



### **-Design a Rural Ugandan House:**

*It is your job to design a Rural Ugandan House that collects the most amount of water from it's rooftop. You will go through the design process and come up with your final design in Trial 3.*

#### **Materials you can use:**

Clay  
Popsicle Sticks  
Thin Cardboard Pieces  
Fringed Brown Paper  
Plastic Cup (rain catchment)

#### **STEP 1: UNDERSTAND**

What is a Rain Catchment Station?

Why do individuals use a Rain Catchment Station?

#### **STEP 2: EXPLORE**

What materials are generally used in building a Rain Catchment Station?

In what areas would a Rain Catchment station generally be used? What environment?

What is the benefit of a Rain Catchment Station?

**STEP 3: DEFINE**

What are the Design Constraints?

What are the functional requirements?

**STEP 4: IDEATE**

Sketch your first design idea for a house that will collect the most amount of water in a rain catchment station

A large, empty rectangular box with a thin black border, intended for sketching a design idea for a rain catchment station.

**STEP 5: IMPLEMENT**

Build your first design

**STEP 6: TEST**

In this phase you will take notes about what was successful and what failed in your design. You must also weigh the amount of water you caught in your rain catchment station.

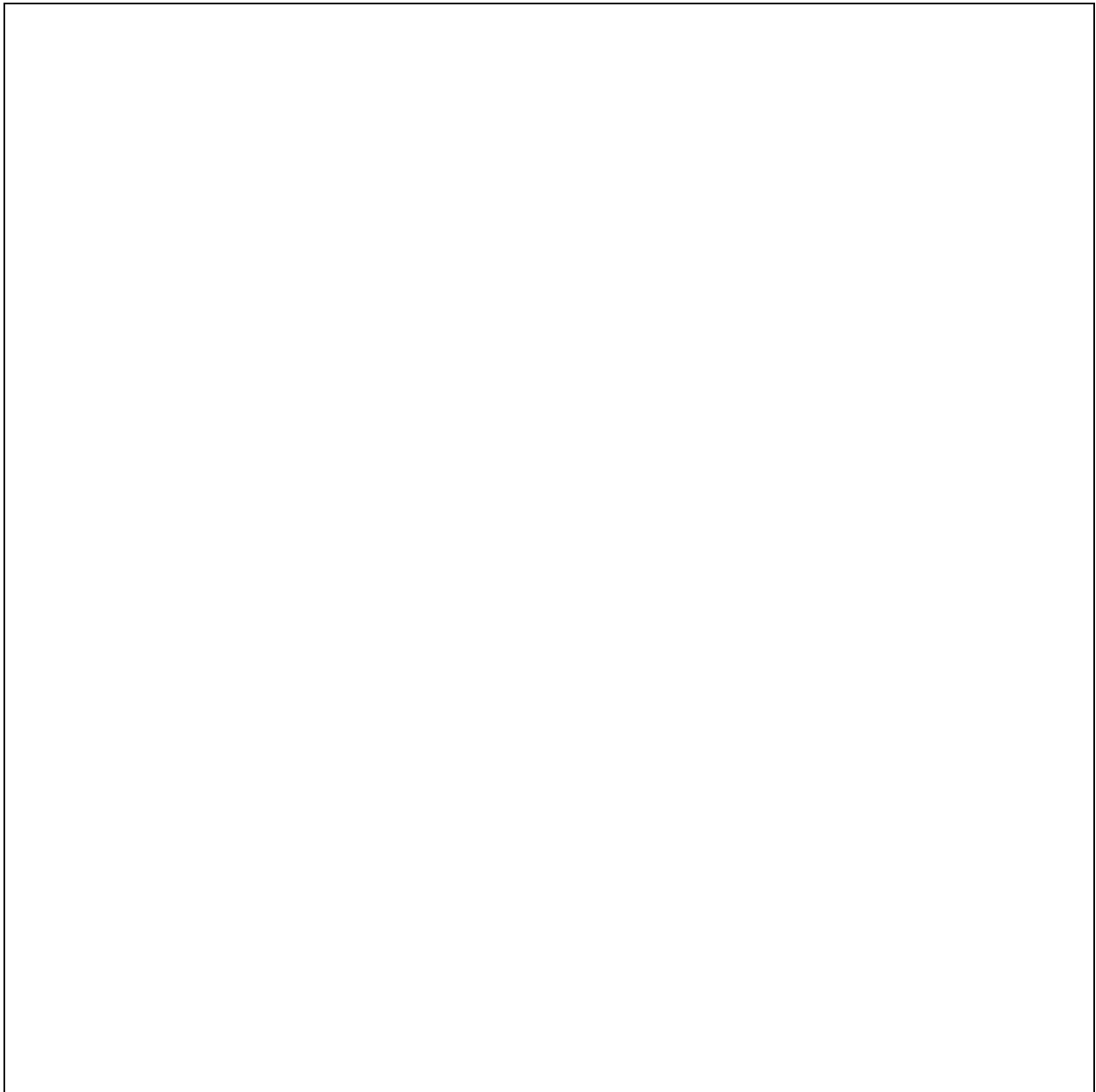
**Amount of Water Caught** \_\_\_\_\_

<b>What was successful in Design One?</b>	<b>What failed in Design One?</b>

**STEP 7: Redesign**

What is one thing you are keeping the same? Why?

What is one thing you are changing? Why?

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**STEP 8: IMPLEMENT**

Build your second design

**STEP 9: TEST Design 2**

In this phase you will take notes about what was successful and what failed in your design. You must also weigh the amount of water you caught in your rain catchment station.

**Amount of Water Caught** \_\_\_\_\_

What was successful in Design Two?	What failed in Design Two?

**STEP 10: Final Redesign**

What is one thing you are keeping the same? Why?

What is one thing you are changing? Why?

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## **STEP 11: IMPLEMENT**

Build your final design

## **STEP 12: Final TEST Final Design**

In this phase you will take notes about what was successful and what failed in your design. You must also weigh the amount of water you caught in your rain catchment station.

**Amount of Water Caught** \_\_\_\_\_

<b>What was successful in the Final Design?</b>	<b>What failed in the Final Design?</b>

**STEP 12: Reflect** (In this stage take time to reflect on all of the changes you made and the observations that were made- did your final product turn out better)

What were the challenges? What about the materials made this process challenging?

What did you learn about the struggle to collect water in an underdeveloped nation where resources for building are slim and faucets do not exist?