similar fashion to steps a-b
- g. Click on the picture to make a menu appear



- h. Click "+Caption"
- i. On the menu that appears type the name of the object



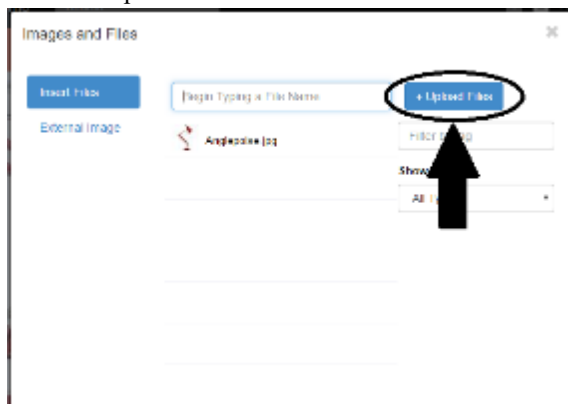
2. Click save

Adding a picture of the designer

1. Select a picture of the designer.
2. Insert picture
 - a. Go to the object page and select "Edit"



- b. Select "File" from the edit menu above
- c. Select "+Upload File"



- d. Select the file you want from your computer folders
- e. Click on the image name to insert the image.

Formatting the picture of the designer

1. After inserting picture
 - a. Click the down arrow next to "Save" in the top right corner of this edit screen



- b. Select "Wikitext Editor"
 - c. Scroll to the top of the page
 - i. Press the up arrow key on your keyboard to ensure that you are at the top of the page
 - d. Locate the line of code that corresponds to this picture

```
[[image:anglepoise.png width="300" height="300" align="left" caption="Anglepoise"]]
```

```
[[image:https://www.anglepoise.com/files/thumb/9bf1a53c275f80a/1200/auto/]]
```



```
[[image:https://upload.wikimedia.org/wikipedia/en/thumb/c/cf/Flag_of_Canada.svg/1280px-Flag_of_Canada.svg.png width="197" height="100" align="right" caption="Designer's Place of Birth: Canada"]]
```

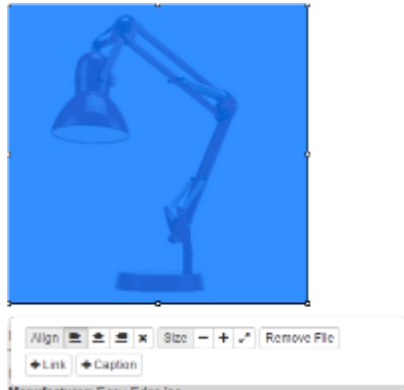
- e. Copy paste step 'i' below, right before the end two brackets.
 - i. height="300" align="right"
 - ii. E.g.

```
[[image:https://www.anglepoise.com/files/thumb/9bf1a53c275f80a/1200/auto/]]
```

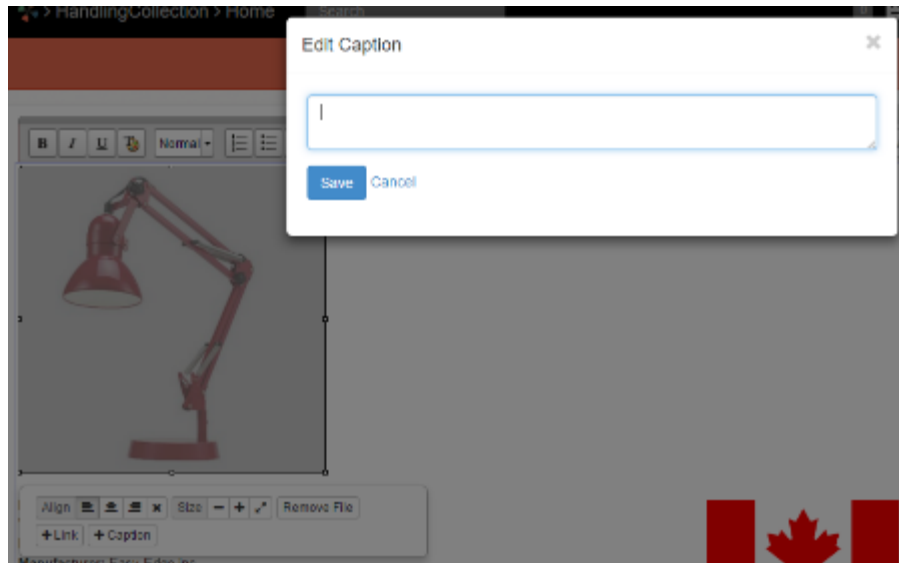

→

```
[[image:https://www.anglepoise.com/files/thumb/9bf1a53c275f80a/1200/auto
```

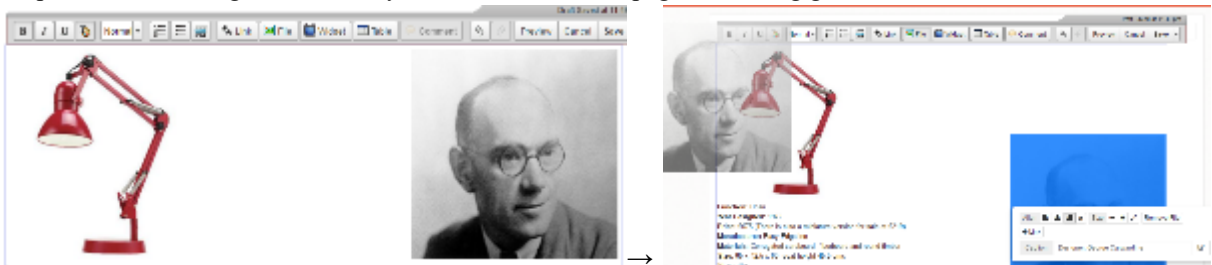

/ width="300" height="300" align="right"]]
 - f. Switch back to "Visual Editor" in a similar fashion to steps a-b
 - g. Click on the picture to make a menu appear



- h. Click "+Caption"
 - i. On the menu that appears type: Designer: INSERT-NAME-OF-DESIGNER



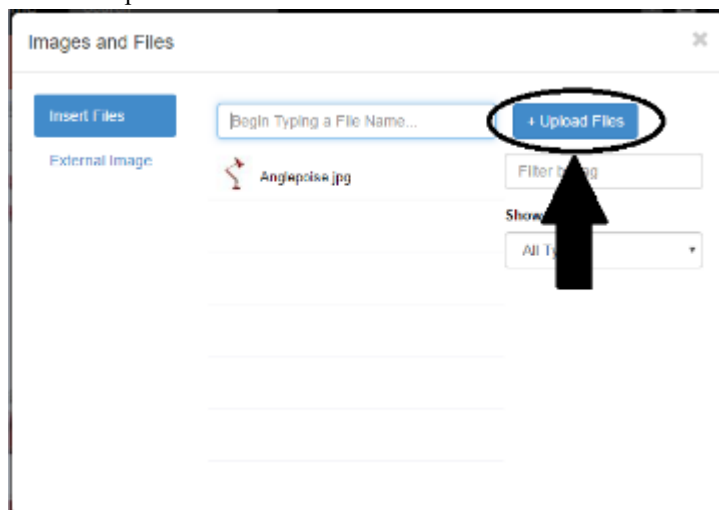
2. Move the pictures of the designer and the object to the same line.
3. To get the picture of the designer to line up perfectly with the picture of the object by clicking and dragging the picture of the designer all the way to the left side of the page and letting go.



4. Click save

Adding the designer's place of birth flag

1. Find a picture of the flag.
2. Insert picture
 - a. Select "File" from the edit menu above
 - b. Select "+Upload File"



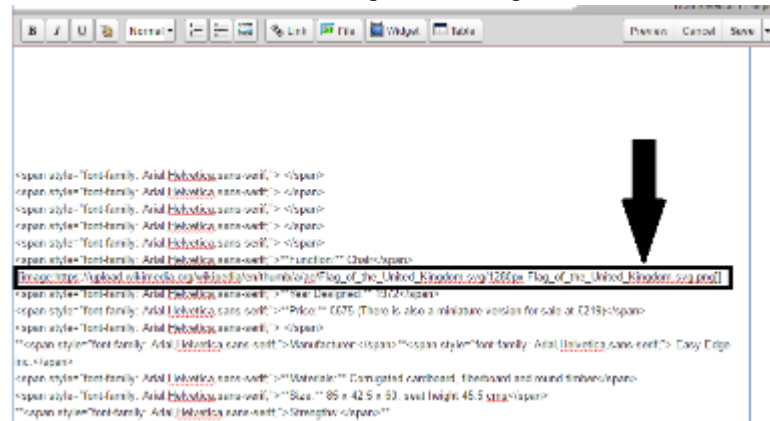
- c. Select the file you want from your computer folders
- d. Click on the image name to insert the image.

Formatting the flag

- 1. After inserting picture
 - a. Click the down arrow next to "Save" in the top right corner of this edit screen

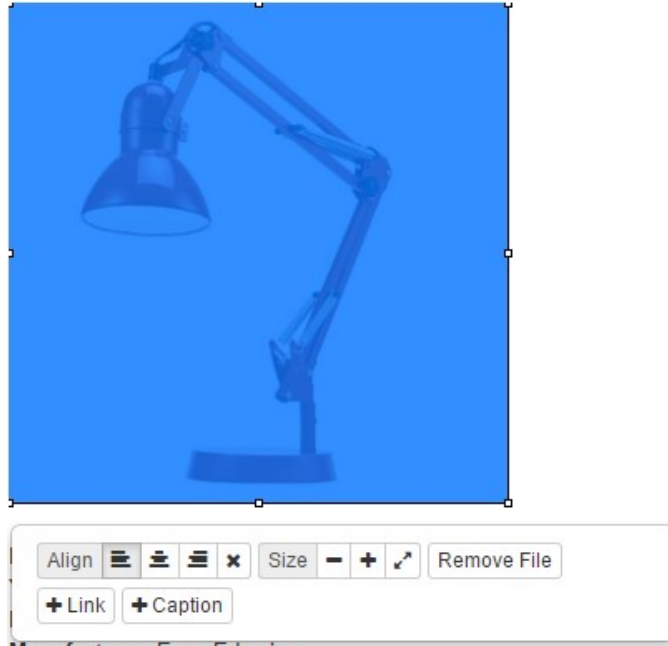


- b. Select "Wikitext Editor"
- c. Scroll to the top of the page
 - i. Press the up arrow key on your keyboard to ensure that you are at the top of the page
- d. Locate the line of code that corresponds to this picture

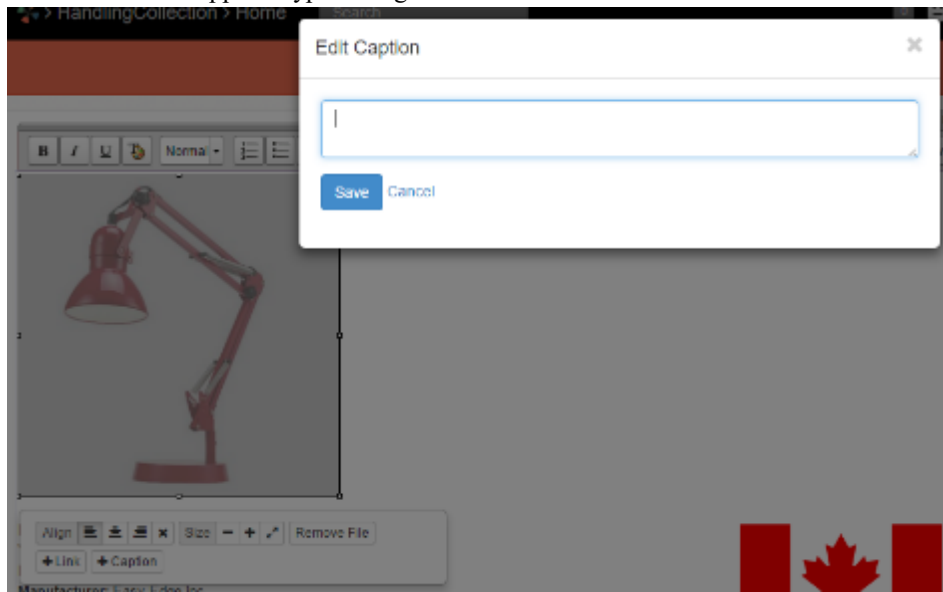


- e. Copy and paste step 'i' below, right before the end two brackets.
 - i. `width="200" height="100" align="right"`
 - ii. E.g.

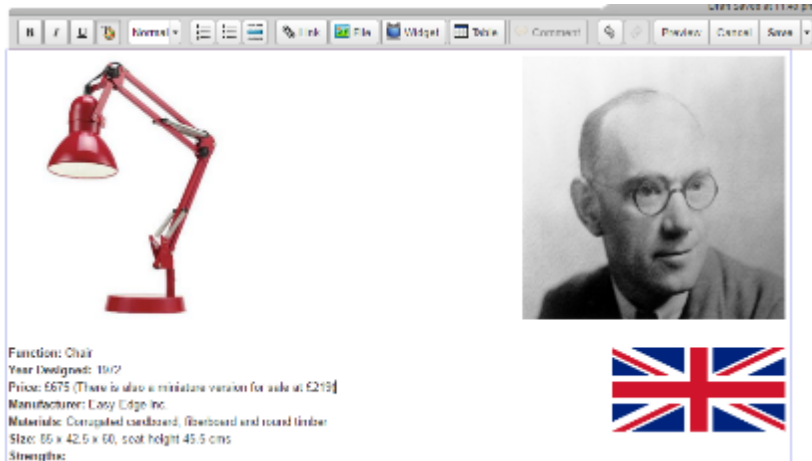
```
[[image:https://upload.wikimedia.org/wikipedia/en/thumb/a/ae/Flag_of_the_United_Kingdom.svg/1280px-Flag_of_the_United_Kingdom.svg.png]]
→[[image:https://upload.wikimedia.org/wikipedia/en/thumb/a/ae/Flag_of_the_United_Kingdom.svg/1280px-Flag_of_the_United_Kingdom.svg.png width="200"
height="100" align="right"]]
```
- f. Switch back to “Visual Editor” in a similar fashion to steps a-b
- g. Click on the picture of the flag that was just added to make a menu appear



- h. Click "+Caption"
- i. On the menu that appears type: Designer's Place of Birth: INSERT-NAME-HERE



- 2. Drag the picture of the flag to below the picture of the designer



Fill in the fields

1. Follow the template and fill in the fields of information

- a. **Function:** [Insert function]
- b. **Year Designed:** [Insert year designed]
- c. **Price:** [Insert price]
- d. **Manufacturer:** [Insert manufacturer]
- e. **Materials:** [Insert materials of the object]
- f. **Size:** [Insert dimensions of the object]



Function: Desk Light
Year Designed: 1932
Price: £175.00
Manufacturer: Anglepoise.com
Materials: Aluminum arms, joints, and shade
Size:

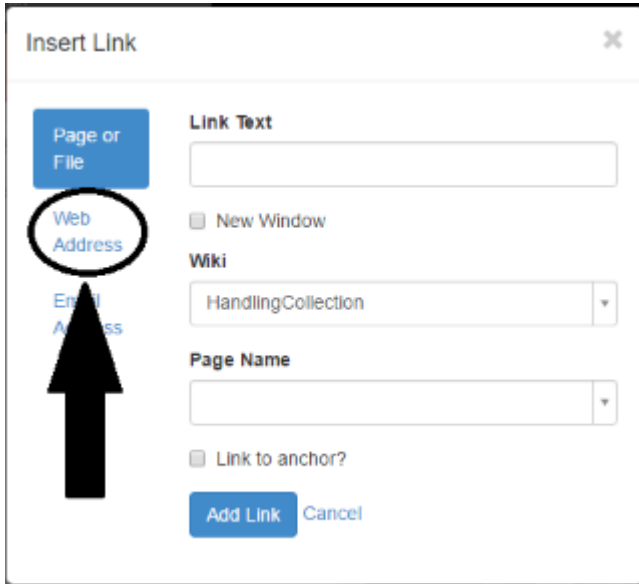
- Shade diameter - 145mm
- Shade height - 150mm
- Reach - 600mm
- Base size - 150 x 150mm
- Cable length - 2m

Inserting a link for purchasable from

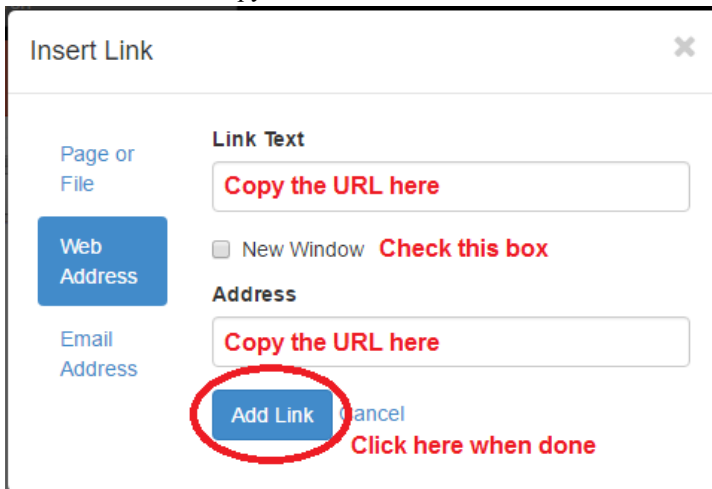
1. Click link on the edit menu



2. Select "Web address" from the left hand column

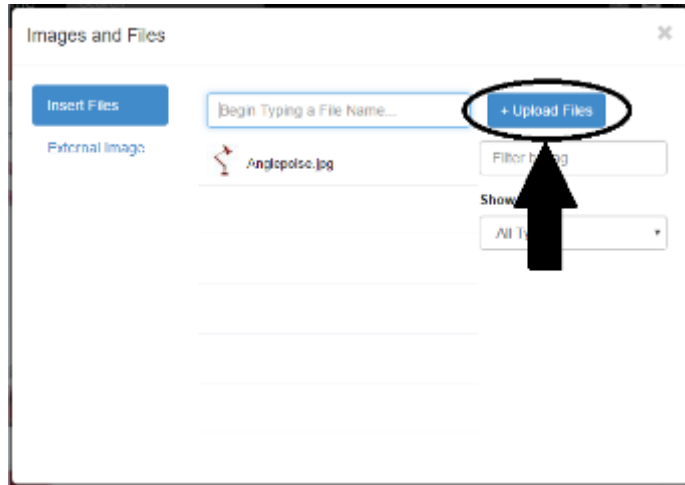


3. Under "Link Text" copy in the URL



Adding pictures to “Other examples of Designer’s Work”

1. Find a pictures of other things the designer has designed.
 - a. Note. first open another tab with the database and search for the designers name
 - b. If the designer has other designs in the handling collection use those images
2. Insert picture
 - a. Select "File" from the edit menu above
 - b. Select "+Upload File"



- c. Select the file you want from your computer folders
 - d. Click on the image name to insert the image.
3. Repeat for the other images. Ideally 4-5 previous designs should be added per object.

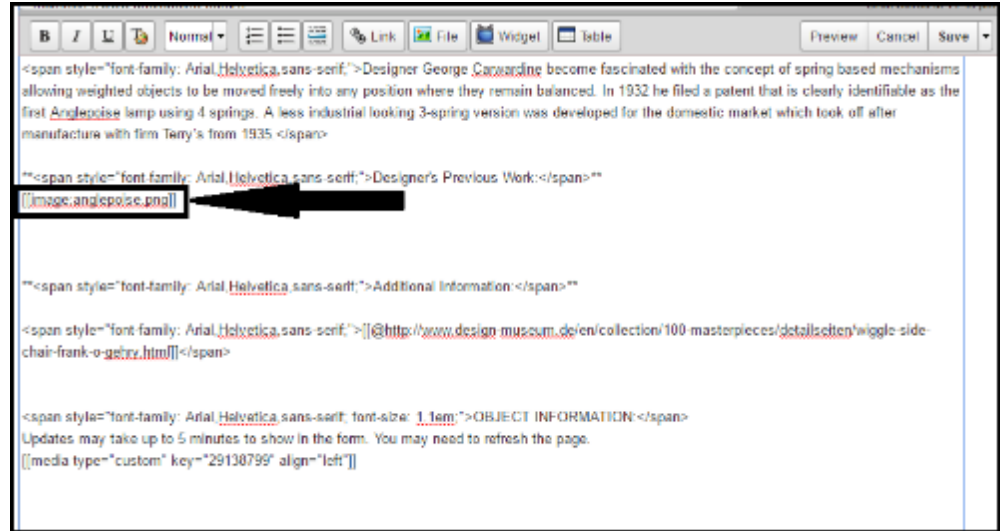
Formatting the previous work images

1. After inserting picture

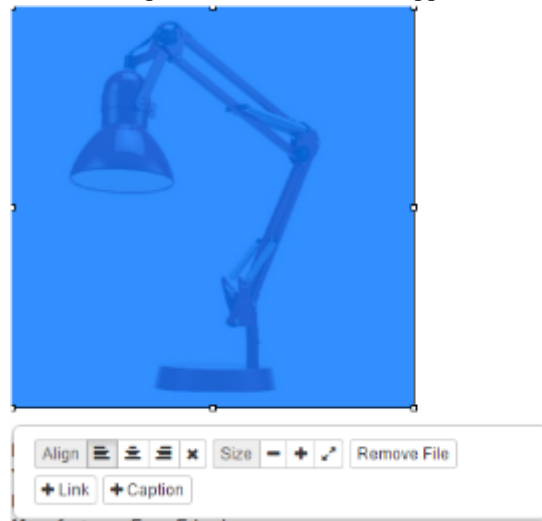
- a. Click the down arrow next to "Save" in the top right corner of this edit screen



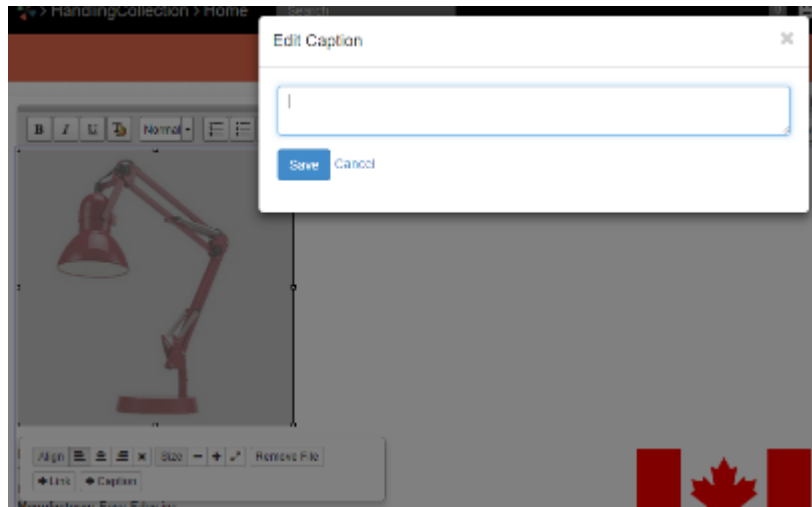
- b. Select "Wikitext Editor"
- c. Scroll to the top of the page
 - i. Press the up arrow key on your keyboard to ensure that you are at the top of the page
- d. Locate the line of code that corresponds to one picture



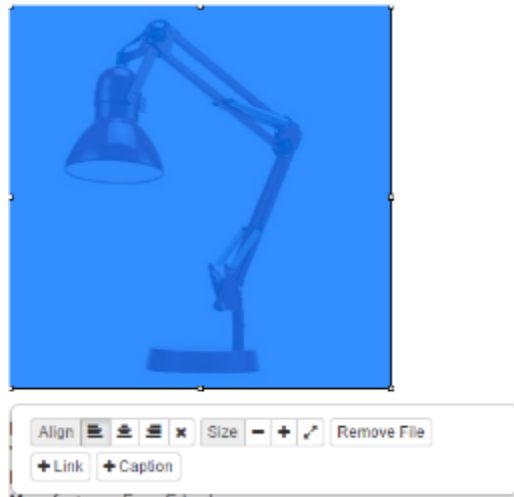
- e. Copy paste the 'i' below, right before the end two brackets.
 - i. `height="100" align="left"`
 - ii. E.g. `[[image:anglepoise.png]]`
`→[[image:anglepoise.png height="100" align="left"]]`
- f. Switch back to "Visual Editor" in a similar fashion to steps a-b
- g. Click on the picture to make a menu appear



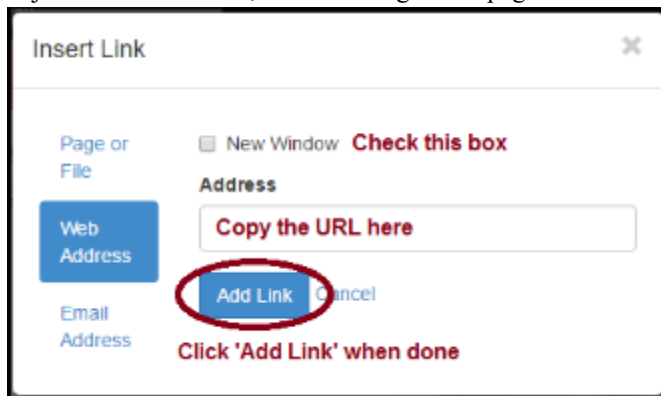
- h. Click "+Caption"
- i. On the menu that appears type the name of the previous design



2. Click on the picture again.



3. Click "+Link" in the menu that appears
4. Copy and paste the URL of a website with information on that design. Note: if using an image of another object in the collection, link this image to its page in the database.



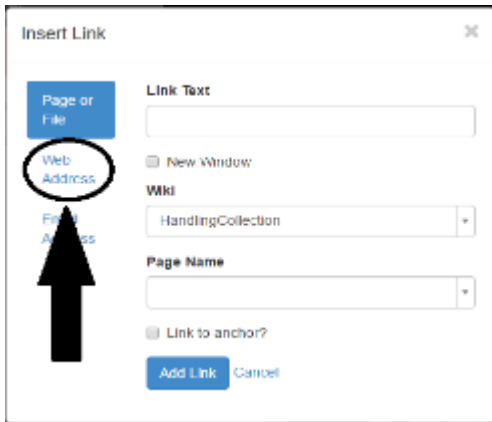
5. Repeat for each previous work image

Adding an Additional Information link

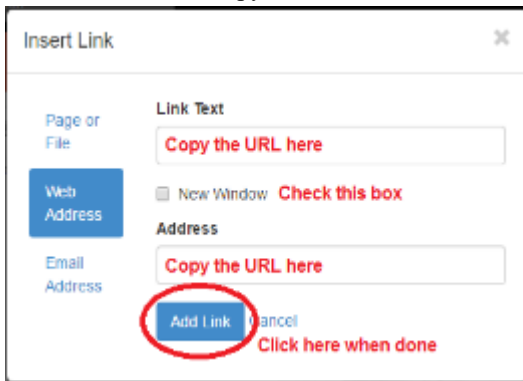
1. Click link on the edit menu



2. Select "Web address" from the left hand column



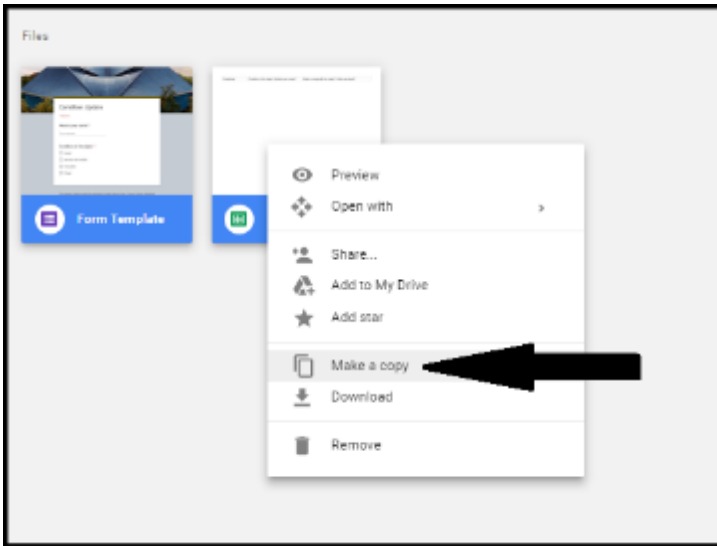
3. Under "Link Text" copy in the URL



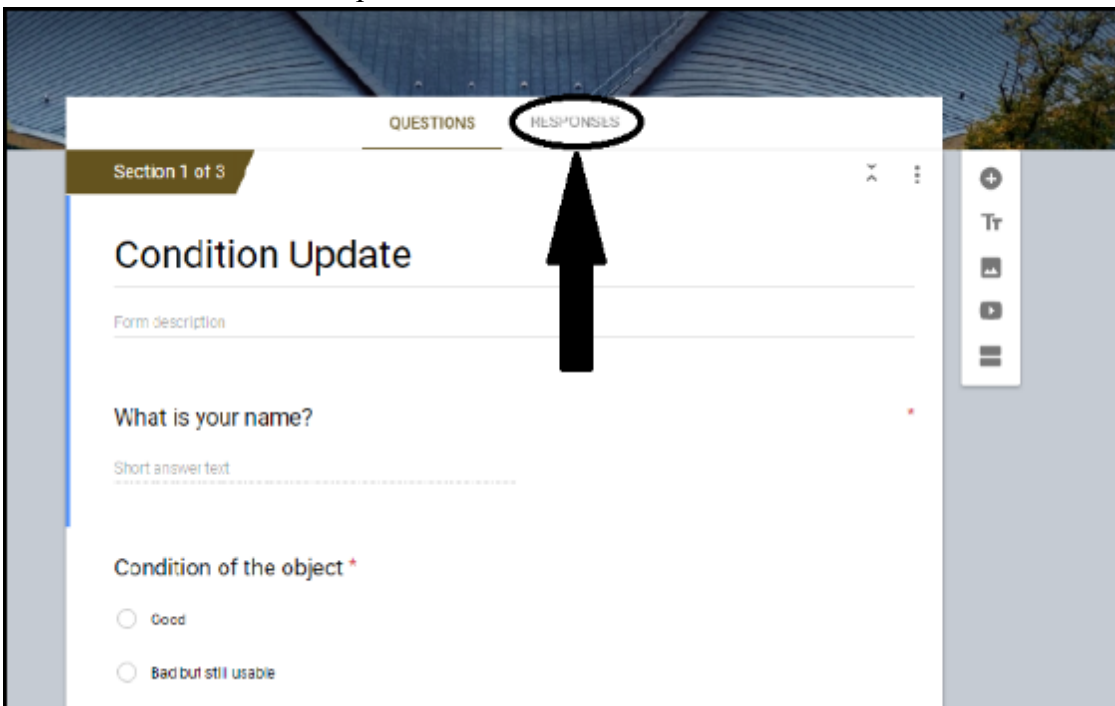
Adding a Google Form to the database

Making a new Google Form and Spreadsheet

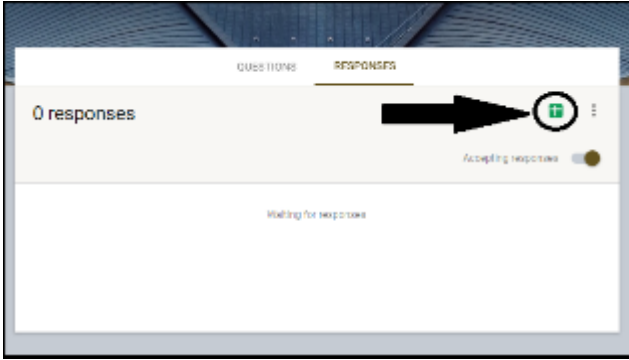
1. Go to this link:
<https://drive.google.com/drive/folders/0B6d2YXLKuccOOXA0ZDFKSHRLZ1k>
2. Select both files, the form template and the form template responses
3. Right click on them and select "Make a Copy"



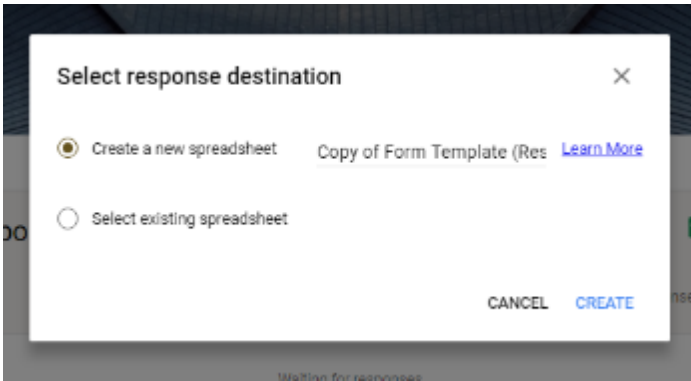
4. There will be two Google Form copies that appear
5. Click on each one to open it
6. For each one, click on “Responses”



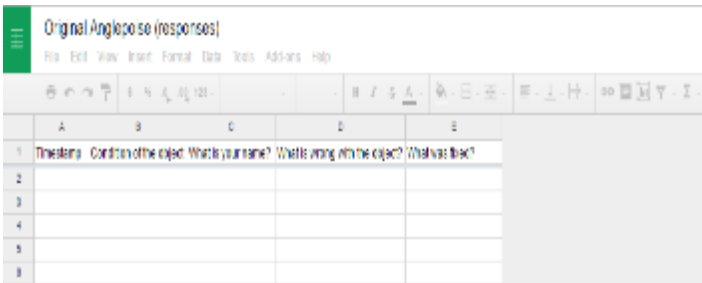
7. Click on the spreadsheet icon



8. If a pop-up appears as shown below, delete this copy of Google Form.

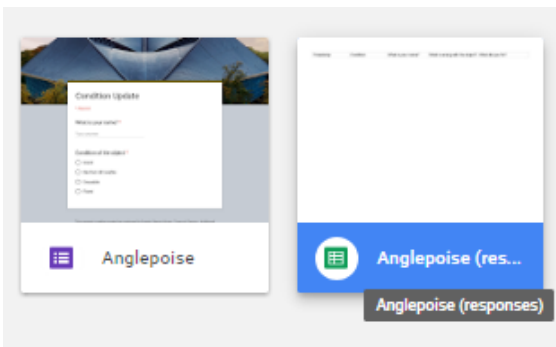


9. The real Google Form should redirect to the a Google Spreadsheet instead of the above popup as seen below



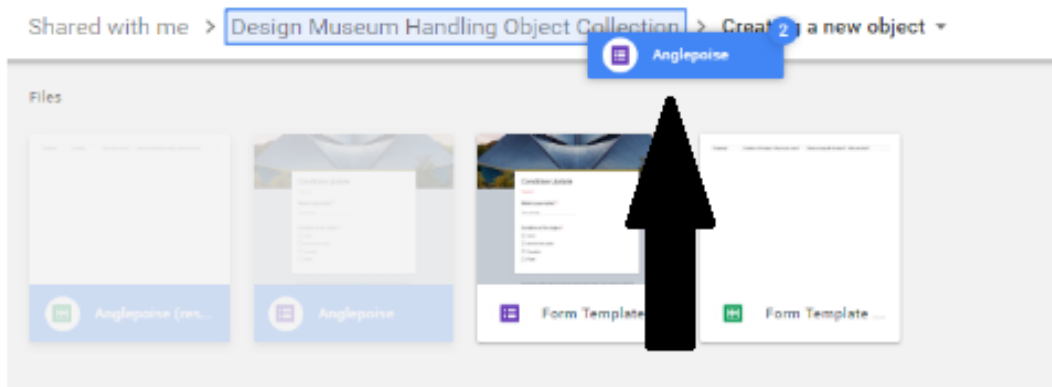
10. When the real Google Form is located, rename it to the name of the object

11. Rename the Google Spreadsheet to the name of the object followed by '(responses)' as seen below.

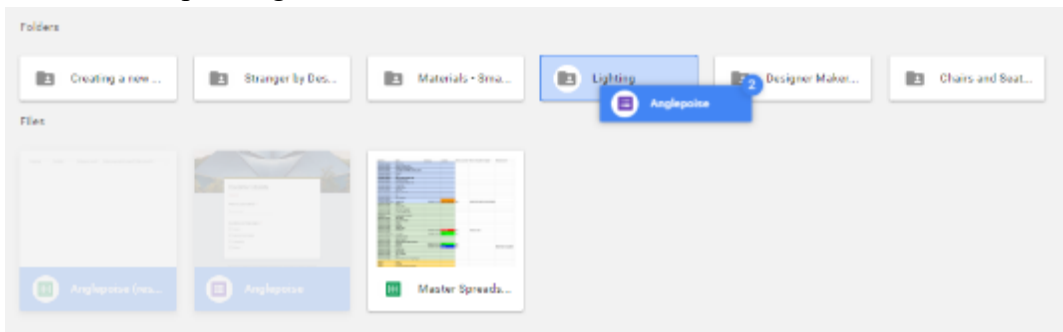


Moving the files

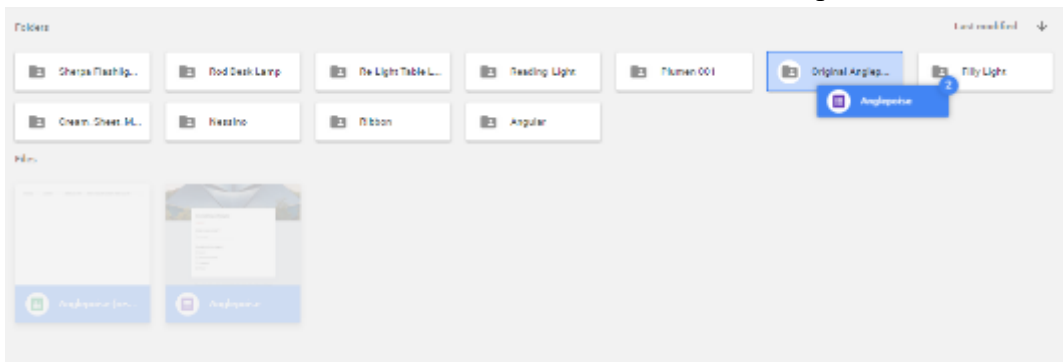
1. The instructions that follow organise the folder “Design Museum Handling Object Collection” by collection by moving folders.
2. Locate the folder of the object within the subfolders.
 - a. E.g. The Anglepoise folder can be found in the “Lighting” folder.
 - b. If you can’t find a folder with the name of the object in the correct collection folder, create a new folder and name it the name of the object.
3. Move the new Google Form and Spreadsheet to the object folder by selecting both of them, clicking and dragging to the above folder name



4. Go to the folder “Design Museum Handling Object Collection” and drag these new files to their corresponding collection folder

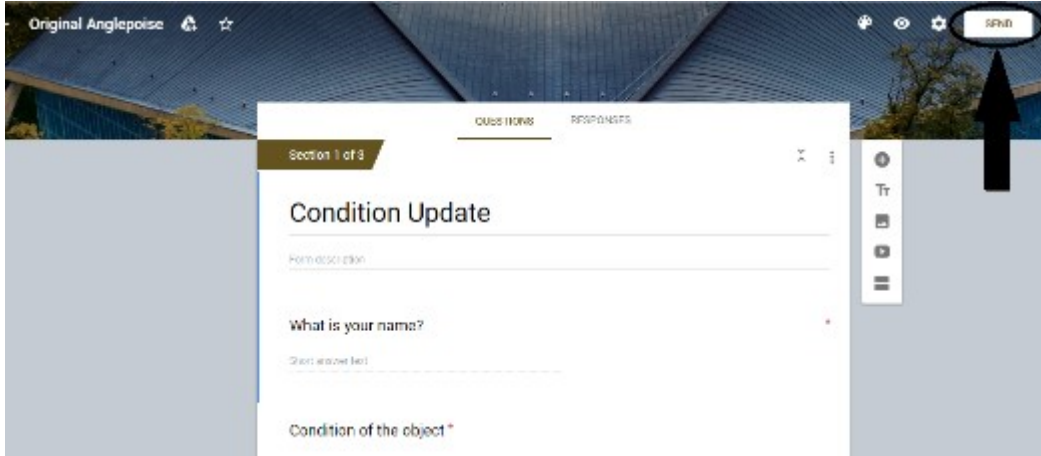


5. Go into the collection folder and move the new files to their respective folder

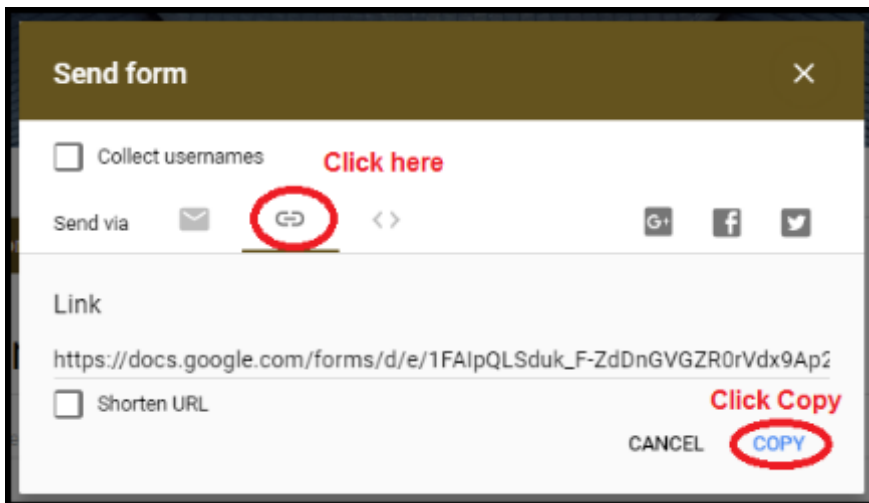


Implanting the Google Form into the database

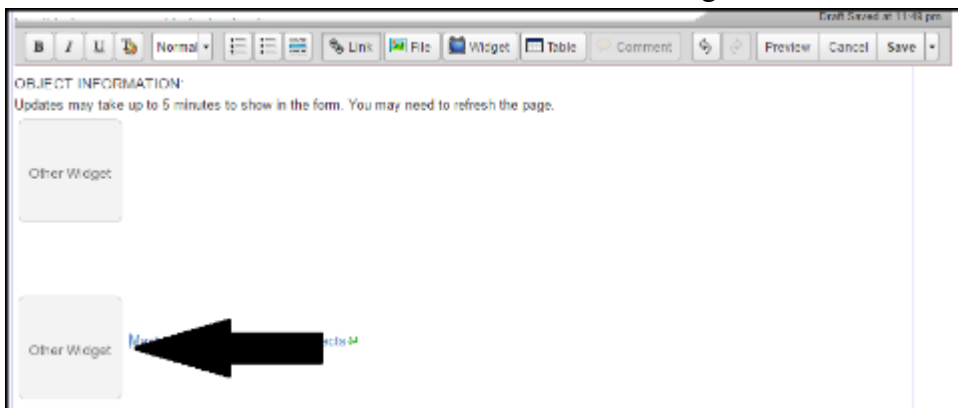
1. Go to the object's folder in Google Drive.
2. Open the Google Form of the object
3. In the top right corner click "Send"



4. Click on link next to 'Send via'



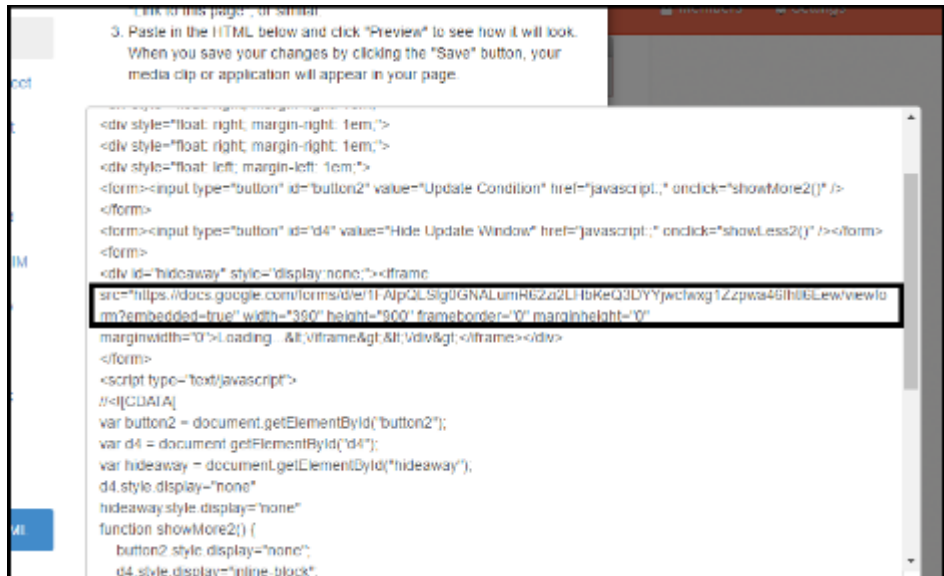
5. Go to the database and double click on the second widget



- Click and drag the bottom right of the text box to the bottom right to make it bigger



- Locate the URL corresponding to the Google Form



- Replace the URL that is there (here shown in red) with the URL that you copied in step 4

```

<div style="float: left; margin-right: 1em;"><div style="float: left; margin-right: 1em;">
<div style="float: left; margin-right: 1em;">
<div style="float: left; margin-right: 1em;">
<div style="float: right; margin-right: 1em;">
<div style="float: right; margin-right: 1em;">
<div style="float: right; margin-right: 1em;">
<div style="float: right; margin-right: 1em;">
<div style="float: left; margin-left: 1em;">
<form><input type="button" id="button2" value="Update Condition" href="javascript:;" onclick="showMore2()" /></form>
<form><input type="button" id="d4" value="Hide Update Window" href="javascript:;" onclick="showLess2()" /></form>
</form>
<div id="hideaway" style="display:none;"><iframe
src="https://docs.google.com/forms/d/e/1FAIpQLSfg0GNALumR62zi2LHbKeQ3DYYjwcfwvxg1Zzpwa46fhtl6Eew/viewform?embedded=true" width="390" height="900" frameborder="0" marginheight="0"
marginwidth="0">Loading...&lt;/iframe&gt;&lt;/div&gt;</div></div>
</form>
<script type="text/javascript">
//
var button2 = document.getElementById("button2");
</pre>
</div>
<div data-bbox="508 916 545 934" data-label="Page-Footer">
<p>104</p>
</div>
```

```

var d4 = document.getElementById("d4");
var hideaway = document.getElementById("hideaway");
d4.style.display="none"
hideaway.style.display="none"
function showMore2() {
    button2.style.display="none";
    d4.style.display="inline-block";
    hideaway.style.display='block';
}

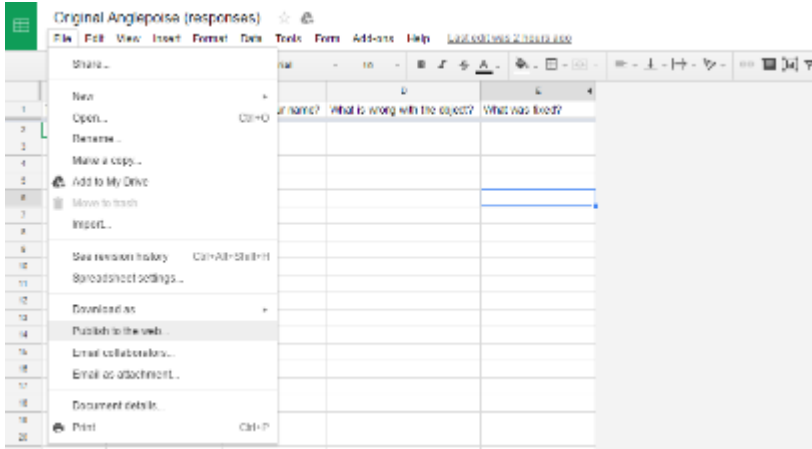
function showLess2() {
    button2.style.display="inline-block";
    d4.style.display="none";
    hideaway.style.display='none';
}
//]]>
</script></div>
</div>
</div>
</div>
</div>
</div>
</div>
</div>
</div></div>

```

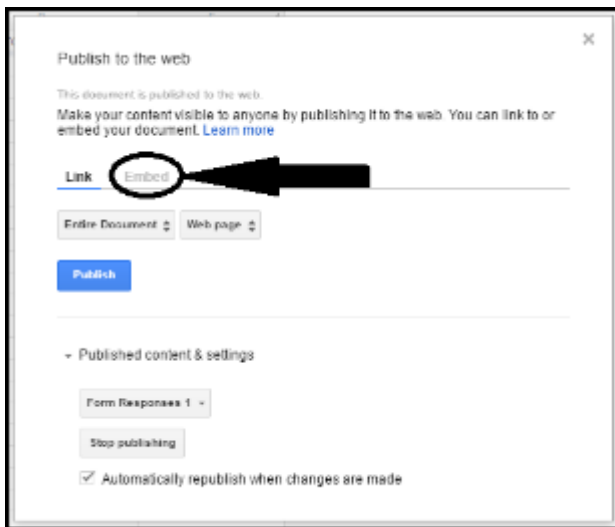
9. Click Save

Implanting the Google Spreadsheet into the database

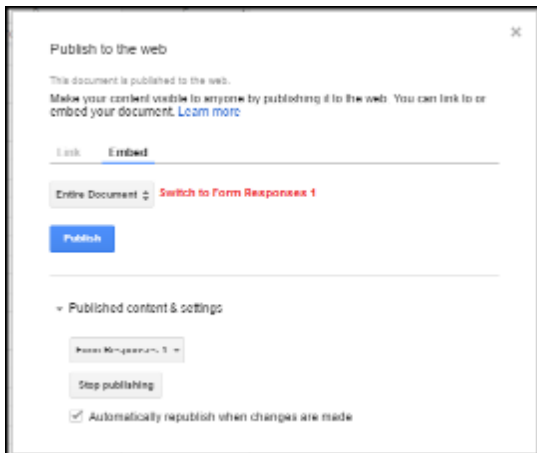
1. Open up the Google Spreadsheet relating to this object
2. Click on 'File'>>'Publish to the web...' in the top left corner



3. Click "Embed"



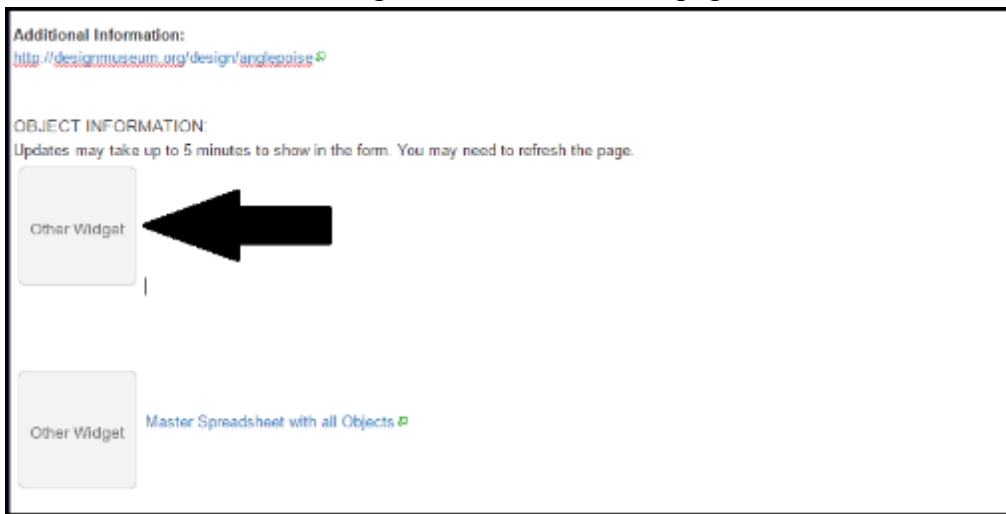
4. Change 'Entire Document' to 'Form Responses 1'



5. Copy the text in the box that appears



6. Double click on the first widget at the bottom of the page



7. Click and drag the bottom right of the text box to the bottom right to make it bigger



8. Find the URL corresponding to a Google Spreadsheet



9. Paste the URL that you copied in step 5 in place of this URL (here shown in red)

```
<div style="float: left; margin-right: 1em;">  
<div style="float: left; margin-right: 1em;">  
<div style="float: left; margin-right: 1em;">  
<div style="float: left; margin-right: 1em;">  
<div style="float: left; margin-right: 1em;">  
<div style="float: left; margin-right: 1em;">  
<div style="float: left; margin-right: 1em;">  
    <div style="float: right; margin-left: 1em;"><iframe height="200" width="615"  
src="https://docs.google.com/forms/d/e/1FAIpQLSduk_F-ZdDnGVGZR0rVd  
x9Ap2NF7TO9EYdIB9HgZKqzcWbaNA/viewform?usp=sf_link"></iframe></div>  
</div>  
</div>  
</div>  
</div>  
</div>  
</div>
```

10. Click Save

Adding the Google Spreadsheet to the Master Spreadsheet

1. Open up the Master Spreadsheet in the Google Drive and the individual object's Google Spreadsheet.
2. If the object is already logged in the Master Spreadsheet skip to step 7.
3. If the object is not already logged in the Master Spreadsheet then you will need to add a row for it. Find the collection that this object is in (e.g. Materials, Lighting etc...). If this object is in multiple collections, do the following instructions twice.
4. Insert a row into this object's collection's section by right clicking in the section and selecting "Insert row below". For these instructions the object "Original Anglepoise" was used. Please use the following information as an example, not a direct instruction. The Original Anglepoise is in "Lighting" and "Designer Maker User".

40	Lighting	Angular						
41	Lighting	Captivate						
42	Lighting	Cream Sheet Metal Anglepoise						
43	Lighting	Filly Light						
44	Lighting	Leaf Light						
45	Lighting	Mathmos Tumbler-Flip						
46	Lighting	Nessino						
47	Lighting	Nessino Table Lamp						
48	Lighting	Plumen						
49	Lighting	Reading Light						
50	Lighting	Realign Table Lamp						
51	Lighting	Ribbon						
52	Lighting	Rod Desk Lamp						
53	Lighting	Sherpa Flashlight						
54	Lighting	Tumbler-Flip						
55	Designer Maker User	Baygen Radio						
56	Designer Maker User	Juicy Saif	4/24/2017 1:04:18	Good	Nick			
57	Lighting	Original Anglepoise						
58	Designer Maker User	Die Chair	4/24/2017 0:11:20	Bad but still usable	Nick	Center of the chair has some damage		
59	Lighting	Tag						
60	Lighting	Die Water Bottle						
61	Lighting	Jet Bottle Compactor						

5. Type in the first column the name of the collection.

39	Stranger by Design	SUCK Bottle Opener Fridge Magnet						
40	Lighting	Angular						
41	Lighting	Captivate						
42	Lighting	Cream Sheet Metal Anglepoise						
43	Lighting	Filly Light						
44	Lighting	Leaf Light						
45	Lighting	Mathmos Tumbler-Flip						
46	Lighting	Nessino						
47	Lighting	Nessino Table Lamp						
48	Lighting	Plumen						
49	Lighting	Reading Light						
50	Lighting	Realign Table Lamp						
51	Lighting	Ribbon						
52	Lighting	Rod Desk Lamp						
53	Lighting	Sherpa Flashlight						
54	Lighting	Tumbler-Flip						
55	Designer Maker User	Baygen Radio						
56	Designer Maker User	Juicy Saif	4/24/2017 1:04:18	Good	Nick			

6. In the second column, type the name of the object (note this does not to be letter perfect)

39	Stranger by Design	SUCK Bottle Opener Fridge Magnet						
40	Lighting	Angular						
41	Lighting	Original Anglepoise						
42	Lighting	Captivate						
43	Lighting	Cream Sheet Metal Anglepoise						
44	Lighting	Filly Light						
45	Lighting	Leaf Light						
46	Lighting	Mathmos Tumbler-Flip						
47	Lighting	Nessino						
48	Lighting	Nessino Table Lamp						
49	Lighting	Plumen						
50	Lighting	Reading Light						
51	Lighting	Realign Table Lamp						
52	Lighting	Ribbon						
53	Lighting	Rod Desk Lamp						
54	Lighting	Sherpa Flashlight						
55	Lighting	Tumbler-Flip						
56	Designer Maker User	Baygen Radio						
57	Designer Maker User	Juicy Saif	4/24/2017 1:04:18	Good	Nick			

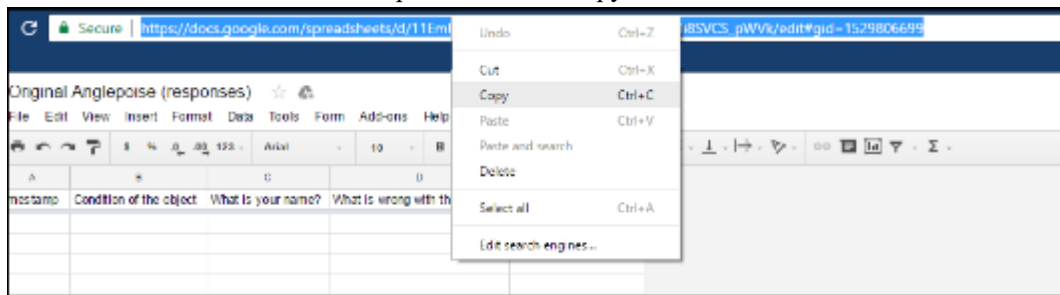
7. Under the third column (labeled ‘Timestamp’), copy and paste step a below.

a. =IMPORTRANGE("COPY_URL_HERE","A2:E2")

1	Collection	Object	Timestamp	Condition	What is your name?	What is wrong with the object?	What was fixed?
38	Stranger by Design	Rock					
39	Stranger by Design	SUCK Bottle Opener Fridge Magnet					
40	Lighting	Angular					
41	Lighting	Original Anglepoise	=IMPORTRANGE("COPY_URL_HERE","A2:E2")				
42	Lighting	Captivate					
43	Lighting	Cream Sheet Metal Anglepoise					
44	Lighting	Filly Light					
45	Lighting	Leaf Light					
46	Lighting	Mathmos Tumbler-Flip					
47	Lighting	Nessino					
48	Lighting	Nessino Table Lamp					
49	Lighting	Plumen					
50	Lighting	Reading Light					
51	Lighting	Reight Table Lamp					
52	Lighting	Ribbon					
53	Lighting	Red Desk Lamp					
54	Lighting	Shepa Flashlight					
55	Lighting	Tumbler-Flip					
56	Designer Maker User	Raygun Radio					
57	Designer Maker User	Juicy Salt	4/24/2017 1:04:18	Good	Nick		

8. Go to the objects individual spreadsheet

9. Select the URL of this individual spreadsheet and copy it



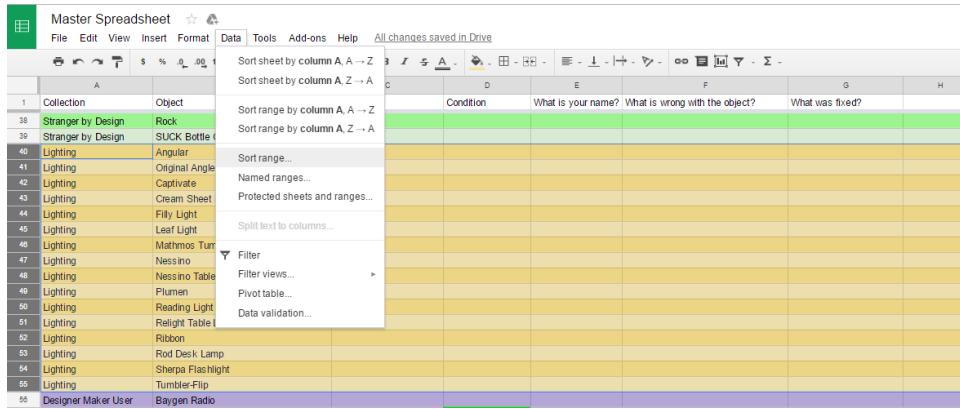
10. Back in the Master Spreadsheet, go to the third column and replace the text that says COPY_URL_HERE with the URL that you just copied. After doing this you may have to click “Allow Access” on a pop-up if the cell says ‘#REF’ (click on the cell to make this pop-up appear).

1	Collection	Object	Timestamp	Condition	What is your name?	What is wrong with the object?	What was fixed?
38	Stranger by Design	Rock					
39	Stranger by Design	SUCK Bottle Opener Fridge Magnet					
40	Lighting	Angular					
41	Lighting	Original Anglepoise	=IMPORTRANGE("https://docs.google.com/spreadsheets/d/11E.../edit#gid=1529880669", "A2:E2")				
42	Lighting	Captivate					
43	Lighting	Cream Sheet Metal Anglepoise					
44	Lighting	Filly Light					
45	Lighting	Leaf Light					
46	Lighting	Mathmos Tumbler-Flip					
47	Lighting	Nessino					
48	Lighting	Nessino Table Lamp					
49	Lighting	Plumen					
50	Lighting	Reading Light					
51	Lighting	Reight Table Lamp					
52	Lighting	Ribbon					
53	Lighting	Red Desk Lamp					
54	Lighting	Shepa Flashlight					
55	Lighting	Tumbler-Flip					
56	Designer Maker User	Raygun Radio					
57	Designer Maker User	Juicy Salt	4/24/2017 1:04:18	Good	Nick		

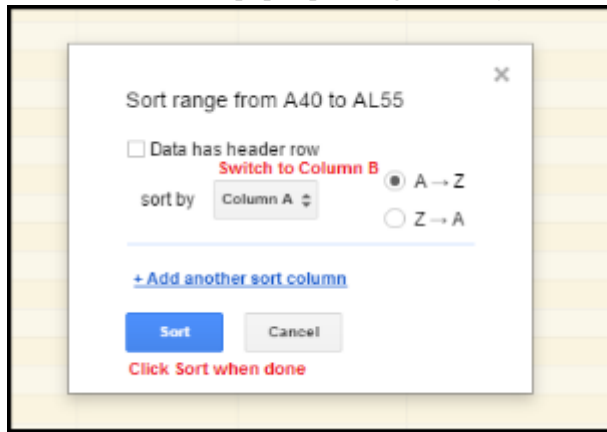
11. Select the entire collection section of rows (e.g. ‘Lighting’, ‘Materials’ etc...)

1	Collection	Object	Timestamp	Condition	What is your name?	What is wrong with the object?	What was fixed?
38	Stranger by Design	Rock					
39	Stranger by Design	SUCK Bottle Opener Fridge Magnet					
40	Lighting	Angular					
41	Lighting	Original Anglepoise					
42	Lighting	Captivate					
43	Lighting	Cream Sheet Metal Anglepoise					
44	Lighting	Filly Light					
45	Lighting	Leaf Light					
46	Lighting	Mathmos Tumbler-Flip					
47	Lighting	Nessino					
48	Lighting	Nessino Table Lamp					
49	Lighting	Plumen					
50	Lighting	Reading Light					
51	Lighting	Reight Table Lamp					
52	Lighting	Ribbon					
53	Lighting	Red Desk Lamp					
54	Lighting	Shepa Flashlight					
55	Lighting	Tumbler-Flip					
56	Designer Maker User	Raygun Radio					
57	Designer Maker User	Juicy Salt	4/24/2017 1:04:18	Good	Nick		
58	Designer Maker User	Original Anglepoise					
59	Designer Maker User	Wiggle Chair	4/24/2017 1:11:26	Red and blue wood	Nick	Curve of the chair has some damage	

12. Select 'Data>>'Sort range'



13. On the window that pops up, change 'sort by' to Column B



b. User's User Guide

the Design Museum's Handling Collection

Database User Guide

-Using the Database-



Materials



Chairs and Seating



Stranger by Design



Lighting



Designer Maker User

Using the database

Updating the condition of an object


1. Click on “Update Condition” at the bottom of the page of the object you wish to update.

OBJECT INFORMATION:
Updates may take up to 5 minutes to show in the form. You may need to refresh the page.

Ulexite (responses) : Form Responses 1

Timestamp	Condition of the object	What is your name?	What is wrong with the object?	What was fixed?
4/24/2017 10:17:36	Unusable	Nick	I cannot see through it	

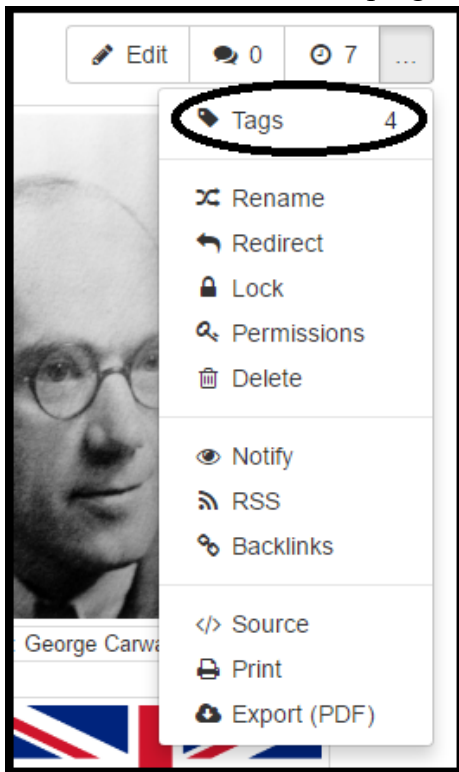
Form Responses 1

Update Condition 

2. Fill out all of the fields. If the object is broken, please explain how.

Updating tags

1. Click the three dots in the top right of the page and click ‘Tags’>>’edit’

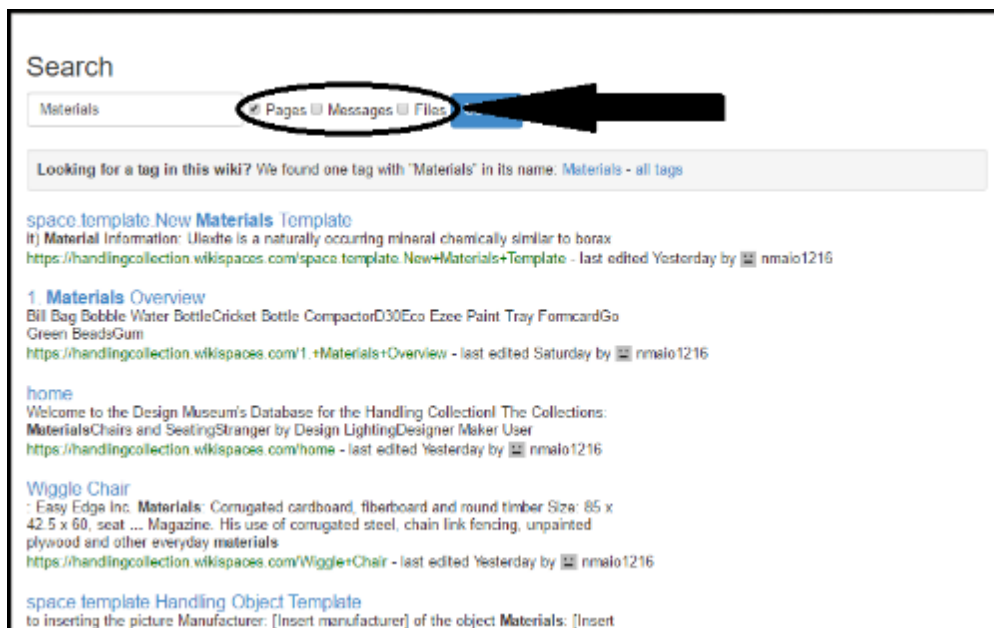


2. Simply type in the tags you want to be able to search for this object with and hit enter.
(Note: the tags search by any word within a tag - e.g. a tag of Philippe Starck will appear if either Philippe, Starck, or Philippe Starck is searched)

3. Some good tag ideas are
 - a. Collection name (e.g. Chairs and Seating etc..)
 - b. Designer name
 - c. Object name
 - d. Manufacturer name
 - e. Designer's country of birth
 - f. Room of house this object would be found in (e.g. kitchen etc...)

Searching

1. You can search either by keyword or by tag
2. Searching by keyword displays all pages with that keyword in them.
3. You can refine searches by specifying if you want to see Pages, Messages, Files, or all three




4. If searching for a specific tag that you know exists, type in the main search bar the word you want to search.
5. Click on the tag name in the bar that says “Looking for a tag in this wiki?”

Search


 Pages Messages Files

Looking for a tag in this wiki? We found one tag with "Materials" in its name: [Materials](#) [All tags](#)

[space.template.New Materials Template](#)

it) **Material** Information: Ulexite is a naturally occurring mineral chemically similar to ...
<https://handlingcollection.wikispaces.com/space.template.New+Materials+Template> - last edited Yesterday by  nmaio1216


[1. Materials Overview](#)

Bill Bag Bobble Water BottleCricket Bottle CompactorD30Eco Ezee Paint Tray Form ...
Green BeadsGum
<https://handlingcollection.wikispaces.com/1.+Materials+Overview> - last edited Saturday by  nmaio1216

[home](#)

Welcome to the Design Museum's Database for the Handling Collection! The Collections:
MaterialsChairs and SeatingStranger by Design LightingDesigner Maker User
<https://handlingcollection.wikispaces.com/home> - last edited Yesterday by  nmaio1216

[Wiggle Chair](#)

: Easy Edge inc. **Materials:** Corrugated cardboard, fiberboard and round timber Size: 85 x
42.5 x 60, seat ... Magazine. His use of corrugated steel, chain link fencing, unpainted
plywood and other everyday **materials**
<https://handlingcollection.wikispaces.com/Wiggle+Chair> - last edited Yesterday by  nmaio1216

[space.template.Handling Object Template](#)

to inserting the picture Manufacturer: [Insert manufacturer] of the object **Materials:** [Insert



c. Administrator's User Guide

the Design Museum's Handling Collection Database User Guide -Administrator's Guide-



Materials



Chairs and Seating



Stranger by Design



Lighting



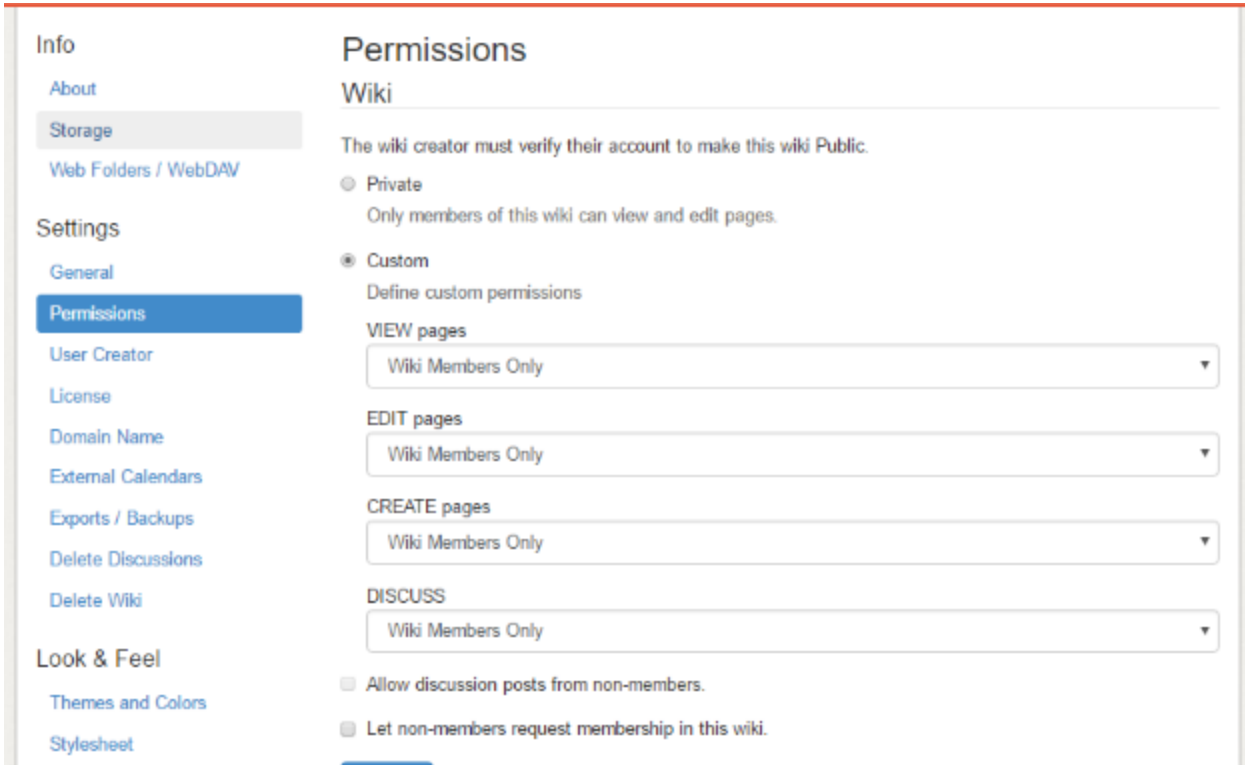
Designer Maker User

Administrators notes

To edit permissions, search in the search bar “Manage Users and Permissions” and a pdf file will pop up that explains everything. (You can only access this if you are a ‘organizer’).

If you want to restrict the amount of access that ‘members’ have, go to settings>>permissions.

Click Custom:

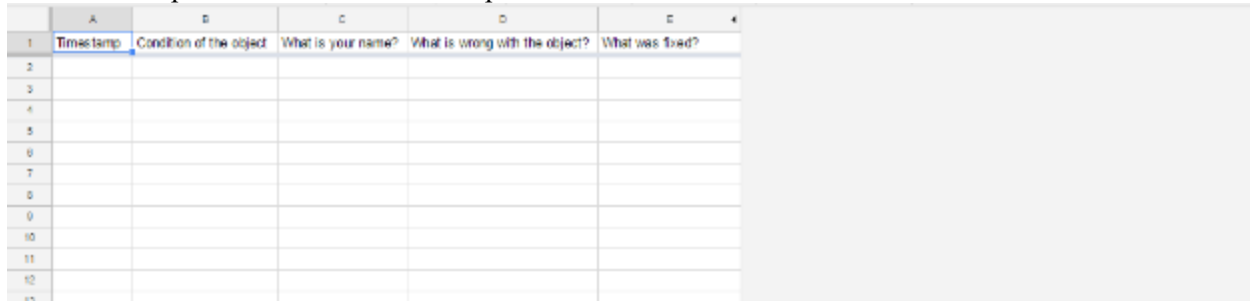


The screenshot shows the 'Permissions' settings for a Wiki. The 'Custom' option is selected, allowing for defining custom permissions. The permissions are set for 'Wiki Members Only' for viewing, editing, and creating pages, as well as for discussion. There are also options to allow discussion posts from non-members and to let non-members request membership.

From here you can change if members can view, edit, create, and discuss or not.

Using the condition spreadsheets

Every object has a folder in the “Design Museum’s Handling Collection” Google Drive folder. In these folders you can view each object’s Google Form and Google Spreadsheet. The Form is how the condition gets logged in the database. The Form responses get sent to the Spreadsheet. In each Spreadsheet you can see the condition of the object as well as the history of the condition. The responses are sent to columns F - J and then sorted by timestamp in columns A - E. Columns F-J are hidden at the moment to improve the aesthetic of the spreadsheet.



	A	B	C	D	E
1	Timestamp	Condition of the object	What is your name?	What is wrong with the object?	What was fixed?
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Every object’s most recent entry in the Spreadsheet is copied and redirected to the master spreadsheet where you can see at a glance the condition of every object in the Design Museum’s

collection. You can get to this spreadsheet either through the Google Drive folder or from any object's database page.

Wiggle Chair (responses) : Form Responses 1

Timestamp	Condition	What is your name?	What is wrong with the object? What did you fix?
4/24/2017 0:11:20	Bad but still usable	Nick	Center of the chair has some damage

Form Responses 1

Update Condition

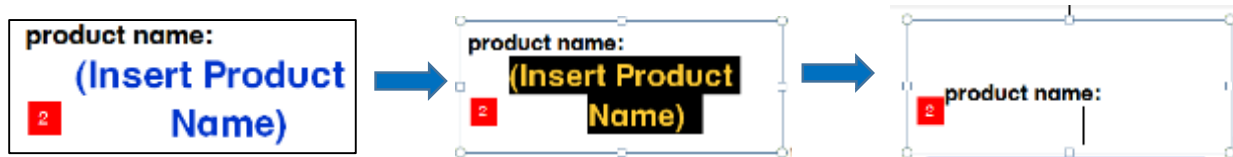
[Master Spreadsheet with all Objects](#)

The master spreadsheet sorts the list of objects by collection (e.g. Materials, Lighting etc..). The condition of the objects is colour coded. Green means good, yellow means bad but still usable, red means unusable, and blue means fixed.

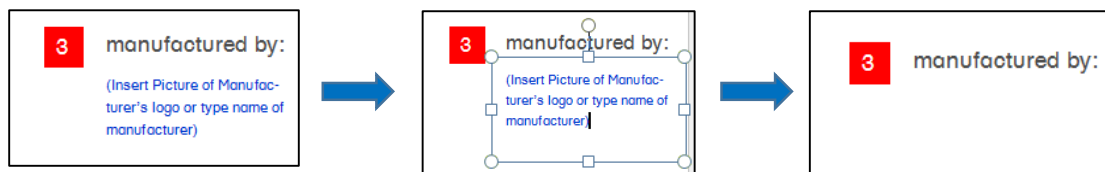
Appendix 12: Information Sheet User Guide

Information Sheet User Guide:

1. Use the information sheet prototype publisher file to create a new object information sheet
 - a. As the numbered tasks are completed, delete the red boxes corresponding to that number.
2. Start by changing the product name in the template:
 - a. Highlight '(Insert Product Name)' and type in its place the name of the product you're making an information sheet for



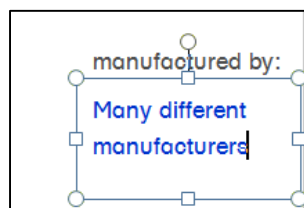
- b. Change the size of the font as necessary (font size should not exceed 48 point or be less than 28 point)
3. When changing 'manufactured by:'
 - a. Select the textbox under 'manufactured by' and delete it unless there is no logo for that company



- b. Insert an image of the manufacturer's logo

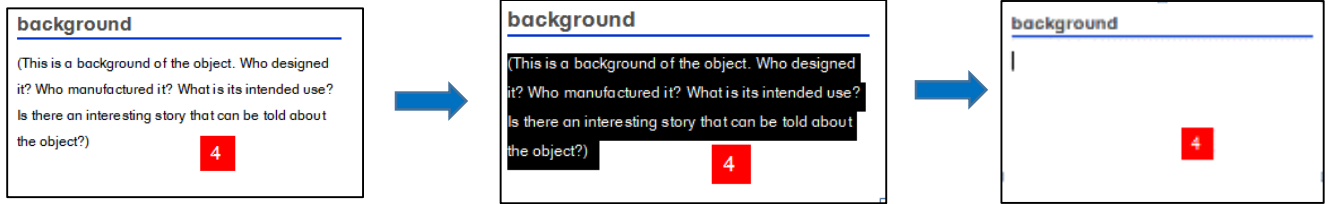


- c. If the manufacturer does NOT have a logo then type the manufacturer's name and adjust the font size to 14 point



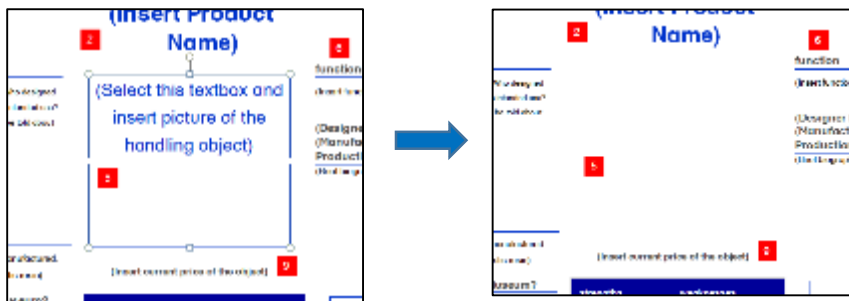
4. When editing the background:
 - a. This is a background of the object. Who designed it? Who manufactured it? What is its intended use? Is there an interesting story that can be told about the object?

- i. This background should not exceed 450 characters and have 10 point font and 1.0 line spacing.
- b. Replace the placeholder text under background with the correct background that you have written about the object



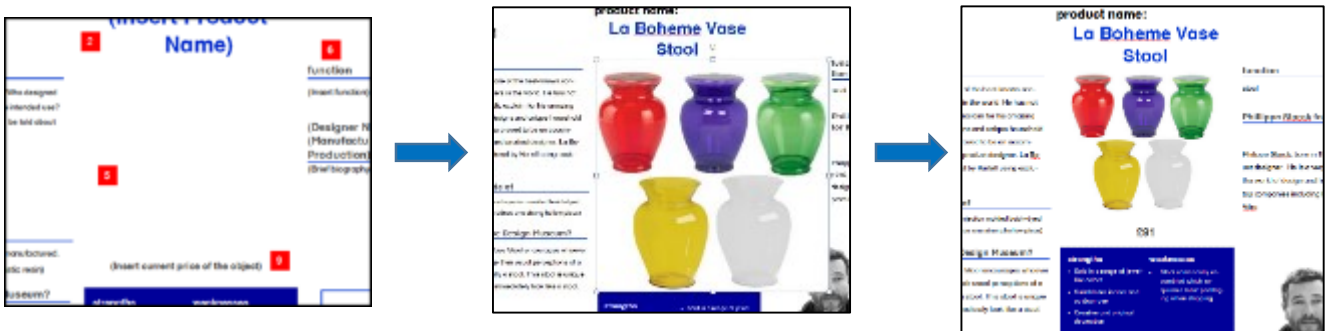
5. Inserting a picture of the object:

- a. Select the blue textbox in the center of the page and delete it



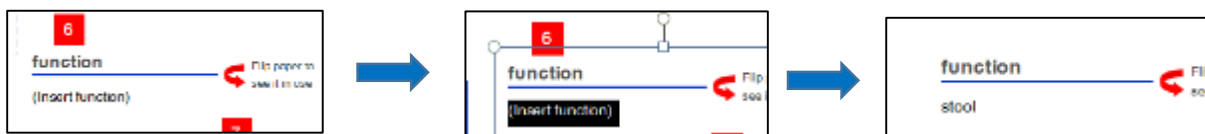
- b. In place of the textbook, insert a picture of the object and size it appropriately

- i. The picture will often be too large when pasted in to the file. Resize from the corners of the image and drag into place.



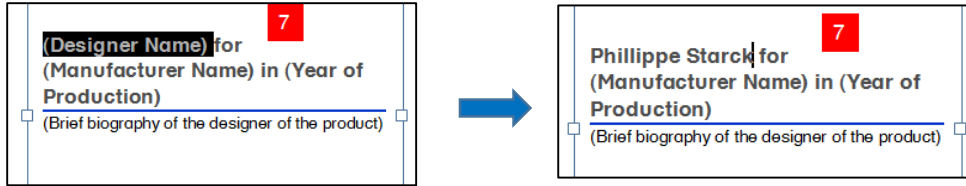
6. Editing the function of the object:

- a. Replace '(Insert function)' with the function of the desired object

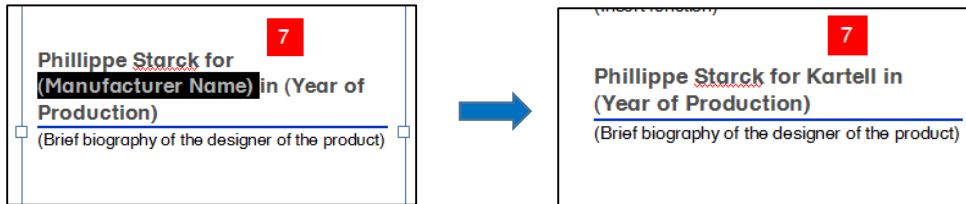


7. Editing the biography of the designer:

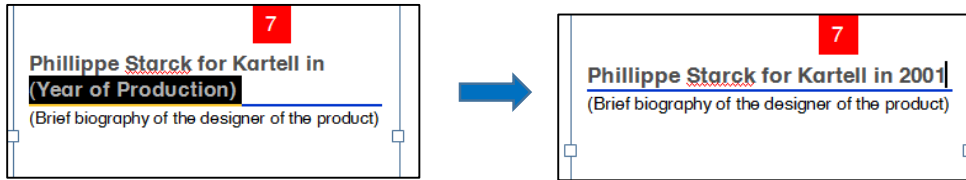
- a. Replace '(Designer Name)' with the name of the designer of the object



b. Replace '(Manufacturer)' with the name of the manufacturer of the object

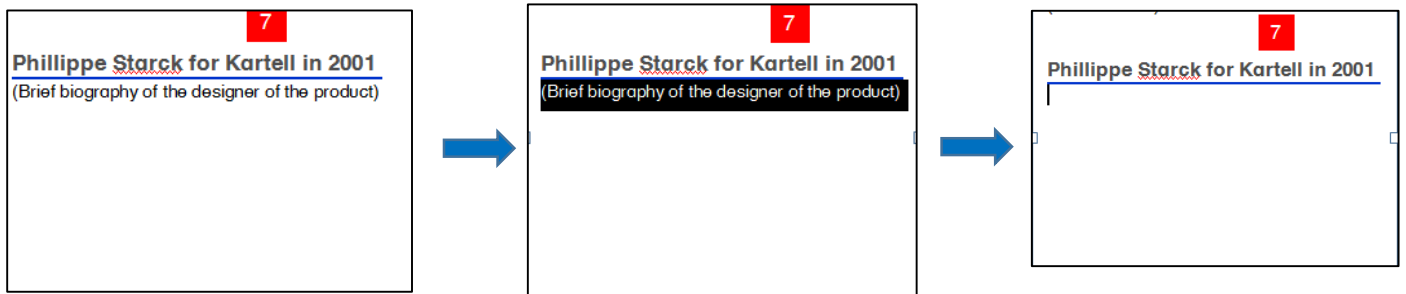


c. Replace '(Year of Production)' with the year



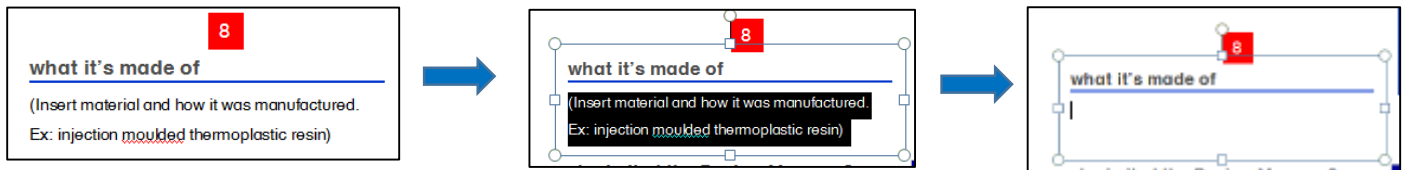
d. Replace the placeholder text under the biography with the actual biography that you have written about the designer

i. This biography should not exceed 450 characters and have 10 point font and 1.0 line spacing.



8. Editing 'what it's made of':

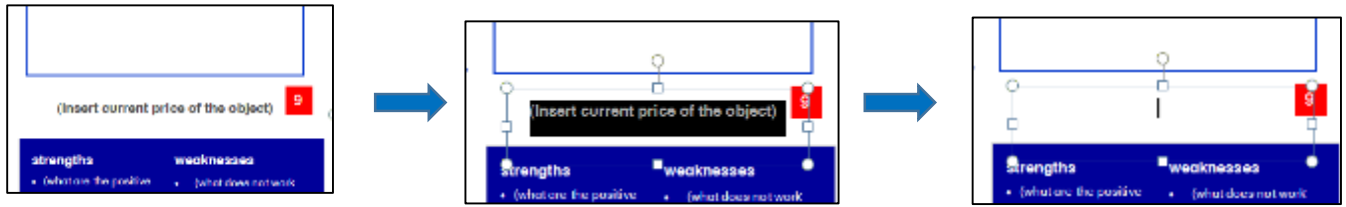
a. Replace the placeholder text under the 'what it's made of' with the material that the desired product is made of



b. Add information about how that product was made (ex. injection moulding)

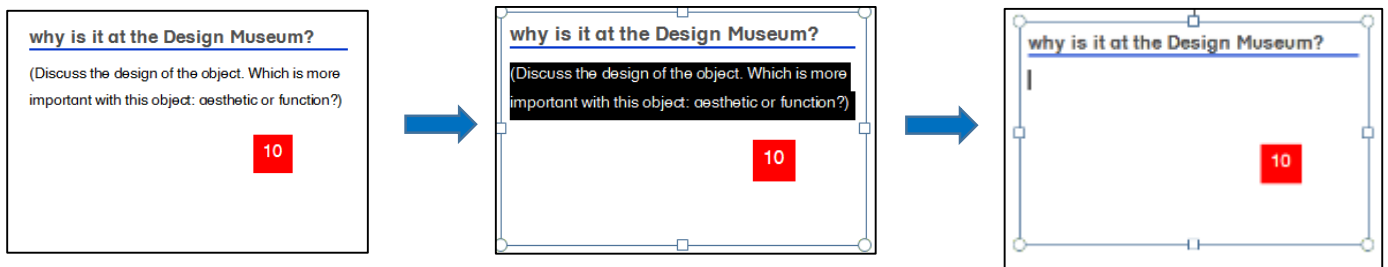
9. Editing the current price of the object:

- a. Replace the placeholder text under the photo of the object with the current price of the object
 - i. A font size of 18 will work well for this



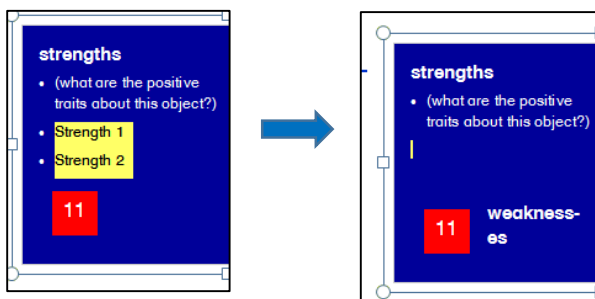
10. Editing 'why is it at the Design Museum?'

- a. Discuss the design of the object. Which is more important with this object: aesthetic or function? It is important to discuss why this object is at the Design Museum to add context for the students.
 - i. This description should be about 200 characters and a font size of 10 and a 1.0 line spacing.

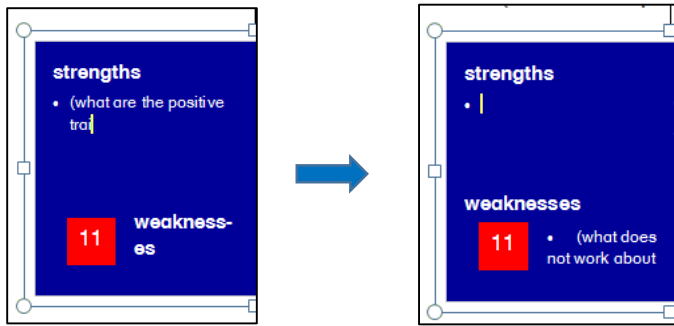


11. Editing 'strengths':

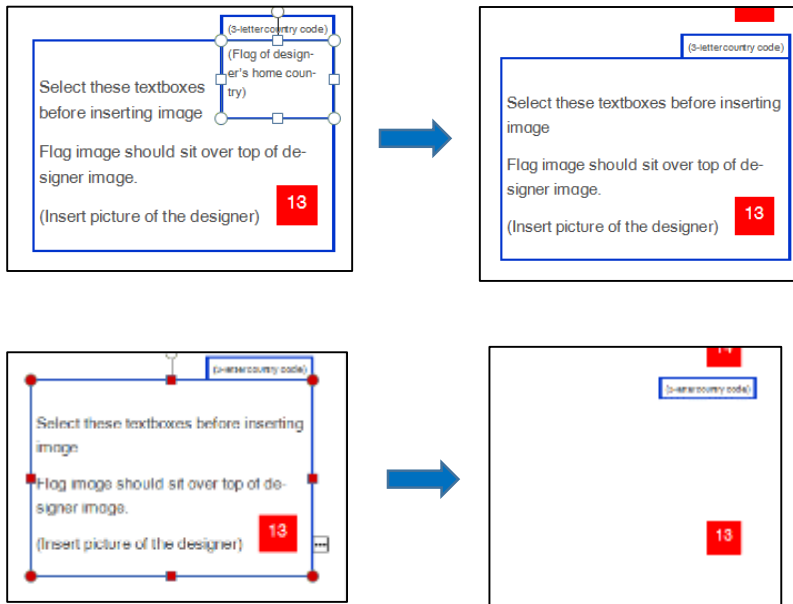
- a. Delete the bullet points that say 'Strength 1' and Strength 2'



- b. **Backspace**, do not delete, '(what are the positive traits about this object?)' and enter in the first strength



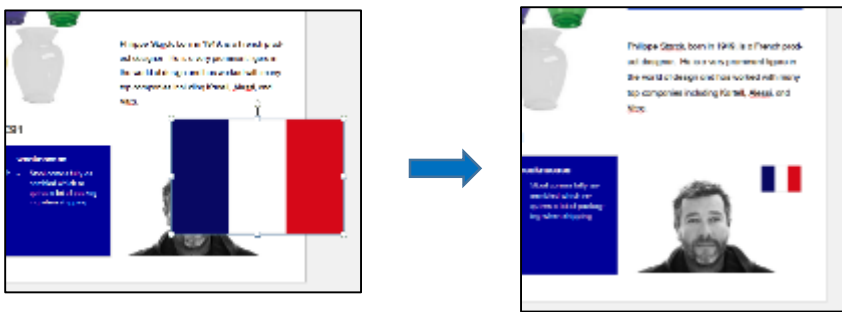
- c. Press enter before entering the next strength and give each strength its own bullet point
 - d. 'weaknesses' should move back to its original position. If there are not enough strengths to push 'weaknesses' back to its original position then put the cursor right before the 'w' in 'weaknesses' and hit 'enter' until the positioning is remedied
12. Editing 'weaknesses':
- a. Follow the same procedure for strengths as above
13. Inserting image of designer and flag of home country:
- a. Before inserting the image, delete the '(Insert picture of the designer)' textbox and the '(Flag of designer's home country)' text box



- b. Insert the picture of the designer and size it appropriately to fit nicely next to the strengths and weaknesses box
 - i. The picture will often be too large when pasted in to the file. Resize from the corners of the image and drag into place

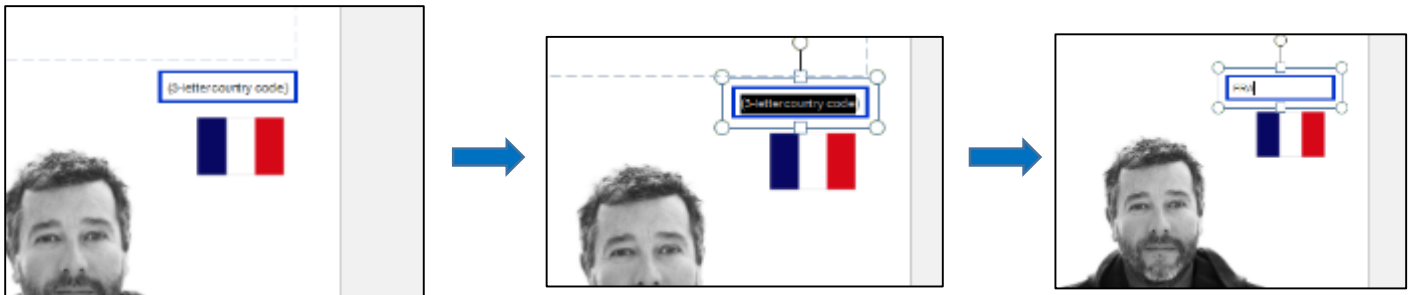


- c. Insert a picture of the flag of the designer's home country. Size the image of the flag appropriately. Drag the flag image so that it rests in the upper right corner of the image of the designer
 - i. The picture will often be too large when pasted in to the file. Resize from the corners of the image and drag into place

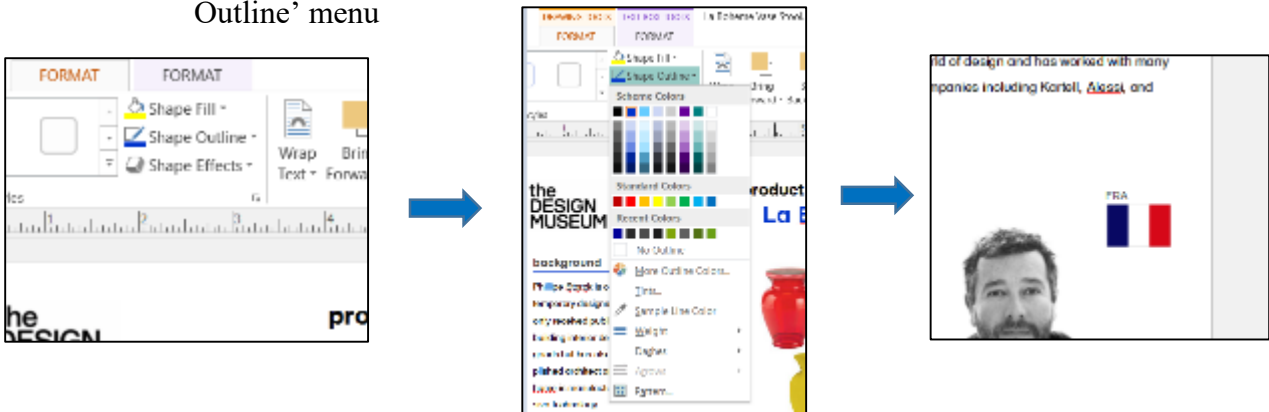


14. Editing the 3-letter country code:

- a. Delete the text '(3-letter country code)' and replace it with the 3 letter country code for the country that the designer is from in all capital letters.



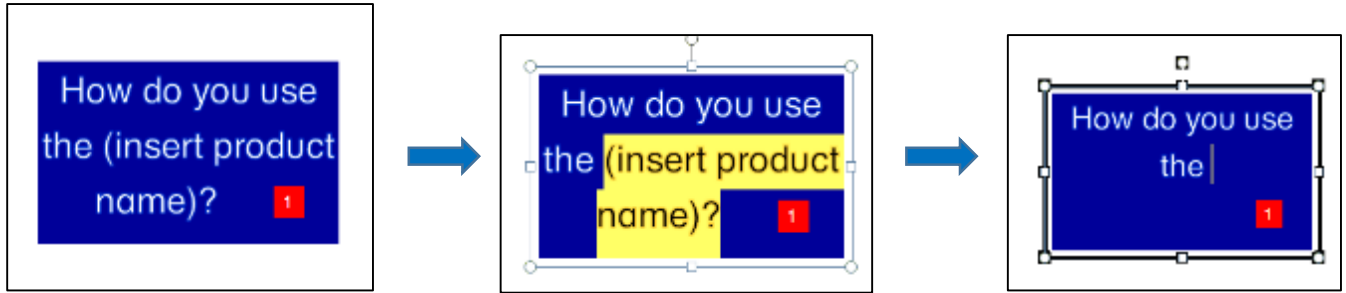
- b. Remove the border from the text box. Select 'No Outline' from the 'Shape Outline' menu



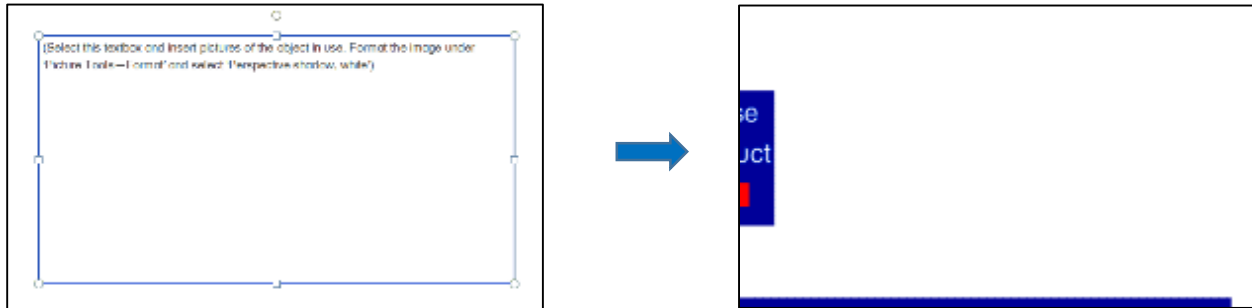
Start working on the back of the page.

1. Editing the 'object-in-use' section:

- a. Replace the '(insert product name)' with the name of the product.

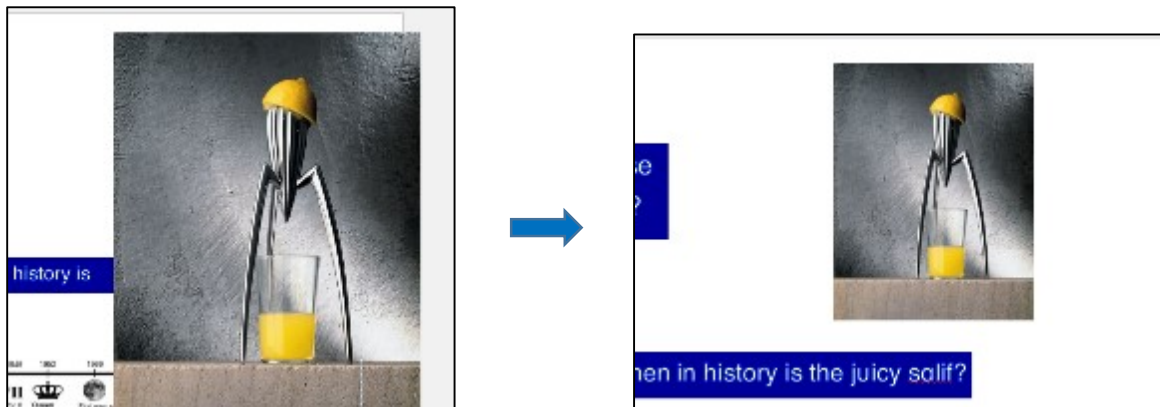


- b. Select the textbox where the picture of the object in use will go and delete it



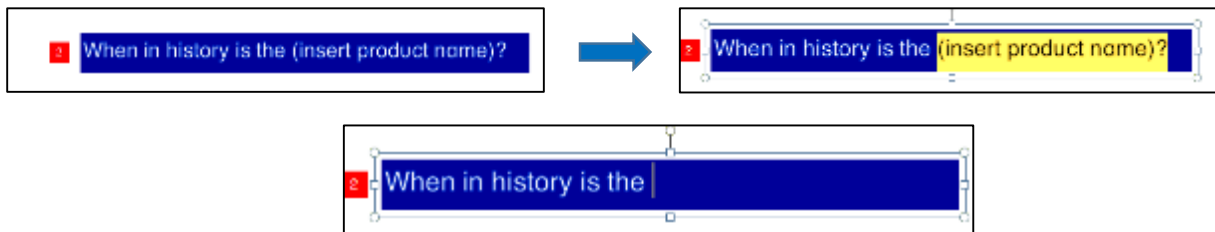
- c. Insert the picture of the object in use and size the picture appropriately.

- i. The picture will often be too large when pasted in to the file. Resize from the corners of the image and drag into place



2. Editing the 'when in history...' section:

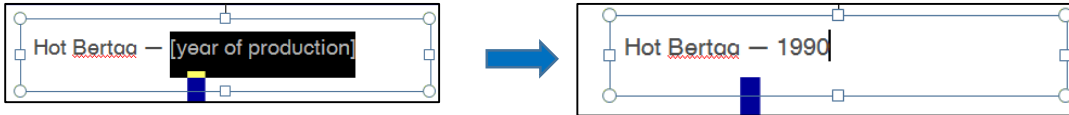
- a. Replace the '(insert product name)' with the name of the product



b. Replace '[product name]' with the name of the product




c. Replace '[year of production]' with the year that the object was released



d. Move the arrow along the timeline to around the time that the object was released

e. Center the name and year textbox over the arrow

Examples:

1 the DESIGN MUSEUM	2 product name: (Insert Product Name)	3 manufactured by: (Insert Picture of Man- ufacturer's logo or type name of manufacturer)
4 <u>background</u> (This is a background of the object. Who de- signed it? Who manufactured it? What is its intended use? Is there an interesting story that can be told about the object?)	5 (Select this textbox and insert picture of the handling object)	6 <u>function</u> (Insert function)  Flip paper to see it in use
8 <u>what it's made of</u> (Insert material and how it was manufactured. Ex: injection moulded thermoplastic resin)	9 (Insert current price of the object)	7 <u>(Designer Name) for (Manufacturer Name) in (Year of Production)</u> (Brief biography of the designer of the product)
10 <u>why is it at the Design Museum?</u> (Discuss the design of the object. Which is more important with this object: aesthetic or function?)	11 strengths • (what are the positive traits about this object?) • Strength 1 • Strength 2 12 weaknesses • (what does not work about this object?) • Weakness 1 • Weakness 2	14 (3-letter country code) (Flag of designer's home country) Select these textboxes before inserting image Flag image should sit over top of de- signer image. (Insert picture of the designer) 13

How do you use
the (insert product
name)? **1**

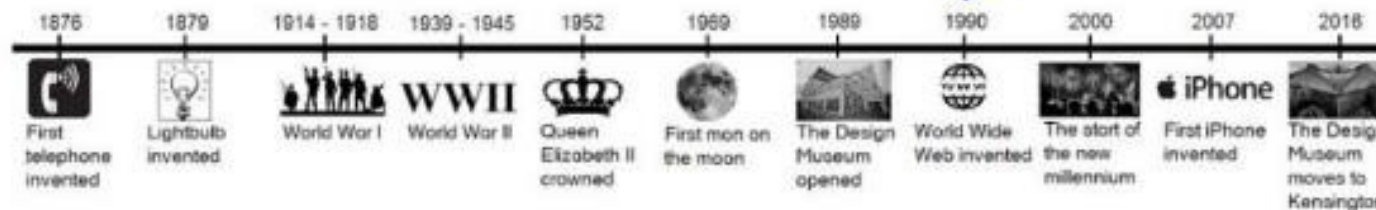
(Select this textbox and insert pictures of the object in use. Format the image under 'Picture Tools— Format' and select 'Perspective shadow, white')

2

When in history is the (insert product name)?

[product name] — [year of production]

Move arrow to the area on the timeline that corresponds to
the year of production



product name:

2 **Hot Bertaa**

manufactured by:

3 **ALESSI**

background

Hot Bertaa was designed by Philippe Starck and manufactured by Alessi from 1990. Alessi pulled it from market in 1997 because of its many flaws in functionality. For example, many people tried to fill it through the small spout instead of through the larger handle. They said "You shouldn't need an instruction manual to operate a kettle."

4

what it's made of

Aluminum body, plastic handle. The body was cast and the handle was injection moulded.

8

why is it at the Design Museum?

This kettle is an example of an object for which function follows form. It shows that often focusing too much on the aesthetics of an object can get in the way of it's usefulness.

10



5

9

£120

12

function

Kettle

6



Flip paper to see it in use

Philippe Starck for Alessi in 1990

Philippe Starck, born in 1949, is a French product designer. He is a very prominent figure in the world of design and has worked with many top companies including Kartell, Alessi, and Vitra.

7

14

FRA



13



strengths

- Very aesthetic design

11

weaknesses

- The handle puts your hand too close to the hot metal body
- The kettle spills very easily
- Somewhat expensive

How do you use the Hot Bertaa?

1



2

When in history is the Hot Bertaa?

