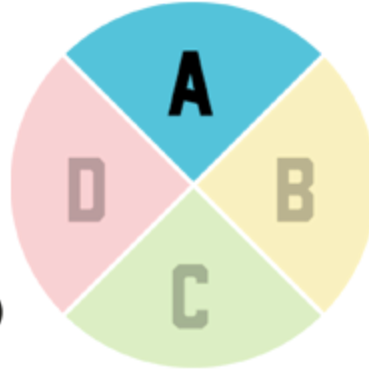


# Engineering - Paper Water Tank

## Criterion A - Definition and Research of a Design Problem

Students define and research a problem to be solved according to the needs of a specific audience.



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### A.1 - Explain and Justify the Need

Explain and justify the need for a solution to a problem for a specified client/end-user.

**A.1.1** - What is the problem to be solved? Most of your answer should come from the GRASPS and be in your own words.

**A.1.2** - Who are you solving the problem for? Find out from the GRASPS and invent a bit more about this person. Who else can they be for you to help motivate you to solve the problem (e.g., man or woman, young or old, experienced or new, strict or relaxed, etc.)?

**A.1.3** - Why does the problem need to be solved? That is, why do you need to create a solution? Your answer should come from the GRASPS and be in your own words.



## A.2 - Identify and Prioritize the Research

Identify and prioritize the primary and secondary research needed to develop a solution to the problem.

Use these resources to help you learn about primary and secondary research:

- Understanding Primary & Secondary Sources (2:53) - <https://youtu.be/pmno-Yfefd8>

Determine if a source is primary or secondary

- Complete the [Table Group Activity Sheet](#) from the [Idaho State Historical Society](#)

List as many primary and secondary resources as possible for the newspaper water tank. You will be given a sample of the materials to conduct primary research.

### Newspaper Water Tank Primary Resources

Original Information

- Fill in with Text and Photos

1.

2.

3.

Add more if possible.

### Newspaper Water Tank Secondary Resources

Interpretation/Analysis of Primary Resources

- Fill in with Text Only

1.

2.

3.

Add more if possible.

## A.3 - Analyze Existing Products

Analyze a range of existing products that inspire a solution to the problem.

Identify existing products that solve a similar problem.

Examine some of your secondary source ideas for help, do your own research, and try these resources:

Which Shapes are Good Ideas for Water Tanks? <https://en.wikipedia.org/wiki/Volume>

Why are Water tanks Round? [On Quora](#)

Easy Origami Box Video - [https://youtu.be/JK5Ni5\\_WEM4](https://youtu.be/JK5Ni5_WEM4) (1:28)

Water Tank Definition on Wikipedia - [https://en.wikipedia.org/wiki/Water\\_tank](https://en.wikipedia.org/wiki/Water_tank)

Water Tank Construction Time-lapse Video - <https://youtu.be/9oVDA83yxWI> (0:57)

Paper Water Bomb Video: <https://youtu.be/bzdHmBSd5TU> (4:33)

Video of Newspaper Tank Test, October 2016: <https://youtu.be/PLyx9sDAonc> (3:43)

### A.3.1 - Helpful Ideas

Which design ideas seem helpful to solve the problem? Why?

### A.3.2 - Not Helpful Ideas

Which design ideas will probably not work to solve the problem? Why?



## A.4 - Develop a Design Brief

Develop a general design summary from an analysis of the relevant information to guide and inspire the designer.

Your supervisor needs to make sure you know what to do!

Write a Design Brief email to him or her. The email should be short and general with a friendly and respectful tone and must include:

- what you are going to make
- why you are going to make it
- who is it for

Reference the GRASPS before you start.

**Design Brief - Email Subject Line:**

**Design Brief - Email Body:**

