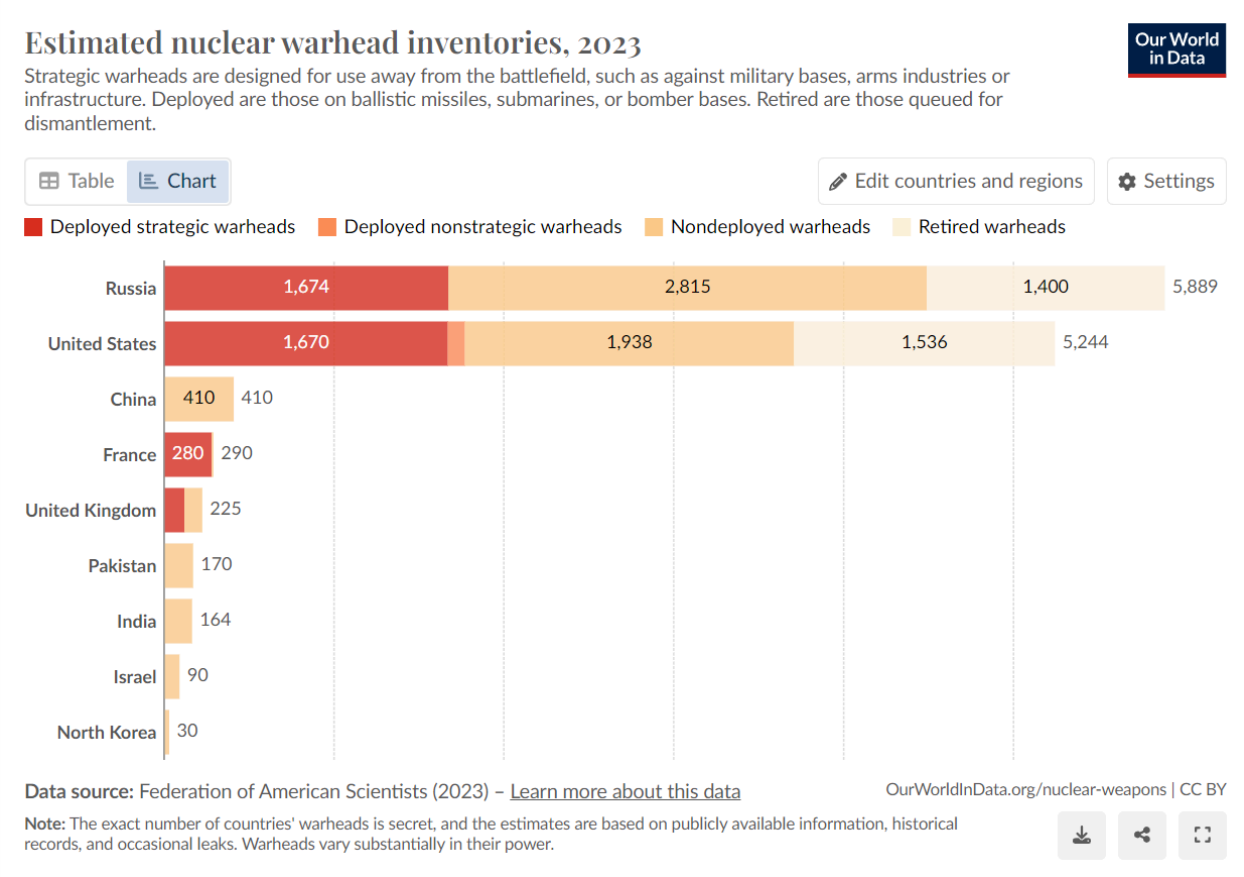
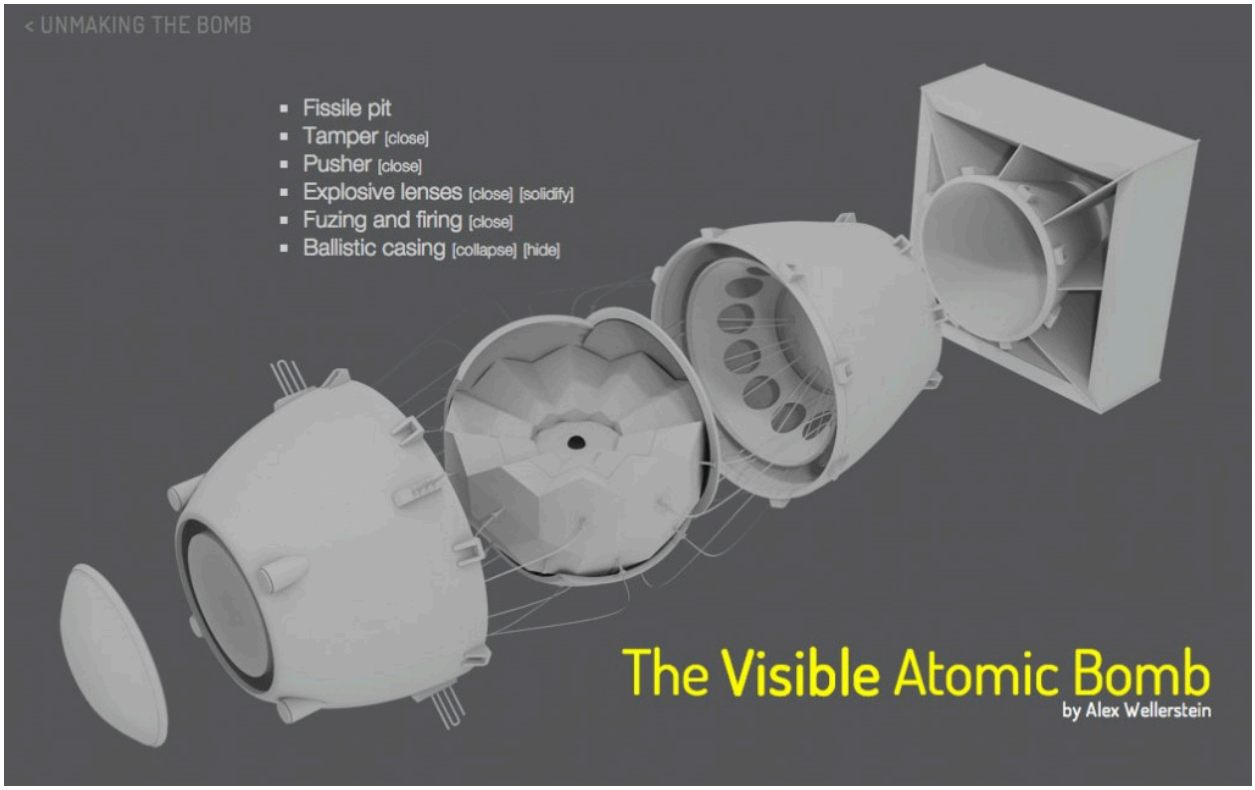
1. *Visualisation description*

1.1: https://ourworldindata.org/grapher/nuclear-warhead-inventories



The visualisation type of this graph is a horizontal, stacked bar chart. The title of this graph is Estimated nuclear warhead of inventories in 2023. Data source is from the Federation of American Scientists (2023)

1.2: https://blog.nuclearsecrecy.com/visualizations/



The visualisation is about the interior design of an atomic bomb made by Alex Wellerstein and from the blog.nuclearsecrecy website

2. *Audience and action suitability*

2.1: Estimated nuclear warheads inventories in 2023

+ The Bar chart is a very effective model that gives a brief view over the arsenal of the nuclear superpower countries that are suitable for the scientists that are doing research on this topic, it can also be aimed at the general public who are interested in the arms race around the world and how it's going at the moment.
+ The chart uses different colour schemes to highlight the warheads functions in the inventories and also clear number labelings to point out exact numbers of each inventories

2.2: The Visible Atomic Bomb

+ The visualisation depicts fully the interior of an atomic bomb dissected into multiple layers. This gives the viewer a clear vision of how different chambers of atomic bombs are designed.
+ The model is designed to aim at the general public from a student to a senior citizen or a certain category of scientists.

3. *Critical evaluation of structure*

3.1: Estimated nuclear warheads inventories in 2023

+ The data is displayed by the bar chart because it allows the viewer to compare the total number of warheads each country possesses. Each segment of the bar represents the warheads in different categories.
+ The Bar chart also helps to differentiate each country's arsenal and it is also very good for trend analysis by comparing inventories' changes in total number and compositions
+ Stacked bars allow the viewer to make relative comparison within the same inventory of an exact countries' nuclear power, therefore, provides insight for the distribution of the nuclear capabilities

3.2: Model of an atomic bomb

+ The visualisation is a 3D model which is more appealing than other types such as charts.
+ Semi-transparent models like this can be used for educational purposes, this design can be easier for the educators to convey the knowledge of how an atomic bomb works.
+ Some interior such as the pits, pusher, lenses of the atomic bomb to the are not visible to the naked eye will be visualised by the model, as well as how they work together.
+ The model can also be used in some historical contexts to show the development of an atomic bomb

4. Critical evaluation of aesthetic choice

4.1: Estimated nuclear warheads inventories in 2023

+ Title is placed on top of the chart and gives a clear information that the data is taken in 2023
+ The colour scheme of the graph is efficiently separated to display the different types of nuclear warheads which are currently in the inventory. The shade of colour indicating the functionality of the warheads were thoroughly chosen, whilst the brighter shade of red is used to show the deployed warheads, a very light shade to describe the retired warheads.
+ The number of warheads in possession of each country is also placed in a quantitative order.
+ The title is very straightforward and informative.
+ The quantity of warheads is displayed differently based on its activity. The total amount of warhead is concluded at the end of each chart.
+ General information is provided below for the viewer to have a brief view over how the warheads are distributed

4.2: Model of an atomic bomb

+ The model uses a versatile layer based design, simple and clear for the younger viewer and also easy for scientists to dissect and research further.

+ The colour palette is simple, visible for the majority of the population and friendly for visually impaired audiences. Shades and brightness is adjusted to an appropriate level. Different layers are highlighted to give the visualisation a more appealing look.
+ Adding textures and details to the illustration gives it a more vibrant, realistic and engaging style.
+ A thoughtful choice of typography, decent contrast with the background, improving visibility for the viewer.

5. Recommendations

5.1: Estimated nuclear warheads inventories in 2023

+ The colour scheme can be changed as these colours are not visible to audience visual disabilities, picking two strongly opposing colours for letters and background will enhance the visibility for the ones with special needs.
+ The model of the Bar chart is not very appealing to most viewers despite the clear description and all the information provided, changing the model to a 3D model that resembles a stockpile of warheads would give the visualisation more personality and reach a wider audience base.
+ The source of data is only coming from the Federation of American Scientists so the variety of information is not very large, this can be improved by collecting data from different sources such as scientist federations of other countries.
+ The sole source of information is from the Federation of American Scientist, which can drastically decrease the credibility of the information since there are no officials backing up the data. This can be improved by collecting more data from different organisations/ companies to improve the credibility.

5.2: Model of an atomic bomb

+ Some interactive elements such as arrows can be used to give the viewers a more interactive experience to enhance understanding.
+ A wider range of colours can be used to give a more vibrant feeling to the model so that every type of audience can have a good view and understanding of the model, therefore increases the educational value of the visualisation.
+ Create more labels and annotations to give the viewer a better access to the knowledge of how an atomic bomb works from the inside, something that is not visible without 2D dissection.
+ Increase the font size and colour to a lighter tone and the background to a darker tone to give a more significant contrast that helps the audience to focus on the message of the visualisation.