



**Karkhana
Samuha**



A Step-by-Step Guide on
running your own

SIKARU SAATHI BOOTCAMP

In collaboration with:



www.karkhanasamuha.org.np

Sikaru Saathi Bootcamp is an innovative and exciting platform for students aged 12-18 which offers a hands-on approach to learning about e-waste through building a culture of repair.

Bootcamp philosophy

- We believe that everyone is a maker and everyone can repair
- We want our students to build a repair mindset
- We value the complexity of repair and the potential it holds in learning deeply about people, objects, environment and our ecosystem
- Our students learn best when they are actively working on meaningful projects and we create an environment to enable that
- We want our sessions to be playful and collaborative, encouraging creative thinking and active discussions with little or no time listening to one-sided lectures

Learning outcomes

Expected learning outcomes from attending the bootcamp:

- Develop a tendency to repair before replacing items
- Understand the impact of e-waste on the environment
- Reflect on personal contribution to the e-waste problem
- Recognize the possibilities of repair for original, new, or novel purposes
- Identify areas of repair by closely examining items
- Utilize tools and materials to problem-solve and troubleshoot repairs
- Gain ability to run/facilitate similar workshops for peers and family members

STEP 01

Get to know the Sikaru Saathi Bootcamp resources properly

Sikaru Saathi Toolkit is a comprehensive resource designed to encourage and help people use repair as a means to tackle e-waste. We want to provide you with the methods, skills, and knowledge to repair your electronic devices before deciding to replace or dispose of them. We also aim to raise awareness about the negative impact of e-waste on our environment. In this toolkit, you will find:

- Facilitator guide
- Repair videos
- Bootcamp videos/Testimonials

STEP 02

Choosing your bootcamp format

- Recommended length for the bootcamp:
24 to 30 hours
- Recommended student/facilitator ratio: 1:10

Bootcamp formats

All day camps for 5 days straight

- 01 Organize during school breaks
- 02 Each day is 5 to 6 hours long with an hour long break in between
- 03 Best times to organize the bootcamps
 - Summer and Winter vacation
 - Between Dashain and Tihar
 - End of the year school break during Chaitra

Day 1

Tour of an e-waste recycling facility
E-waste dismantling workshop
Basic of Electronics

Day 2

Introduction to Basic repair materials

- How to use soldering iron
- How to use glue gun
- How to use a wire cutter

Repair:

- Multiplug
- Electric kettle

Day 3

Repair:

- Heater

Reuse and Up-cycling Session:

- How to re-use parts of old damaged e-waste in your projects

Day 4

Ideation and Build

Day 5

Build and Exhibition



Day 1

Tour of an e-waste recycling facility

Dismantling

- ⚙️ Students will be taking a tour of Doko and know more about the company and its mission
- ⚙️ Students will have a dismantling session where
 - First activity is not guided where students are given e-waste and ask them to dismantle
 - Students might not know components while dismantling so no need for the facilitator to address anything about the components. They will learn it in next activity
 - If students sees any interesting materials they can take a note and then have a discussion later
 - After first activity there will be a guided activity where students will learn the proper way to dismantle e-waste
 - Dokos technique(weighing and taking notes...)

Day 2

Basic of Electronic

- ⚙️ Facilitator will visit doko a few days early and collect some e-waste (components like motors, LEDs, dead batteries, cardboards....)
- ⚙️ Using the components that facilitator collected students are presented with a prompt and are ask to make things according to prompt
 - One objective is to tell students that we have a lot of e-waste in our house and unknowingly we throw them. We might find treasure from our trash
 - Facilitator can also share about the concept of upcycling, recycling and reduce
 - Students will work in groups and come up with the idea on what they will be working on. It would be
 - Making
 - Art
 - Storytelling

Day 3

Soldering, hot glue gun

- ⚙️ Prototyping (In day 2 we using simple tools ie alligator clips, electrical tapes to make things where connections might have been unstable so now kids will learn about other technique to making their connections more reliable)
- ⚙️ Students will learn to solder and desolder techniques.
 - Facilitator provides simple household materials that we often found damaged and throwing (extension cord, fuse, 3 pin sockets) and
 - Ask students to repair them.
 - Some components might be simple soldering (soldering two wires together) whereas some might be replacements of parts.
 - ▶ Students can find repair part from other wastes and try fixing their components
 - Starting with just soldering two wires and then slowly increasing the difficulty level

Day 4

Electronics

- ⚙️ Similar to day 2 students will again work on some project based on simple prompt
 - On day two students were given materials that were prepared by the facilitator, but on this day students will look for the materials themselves try to dismantle them using their knowledge from the past few classes.
 - Facilitator will also teach different technique to test out if the components works properly (using battery, Multi-Meter)

Day 5

If students completed their work on day 4 we will move to the ideation phase else students will be continuing completing their work.

Ideation

- ⚙️ Brainstorm on what they want to build
 - Students are in the groups of 2 or 3 and start generating ideas
- ⚙️ Use mind maps (brain sketch) and get feedback from peers/facilitators on how to improve their ideas
- ⚙️ Collect parts for their project
- ⚙️ Start working on projects

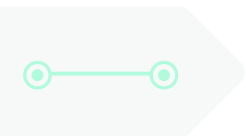
Day 6	Build
Day 7	Build
Day 8	<p>Exhibitions</p> <ul style="list-style-type: none"> ⚙️ Students will showcase their work that they have been learning from the past 7 days. ⚙️ We will send invitations to parents to attend the exhibition that is planned on this day. <ul style="list-style-type: none"> ● Ask students to share their work and share feedback

8 week long weekly sessions

- Organized either as part of the school day or as a after school program
- 2 to 3 hours every week
- Best time to organize this bootcamp
 - Baisakh to Asadh (as course load is relatively low)
 - In between Tihar Break and Winter Break

A month long Bootcamp

- 3 hour twice a week sessions
- Best time to organize this bootcamp:



Choosing a Venue

Choosing a recycling partner

- ⚙️ Some sessions are best conducted in collaboration with recycling facilities like Doko Recyclers. Important for students to see the recycling facility and have access to materials that can be recycled
- ⚙️ Space essentials
 - Moveable table and chairs
 - Allows for group work
 - Storage for projects in building phase
 - Storage for materials that need to be repaired/recycled
 - Place to set up stations
 - Soldering Station
 - Cutting/Glue gun Station
 - Repair/Dismantling Station
 - Power outlets
 - Wifi along with access to a tablet or a computer (recommended)
 - Projector (Recommended)
 - White board
 - Board Marker
 - Eraser
 - Easy Access to drinking water and restrooms

Gathering your supplies

Prepare a repair toolkit for either every student or a pair of students. A repair toolkit might contain the following tools

- ⚙️ **Multimeter** - 1pcs (Make sure they are AC compatible)
- ⚙️ **Screw driver set** - 1 pcs
- ⚙️ **Soldering Iron, Soldering Irons stand, Tin, Wax** - 1pcs (Make sure there is an LED indicator.)
- ⚙️ **Electrical Tape** - 1 pcs
- ⚙️ **Glue gun** - 1 pcs (Make sure there is an LED indicator)
- ⚙️ **Wires** - 1 meter
- ⚙️ **Pliers** - 1 pcs
- ⚙️ **Hammer (Straight Peen)** - 1pcs
- ⚙️ **Wire Cutter** - 1pcs

In addition to the repair toolkit you can prepare these materials

- Materials that students would require to prepare their projects
 - Cardboards
 - Scrap papers
 - Plastic bottles
- E-waste
 - Electric kettle
 - Multiplug
 - Heater
- Materials to facilitate a session on basic of electronics
 - Breadboard
 - Jumper Wires
 - Batteries
 - LEDs
 - Motors

Where can you scavenge materials for repair?

- Ask students to bring damaged electronic items from their homes
- Reach out to recycling facilities like Doko Recyclers for these materials

STEP 05

Budgeting for your Bootcamp

Budgeting for the bootcamp prior to the event will help you plan our resources better. We can use any spreadsheet software (Google Spreadsheet, Microsoft Excel etc.) to build a budget. Once we have a sense of the scope and size of the participants of the bootcamp, here are a few steps that will help us consolidate a practical budget.

01 Lay out activities:

Determine the scope of the bootcamp by outlining the objectives, deliverables and timeline. This will help identify the resources we will require to execute the bootcamp.

02 Identify the cost items:

Make a list of all the cost items involved in the bootcamp. These could be HR costs, materials, logistics, travel etc.

03

Determine the cost of each item:

Research the cost of each item on your list. Get quotes and estimates from suppliers, vendors, and other sources to help you determine these costs. A good practice is to get unit cost estimates for each cost item.

04

Summarizing costs:

Each cost item must be categorized into a specific budget team depending on the nature of the expenses. Some of the common budget categories are Personnel, Materials, Software, Communications, Travel etc.

05

Plan for contingencies:

Plan for unexpected events or expenses by including a contingency budget. A general practice is to allocate 8-10% of the total project cost to contingencies.

06

Review and track the budget:

Review the budget periodically to ensure that it is accurate and up-to-date. Include columns for each cost item, the estimated cost, the actual cost, and any variances. This will help you identify any variances to budget and keep the activities in check.

Attached here is a standard budget template that you can use

S.No.	Cost Item	Budget Category	Unit	Unit Cost	Total Cost A = [a * b]	Actual Cost [B]	Variance C = A - B

STEP
05

Promoting the Bootcamp

Social media campaign checklist

- Choosing a social media platform to promote
 - **Facebook** - Great for community engagement and events; Platform to engage parents
 - **Instagram** - To promote beautiful visual content; Platform to engage students
 - **LinkedIn** :- Committed users + Networking + Legitimacy & Credibility; Platform to reach out to donors or other organizations
 - **Tiktok** : Virality + Entertainment + Quick Hacks; Great platform to share bootcamp stories

- Social media poster
 - Include the date, time, cost, and place of the bootcamp
 - Contact numbers and email
 - Supporting partners (if any)
 - Use graphics that denote e-waste or repair

Refer to this sample poster:



- Online registration form (Google form recommended). You will need to collect the following information from your google form
 - Student details: name, age, grade, school, and contact information
 - Parent details: name and contact information
 - Their motive to join the bootcamp

Here is a sample google form
- Creating a simple promotional video
 - You may shoot a video using camera or mobile phone
 - You can use editing tools such as Capcut, canva, or filmora
- Reaching out to parental or student groups in WhatsApp/Viber/Facebook groups

In-person outreach to schools or organizations

- Create a promotional poster
- Prepare a short pitch (preferably make it hands-on and interactive)
- A sign up sheet for interested students/parents

We hope this guide has inspired and prepared you to run your own repair bootcamp. Let's tackle e-waste and save our planet!

