FIELD READY

Parts Catalog

April 2020

Health ● WASH ● Protection ● Shelter ●
Nutrition ● Logistics ● Camp Management ●
Education ● Telecommunications ● Energy
DRR ● Disability Inclusion ● Early Recovery

Introduction

We believe that by making useful things, we can make the world a better place. Therefore our goal is to get people what they need, where they need them and when they need them. We do this by working in emergencies and on reconstruction, using a range of technologies and engaging people in new ways. The impact of this is that more people are helped in ways that are faster, cheaper and better than current alternatives.

The key difference of our work is local manufacturing, yet the outputs are simply the means to an end. This end is the impact on people's lives: their lives saved, suffering reduced and their resilience and empowerment increased. We are able to do this transformative programming not because the products we make, but because of the unique approach we have.

The purpose of this catalog is to serve as a practical tool for problem-solving. With it, specialists and non-specialists can discuss the same things and achieve extraordinary results. For Field Ready, the technology involved – whether basic and appropriate or high-tech and exponential – is less important than the outcomes achieved. The readiness and risk involved is a critical element and this document takes care to outline these for each item below.

This catalog features open-sourced designs made and tested by Field Ready and features critical items used across the aid sector. As we continue to develop and test parts, we will add items proven successful to later iterations of the catalog.

Important Note: The response to COVID-19 (coronavirus) is rapidly evolving. This catalog does not include all products under development and a separate Product List of items currently being worked on in response to the pandemic. We are doing our best to act quickly and will share updates as they are available.

For information on the designs contact info@fieldready.org

Product List

133 parts

MAKING TRAINING INNOVATING

Readiness Levels Explained

In developing this catalog, a wide range of considerations were taken into account. Product development encompasses a number of concerns that are not always easily captured in saying that something is "ready." Four separate readiness scales are listed for each item in this catalog along with a consideration of risk. The five categories are explained below along with the readiness scales on the following pages to provide users of this catalog with a clear understanding of how the system works.

1. **Field readiness level**: This measures the degree in which an item is suitable for life-saving situations. It is a key quality that sets items apart in humanitarian contexts.

2. **Maker readiness level**: This is an indication of the relative ease in making the item as it relates to the complication and skill involved.

3. **User readiness level**: This is a measure of the end-users acceptability of the item considering issues such as whether it is already commonly used, if the item is in an existing catalog and when there are established standards for its use.

4. **Technology readiness level**: This is an indication of the development process that the item is in (e.g., whether it is at a conceptual stage or available for replication and widespread use).

5. **Risk level**: This is a measure of severity and likelihood of the risk involved for the maker and end-user of the item. The mitigation and control measures are documented by Field Ready in separate risk assessments for each item it makes.

These categories and measures are captured in the small tables with each entry of this catalog.
Here is an example:

Readiness Levels				Risk
Field 5	Maker 4	User 5	Tech 5	4

What makes a product 'field ready'?

Five criteria determine the level of an items field readiness

Essential: Needed in a humanitarian, recovery, or development context. The item is vital and there would be issues if it is not available.

Quality & Safety Checked: All items are assessed for risk and reasonable standards (e.g. US FDA) should be met.

Easy to use: It should be intuitively designed and exactly fit for purpose. Usable with as little training as possible, and ideally, locally repairable.

Robust: Optimized to function in a field context, with design features such as strength, shock resistance and ability to survive moisture or dust.

Replicable: For widespread use it should be affordable, adaptable to different contexts, well documented, and with no intellectual property restrictions.

Based on these criteria, it's possible to determine a Likert-type scale with a rating from 1 to 5 as follows:

Measure	Description
1	Item is not field ready, better suited to clean and stable uses or situations
2	Item meets some criteria but significant change needed
3	Item meets most criteria but still room for marked improvement
4	Item is field ready in most situations although improvement still needed
5	Item is very well suited to the field and optimized for such conditions

How is 'maker readiness' measured?

This category indicates the level of complication in 'making' (i.e. manufacturing or fabricating) a particular item. It captures a sense of the degree of knowledge, skill, technical input and sophistication of tools and equipment needed to reproduce the item. All levels are relative.

Level		*Description*
1	Expert	• Expert knowledge backed with extensive experience • Highly specialized and sophisticated equipment needed • Knowledge on replication requires advanced skills
2	Very Hard	• High degree of training or prior knowledge required • Tools or equipment needed may be a high level of sophistication • Knowledge on replication requires advanced skills
3	Hard	• An increased amount of training or prior knowledge required • Tools or equipment may be needed or required • Knowledge on replication is passed on simply
4	Normal	• Some training may be needed to successfully make the items • Tools may be required but may be basic or readily available • Knowledge on replication is passed on simply
5	Easy	• Very little to no training or prior knowledge required • Few if any tools or equipment needed • Knowledge on replication is passed on simply

What makes a product 'user ready'?

Five criteria determine the level of an item's user readiness

Commonly used or needed: Needed in a humanitarian, recovery, or development context. The item is vital and there would be issues if it is not available.

Meets or exceeds standards and/or user demands: All items are assessed for risk and reasonable standards (e.g. US FDA) should be met.

In existing catalogs: It should be intuitively designed and exactly fit for purpose. Usable with as little training as possible, and ideally, repairable locally.

Suitable replacements alright: When appropriate, the design and/or process is acceptable to the end users.

Desirable: For widespread use it should be affordable, adaptable to different contexts, well documented, and with no intellectual property restrictions.

Based on these criteria, it's possible to determine a Likert-type scale with a rating from 1 to 5 as follows:

Measure	Description
1	Item is unlikely to accepted by end users
2	Item meets some criteria but significant work needed
3	Item meets most criteria but still room for marked improvement
4	Item is field ready in most situations although improvement still needed
5	Item is very well suited to user needs, it is highly desirable and likely to be used as intended

What indicates ‘technology readiness’?

Technology readiness is a measure referring to the stage of an items maturity. Our Technology readiness considerations are based on a scale of 1-5 and take into consideration safety concerns. Pleas refer to the scale on each item.

Level		*Description*
1	Basic Research	Basic idea is noted and recognized, beginning application of research and development. The invention is still speculative.
2	Proof of Concept	Active research and development is initiated. This includes analytical studies and laboratory studies to physically validate analytical predictions of separate elements of the technology.
3	Working Prototype	Concept designs come to fruition through basic components that are tested first in a lab setting, than in a controlled environment. The next iteration tests the entire system in a simulated environment.
4	Tested but more work needed	At this level the prototype is tested in an operational environment, in or near where it will be used (alpha and beta testing).
5	Proven Tech	Prototype is proven through successful operations, it is available for intended users.

How is the degree of 'risk' measured?

A number of questions are used to assess risk for both those used in making the item and, especially, the end user:

1. **What are the hazards involved?** Consider all hazards that exist, regardless of severity, likelihood or existing controls. For example, anything that is used in the preparation or transport of food or drink carries a hazardous substances risk, as it could ultimately be ingested and be toxic or cause infection.
2. **What are the vulnerabilities?** How the hazard may have an outcome if there is an accident or negligent use, and what will the result may be. Examples include but are not limited to burns, cuts, falls or anything that may cause harm, including death.
3. **What is the severity and likelihood?** Consider the impact and frequency the hazard may take place.
4. **What are the control and mitigation measures?** What can be done to lessen or prevent the hazard. Controls that eliminate hazards are preferable to measures that create barrier, such as safety guards or personal protection equipment.
5. **Additional considerations?** Is there anything else that should be considered particularly from the end-users perspective such as risks that emerge through 'wear and tear' and any other unintended consequences. Is the risk of not providing the item outweigh any other risks?

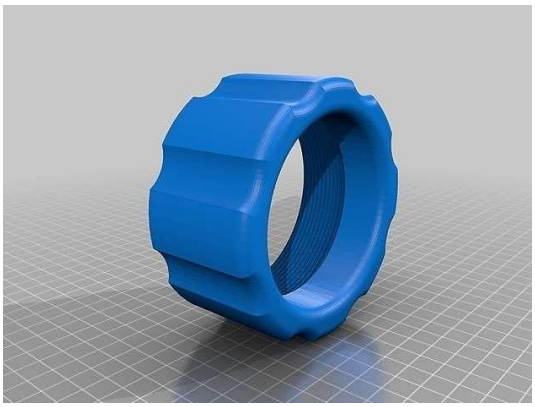
Based on these questions, it's possible to determine a Likert-type scale with a rating from 1 to 5 as follows:

Measure	Description
1	Very high risk: Item and/or process has multiple risk concerns.
2	High risk: Item and/or process has some risk concerns. Take extra measures to reduce risk.
3	Elevated: Item and/or process has a few risk concerns.
4	Moderate: There may be an concern regarding the use or making process of the item.
5	Low risk: Few if any risk concerns.

Important Note: Field Ready does not undertake work that is very high risk. The organization undertakes a documented risk assessment for all items it considers making and carefully follows a detailed procedure to ensure the safety for those concerned. Further, the organization does not make or distribute items that are medically invasive or have other noted risk concerns.

WASH

Hose Collar



Name: Hose Collar

Part Number: WA001

Critical Tools: 3D Printer

Location: South Sudan

Material: ABS Plastic

Description: Hose collar for output of a diesel water pump (3” OD)) ,

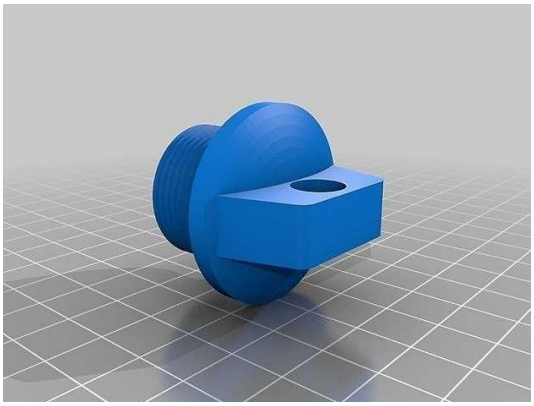
Readiness Levels		Risk
Field	4	3
Maker	5	
User	4	
Tech	5	

Download link: http://www.thingiverse.com/thing:2464319

Purpose: This is a collar used to attach a hose to the primary water output of a diesel water pump. It is suitable for a pipe that I approximately 3” OD.

Usage Notes: It requires sealing to be watertight.

Water Cap



Name: Water Cap

Part Number: WA002

Critical Tools: 3D Printer

Location: South Sudan

Material: ABS Plastic

Description: Threaded cap for output of a diesel water pump (1" OD)

Readiness Levels		Risk
Field	4	3
Maker	5	
User	4	
Tech	5	

Download link: http://www.thingiverse.com/thing:2464301

Purpose: This is a prototype threaded cap to seal off the excess water output of a diesel water pump. The thread is 1.66mm pitch (~15TPI) , about 1" OD. This is close to 3/4BSP but slightly smaller and finer pitch.

Pipe Grip

Name: Pipe Grip

Part Number: WA003

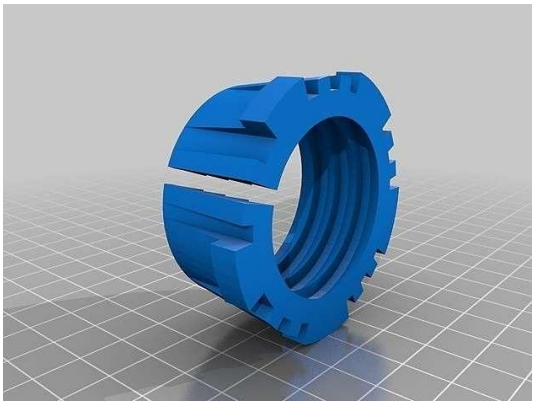
Critical Tools: 3D Printer

Location: South Sudan

Material: ABS plastic

Description: Tightens interlocking threaded collars onto a a water input hose for a compressor

Readiness Levels		Risk
Field	5	3
Maker	4	
User	5	
Tech	5	



Download link: http://www.thingiverse.com/thing:2464309

Purpose: Used to tighten interlocking threaded collars onto a water input hose for a compressor.

Usage Notes: Test if sufficiently flexible by applying force to one side of the "C" until the threads are offset from one another by one whole thread. Test for fit by placing it over water input hose and place into interlocking threaded collars.

2” Tri-Clamp

Name: 2” Tri-Clamp

Part Number: WA004

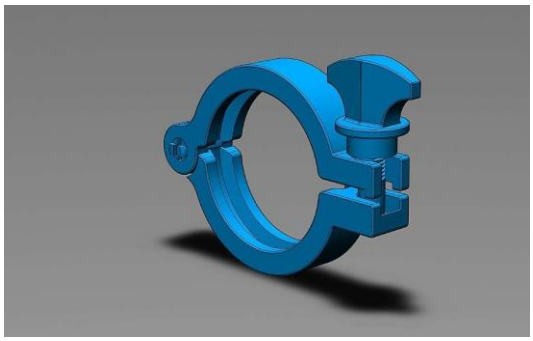
Critical Tools: 3D Printer

Location: Haiti

Material: ABS plastic

Description: Joins flanged pipe (not pressurized)

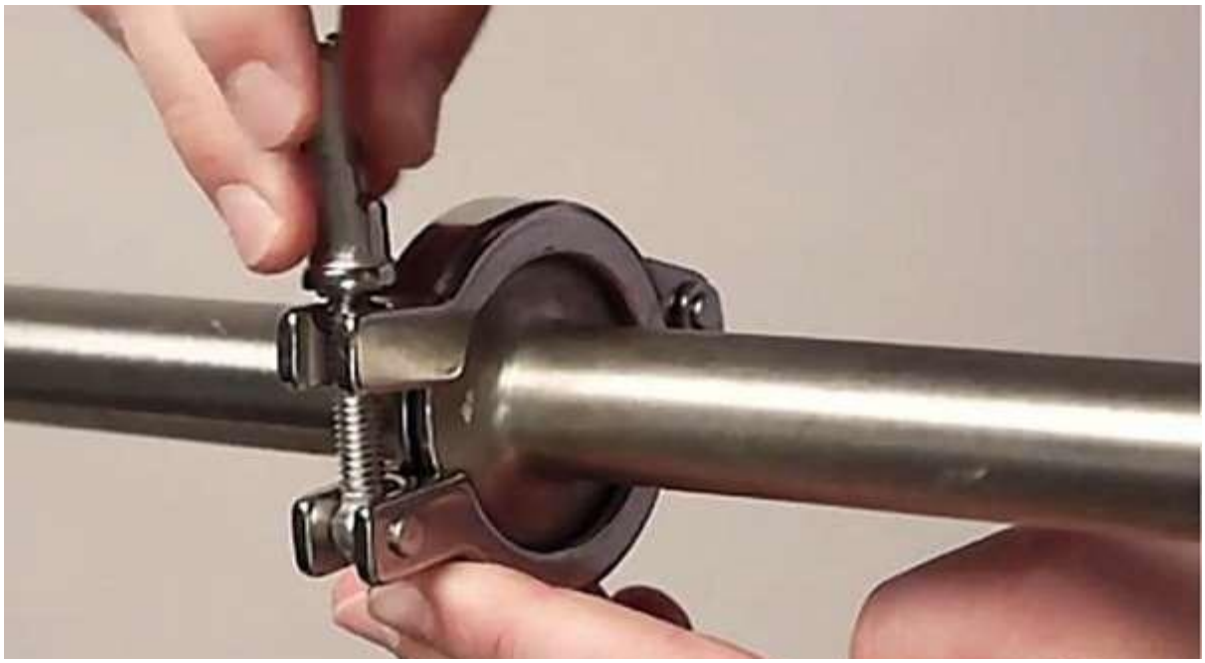
Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	



Download link: http://www.thingiverse.com/thing:1561955

Purpose: This tri-clamp is useful for joining flanged pipe such as is used in chemical or food processing. The model is based on the geometry of a standard clamp from Mcmaster-Carr but adapted to make more suitable for 3D printing. It has been tested for assembly (works fine) but has not been used to join pressurized pipes.

Usage Notes: If used for light duty work, only the clamp screw and wingnut will be required printing at 100% infill.



Hose Clamp

Name: Hose Clamp

Part Number: WA005

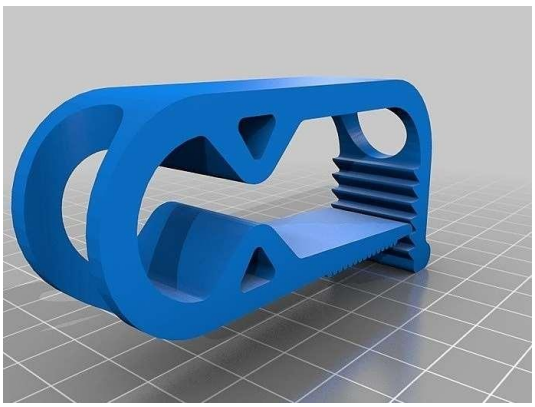
Critical Tools: 3D Printer

Location: Nepal

Material: ABS plastic

Description: Attaches and seals a hose onto a fitting

Readiness Levels		Risk
Field	4	3
Maker	4	
User	4	
Tech	4	

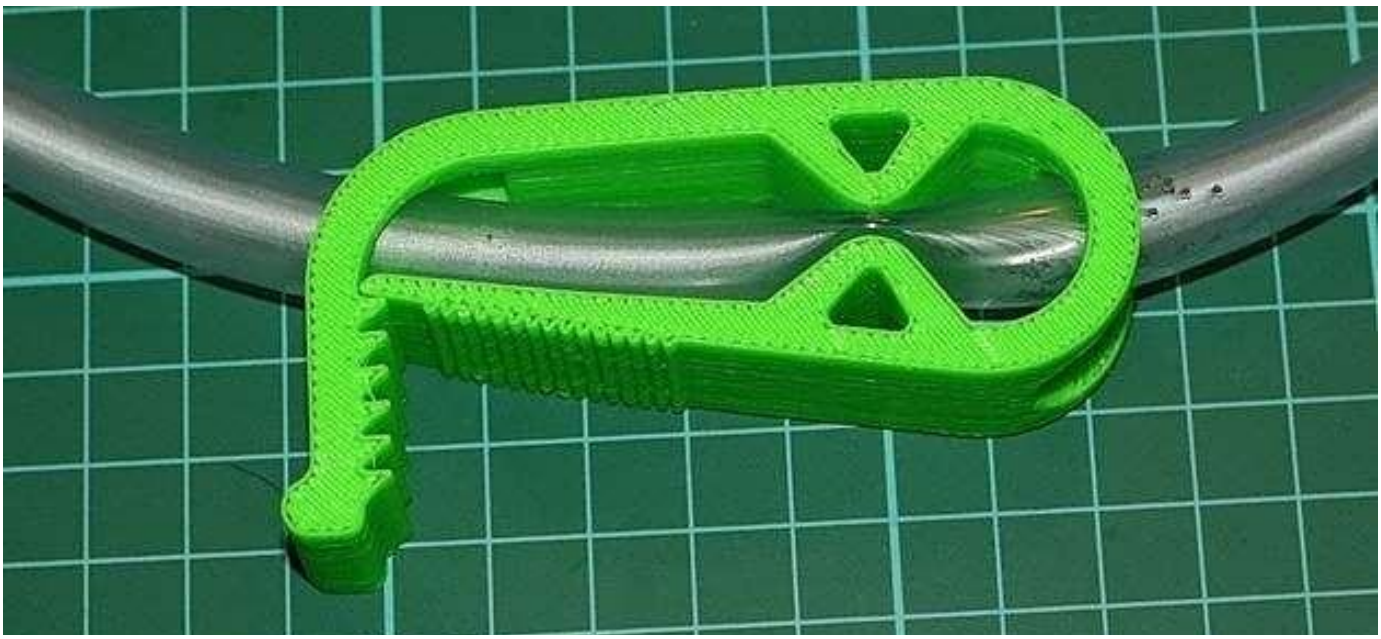


Download link: http://www.thingiverse.com/thing:28447

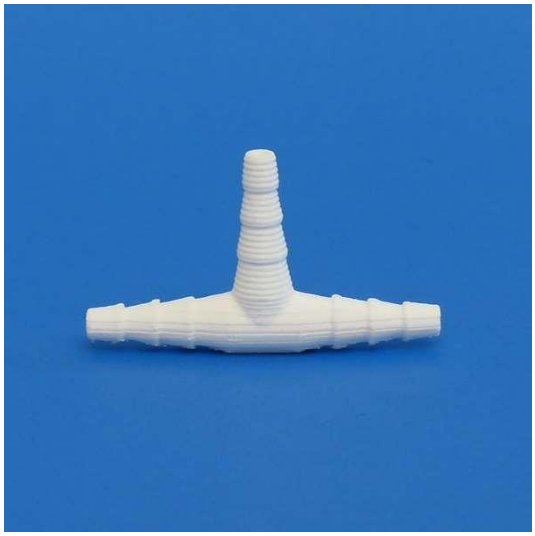
Size: 10cm x 42 cm x 95 cm

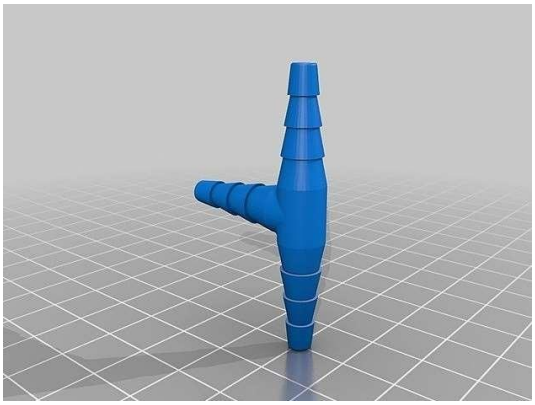
Purpose: A devise used to attach and seal a hose onto a fitting.

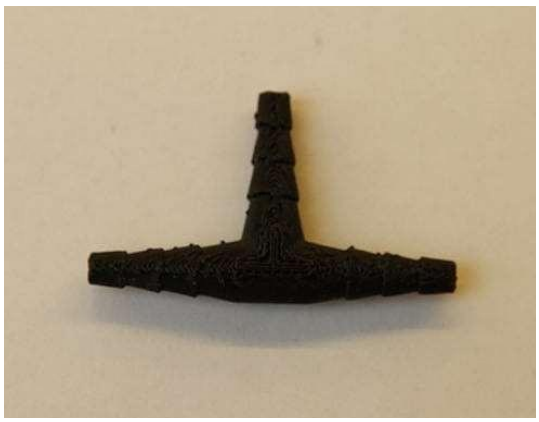
Usage Notes: Slide onto section of hose and squeeze as you pull back thumb tab gently. Pull back thumb tab and release.



T Piece







Name: T Piece

Part Number: WA006

Critical Tools: 3D Printer

Location: Haiti

Material: ABS plastic

Description: Joins three flexible pipe (silicone/PVC with ID 4-7mm)

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	

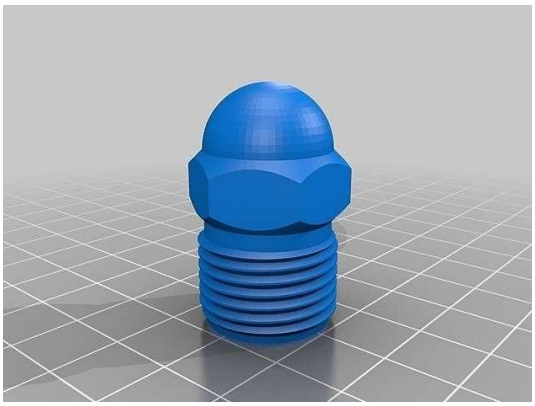
Download link: http://www.thingiverse.com/thing:1562058

Size: 2.9 cm x 5.0 cm x 0.85cm

Purpose: T piece to allow three pipes to be joined. Suitable for flexible pipe such as silicone or PVC with an internal diameter of around 4-7mm. It can be scaled to suit other sizes but bear in mind that the wall thickness gets quite thin if made smaller. (current min wall is 1mm). It has been lab tested but is not currently in use.

Usage Notes: Min wall thickness 1mm. if possible, print at an angle to the bed (i.e. two outputs are pointing to print bed at 45-degrees, other end points upwards as shown in one of the images). It uses more support material but ensures that no support is required to form the inner surface.

1/2" BSP Plug



Name: 1/2" BSP Plug

Part Number: WA007

Critical Tools: 3D Printer

Location: UK

Material: ABS plastic

Description: Water tight seal for a 1/2" BSP fitting

Readiness Levels		Risk
Field	4	5
Maker	4	
User	4	
Tech	4	

Download link: http://www.thingiverse.com/thing:1562824

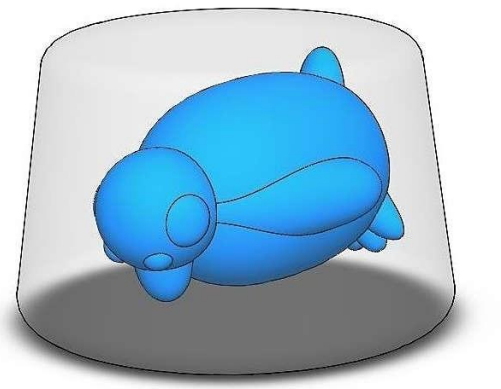
Size: 3.4 cm x 2.4 cm

Purpose: To test the water tightness of print setting. Replace showerhead with this blanking plug, turn on to check if print settings can hold mains water pressure. The same print settings can then be used for other items with some confidence it will be water tight and strong enough to hold water pressure.

Note: There is no sealing mechanism for the threads, so it with either need PTFE tape, liquid thread sealant (adhesive) or a rubber gasket. It is common for there to already be a rubber gasket in the shower head that can be reused.

Usage Notes: On some printers, this part might not be water tight. Its best to test it before using it for something critical. If it leaks through the threads, either reduce the scale slightly or use one of the sealing techniques discussed above. If the part is porous, try changing the print settings (higher temperature hot end, less fan or more extrusion) or apply an acetone or lacquer treatment Ensure that any treatments are fully dry before retesting or use.

Hidden Incentives Soap



Name: Hidden Incentives Soap

Part Number: WA008

Critical Tools: 3D Printer

Location: Iraq

Material: ABS plastic

Description: Soap used to incentivize handwashing, featuring a plastic toy on the inside

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	

Purpose: Soap used to incentivize handwashing, featuring a plastic toy on the inside. The more you wash the closer you are to reaching the toy.

Trickle Water Filter

Name: Trickle Water Filter

Part Number: WA009

Critical Tools: Knife, drill & saw

Location: Colombia

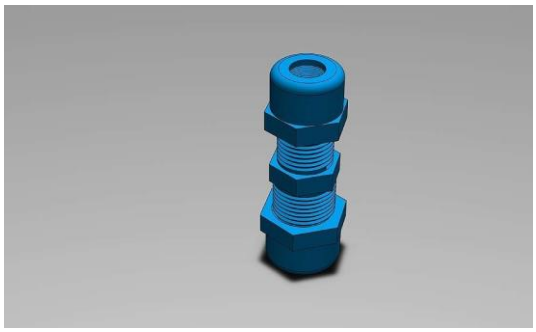
Material: Timber planks, plastic sheeting and silicone tubing

Description: Aerobic wastewater treatment system that removes organic matter

Readiness Levels		Risk
Field	5	5
Maker	3	
User	4	
Tech	5	

Purpose: Trickling filters (TFs) are used to remove organic matter from wastewater. The TF is an aerobic treatment system that utilizes microorganisms attached to a medium to remove organic matter from wastewater.

Straight Coupler



Name: Straight Coupler

Part Number: WA010

Critical Tools: 3D Printer

Location: Nepal

Material: ABS plastic

Description: 20.5/16.5 straight coupler used to join to pipes.

Readiness Levels	
Field	4
Maker	3
User	4
Tech	4

Risk
5

Active Carbon Filter

Name: Active Carbon Filter

Part Number: WA011

Critical Tools: Knife or hand saw

Location: Colombia

Material: Freely available materials such as bone char, coconut shells, peat, petroleum coke, coal, olive pits or sawdust

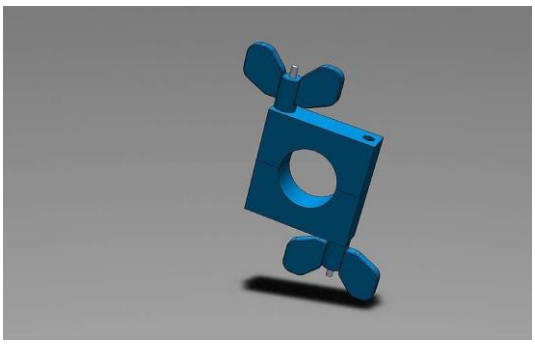
Description: Removes chlorine, VOCs, taste & odor from water

Readiness Levels	
Field	3
Maker	4
User	1
Tech	4

Risk
1

Purpose: To remove chlorine, particles such as sediment, volatile organic compounds (VOCs), taste and odor from water as well as various medical uses including poison control.

Water Truck Clamp



Name: Water Truck Clamp

Part Number: WA012

Critical Tools: 3D Printer

Location: Vanuatu

Material: ABS plastic

Description: Clamps over the hose on the outlet of a water distribution truck to create a seal

Readiness Levels	
Field	4
Maker	4
User	5
Tech	4

Risk
4

Jerry Can Roller

Name: Jerry Can Roller

Part Number: WA013

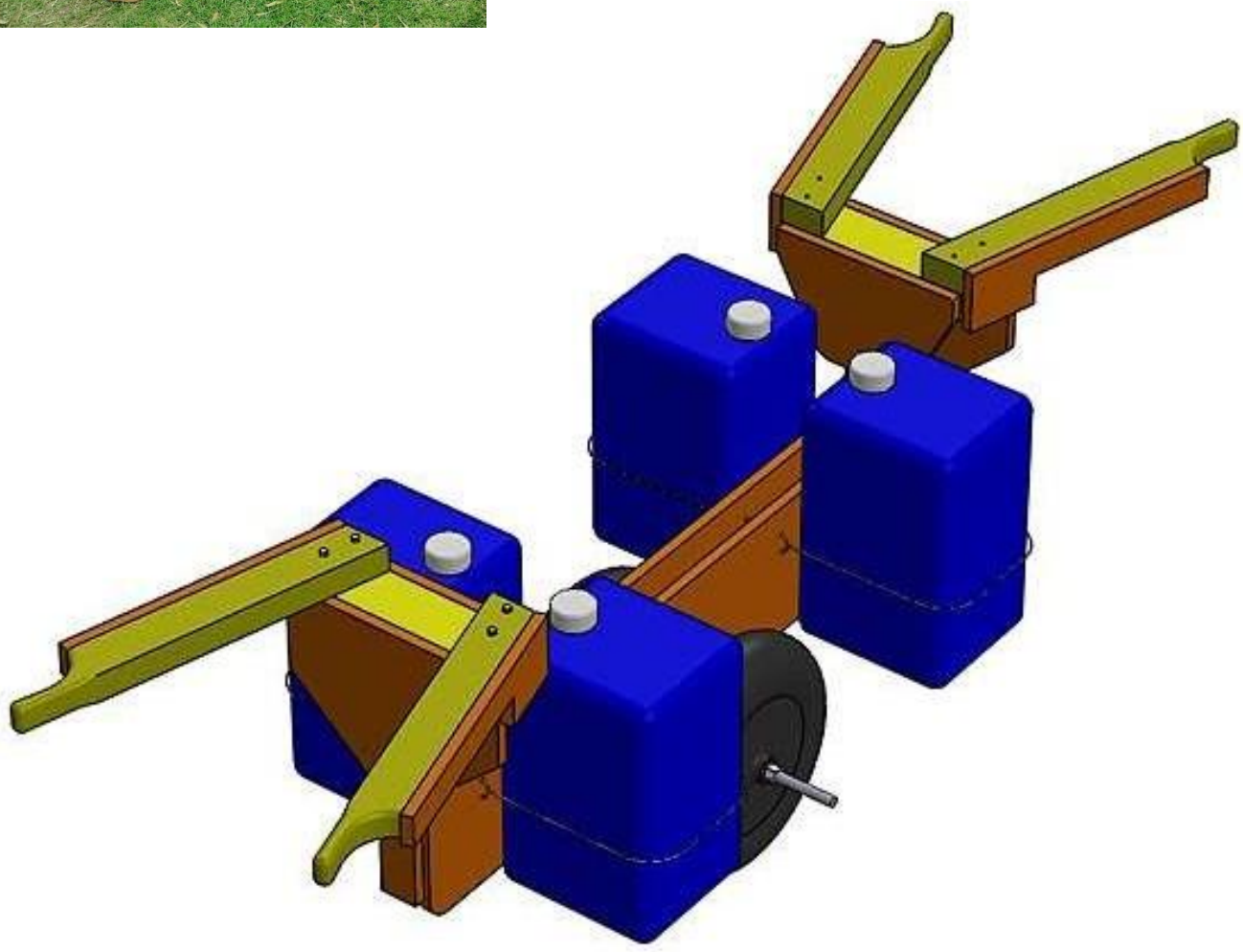
Critical Tools: Jig saw

Location: Vanuatu

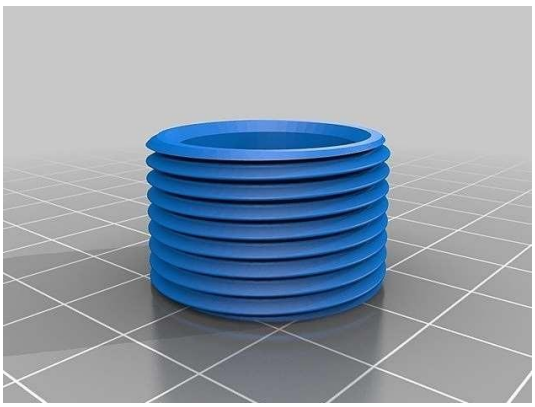
Material: Timber planks & plywood

Description: Transports 80 litres of drinking water

Readiness Levels		Risk
Field	4	4
Maker	4	
User	4	
Tech	5	



BSP Thread 11mm



Name: BSP Thread 11mm

Part Number: WA014_11mm

Critical Tools: 3D Printer

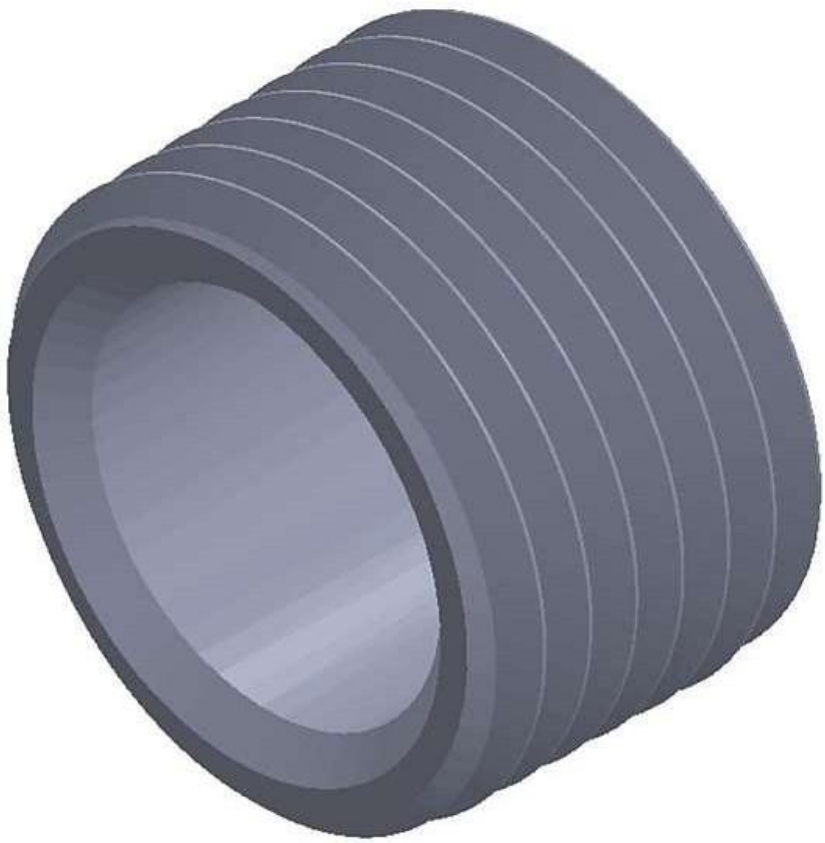
Location: UK

Material: ABS filament

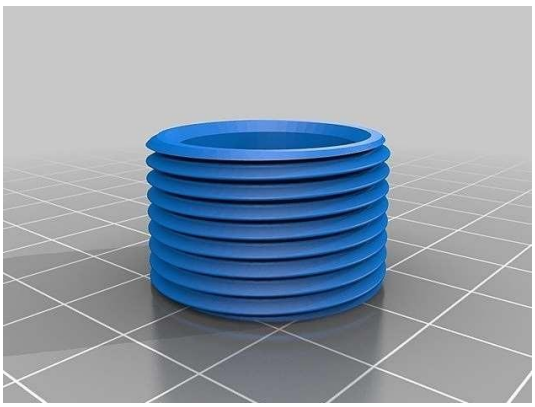
Description: DIN ISO 228 (DIN 259) BSP Standard Pipe Thread 11mm

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

11 mm



BSP Thread 13mm



Name: BSP Thread 13mm

Part Number: WA014_13mm

Critical Tools: 3D Printer

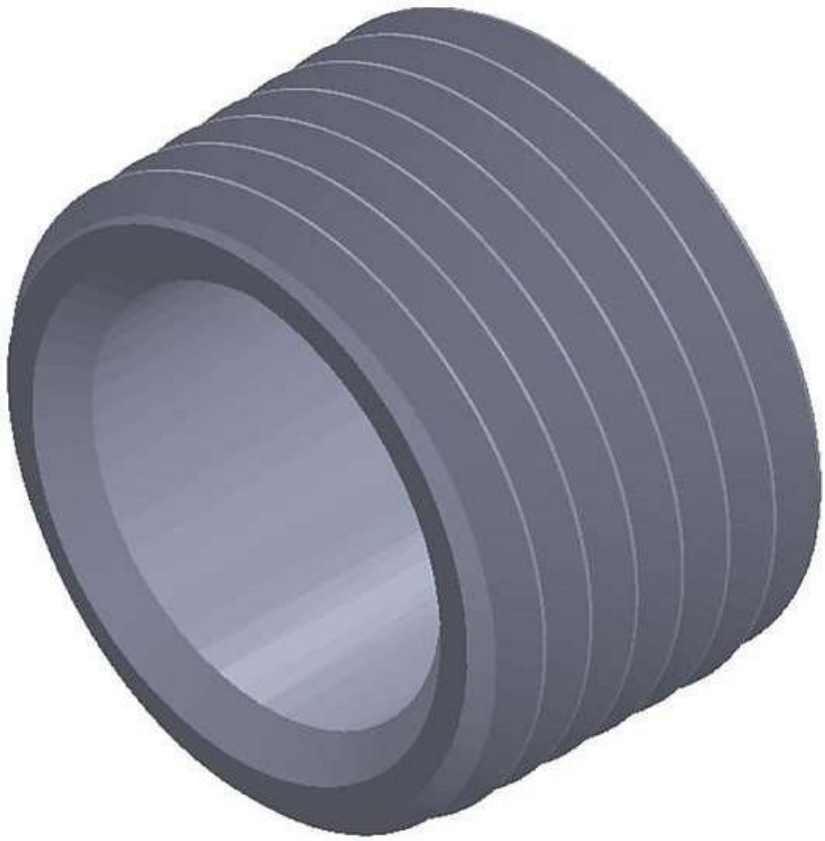
Location: UK

Material: ABS filament

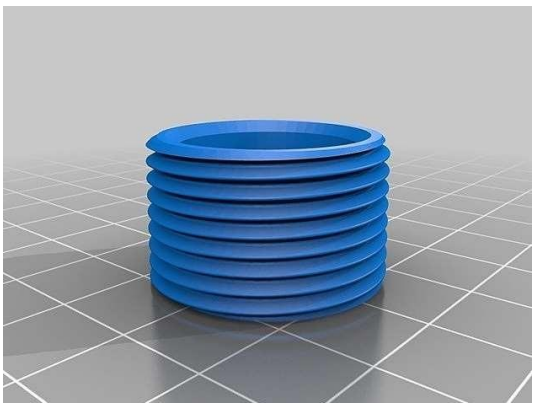
Description: DIN ISO 228 (DIN 259) BSP Standard Pipe Thread 13mm

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

13 mm



BSP Thread 16mm



Name: BSP Thread 16mm

Part Number: WA014_16mm

Critical Tools: 3D Printer

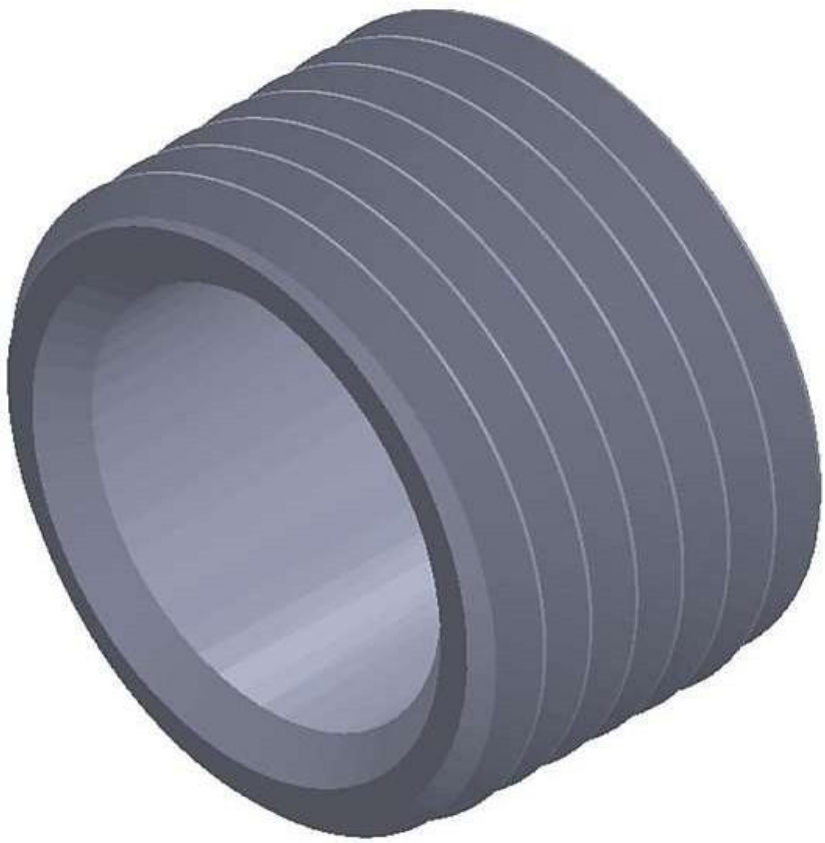
Location: UK

Material: ABS filament

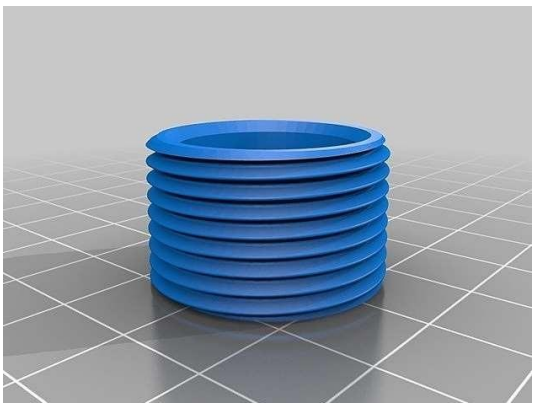
Description: DIN ISO 228 (DIN 259) BSP Standard Pipe Thread 16mm

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

16 mm



BSP Thread 20mm



Name: BSP Thread 20mm

Part Number: WA014_20mm

Critical Tools: 3D Printer

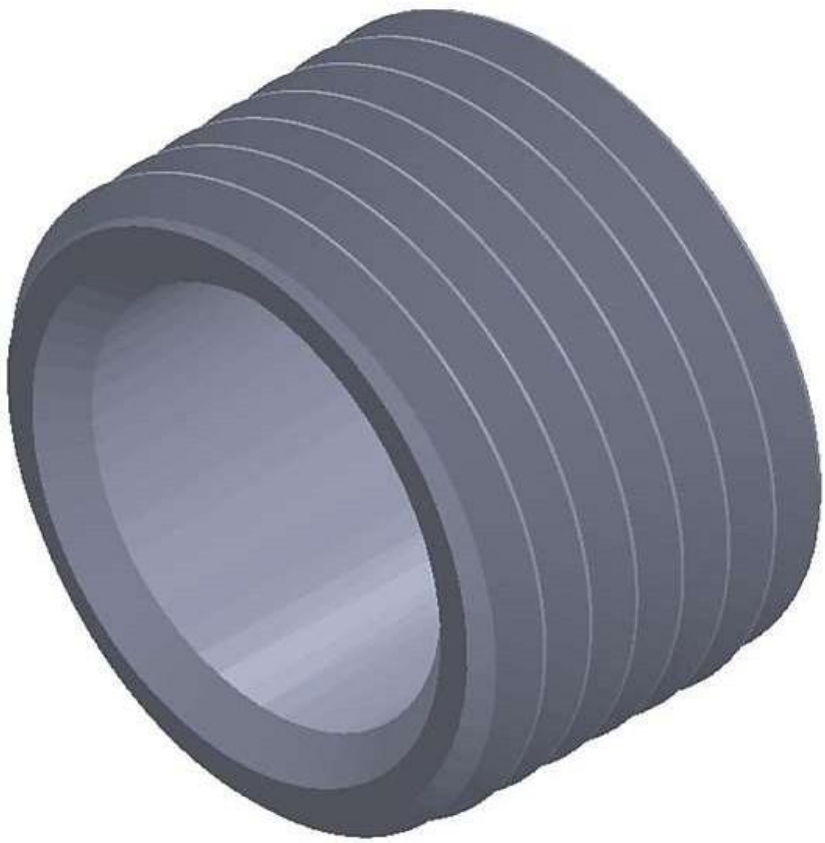
Location: UK

Material: ABS filament

Description: DIN ISO 228 (DIN 259) BSP Standard Pipe Thread 20mm

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

20 mm



Push Tap

Name: Push Tap

Part Number: WA015

Critical Tools: Hand saw and drill

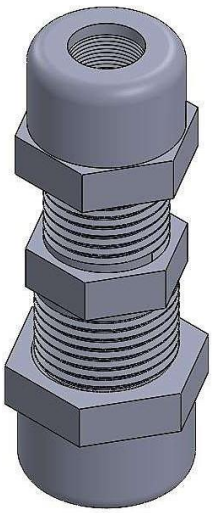
Location: Fiji

Material: Timber planks & plywood

Description: A foot operated push tap for people with hand disabilities

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	5	

Make-Fit Pipe Fitting



Name: Make-Fit Pipe Fitting

Part Number: WA016

Critical Tools: 3D Printer

Location: Nepal

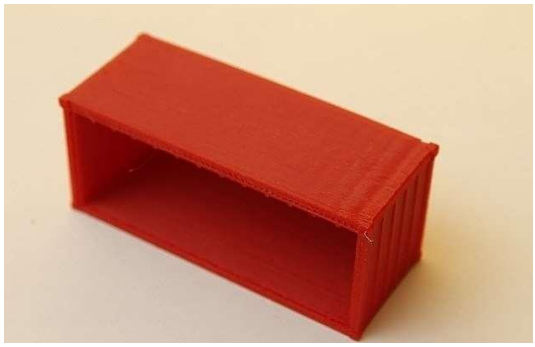
Material: ABS filament

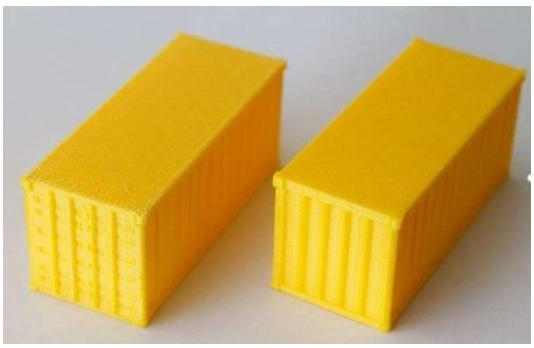
Description: Using Make-Fit app a range of 3DP pipe fitting can be produced

Readiness Levels		Risk
Field	4	5
Maker	3	
User	4	
Tech	4	

Shelter & Settlements

Shipping Container Model





Name: Shipping Container Model

Part Number: SS001

Critical Tools: 3D Printer

Location: Nepal

Material: ABS plastic

Description: 1:150 scale model of 20ft container for assessing the design or layout of a facility

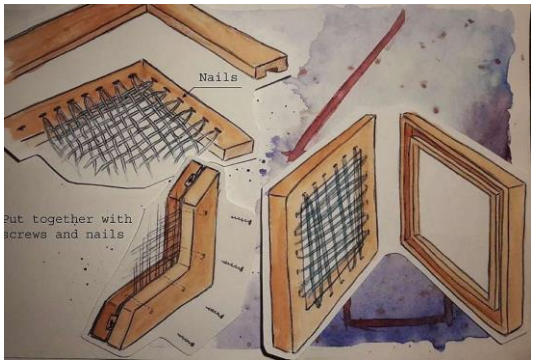
Readiness Levels		Risk
Field	5	5
Maker	3	
User	5	
Tech	5	

Download link: http://www.thingiverse.com/thing:1561981

Purpose: This is a scale model of a 20ft shipping container, useful for assessing the design or layout of a facility structure. The scale is approximately 1:150.

Usage Notes: This model is sensitive to warping if printing in ABS, so its recommended to print it on a heated bed, slowly or on a printer with an enclosed build chamber.

Woven PET Window



Name: Woven PET Window

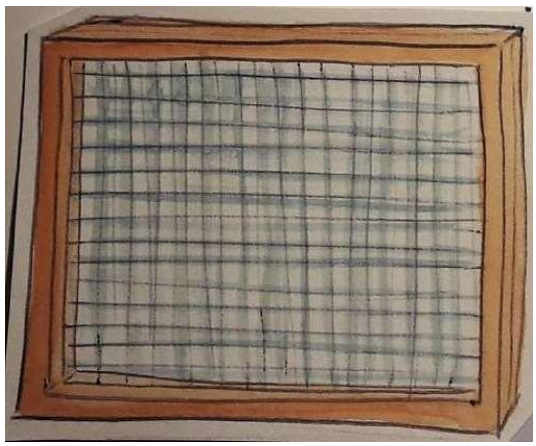
Part Number: SS002

Critical Tools: Knife

Location: Nepal

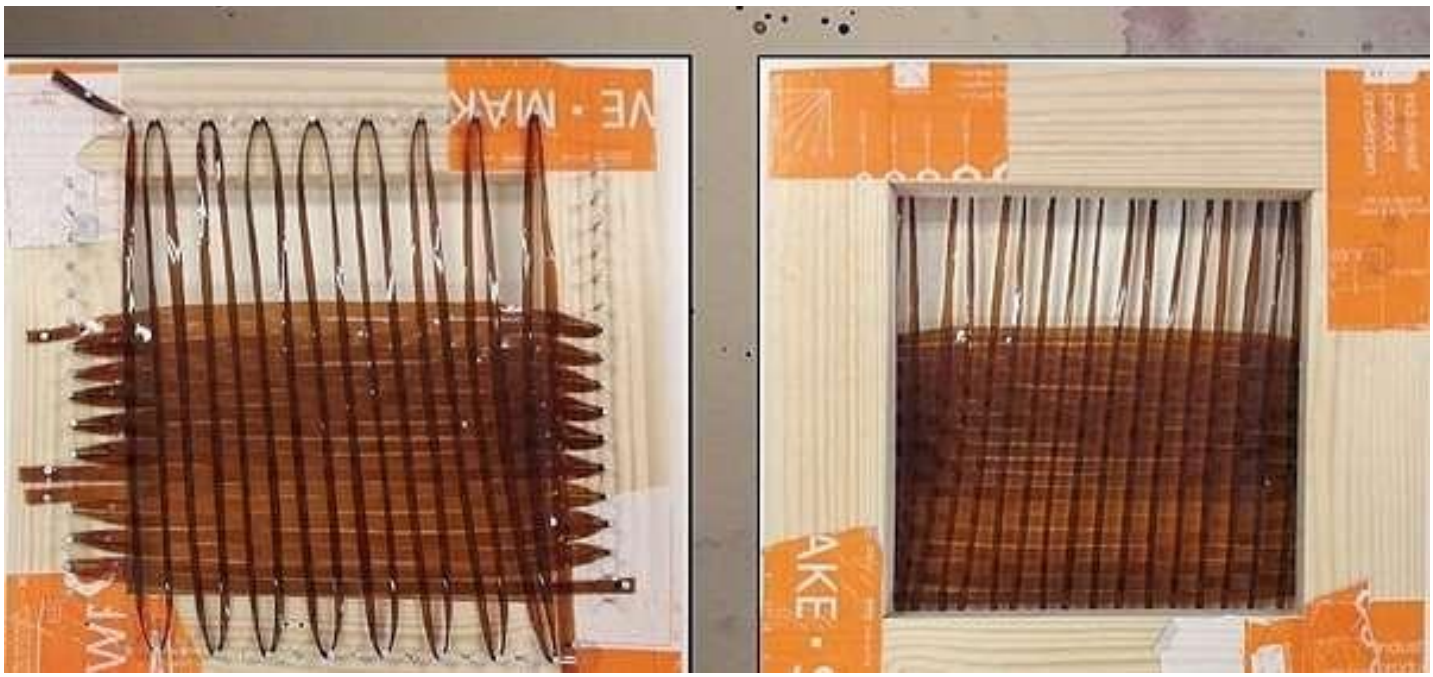
Material: PET bottle strips

Description: Heat & sound insulation between classrooms



Readiness Levels		Risk
Field	3	5
Maker	4	
User	4	
Tech	5	

Purpose: To regulate extreme heat and used for sound insulation between classrooms.



House Model #1

Name: House Model #1

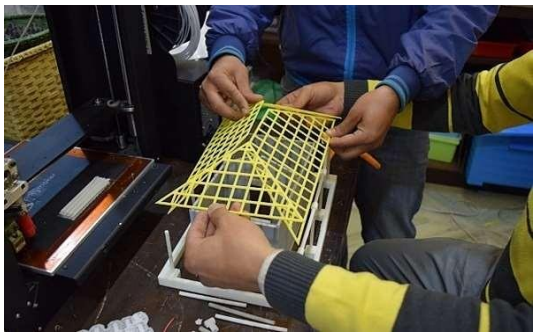
Part Number: SS003

Critical Tools: 3D Printer

Location: Malawi

Material: ABS plastic

Description: 3DP house model - For assessing flood response housing sizes and layout (Malawi thatch house)



Readiness Levels		Risk
Field	5	5
Maker	4	
User	4	
Tech	5	

Purpose: Produced for the Catholic Relief Services flood response in Malawi to determine response housing sizes and layout.

House Model #2

Name: House Model #2

Part Number: SS004

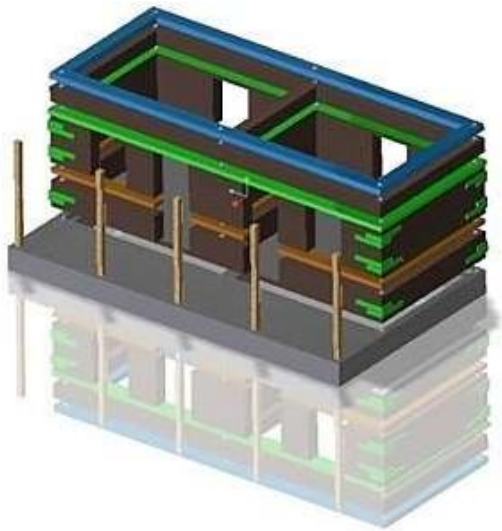
Critical Tools: Laser cutter

Location: Nepal

Material: Acrylic plastic

Description: Lasercut house model - For imporved earthquake resistance (Build change house)

Readiness Levels		Risk
Field	5	5
Maker	4	
User	4	
Tech	5	



Purpose: Produced for Build Change in Nepal.

Flooring Bricks

Name: Flooring Bricks

Part Number: SS005

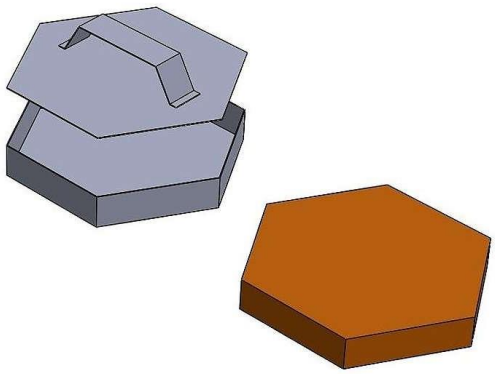
Critical Tools: Gas cooker and mould

Location: Nepal

Material: Plastic & sand

Description: Melted waste plastic & aggregate as cement replacement

Readiness Levels		Risk
Field	5	3
Maker	3	
User	4	
Tech	4	



Purpose: Shredding waste plastic, melting with aggregate to replace cement in standard flooring bricks.

Plastic Molded Roof Tiles

Name: Plastic Molded Roof Tiles

Part Number: SS006

Critical Tools: Foreman Grill

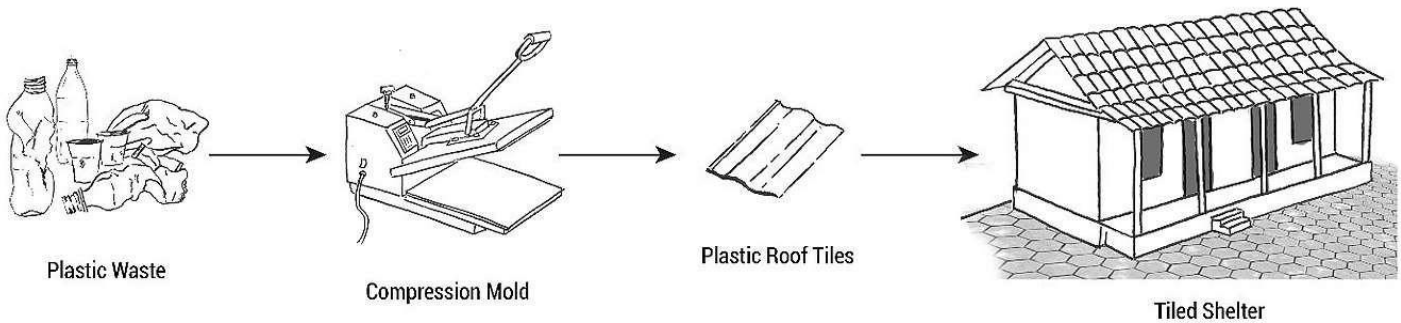
Location: Nepal

Material: HDPE Plastic

Description: Designed to mainly keep out rain

Readiness Levels		Risk
Field	5	5
Maker	4	
User	4	
Tech	5	

Purpose: Designed to mainly keep out rain.



Polyfloss Insulation

Name: Polyfloss Insulation

Part Number: SS007

Critical Tools: Shredder and Polyfloss machine

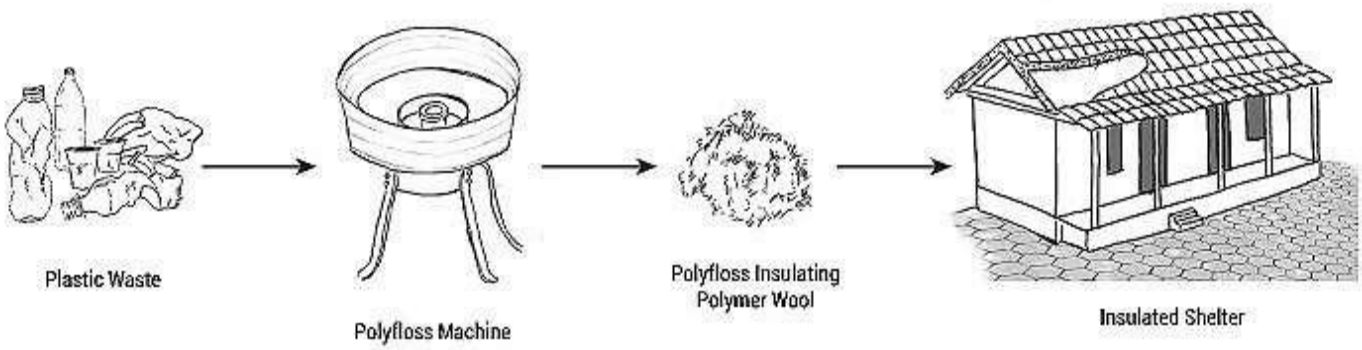
Location: Nepal

Material: Waste Polypropylene

Description: Building insulation

Readiness Levels		Risk
Field	4	4
Maker	4	
User	3	
Tech	4	

Purpose: Developed in Nepal to insulate buildings.



Plywood Bed Small

Name: Plywood Bed Small

Part Number: SS008

Critical Tools: Jigsaw and drill

Location: Vanuatu

Material: Wooden pallets & plywood

Description: Alternative to sleeping direction on the ground

Readiness Levels		Risk
Field	5	5
Maker	4	
User	3	
Tech	4	

Plywood Bed Large

Name: Plywood Bed Large

Part Number: SS009

Critical Tools: Jigsaw and drill

Location: Vanuatu

Material: Wooden pallets & plywood

Description: Alternative to sleeping direction on the ground

Readiness Levels		Risk
Field	5	4
Maker	5	
User	4	
Tech	3	

Purpose: Expedient beds, with privacy screens and additional room for storage, for vulnerable people. Developed in Vanuatu following a volcano response when no other alternatives were available.

Reciproboo

Name: Reciproboo

Part Number: SS010

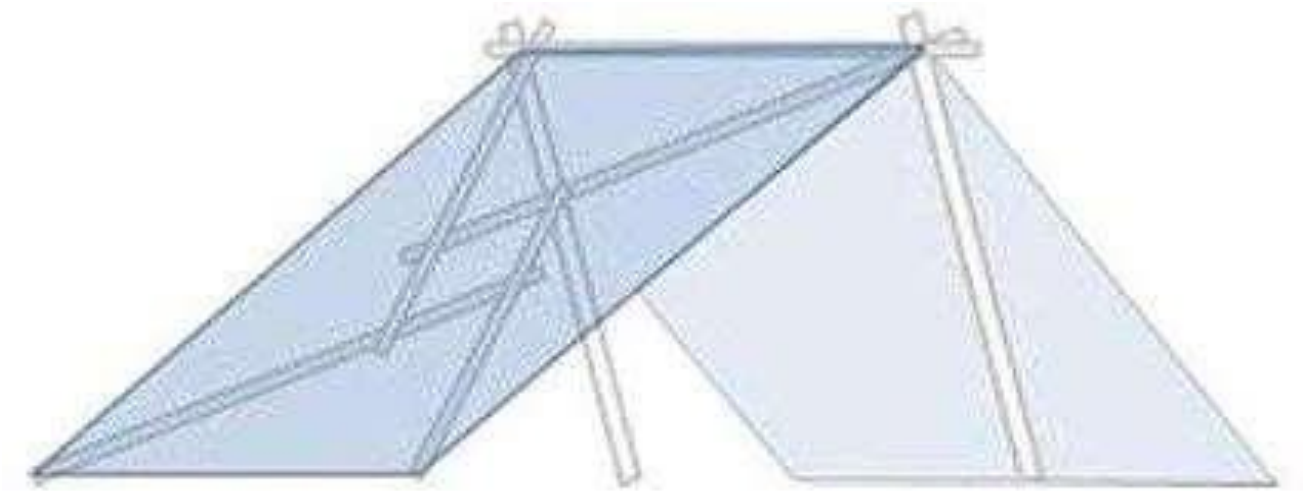
Critical Tools: Hand saw

Location: Vanuatu

Material: Bamboo

Description: Bamboo emergency and transitional disaster relief shelters

Readiness Levels		Risk
Field	4	5
Maker	4	
User	4	
Tech	5	



Privacy Screen

Name: Privacy Screen

Part Number: SS011

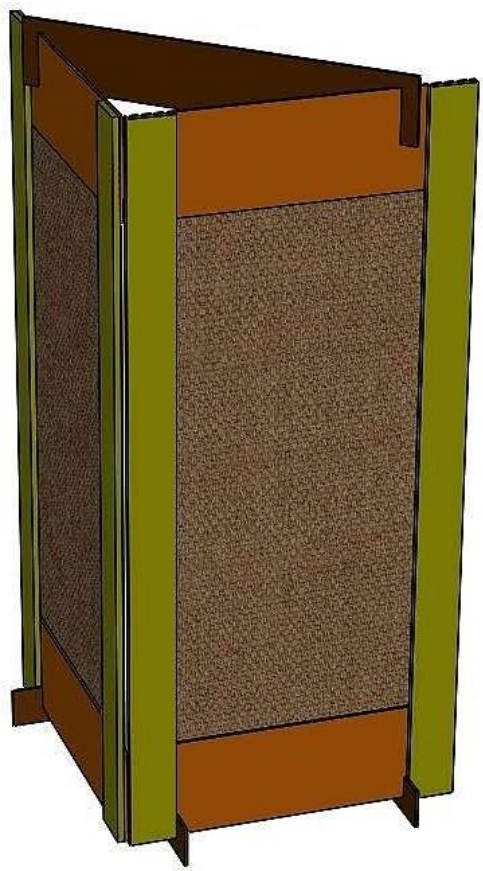
Critical Tools: Hand saw and drill

Location: Vanuatu

Material: Timber planks & plywood

Description: To divde an open area creating privacy and personal space

Readiness Levels		Risk
Field	5	5
Maker	4	
User	4	
Tech	5	



Disability Inclusion

Wheelchair Ramp

Name: Wheelchair Ramp

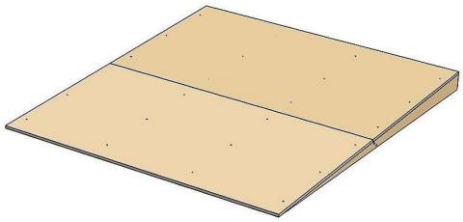
Part Number: DS001

Critical Tools: Saw & drill

Location: Jordan

Material: Timber planks and plywood

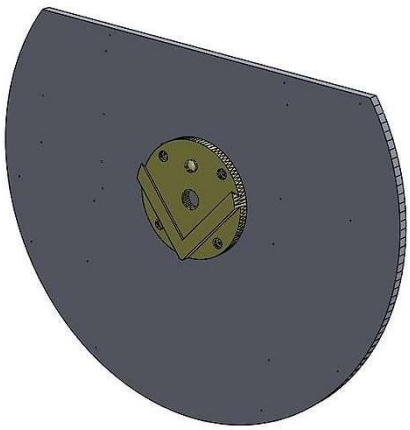
Description: An incline plan to improve accessiblity



Readiness Levels		Risk
Field	4	3
Maker	4	
User	5	
Tech	5	

Purpose: An inclined plane installed in addition to stairs or difficult terrain to make wheeled objects more easily accessible.

Wheelchair Wheel Storage



Name: Wheelchair Wheel Storage

Part Number: DS002

Critical Tools: Sawing machine

Location: USA

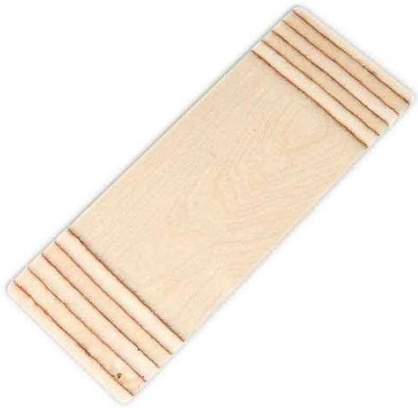
Material: Fabric

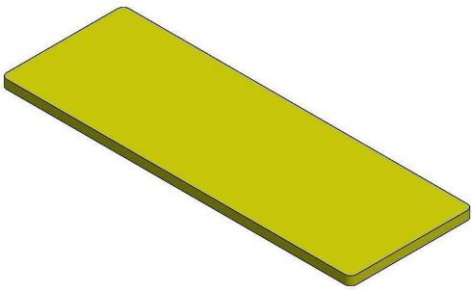
Description: Storage unit is attached to the wheel so items are easy accessable

Readiness Levels		Risk
Field	4	4
Maker	3	
User	5	
Tech	5	

Purpose: To store items on a wheelchair that is an easier way to access materials than carrying a bag.

Wheelchair Sliding Board





Name: Wheelchair Sliding Board

Part Number: DS003

Critical Tools: Jigsaw

Location: Jordan

Material: Plywood

Description: To aid in safe and easy transfers between wheelchair, bed or chair

Readiness Levels		Risk
Field	4	3
Maker	3	
User	3	
Tech	4	

Purpose: To aid in safe and easy transfers between wheelchair, bed and chair allowing for individuals to have more independence.

Wheelchair Hoist

Name: Wheelchair Hoist

Part Number: DS004

Critical Tools: Hand tools

Location: Belgium

Material: Climbing straps, aluminium tube, strong textile

Description: To lift occupant out of wheelchairs transfers between bed or chair

Readiness Levels		Risk
Field	3	3
Maker	2	
User	3	
Tech	4	

Wheelchair Table

Name: Wheelchair Table

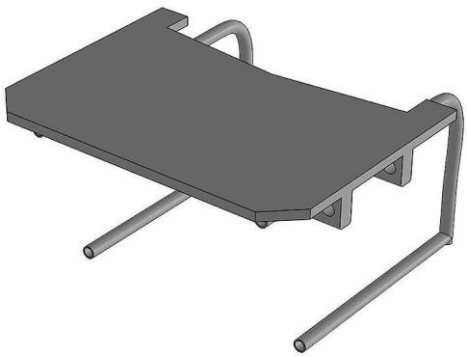
Part Number: DS005

Critical Tools: Jigsaw & welder

Location: Jordan

Material: Plywood and steel tubes

Description: A table that attaches to the wheelchairs arms, providing a flat surface



Readiness Levels		Risk
Field	4	3
Maker	3	
User	4	
Tech	4	

Purpose: Specially designed platforms or surfaces that attach to wheelchairs, providing a table for eating, working, reading and other activities. They can be attached to the arms of both manual and electric wheelchairs.

Wheelchair Cup Holder

Name: Wheelchair Cup Holder

Part Number: DS006

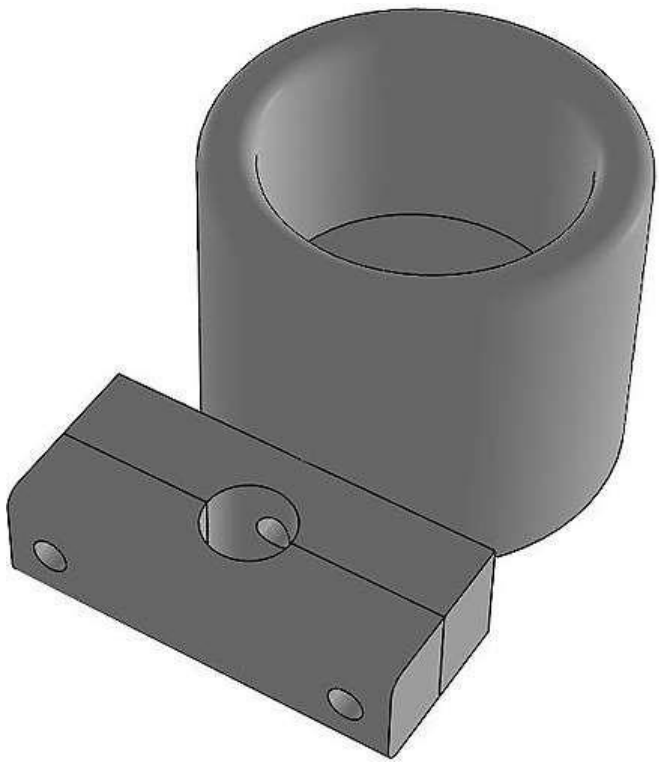
Critical Tools: Wood saw

Location: Jordan

Material: Timber

Description: A holder that attaches to the wheelchairs arms, providing a storge for a cup

Readiness Levels		Risk
Field	5	2
Maker	4	
User	4	
Tech	4	



Foldable Handrail

Name: Foldable Handrail

Part Number: DS007

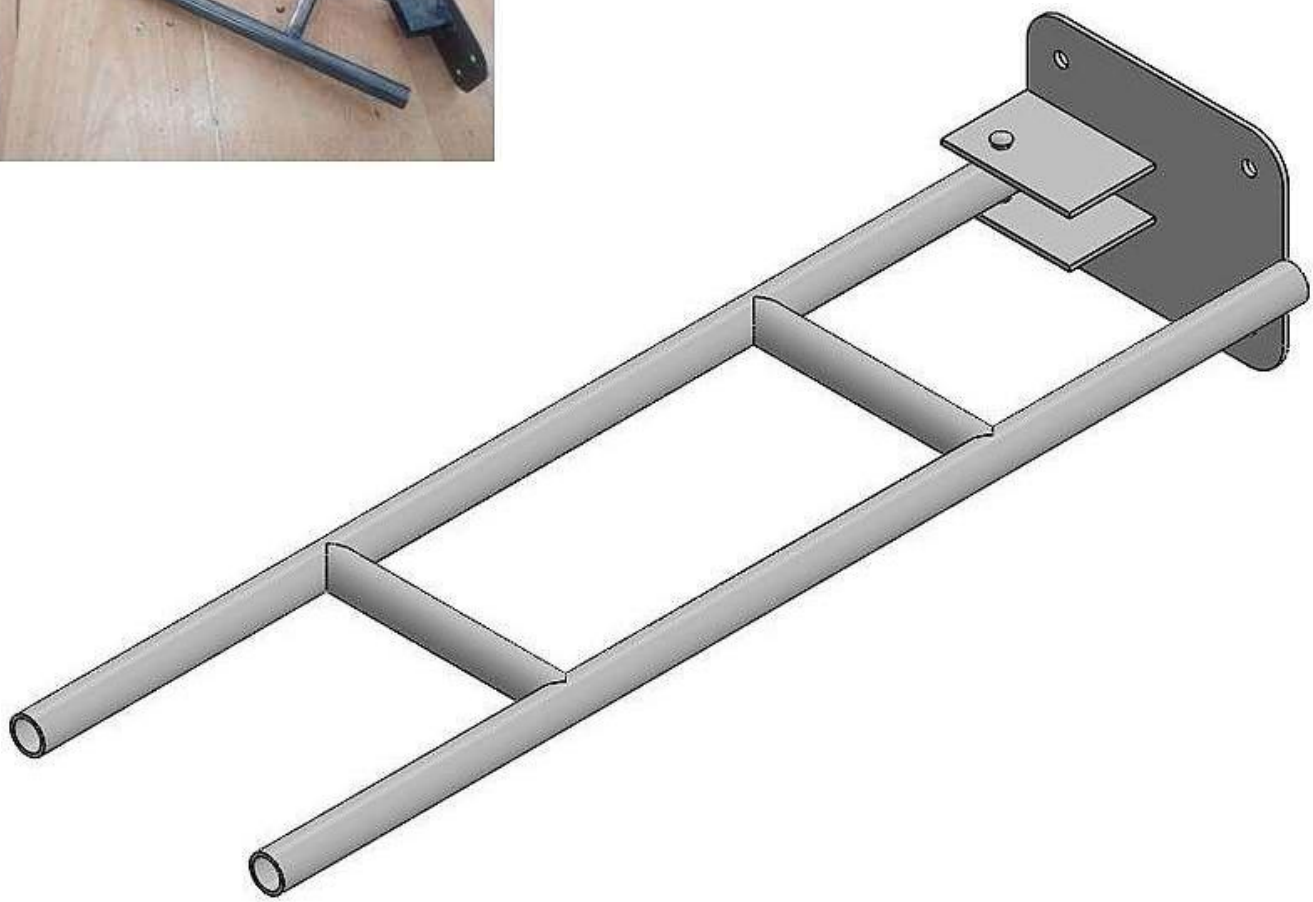
Critical Tools: Welder

Location: Jordan

Material: Steel pipes & steel plates

Description: To assist in bathing and toileting. Foldable rail is to be used if space is limited

Readiness Levels		Risk
Field	5	2
Maker	3	
User	4	
Tech	4	



Wheelchair Under Storage

Name: Wheelchair Under Storage

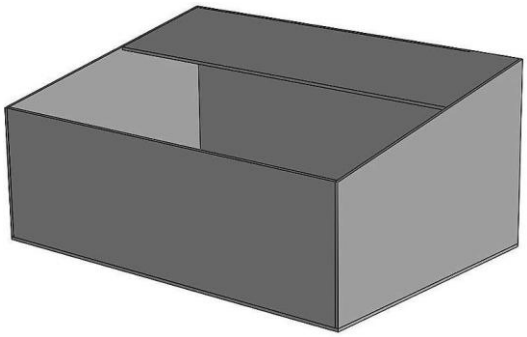
Part Number: DS008

Critical Tools: Sawing machine

Location: Jordan

Material: Fabric

Description: Storage unit is attached to the underside so items are easy accessable



Readiness Levels		Risk
Field	5	5
Maker	3	
User	4	
Tech	5	

Wheelchair Umbrella

Name: Wheelchair Umbrella

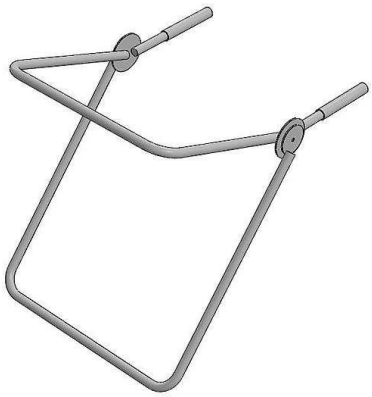
Part Number: DS009

Critical Tools: Sawing machine

Location: Jordan

Material: Steel pipes, steel plates & waterproof fabric

Description: Protects occupant from sun light and rain



Readiness Levels		Risk
Field	4	4
Maker	3	
User	4	
Tech	3	

Wheelchair Cushion

Name: Wheelchair Cushion

Part Number: DS010

Critical Tools: Sawing machine

Location: Jordan

Material: Fabric & foam

Description: Provided additional storge and comfort

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	

Latrine Rails

Name: Latrine Rails

Part Number: DS011

Critical Tools: Saw & drill

Location: Vanuatu

Material: PVC pipe & plywood

Description: To aid in safe and easy transfers between wheelchair and latrine

Readiness Levels	
Field	4
Maker	4
User	3
Tech	4

Risk
3

Fixed handrail

Name: Fixed handrail

Part Number: DS012

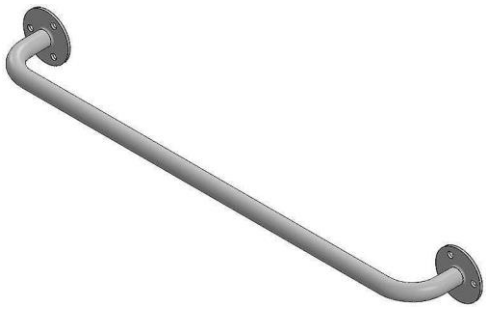
Critical Tools: Welder

Location: Jordan

Material: Steel pipes & steel plates

Description: To assist in bathing and toileting

Readiness Levels		Risk
Field	5	2
Maker	4	
User	5	
Tech	4	



Protection & GBV

Door Locks

Name: Door Locks

Part Number: PR001

Critical Tools: 3D Printer

Location: UK

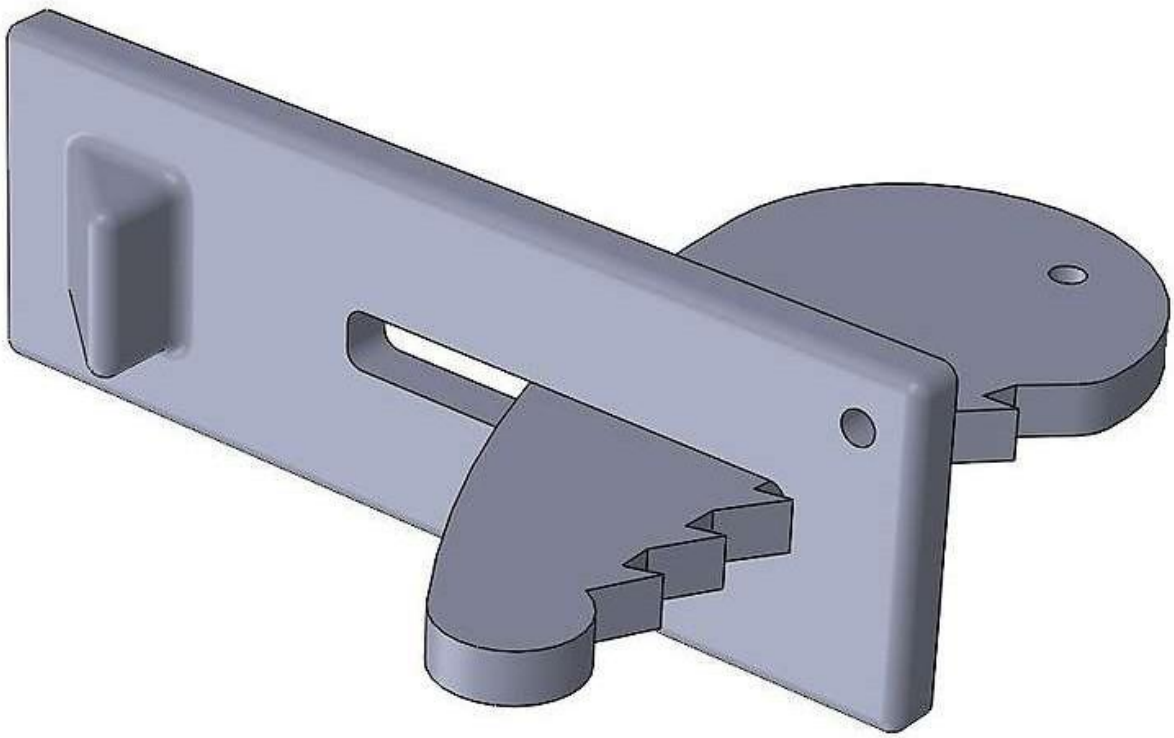
Material: ABS plastic

Description: An easy to use portable lock, no tools needed

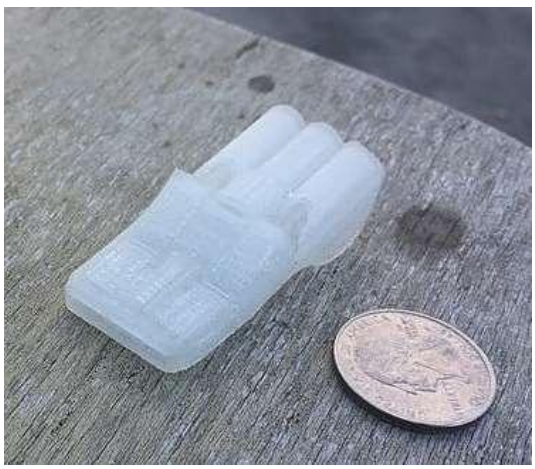
Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	5	

Purpose: An easy to use portable lock, no tools needed.

Usage Notes: Also works on a door without a knob as well as duel swinging doors.



Whistle



Name: Whistle

Part Number: PR002

Critical Tools: 3D Printer

Location: Nepal

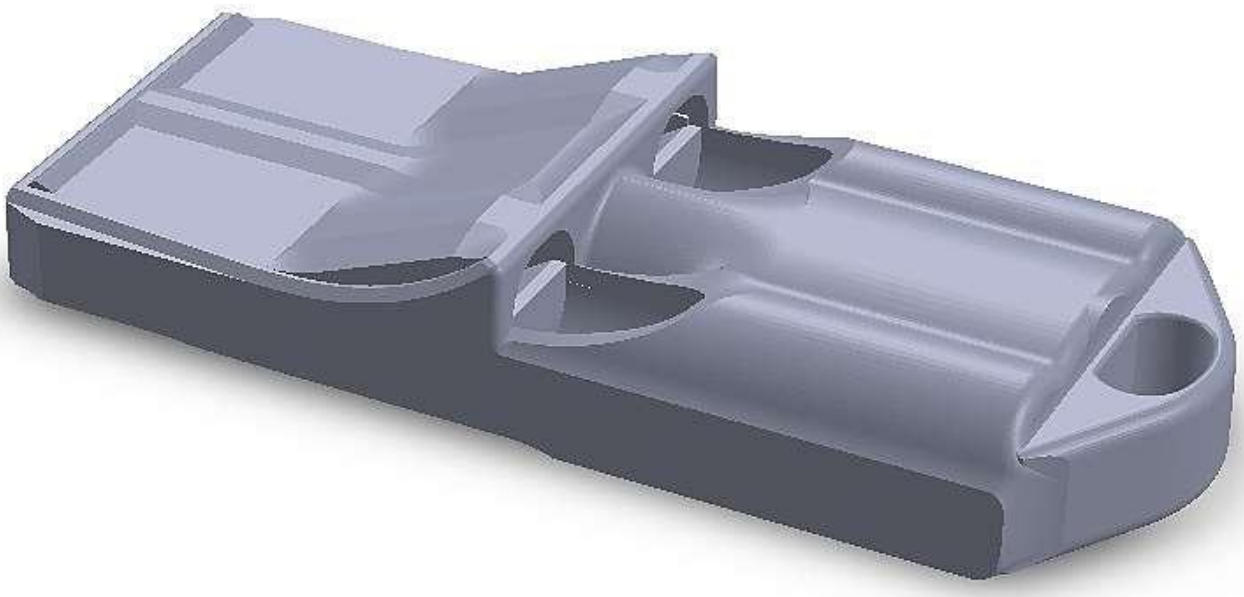
Material: ABS Plastic

Description: Personal alarm for protection and creates attention in emergency situations

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

Purpose: A small high-pitch sound producing devise which can be used to deter and mitigate violent attacks, alert others and provide a sense of security.

Additional Items Needed: Optional lanyard or key ring.



General

Plastic Bottle Lights

Name: Plastic Bottle Lights

Part Number: GN001

Critical Tools: Knife and Jig saw

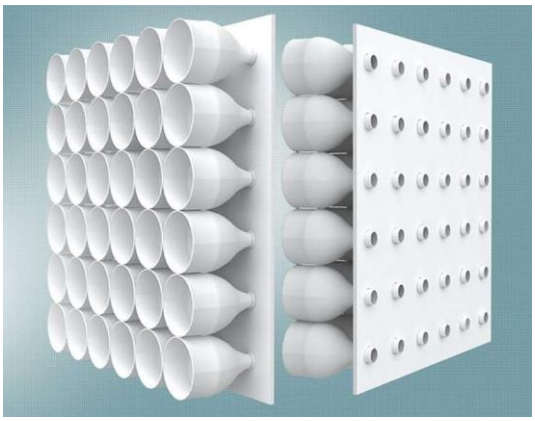
Location: Jordan

Material: PET bottles

Description: Light tube refracts solar light to provide daytime interior lighting for dwellings

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Air Bottle Conditioner



Name: Air Bottle Conditioner

Part Number: GN002

Critical Tools: Knife

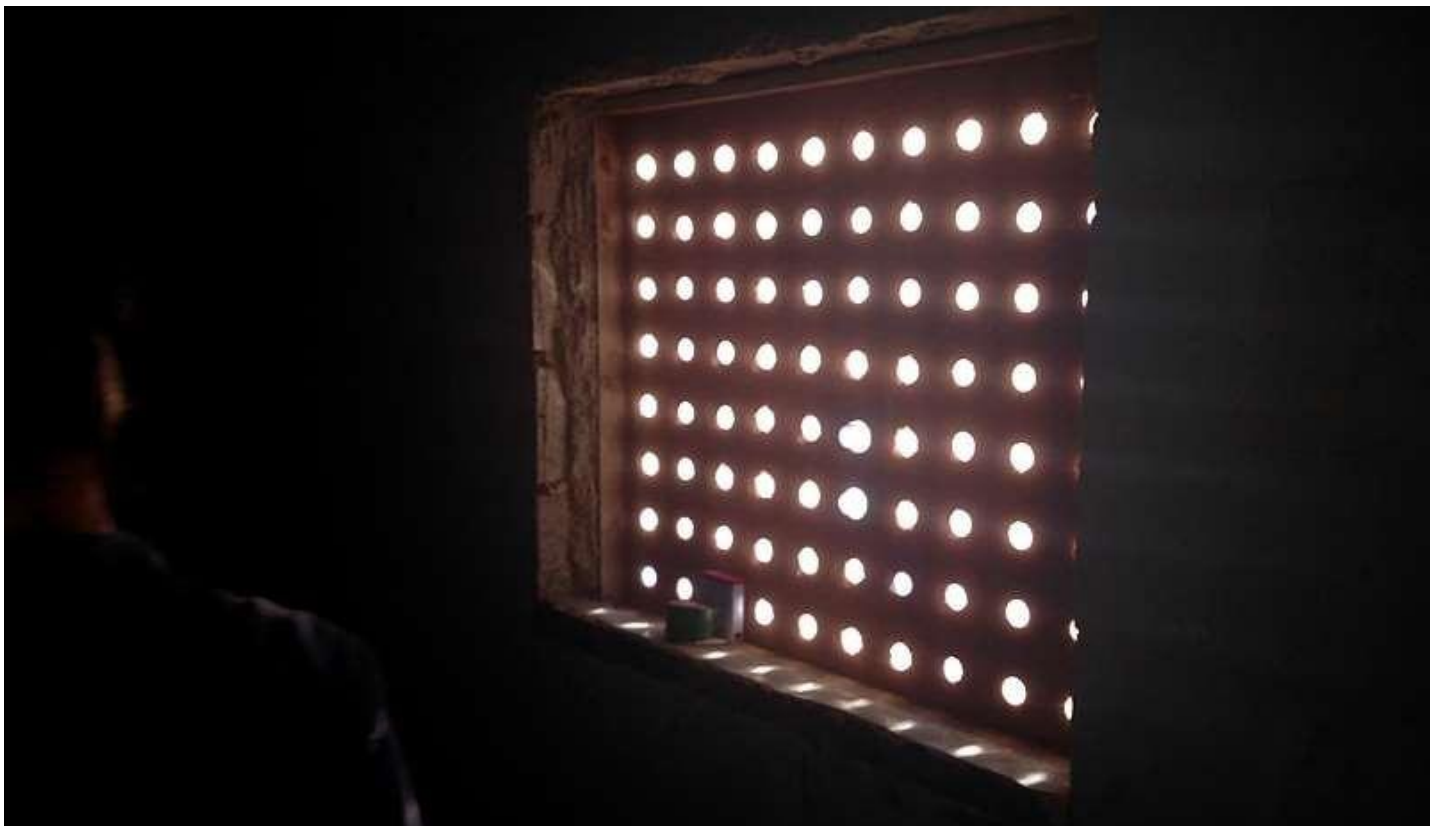
Location: Jordan

Material: PET bottles

Description: 'Zero electricity' air conditioner using a grid window of PET bottlenecks

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Purpose: To reduce indoor temperatures through zero electricity air cooler.



Air Dehumidifier

Name: Air Dehumidifier

Part Number: GN003

Critical Tools: Drill

Location: Jordan

Material: Plastic bottle

Description: To reduce or maintain level of humidity in the air

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Purpose: To reduce or maintain level of humidity in the air.

Cupboards

Name: Cupboards

Part Number: GN004

Critical Tools: Knife

Location: Jordan

Material: PET bottles and cardboar

Description: PET bottles & cardboard construction for storage of various items

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Purpose: For storing and holding various items.

Pallet Furniture

Name: Pallet Furniture

Part Number: GN005

Critical Tools: Hand saw and drill

Location: Jordan

Material: Recycled pallets

Description: Furniture made from recycled pallets

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Additional Items Needed: Nails

Trash Bins

Name: Trash Bins

Part Number: GN006

Critical Tools: Knife

Location: Jordan

Material: PET bottles

Description: PET bottles cut and paint to make bins

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Additional Items Needed: Tape

Wind Turbine

Name: Wind Turbine

Part Number: GN007

Critical Tools: Electrics kit & hand tools

Location: Jordan

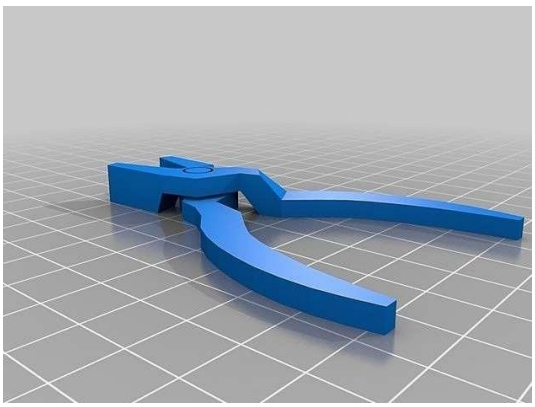
Material: Upcycled fan

Description: Create a wind turbine by converting a ceiling fan

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Purpose: To convert kinetic energy in the wind into mechanical power.

Pliers



Name: Pliers

Part Number: GN008

Critical Tools: 3D Printer

Location: UK

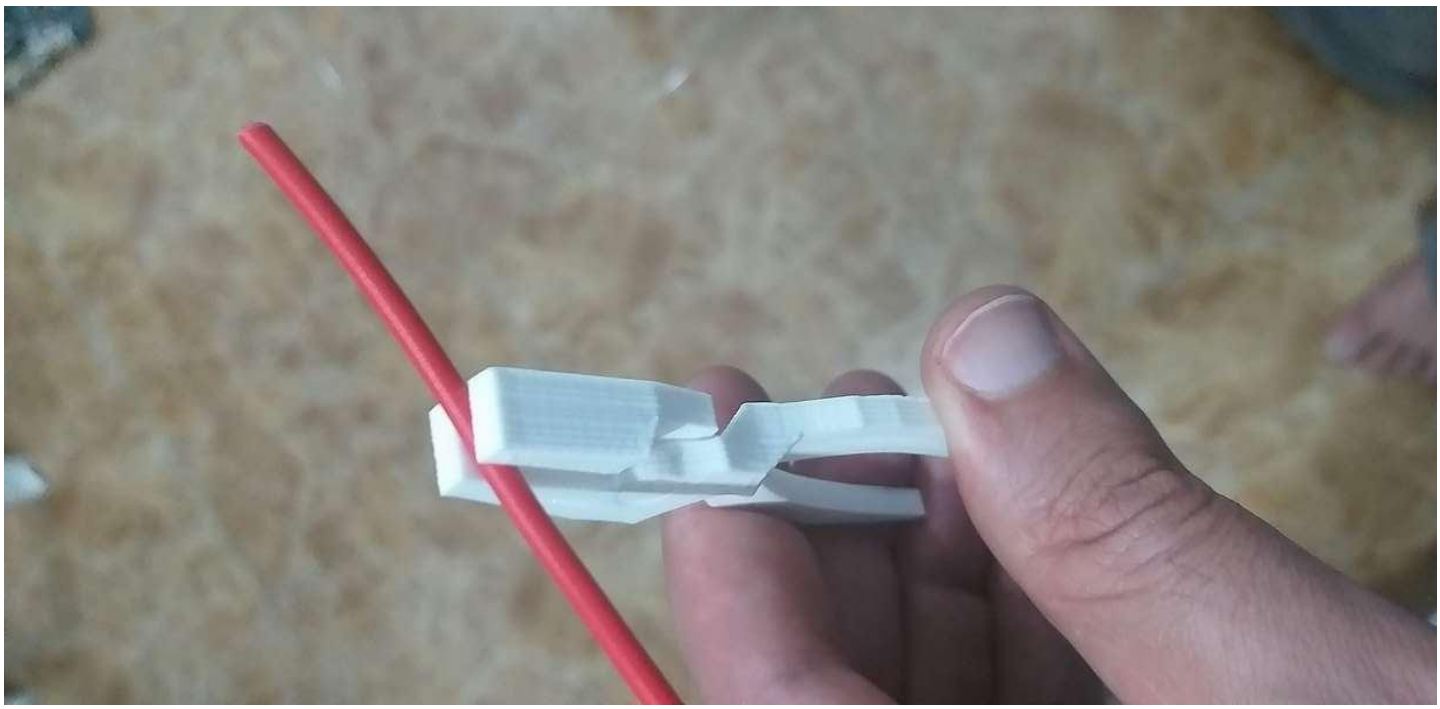
Material: ABS Plastic

Description: 3D printed hand tool used to hold objects firmly

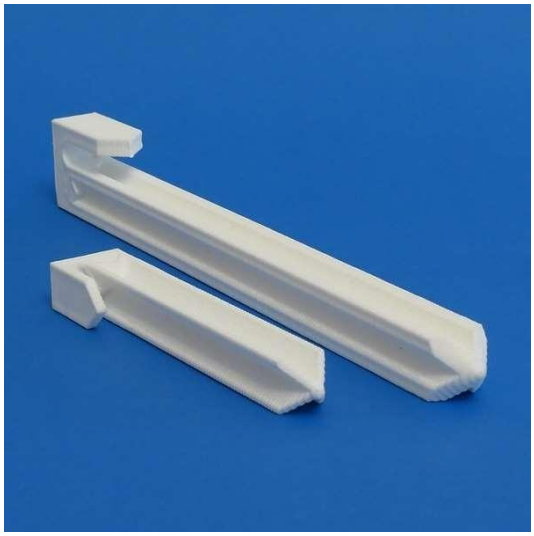
Readiness Levels		Risk
Field	4	5
Maker	4	
User	3	
Tech	3	

Size: 62.4 cm x 27.4 cm x 8.4 cm

Purpose: A hand tool used to hold objects firmly.



Customizable Peg



Name: Customizable Peg

Part Number: GN009_Large

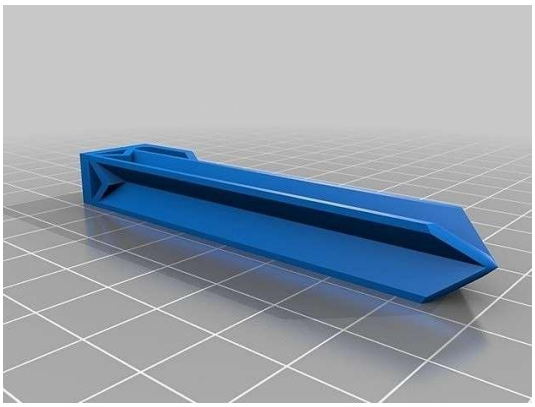
Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

Description: 3D printed spike driven into the ground for holding a an object to the ground

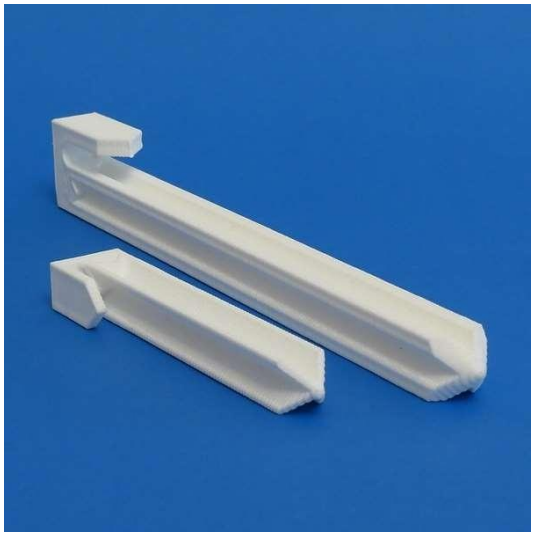
Readiness Levels		Risk
Field	4	5
Maker	4	
User	5	
Tech	5	



Usage Notes: Print lying down for strength. Obeys rule of 45 no support needed. Pegs on pictures printed in PLA using 0.3 mm layer, 2 shells and 10% infill. Small 5 grams pegs used in grass for robot lawn mower boundary cable printed in ~15 min.

Note: Due to poor programming some values will result in structures that are not manifold. If you have problems just try values close to the value you initially wanted.

Customizable Peg



Name: Customizable Peg

Part Number: GN009_Small

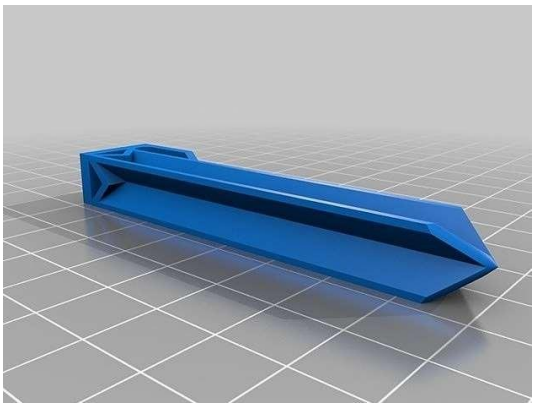
Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

Description: 3D printed spike driven into the ground for holding a an object to the ground

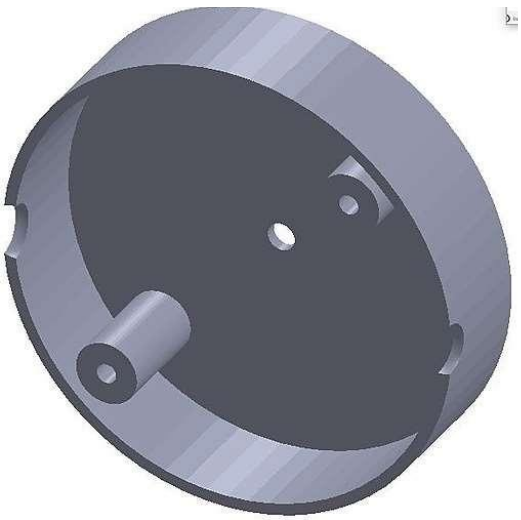
Readiness Levels		Risk
Field	4	5
Maker	4	
User	5	
Tech	5	



Usage Notes: Print lying down for strength. Obeys rule of 45 no support needed. Pegs on pictures printed in PLA using 0.3 mm layer, 2 shells and 10% infill. Small 5 grams pegs used in grass for robot lawn mower boundary cable printed in ~15 min.

Note: Due to poor programming some values will result in structures that are not manifold. If you have problems just try values close to the value you initially wanted.

Cable Junction Enclosure



Name: Cable Junction Enclosure

Part Number: GN010

Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

Description: To hide and provide protection for cable junctions

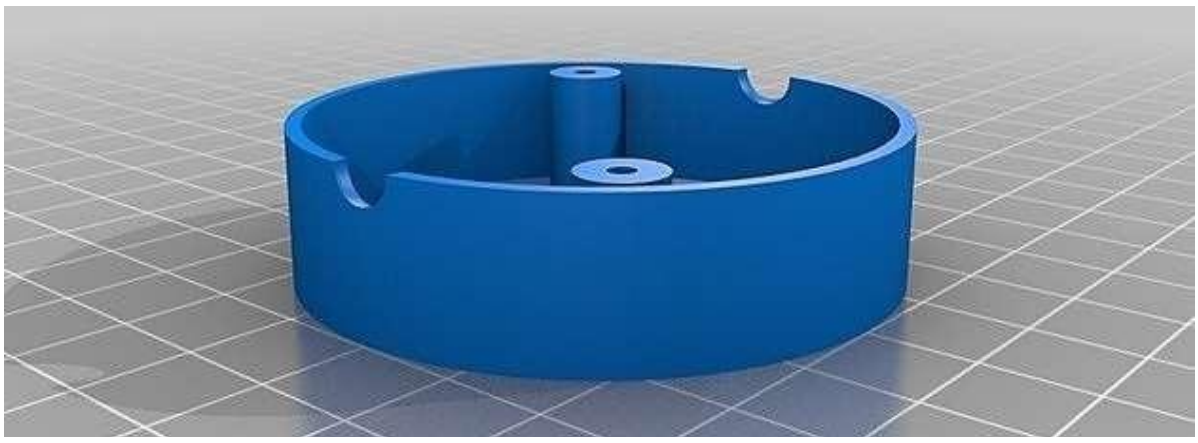
Readiness Levels		Risk
Field	4	3
Maker	4	
User	3	
Tech	5	

Download link: http://www.thingiverse.com/thing:326507

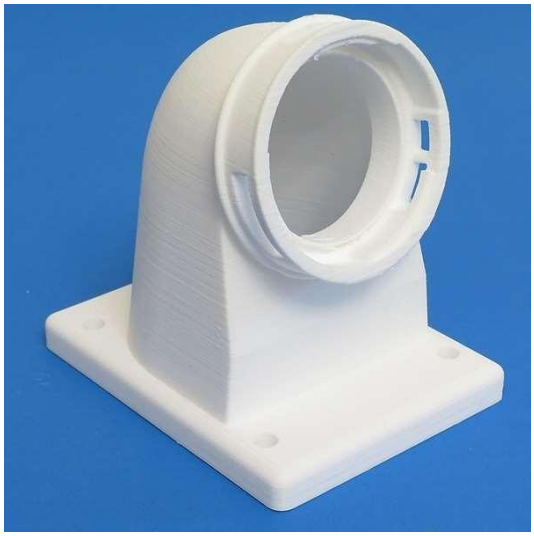
Purpose: Container for electrical connections intended to conceal from sight and deter tampering.

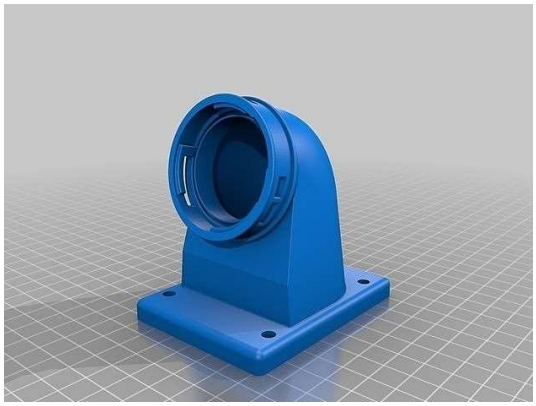
Usage Notes: Adjust the dimensions in Customizer to suit your requirements and separately generate the case and lid.

Note: The height can be changed independently for the case and the lid to adjust the entry/exit hole(s) closer to the bottom of the case or to the top of the lid. For example, a height of 20mm for the case and a height of 40mm for the lid would still generate a 30mm overall height enclosure, but the entry/exit hole(s) would be 5mm closer to the bottom of the case.



IEC 309 Connector





Name: IEC 309 Connector

Part Number: GN011

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: 90 degree connector to hold IEC 309 plug socket

Readiness Levels		Risk
Field	4	5
Maker	3	
User	4	
Tech	5	

Download link: http://www.thingiverse.com/thing:1528985

Size: 8.6 cm x 6.6 cm x 8.7 cm

Purpose: 90-degree connector to hold IEC 309 plug socket (for industrial power cables).

¼" BSP Male Airline Connector

Name: ¼" BSP Male Airline Connector

Part Number: GN012

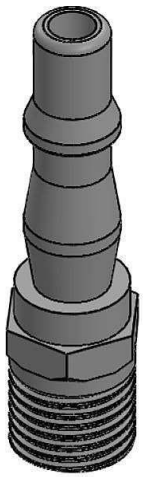
Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

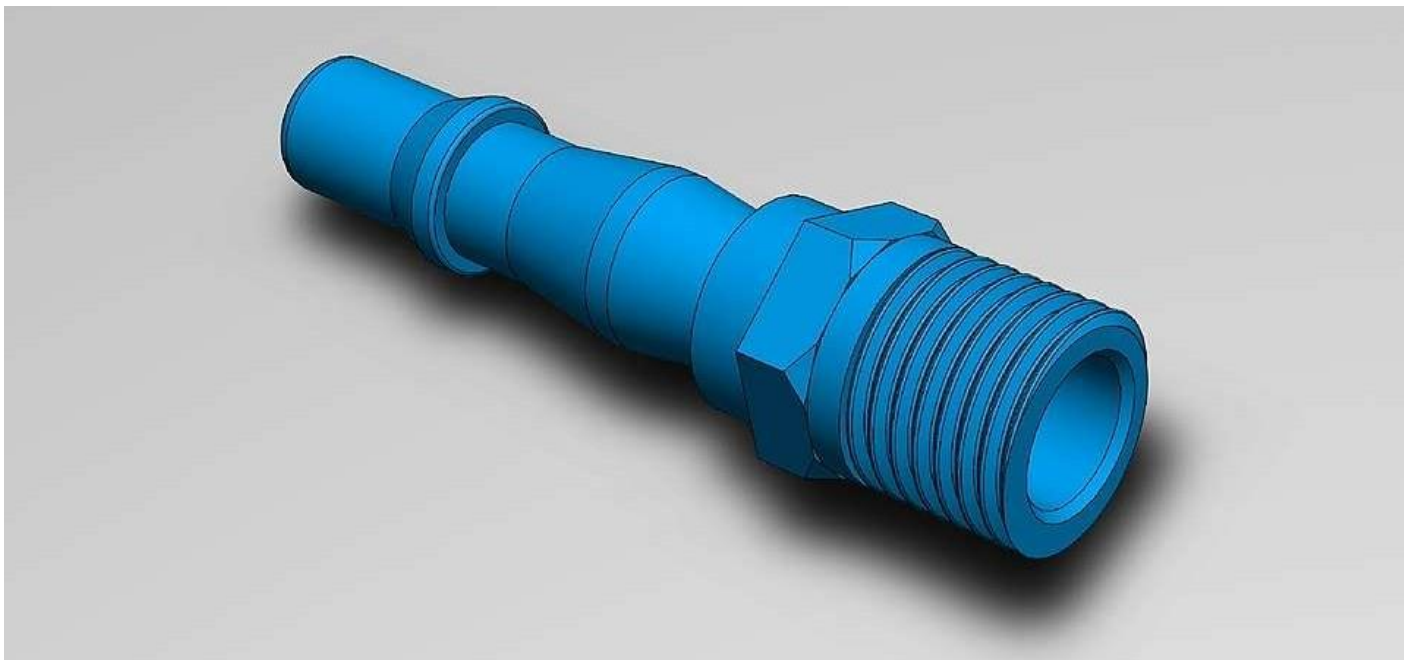
Description: Connects a ¼" BSP female thread to a female quick release

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	3	



Purpose: Extra connector for compressor

Usage Notes: Printed with nylon at 160 psi. Not tested with PLA or ABS.



Chairs

Name: Chairs

Part Number: GN013

Critical Tools: Heat gun

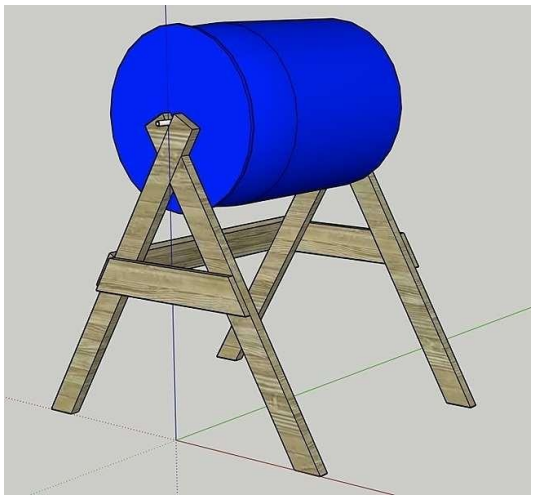
Location: Jordan

Material: Recycled wood and pallets

Description: Heat shrunk PET bottles to hold wooden furniture together

Readiness Levels		Risk
Field	3	1
Maker	4	
User	1	
Tech	4	

Compost



Name: Compost

Part Number: GN014

Critical Tools: Hacksaw & drill

Location: Jordan

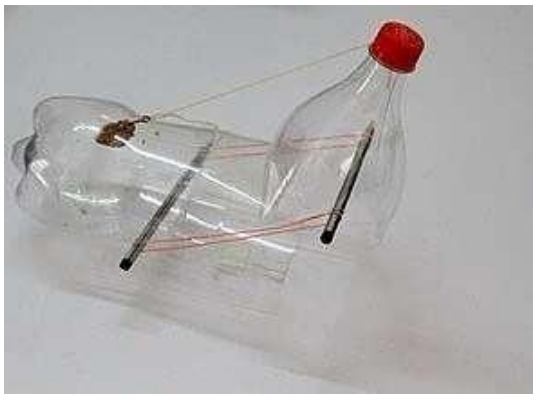
Material: Plastic drum and steel tube

Description: A rotating drum easily turns the compost heap to increase decomposition

Readiness Levels		Risk
Field	3	1
Maker	4	
User	1	
Tech	4	

Purpose: To break down organic material used as plant fertilizer. The composting process recycles various organic materials otherwise regarded as waste products and produces a soil conditioner.

Rat Trap



Name: Rat Trap

Part Number: GN015

Critical Tools: Knife

Location: Jordan

Material: PET bottle, sticks and rubber bands

Description: A mouse trap by using a PET bottle and few household stationery

Readiness Levels		Risk
Field	3	1
Maker	4	
User	1	
Tech	4	

Purpose: Used to catch rats and other rodents and pests.

School Bags

Name: School Bags

Part Number: GN016

Critical Tools: Sewing machine

Location: Jordan

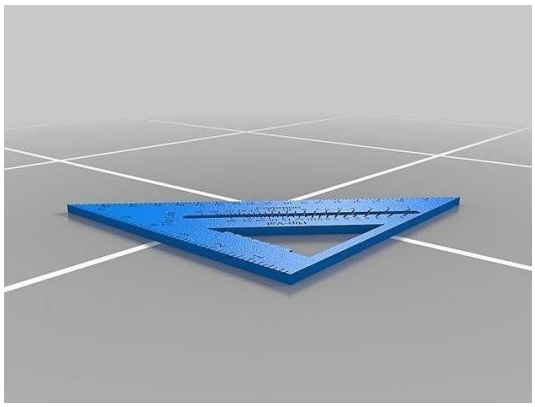
Material: T-shirts and old clothing

Description: No Sew T-Shirt Tote Bag

Readiness Levels		Risk
Field	3	1
Maker	4	
User	1	
Tech	4	

Purpose: To carry books and other items.

Set Square



Name: Set Square

Part Number: GN017

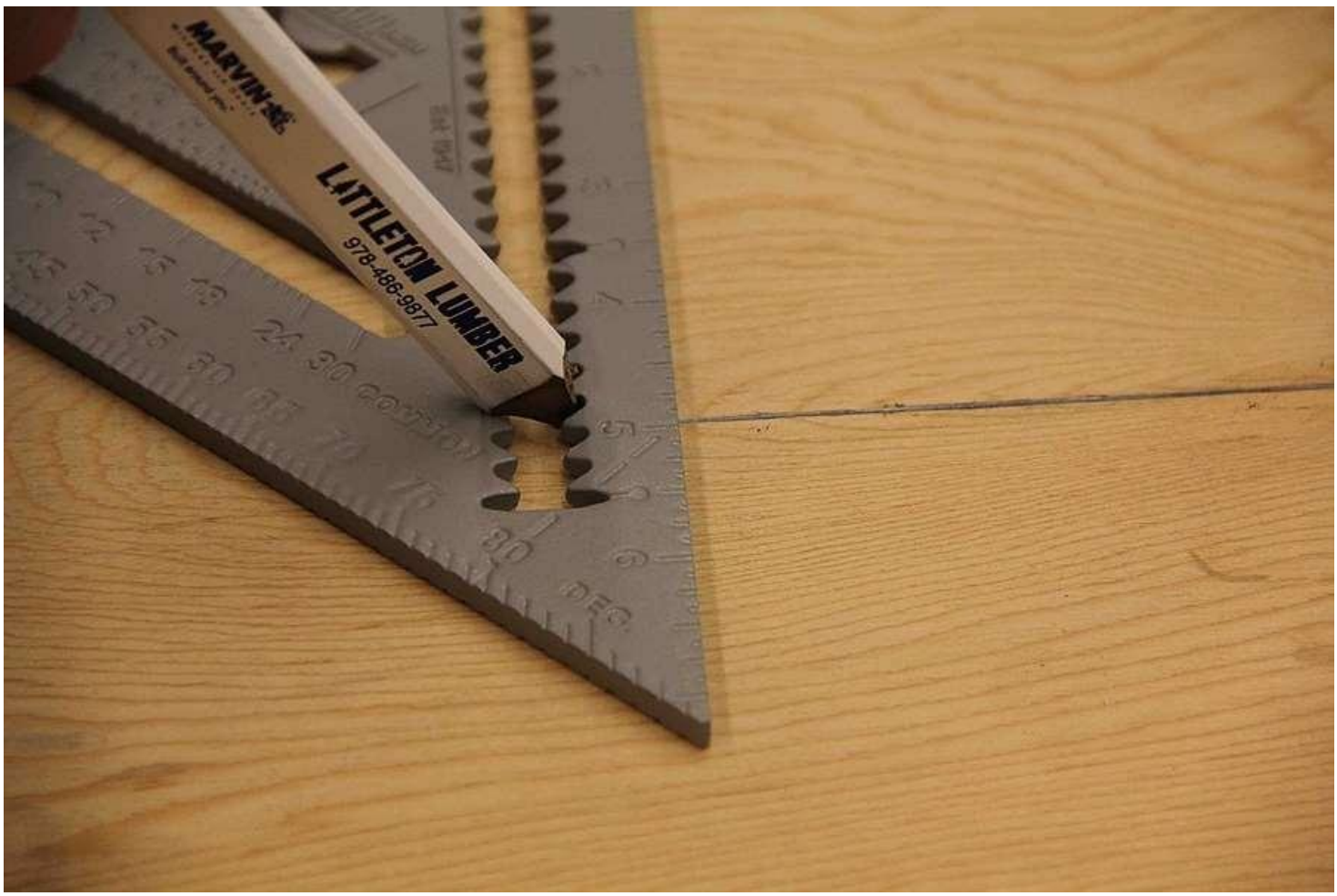
Critical Tools: 3D Printer

Location: Nepal

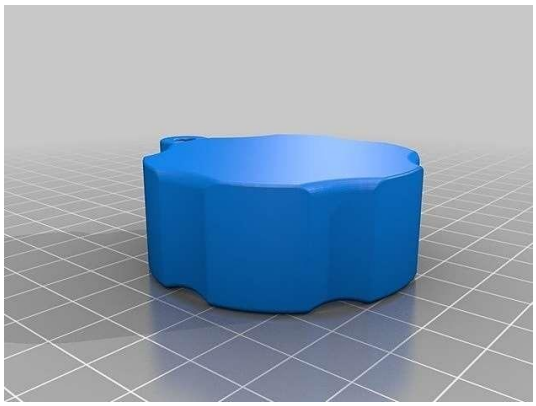
Material: ABS Plastic

Description: Provides a straightedge at a 90 or 45 angles to a baseline

Readiness Levels		Risk
Field	3	5
Maker	4	
User	4	
Tech	5	



Coolant Tank Cap



Name: Coolant Tank Cap

Part Number: GN018

Critical Tools: 3D Printer

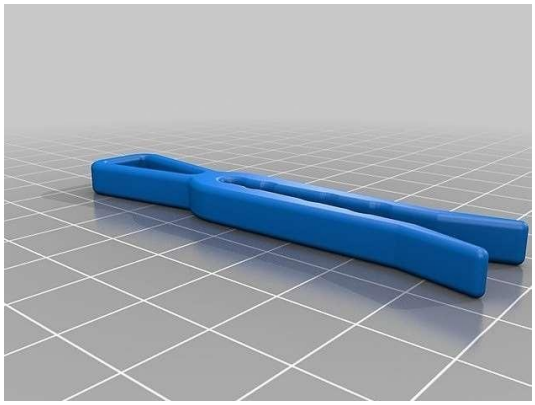
Location: Nepal

Material: ABS Plastic

Description: Replacement screw coolant cap for a truck (44.5mm ID)

Readiness Levels		Risk
Field	5	3
Maker	4	
User	5	
Tech	5	

Clothes Peg



Name: Clothes Peg

Part Number: GN019

Critical Tools: 3D Printer

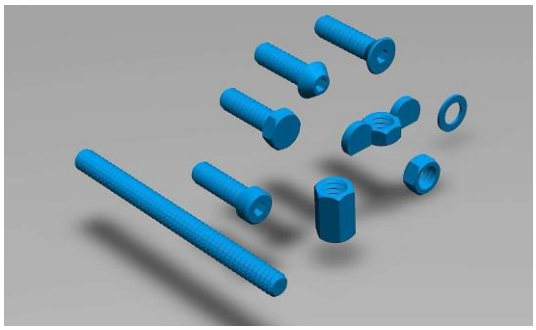
Location: Nepal

Material: ABS Plastic

Description: To secure clothing to washing line

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

Fastener Set



Name: Fastener Set

Part Number: GN020

Critical Tools: 3D Printer

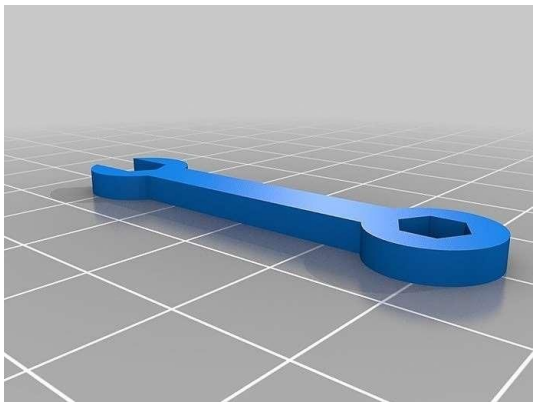
Location: UK

Material: ABS Plastic

Description: Generate your own nuts, bolts, washers and threaded rod

Readiness Levels		Risk
Field	3	5
Maker	4	
User	4	
Tech	3	

Wrench



Name: Wrench

Part Number: GN021

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Generate your size wrench (parametric)

Readiness Levels		Risk
Field	3	5
Maker	4	
User	4	
Tech	3	

Environment & Energy

Clean Cookstove Knob

Name: Clean Cookstove Knob

Part Number: EE001

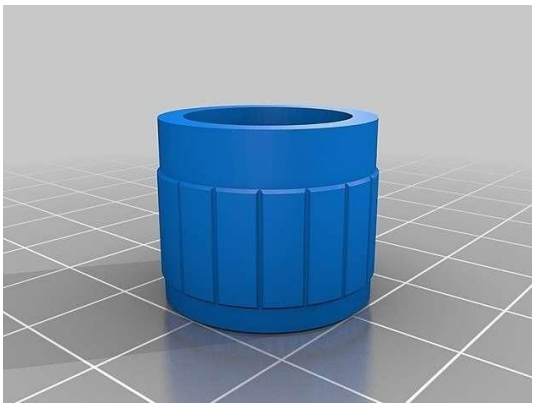
Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: A spare knob for the African Clean Energy cookstove

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	



Download link: http://www.thingiverse.com/thing:2368827

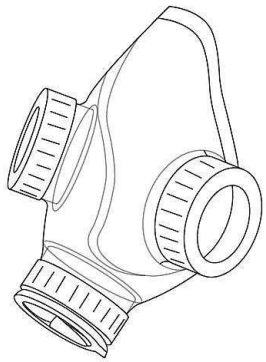
Size: 52 cm x 15.4 cm

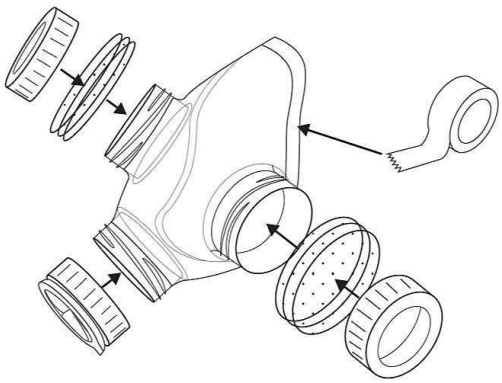
Purpose: A spare part for the [African Clean Energy] cookstove Designed in response to concerns about losing the control knob (which can easily be removed). (http://www.africancleanenergy.com/)

Usage Notes: Print with a high resolution and solid infill in ABS for a strong, dimensionally accurate part. This part is designed to fit a little more snugly than the original.

Air Pollution Face Mask

Field Ready
humanitarian supplies made in the field





Name: Air Pollution Face Mask

Part Number: EE002

Critical Tools: Knife

Location: Nepal

Material: PET bottle

Description: Protect from inhaling particulate matter (microorganisms, fumes, vapors & gases)

Readiness Levels		Risk
Field	5	5
Maker	4	
User	4	
Tech	5	

Purpose: Designed to protect the wearer from inhaling particulate matter, including airborne microorganisms, fumes, vapors and gases.

Important Note: This design is for emergency use only. Effectiveness will depend on user fit and type of filter material used.

Solar Panel Repairs

Name: Solar Panel Repairs

Part Number: EE003

Critical Tools: Electronic tool kit

Location: Caribbean

Material: Electronics

Description: To repair damaged solar panels (Caribbean hurricane response)

Readiness Levels		Risk
Field	5	5
Maker	2	
User	5	
Tech	5	

Purpose: To repair damaged solar panels during our hurricane response in the Caribbean.

Battery terminal wire clamp

Name: Battery terminal wire clamp

Part Number: EE004

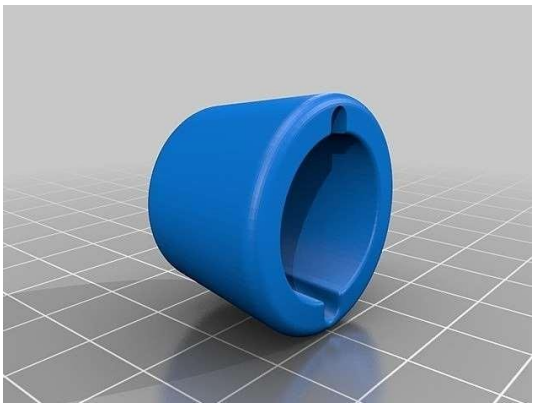
Critical Tools: 3D Printer

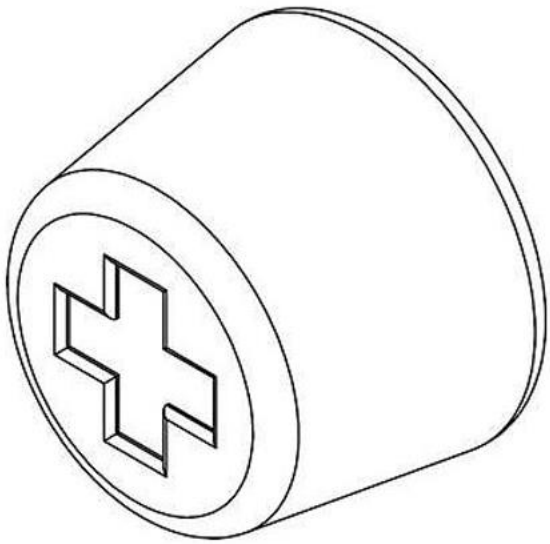
Location: Nepal

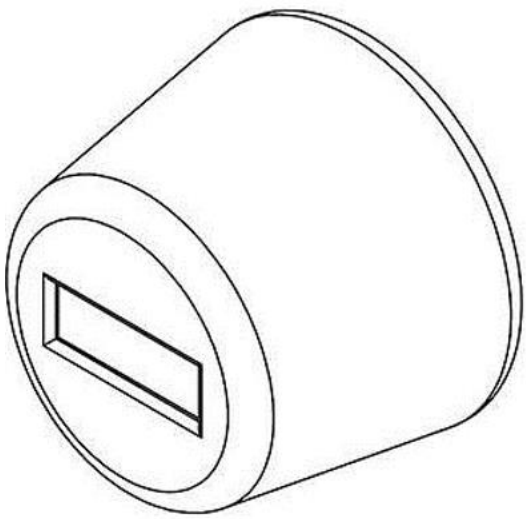
Material: ABS Plastic

Description: Plastic clamps to safely clamp wires to car battery terminals

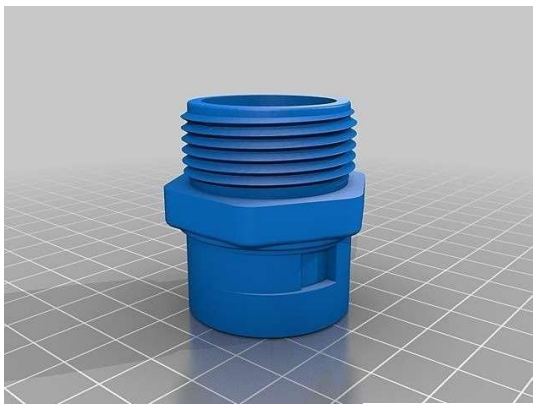
Readiness Levels		Risk
Field	4	4
Maker	4	
User	5	
Tech	4	







Weather station connector



Name: Weather station connector

Part Number: EE005

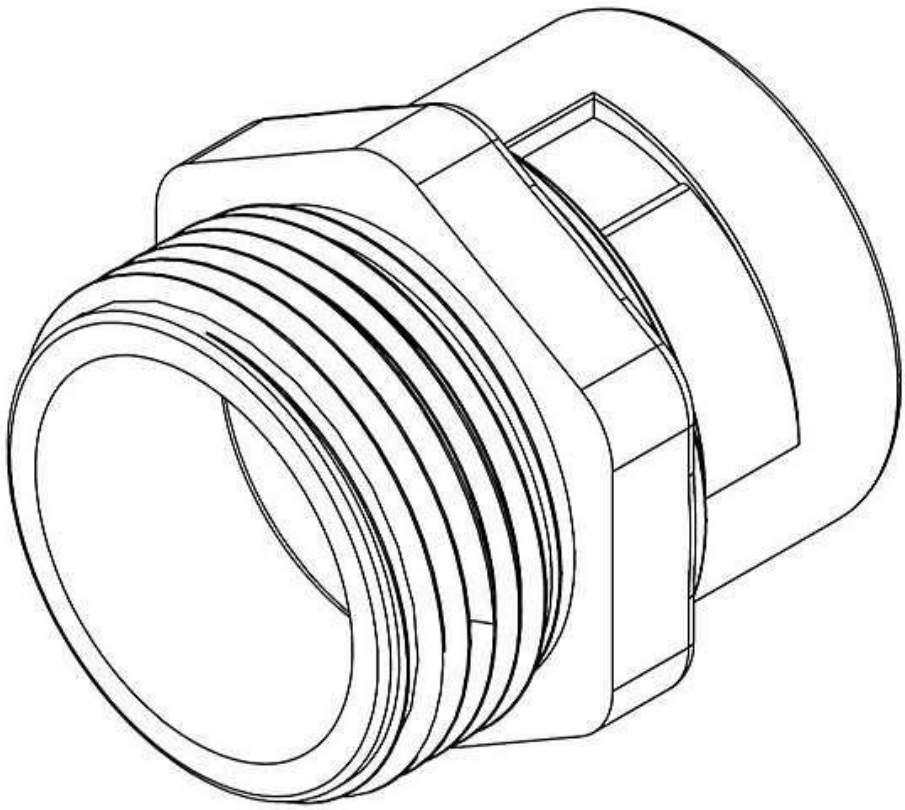
Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Spare connector for a weather station

Readiness Levels		Risk
Field	5	4
Maker	3	
User	4	
Tech	5	



Efficient Cookstove

Name: Efficient Cookstove

Part Number: EE006

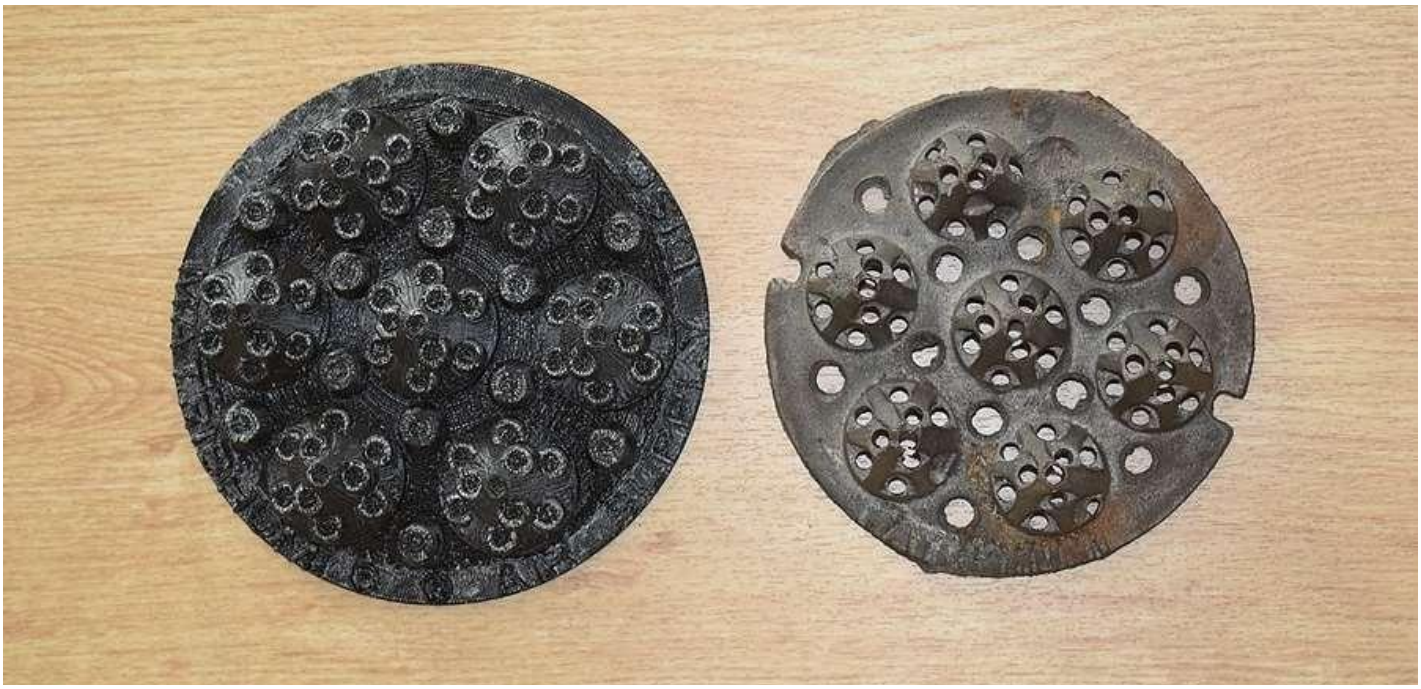
Critical Tools: Sand Casting

Location: Nepal

Material: Cast-metal (steel)

Description: Cookstove design patented by Madhukar KC

Readiness Levels		Risk
Field	5	4
Maker	3	
User	5	
Tech	4	



Nutrition

Hydroponics

Name: Hydroponics

Part Number: NU001

Critical Tools: Welder & hand saw

Location: Syria

Material: PVC pipe, steel pipes & steel plates

Description: Growing plants without soil, using mineral nutrient solutions in a water solvent.

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	5	

Purpose: A subset of hydroculture, the method of growing plants without soil, using mineral nutrient solutions in a water solvent.

Cooking Stove Cover

Name: Cooking Stove Cover

Part Number: NU002

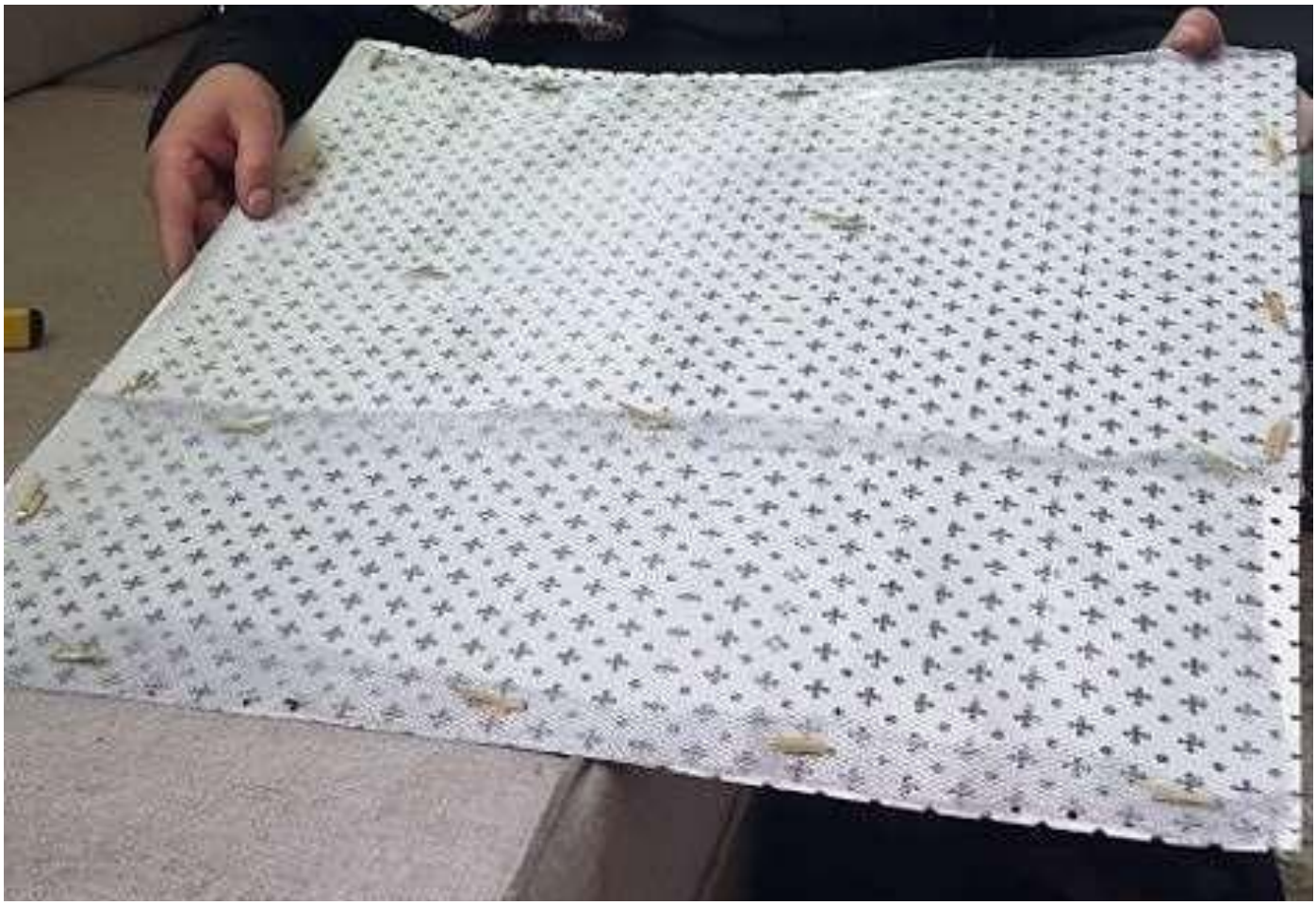
Critical Tools: Basic hand tools

Location: Jordan

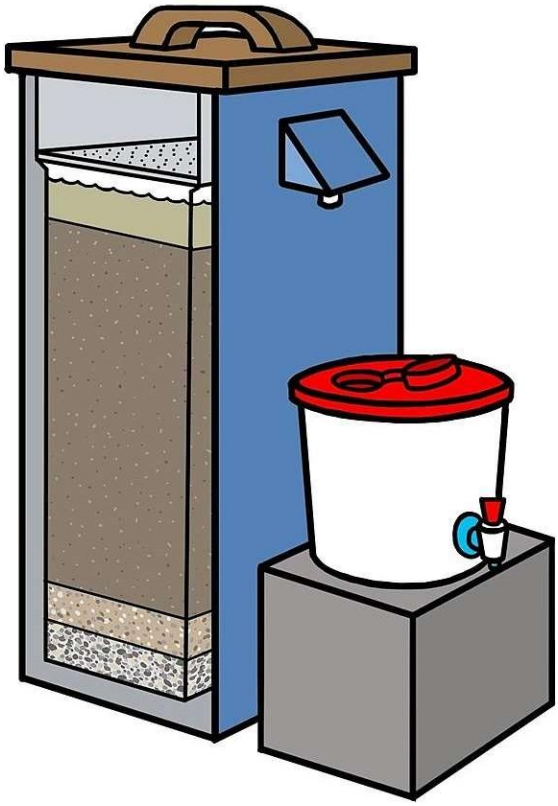
Material: Plastic Sheet

Description: To keep the stove clean and free of debris

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	



Biosand Filter



Name: Biosand Filter

Part Number: NU003

Critical Tools: Level, Spanner & measuring tape

Location: Jordan

Material: Filter container, lid, sand, gravel, bucket

Description: Remove pathogens & particulate from water using a biofilm & sand column

Readiness Levels		Risk
Field	5	4
Maker	4	
User	3	
Tech	3	

Purpose: Filters that remove pathogens and suspended solids from water using biological and physical processes that take place in a sand column covered with a biofilm. A multi-barrier approach to safe drinking water. It is a water filter that makes dirty water safe to drink. It can be used in houses or buildings like schools. It can be made of concrete or plastic. It is filled with layers of sand and gravel that are carefully prepared to go inside the filter

Usage Notes: Careful periodic maintenance is needed to maintain a clean water supply

Permaculture Gardening

Name: Permaculture Gardening

Part Number: NU004

Critical Tools: Basic hand tools

Location: Jordan

Material: Recycled Cans

Description: A self-sustaining garden

Readiness Levels		Risk
Field	3	1
Maker	1	
User	1	
Tech	4	

Vertical Gardening

Name: Vertical Gardening

Part Number: NU005

Critical Tools: Knife and drill

Location: Jordan

Material: PET bottle & string

Description: To grow and maintain a garden with limited space and to nurture healthier crops

Readiness Levels		Risk
Field	3	1
Maker	4	
User	1	
Tech	4	

Additional Items Needed: Soil, seedlings

Bottle to hose connector

Name: Bottle to hose connector

Part Number: NU006

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Adapter for connecting a PET bottle to a hose (drip irrigation system)

Readiness Levels		Risk
Field	4	5
Maker	4	
User	5	
Tech	4	

Disaster Risk Reduction

Rescue Airbag

Name: Rescue Airbag

Part Number: DR001

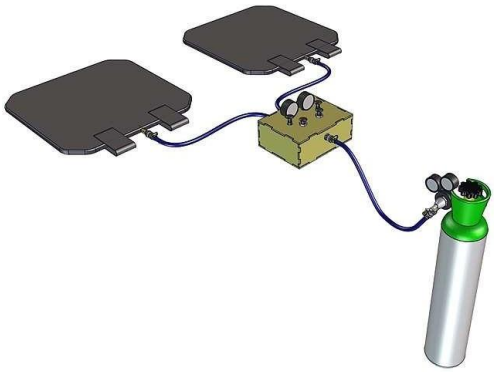
Critical Tools: Heat gun

Location: Syria

Material: 1.55 mm of polyester (usually on truck sides) and a heat gun

Description: For first responders to remove large blocks of debris

Readiness Levels		Risk
Field	5	3
Maker	2	
User	3	
Tech	4	



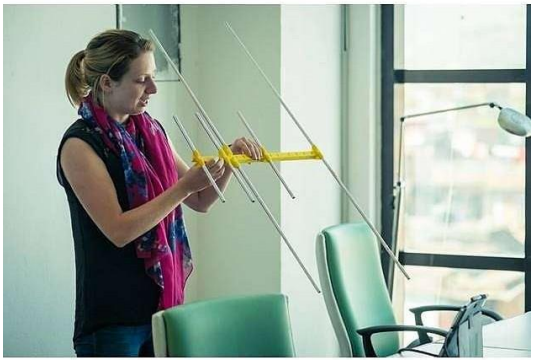
Size: The airbag must collapse to a height of less than 1.5cm to fit under debris, inflate to ~20cm, be inflatable by a standard air-compressor and resist punctures.

Purpose: In the aftermath of airstrikes, responders require heavy lifting equipment to remove large blocks of debris, which can weigh several tons.

Additional Items Needed: Laser Cutter

Usage Notes: The current design can hold up to 7 tons (with a 4 x safety margin) and lift ~20cm.

Duoband Yagi Antenna



Name: Duoband Yagi Antenna

Part Number: DR002

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

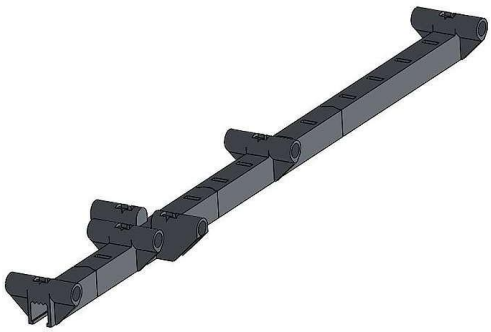
Description: 3D printed bespoke parts to construct standard antenna design

Readiness Levels		Risk
Field	5	4
Maker	3	
User	5	
Tech	4	

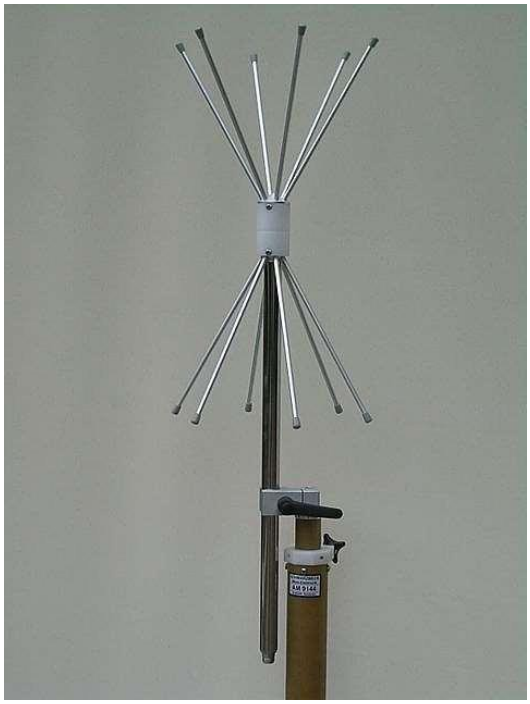
Purpose: Custom parts to help aid accurate construction of a standard antenna design. These are 3D printed parts to enable quick and easy assembly of a particular duoband Yagi antenna, the design for which can be found [here]

Usage Notes: Increasing the infill will create a more robust part. Increasing resolution will be helpful, especially if your aluminium tube's diameter is not especially uniform. Print orientation is best in the orientation already used in the STL files here.

These objects have long flat bases - depending on your printer's capabilities, it is recommended to pre-heat the bed, or if your bed is not heated, use BuildTak or equivalent techniques to prevent warping and peeling.



Omni-Antenna



Name: Omni-Antenna

Part Number: DR003

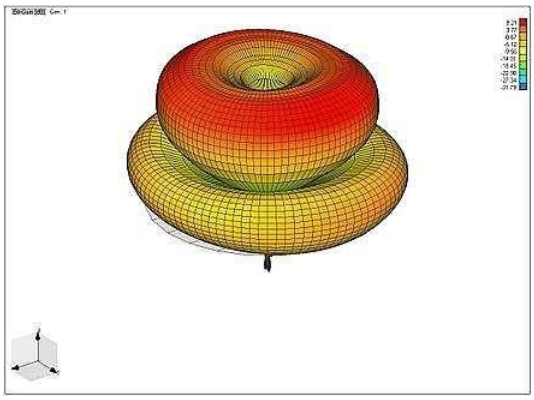
Critical Tools: Electronic tool kit

Location: Syria

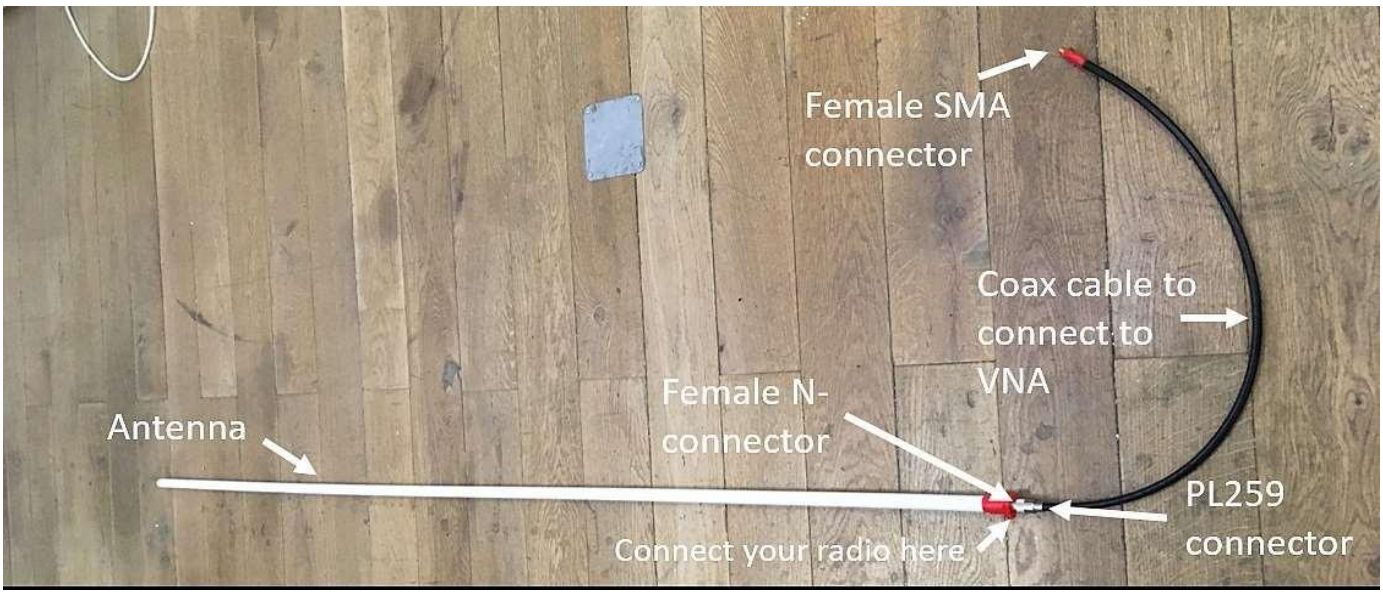
Material: Coax cable RG_213U, connectors RG-213U, N Female, Plastic pipes ½", plastic covers, tin welding rolls

Description: Repair & replace damaged antenna

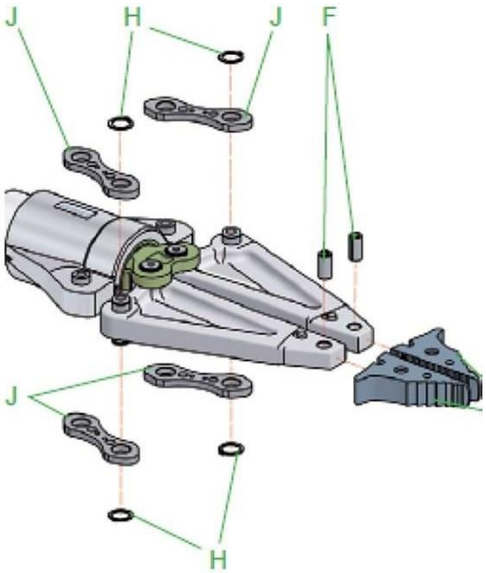
Readiness Levels		Risk
Field	5	5
Maker	3	
User	5	
Tech	5	



Purpose: This was designed due to lack of availability and the cost of imported antennas where an urgent life-saving need was present



Hydraulic spreader



Name: Hydraulic spreader

Part Number: DR004

Critical Tools: Welder

Location: Syria

Material: Steel pipes & steel plates

Description: Used in rescue operations to free trapped individuals

Readiness Levels		Risk
Field	1	1
Maker	1	
User	1	
Tech	3	

Fire Fighting Robot

Name: Fire Fighting Robot

Part Number: DR005

Critical Tools: Welder & small lathe

Location: Syria

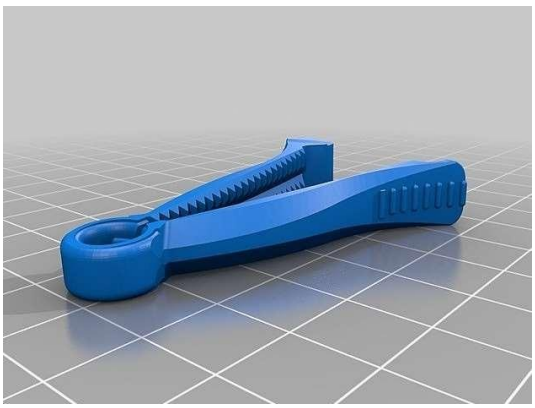
Material: Steel pipes & steel plates

Description: Used in rescue operations to extinguish fire

Readiness Levels		Risk
Field	1	1
Maker	1	
User	1	
Tech	2	

Health

Umbilical Cord Clamp



Name: Umbilical Cord Clamp

Part Number: HL001

Critical Tools: 3D Printer

Location: Haiti

Material: ABS Plastic

Description: Enclosure of umbilical cords of newborns to prevent sepsis

Readiness Levels		Risk
Field	3	3
Maker	4	
User	3	
Tech	4	

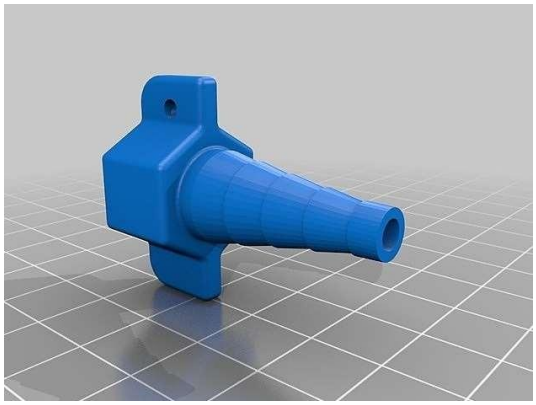
Download link: http://www.thingiverse.com/thing:1528789

Size: 6.2cm X 4.6cm (Open)

Purpose: Enclosure of umbilical cords of newborns to prevent sepsis.

Usage Notes: To be used by trained birth attendants (physicians, nurses, midwives and TBAs). One time use only.

Oxygen Supply Fitting



Name: Oxygen Supply Fitting

Part Number: HL002

Critical Tools: 3D Printer

Location: Haiti

Material: ABS Plastic

Description: Adapter that connects oxygen supply tubing to standard oxygen systems

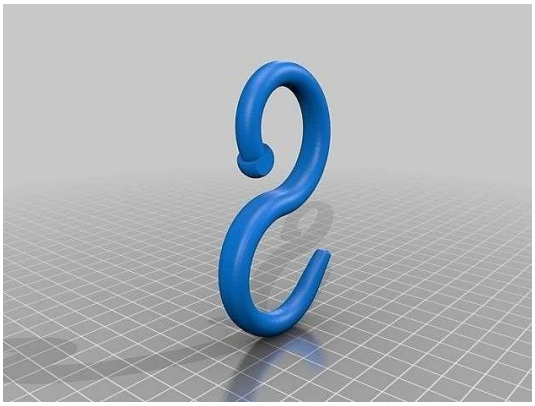
Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	3	

Download link: http://www.thingiverse.com/thing:1562079

Size: 1.75 cm x 4.0 cm x3.1 cm

Purpose: Adapter that connects oxygen supply tubing to standard oxygen systems, cylinders and related products.

IV Bag Hook



Name: IV Bag Hook

Part Number: HL003

Critical Tools: 3D Printer

Location: Haiti

Material: ABS Plastic

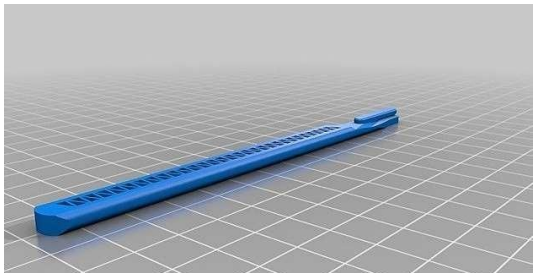
Description: For IV bags to be hung

Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:1562085

Usage Notes: Adjust the infill depending on application (bag size etc.). It should be more than strong enough with a low infill percentage, and this will use less plastic than printing solid and smaller (for a given strength).

Scalpel Truss Handle



Name: Scalpel Truss Handle

Part Number: HL004_Large

Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

Description: Holds a standard scalpel bladed

Readiness Levels		Risk
Field	4	3
Maker	4	
User	5	
Tech	4	

Scalpel Truss Handle

Name: Scalpel Truss Handle

Part Number: HL004_Small

Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

Description: Holds a standard scalpel bladed

Readiness Levels		Risk
Field	4	3
Maker	4	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:1479421

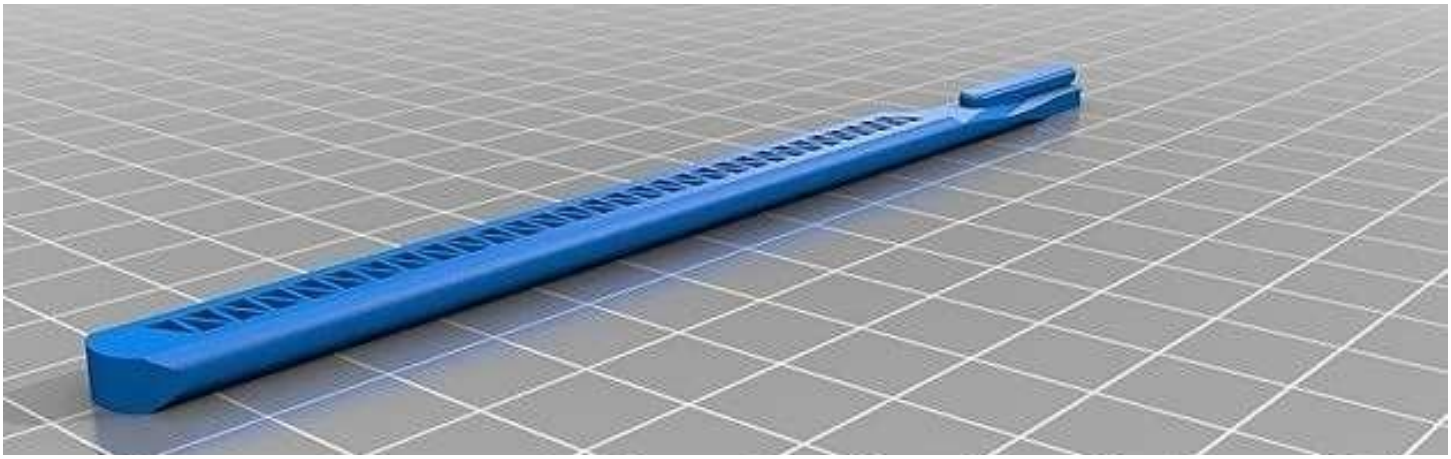
Size: 13.5 cm x 8.8 cm x 4.0 cm

Purpose: A scalpel or lancet are small and extremely sharp bladed instrument for surgery, anatomical dissection and various other crafts.

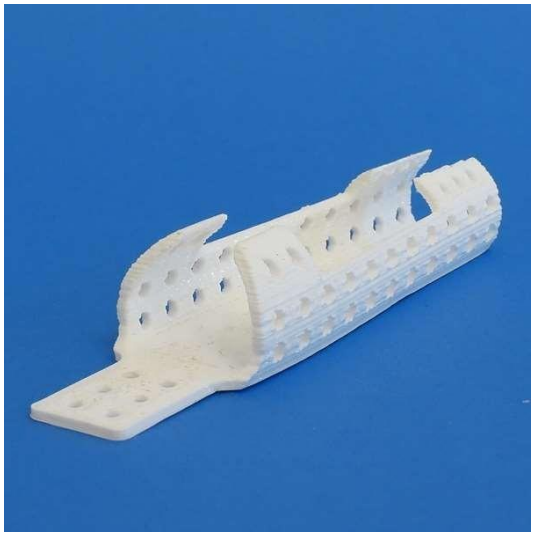
Material: ABS Plastic

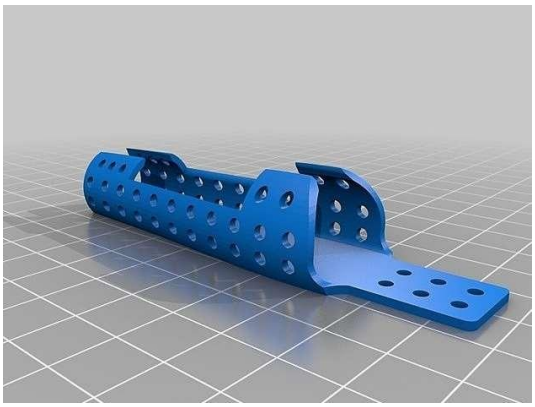
Additional Items Needed: The blade is needed and audibly snaps

Usage Notes: These are not sterile and can break. Be careful not to cut yourself when installing/using/replacing and I wouldn't recommend printing PLA or any weak materials.



Finger Brace





Name: Finger Brace

Part Number: HL005

Critical Tools: 3D Printer

Location: Nepal

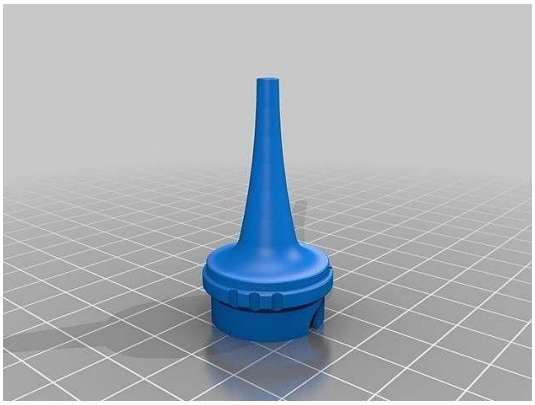
Material: ABS Plastic

Description: In order to keep a injured index finger immobile

Readiness Levels		Risk
Field	4	3
Maker	4	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:1673843

Otoscope Specula



Name: Otoscope Specula

Part Number: HL006

Critical Tools: 3D Printer

Location: Haiti

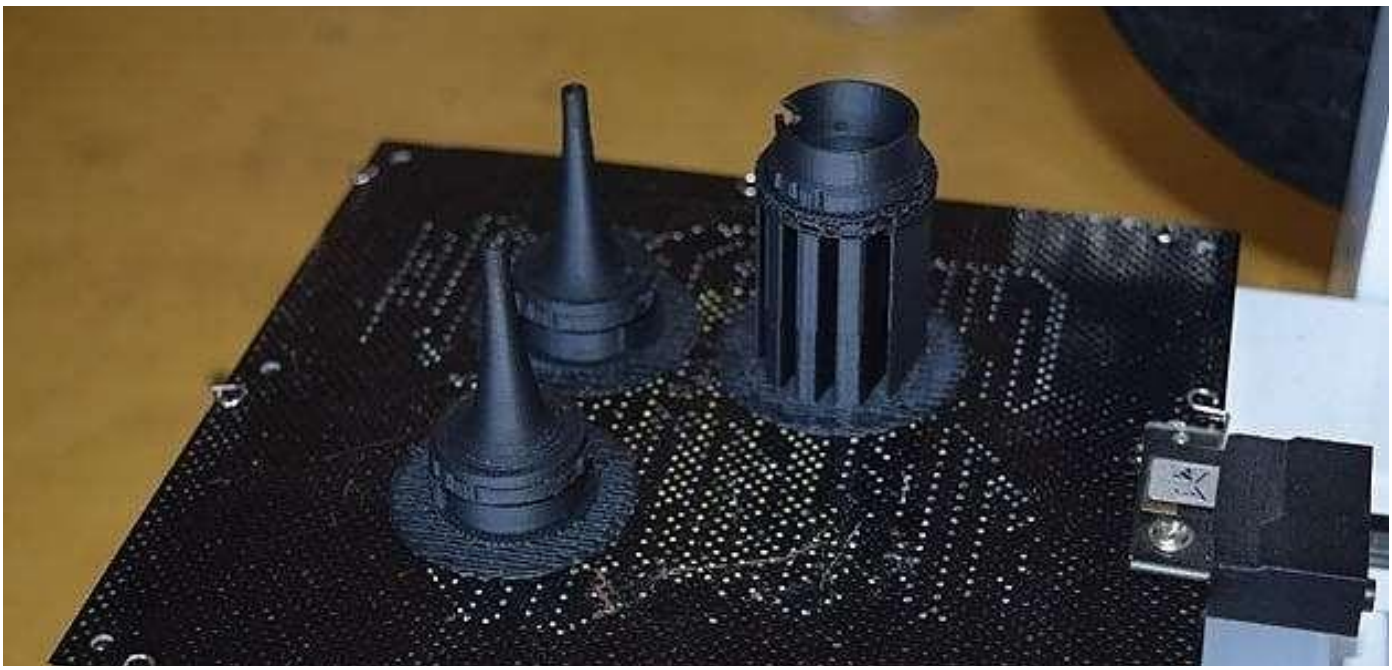
Material: ABS Plastic

Description: For examining the external canal and tympanic membrane of the ear

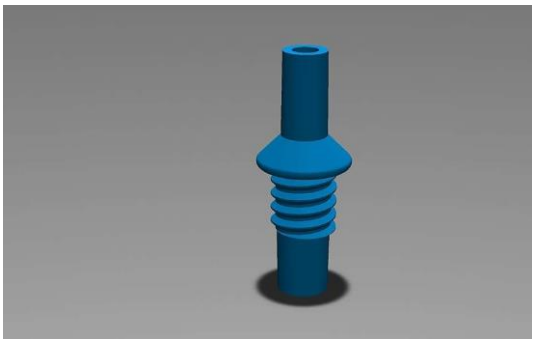
Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:1618841

Usage Notes: Print vertically as shown. Recommended to print several at once on a slow print speed. Fine nozzle will warp during print if printed alone on high speed as layers do not have a chance to fully cool.



Connector Nebulizer



Name: Connector Nebulizer

Part Number: HL007

Critical Tools: 3D Printer

Location: Haiti

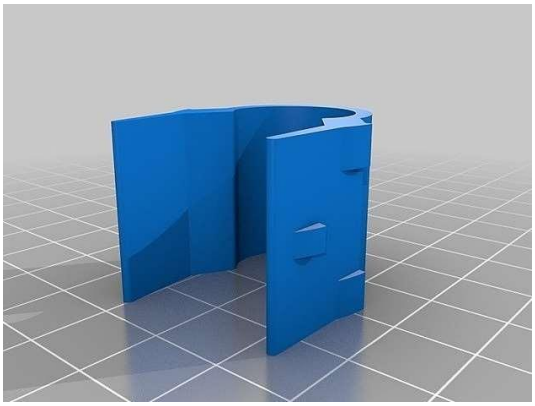
Material: ABS Plastic

Description: This piece is a connector for air tubes developed to fix a nebulizer problem

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	3	

Download link: http://www.thingiverse.com/thing:1409472

Electro Cardiology Limb Lead



Name: Electro Cardiology Limb Lead

Part Number: HL008

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Attaches sensors to patient's ankle/wrist to give visual trace of the heart

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:1409472

Size: 3.3 cm x 2.9 cm x 2.3 cm

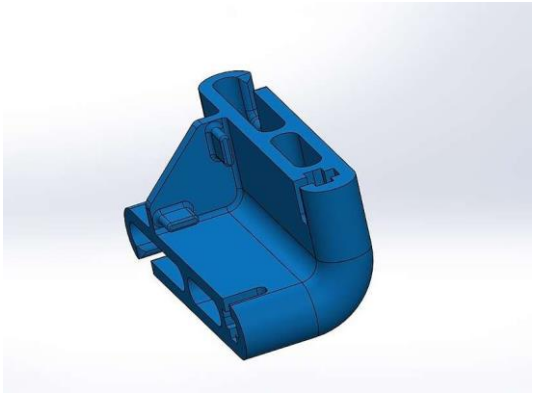
Purpose: An ECG machine is a common piece of equipment in hospitals, giving doctors a visual trace of the electrical signals from a patient's heart. To read these signals, sensors are attached to the patient's ankles and wrists using an ECG limb lead, which uses a plastic clamp to secure the sensor to the desired part of the body.

Material: ABS Plastic

Additional Items Needed: None

Usage Notes: Print this in the orientation shown in the picture, so that each layer printed is a complete U-shape. A small amount of support material is used for the parts of this design which 'snap' into the 2 halves of the plastic clamp.

Infant Warmer Corner Piece



Name: Infant Warmer Corner Piece

Part Number: HL009

Critical Tools: 3D Printer

Location: Haiti

Material: ABS Plastic

Description: Replacement part for an Air-shields infant warmer model IICS

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	3	

Download link: http://www.thingiverse.com/thing:1562004

Usage Notes: This model is liable to warp slightly during printing, but due to curved design it isn't the first layer. Its recommended to print it on a printer with an enclosed build chamber.

Ventilator Connector

Name: Ventilator Connector

Part Number: HL010

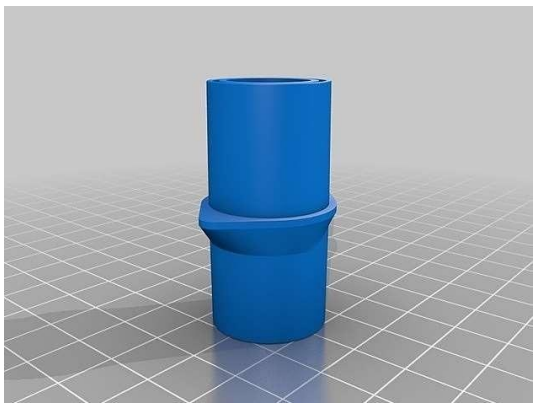
Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Connector for ventilator

Readiness Levels		Risk
Field	4	3
Maker	3	
User	4	
Tech	4	

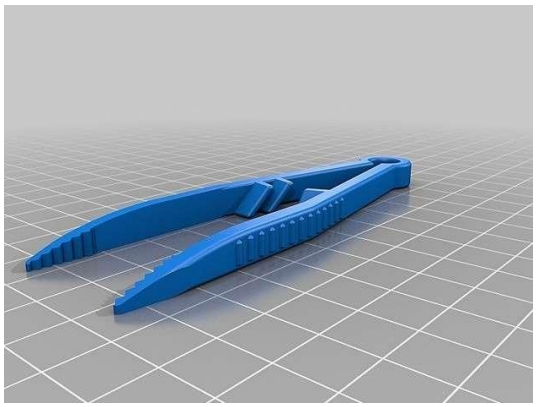


Download link: http://www.thingiverse.com/thing:1618837

Size: 3.3 cm x 2.2 cm x 4.6 cm

Usage Notes: Print vertically in orientation shown in picture for no support. Best to use slightly high temperature than usual, to help layers bond together, and if only printing one part use a slow speed to allow layers to cool enough before next layer printed (fast print speed can lead to warped layers). If for medical use, please print in food-grade PET.

Tweezers/Forceps



Name: Tweezers/Forceps

Part Number: HL011

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

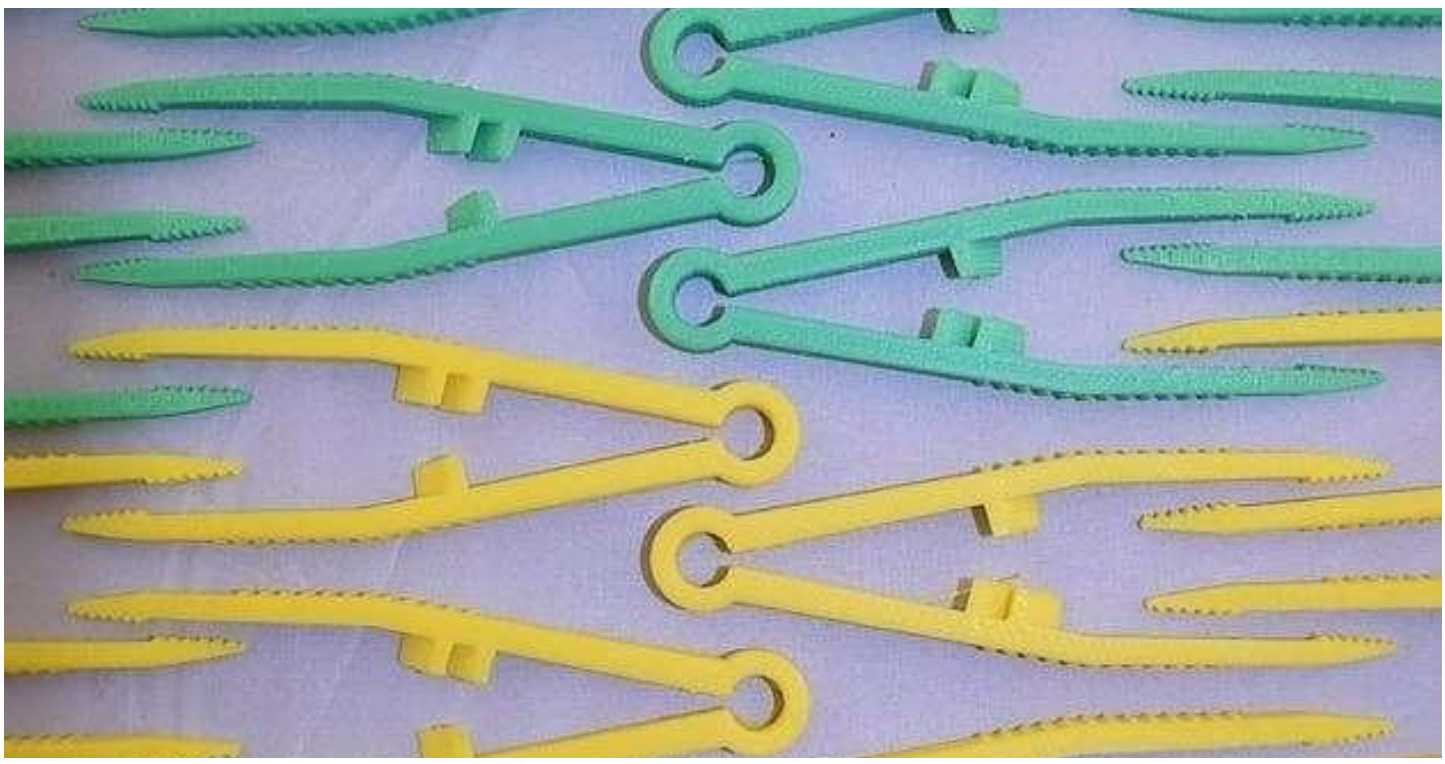
Description: For handling sterile bandages/foreign object removal at health posts

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	

Download link: http://www.thingiverse.com/thing:1727040

Size: 10.8 cm x 3.2 cm x 0.7cm (open)

Purpose: Designed for handling sterile bandages/foreign object removal at health posts and clinics.



Nebulizer T Fitting

Name: Nebulizer T Fitting

Part Number: HL012

Critical Tools: 3D Printer

Location: Haiti

Material: ABS Plastic

Description: This is a fitting to allow other gases to be mixed into a nebulizer supply

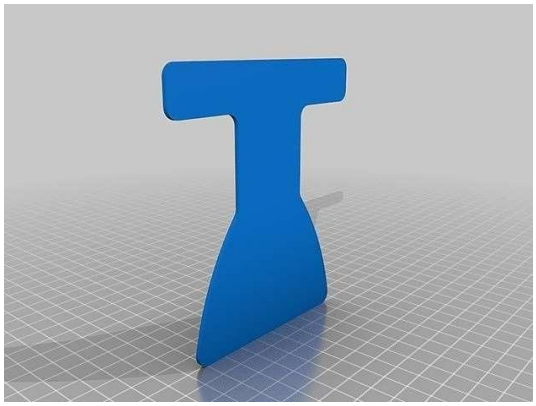
Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	3	

Download link: http://www.thingiverse.com/thing:1562031

Size: 2.8 cm x 6.3 cm x 6.5 cm

Usage Notes: Sterilize If possible, test a trial print for airtightness. A simple method to do this is to install the fitting in place with a gas supply but block off the outlet with tape. Then apply liquid soap to the outside. If you see bubbles, the print is porous. Try changing the print settings (hotter, more extrusion) or apply an acetone or lacquer treatment. Ensure that any treatments are fully dry before retesting or use.

Wrist Brace (small)



Name: Wrist Brace (small)

Part Number: HL013

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

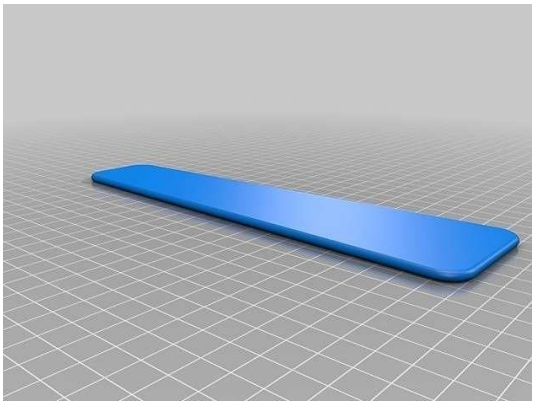
Description: For wearing around wrist for injury rehabilitation process in health posts

Readiness Levels		Risk
Field	3	3
Maker	3	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:2443844

Usage Notes: This 3D Printable brace should be thermoformed for using. The design is an inspiration from Global Outreach Doctors (abbreviated Go Docs) and was first time implemented in the field by Dr. Matthew Markert. For safety, use gloves while thermoforming. Apply soft cotton clothes around

Wrist Brace (Large)



Name: Wrist Brace (Large)

Part Number: HL014

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: For wearing around wrist for injury rehabilitation process in health posts

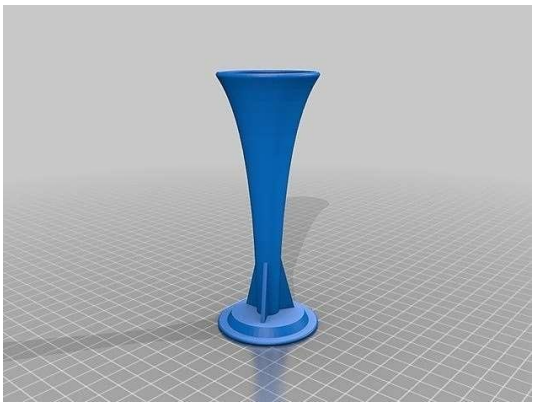
Readiness Levels		Risk
Field	3	3
Maker	3	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:2161679

Purpose: This is a 3D printable wrist brace, designed whilst looking at how to supply Health Posts in Nepal with equipment after the earthquake. The design has been developed in collaboration with various medical practitioners in Nepal.

Usage Notes: Print in PLA only without support. Submerse in hot water to soften the PLA, then remove from the water, quickly remove excess water with a towel or equivalent, then form the wrist brace to the patient's wrist.

Fetoscope (3DP)



Name: Fetoscope (3DP)

Part Number: HL015

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: A device used to obtain information about a fetus within the uterus

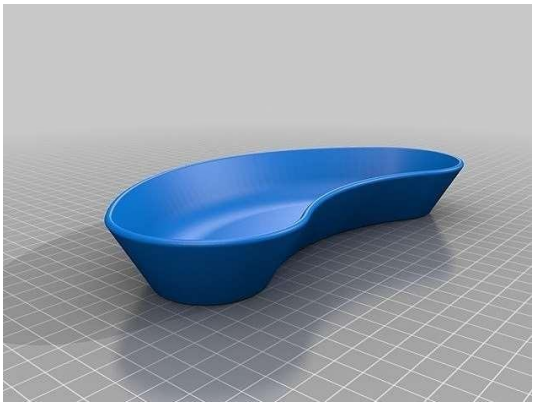
Readiness Levels		Risk
Field	3	5
Maker	4	
User	4	
Tech	3	

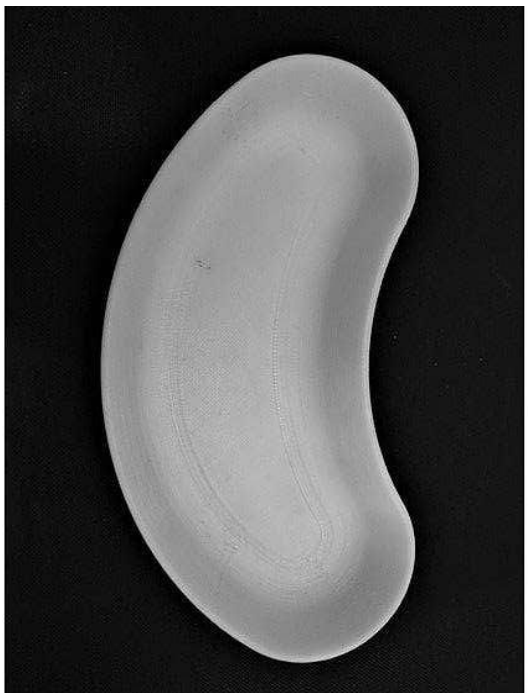
Download link: http://www.thingiverse.com/thing:2161652

Purpose: This is a 3D printable fetoscope, designed whilst looking at how to supply Health Posts in Nepal with equipment after the earthquake. The design has been developed in collaboration with various medical practitioners in Nepal.

Usage Notes: Print as oriented in the STL file.

Kidney Tray (3DP)





Name: Kidney Tray (3DP)

Part Number: HL016

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: For medical wards to receive soiled dressings and other medical waste

Readiness Levels		Risk
Field	5	3
Maker	4	
User	4	
Tech	5	

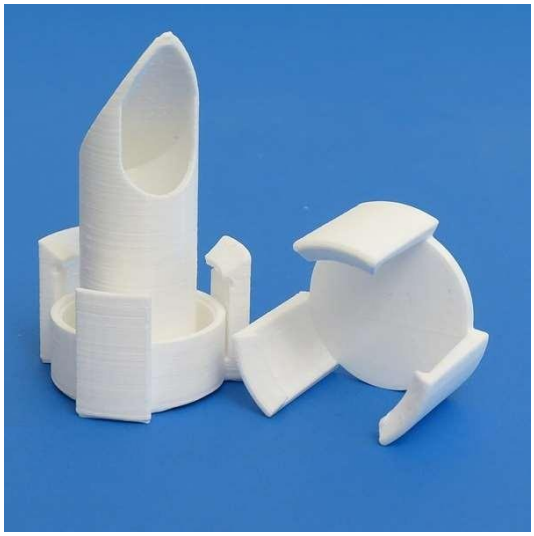
Download link: http://www.thingiverse.com/thing:2161664

This device is suitable for use outside the operating theatre only. Please treat this as a single-use, non-autoclavable device.

Usage Notes: Designed to be printed support free. On the UP! Box, we used PRNT3D Natural ABS filament, which prints with better layer to layer adhesion than UP brand ABS. The downside of this is that support is hard to remove, but it prints watertight.

This object has a large flat base - depending on your printer's capabilities, it is recommended to pre-heat the bed, or if your bed is not heated, use BuildTak or equivalent

Bottle Cap Sharps



Name: Bottle Cap Sharps

Part Number: HL017

Critical Tools: 3D Printer

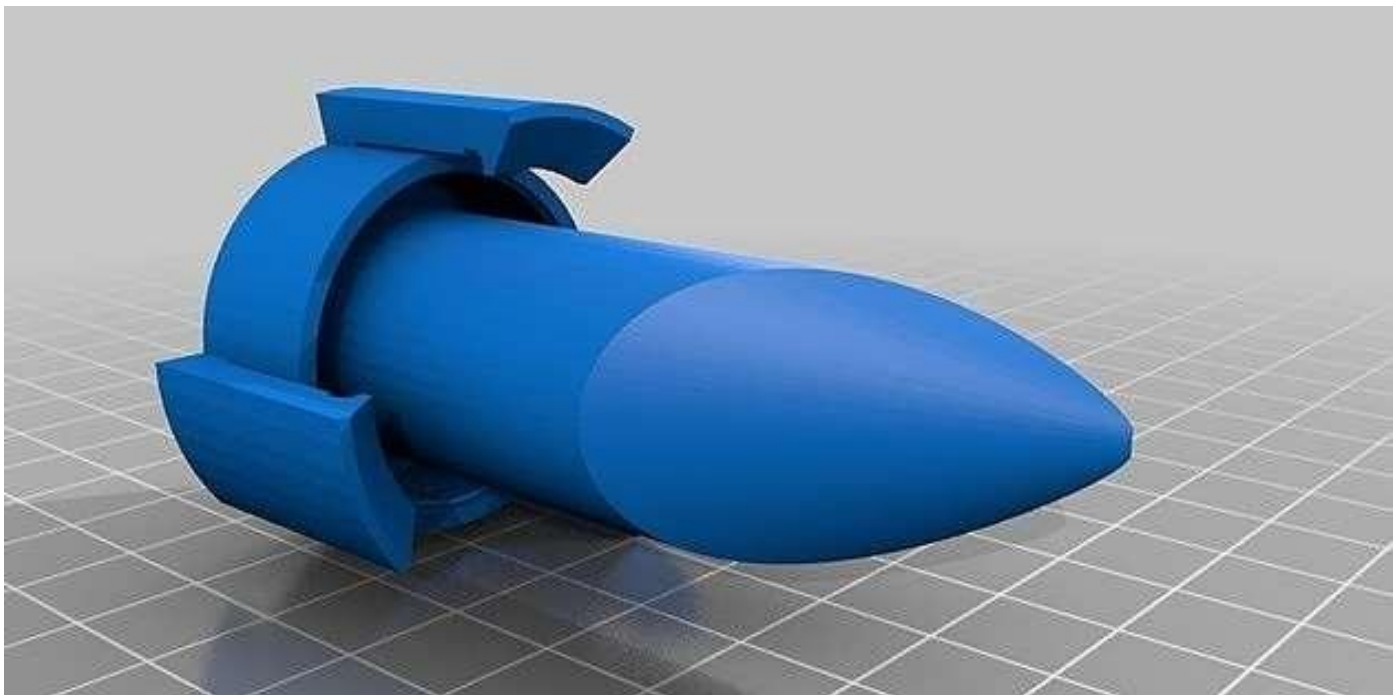
Location: Nepal

Material: PET bottle & ABS Plastic

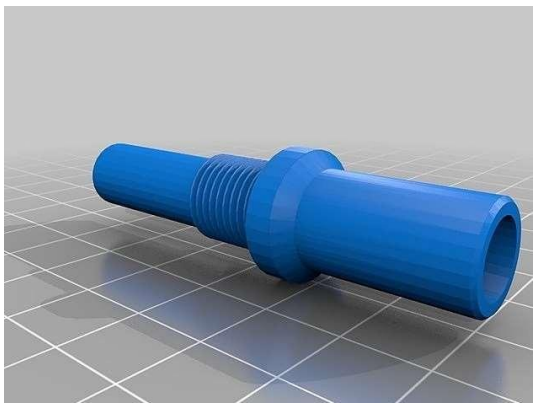
Description: To dispose of sharp items

Readiness Levels	
Field	4
Maker	3
User	4
Tech	4

Risk
3



Vacuum Suction Pump Connector



Name: Vacuum Suction Pump Connector

Part Number: HL018

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Spare part for electrically or foot operated suction used in medical wards

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	3	

Download link: http://www.thingiverse.com/thing:2449912

Purpose: Medium vacuum section pump connector. This product is a spare part for electrically as well as foot-operated suction used in clinics, wards and urgent applications.

Usage Notes: It's good to print more than one part at a time as it's a tiny part and the payer gets enough time to cool down before another layer adds up.

Heat Shrunk Sharps Box

Name: Heat Shrunk Sharps Box

Part Number: HL019

Critical Tools: 3D Printer

Location: Holland

Material: PET bottle & ABS Plastic

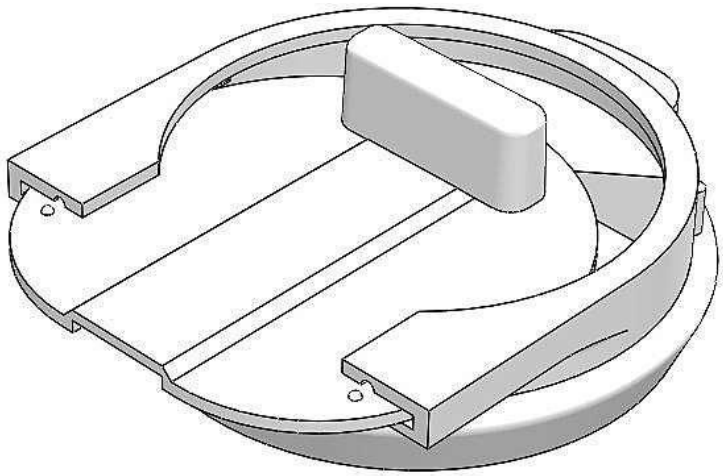
Description: To dispose of sharp items

Readiness Levels		Risk
Field	4	3
Maker	3	
User	4	
Tech	5	

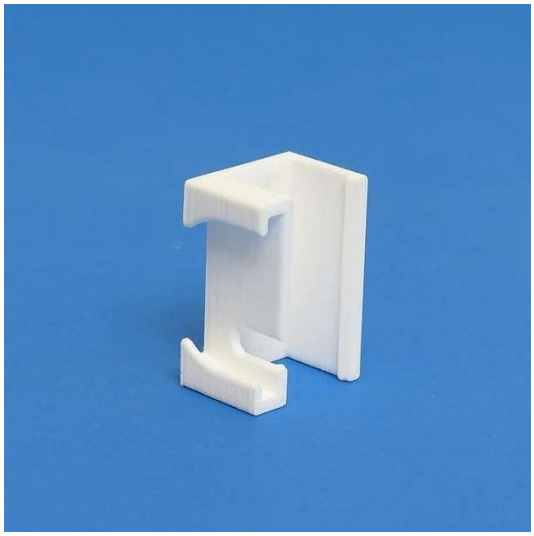
Download link: https://www.thingiverse.com/thing:3122937

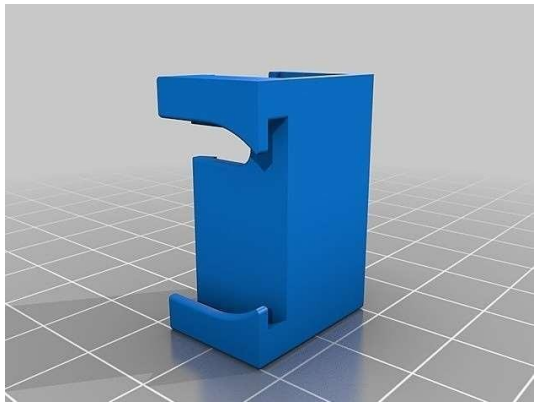
Purpose: The Sharps Bottle Cap screws onto most plastic drinking bottles for an inexpensive way to safely store hypodermic medical needles.

Usage Notes: Please note that when handling sharps please exercise extreme caution, this product is designed to hold sharps and reduce risk where other safer alternatives are not available



Dental Chair Lever





Name: Dental Chair Lever

Part Number: HL020

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: Replacement lever that compresses the lowering mechanism on dental chair

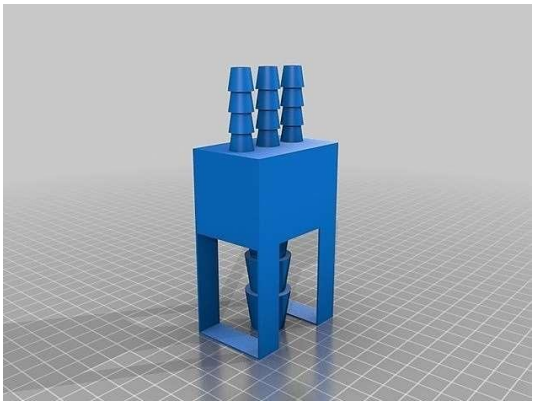
Readiness Levels		Risk
Field	5	5
Maker	4	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:1618830

Purpose: Fix for broken lever on dental chair in Nuwakot District hospital, Nepal. Lever unable to compress lowering mechanism- this print holds 2X2 rupee coins in a position where they can compress the mechanism.

Usage Notes: Print vertically so the part forms a “U” shape on the print bed for maximum strength.

Hose Barb Adapter/Manifold



Name: Hose Barb Adapter/Manifold

Part Number: HL021

Critical Tools: 3D Printer

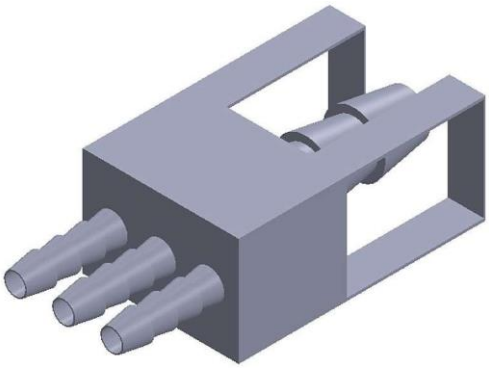
Location: UK

Material: ABS Plastic

Description: Paramedic design generates a barbed hose adapter for any ID tubing

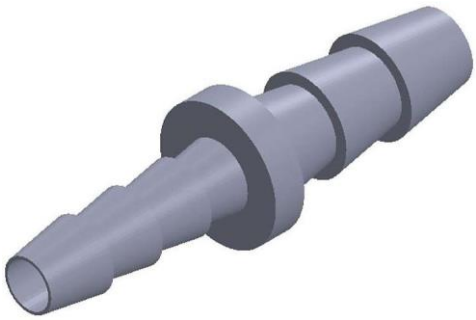
Readiness Levels		Risk
Field	5	5
Maker	3	
User	5	
Tech	4	

Download link: http://www.thingiverse.com/thing:158717

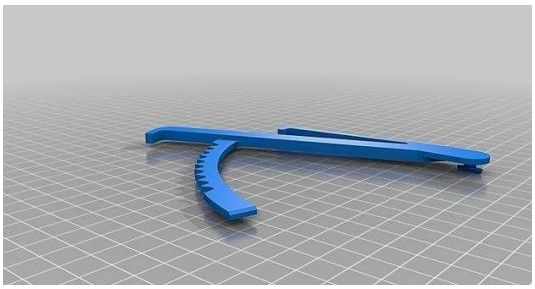


Purpose: Customizable paramedic model allows generation of barbed hose adapter for any set of inside diameter tubing. Example: This can be used to connect various tubing sizes used in pond pumps. The latest version, v3, adds feet to the optional supports for manifold and enables setting the number of input and output barbs (sometimes necessary to keep within the print space).

Usage Notes: Customize and select input and output sizes. The input barb will print on the bottom. Supports can be included with manifolds to aid in the vault overhand. The supports should snap off easily or can be left in place. The manifold feature is still being tested



Body Fat Calliper



Name: Body Fat Calliper

Part Number: HL022

Critical Tools: 3D Printer

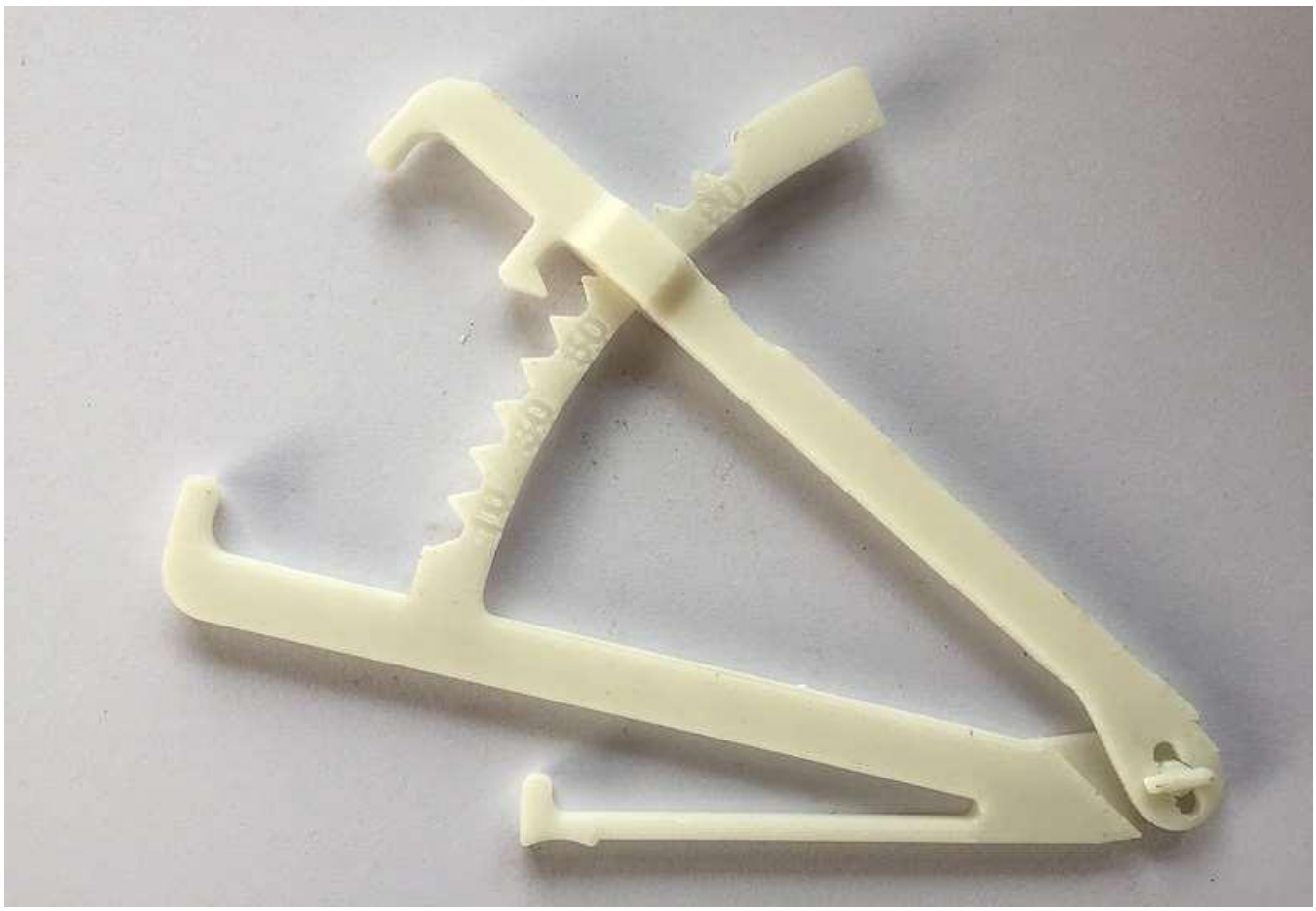
Location: Nepal

Material: ABS Plastic

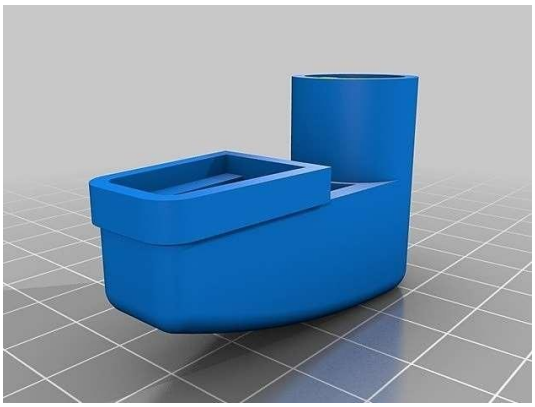
Description: To measure body fat

Readiness Levels		Risk
Field	4	5
Maker	3	
User	4	
Tech	3	

Download link: https://www.thingiverse.com/thing:2798985



Switch handle for Medical Device



Name: Switch handle for Medical Device

Part Number: HL023

Critical Tools: 3D Printer

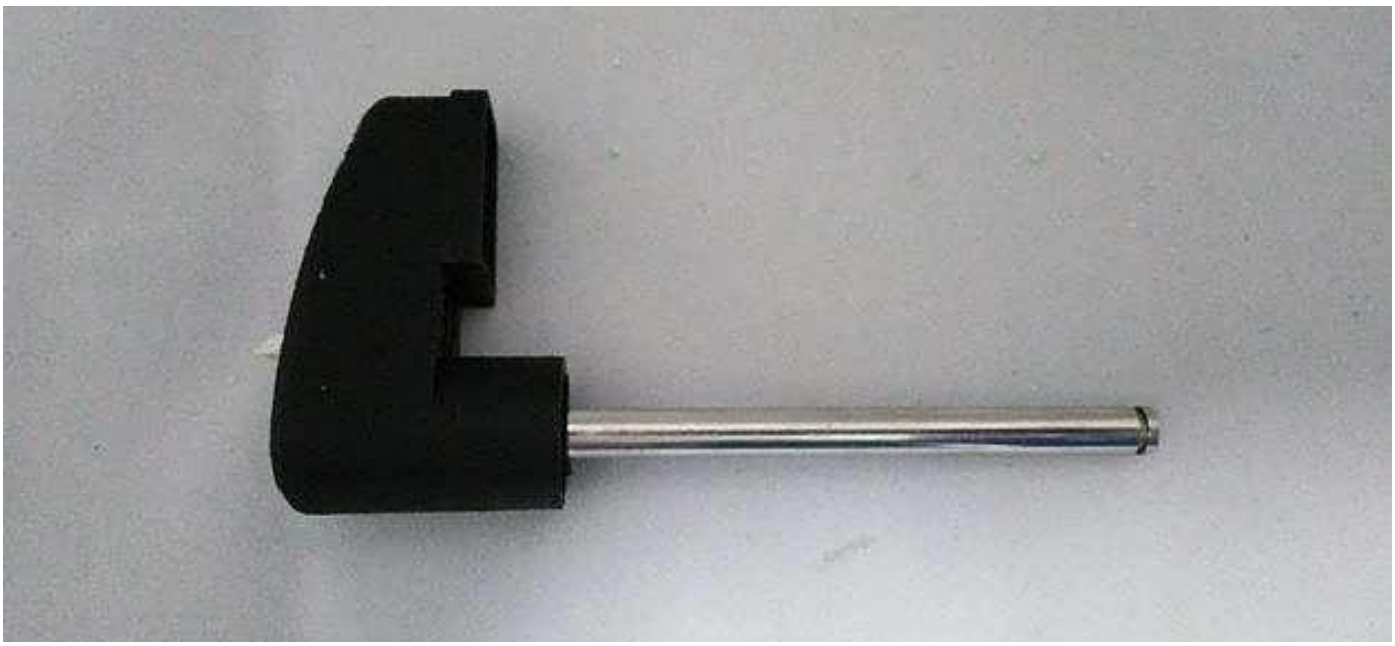
Location: Nepal

Material: ABS palstic

Description: Replacement plastic switch for medical device

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	

Download link: https://www.thingiverse.com/thing:1618845



¾” BSP to ½” BSP Adapter

Name: ¾” BSP to ½” BSP Adapter

Part Number: HL024

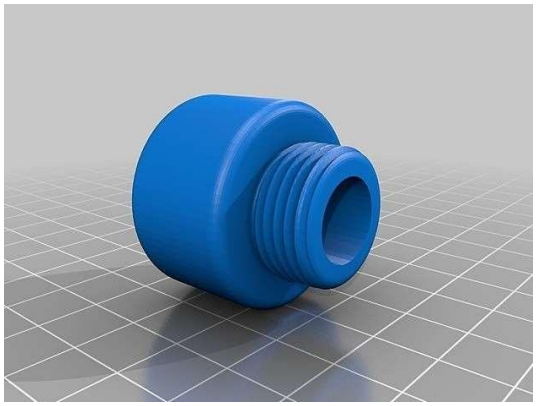
Critical Tools: 3D Printer

Location: UK

Material: ABS Plastic

Description: Threaded adapter connects ¾” & ½” BSP threads

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	5	

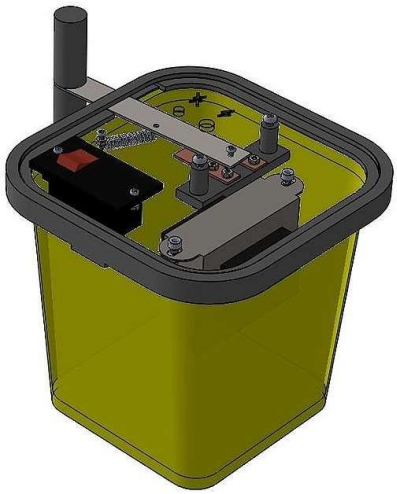


Download link: https://www.thingiverse.com/thing:1562813

Purpose: Designed to attach to the end of a standard hose, such that it an be adapted to different purposes.

Usage Notes: There is no sealing mechanism, so it with either need PTFE tape, liquid thread sealant (adhesive) or a rubber gasket. The 1/2" BSP thread is the same as is commonly used on shower heads, so this is useful for adapting those hoses for other uses.

Needle Destroyer



Name: Needle Destroyer

Part Number: HL025

Critical Tools: Electronics

Location: Nepal

Material: Electronics

Description: A device used to safely dispose of needles

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	

Fluid Warmer

Name: Fluid Warmer

Part Number: HL026

Critical Tools: Electroics kit & Arduino

Location: Nepal

Material: Arduino

Description: Ensures blood entering the body is at the correct temp to prevent hypothermia

Readiness Levels		Risk
Field	3	2
Maker	3	
User	3	
Tech	4	

Purpose: To receive a blood transfusion a blood warmer is needed to bring refrigerated blood up to the same temperature as the blood already in the veins to prevent hypothermia. Requested to be made by Annapurna Neurological Institute in Nepal.

Sharps Bottle Cap

Name: Sharps Bottle Cap

Part Number: HL027

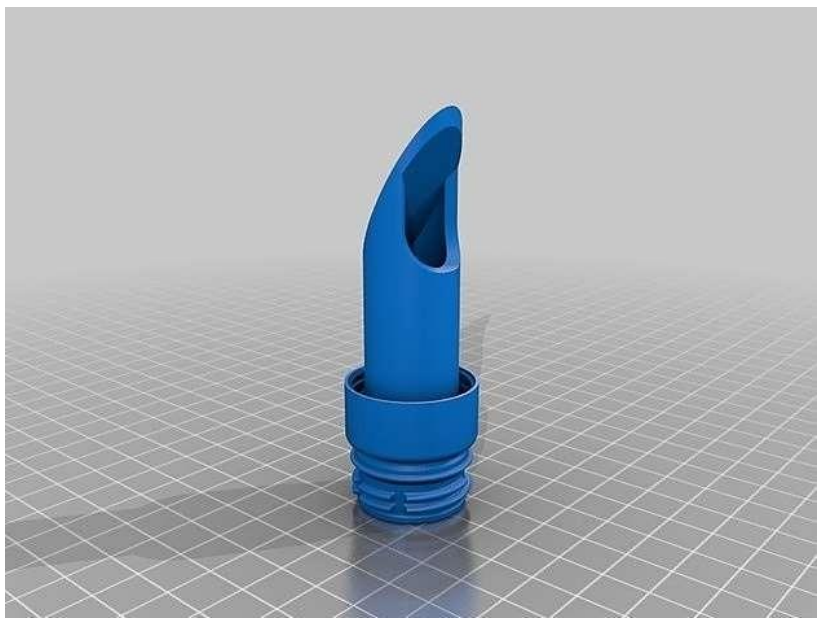
Critical Tools: 3D Printer

Location: Nepal

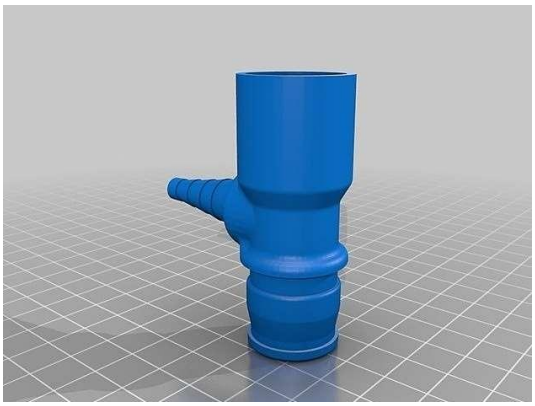
Material: ABS Plastic

Description: To dispose of sharp items

Readiness Levels		Risk
Field	4	3
Maker	3	
User	4	
Tech	4	



Nebuliser fitting (barb)



Name: Nebuliser fitting (barb)

Part Number: HL028

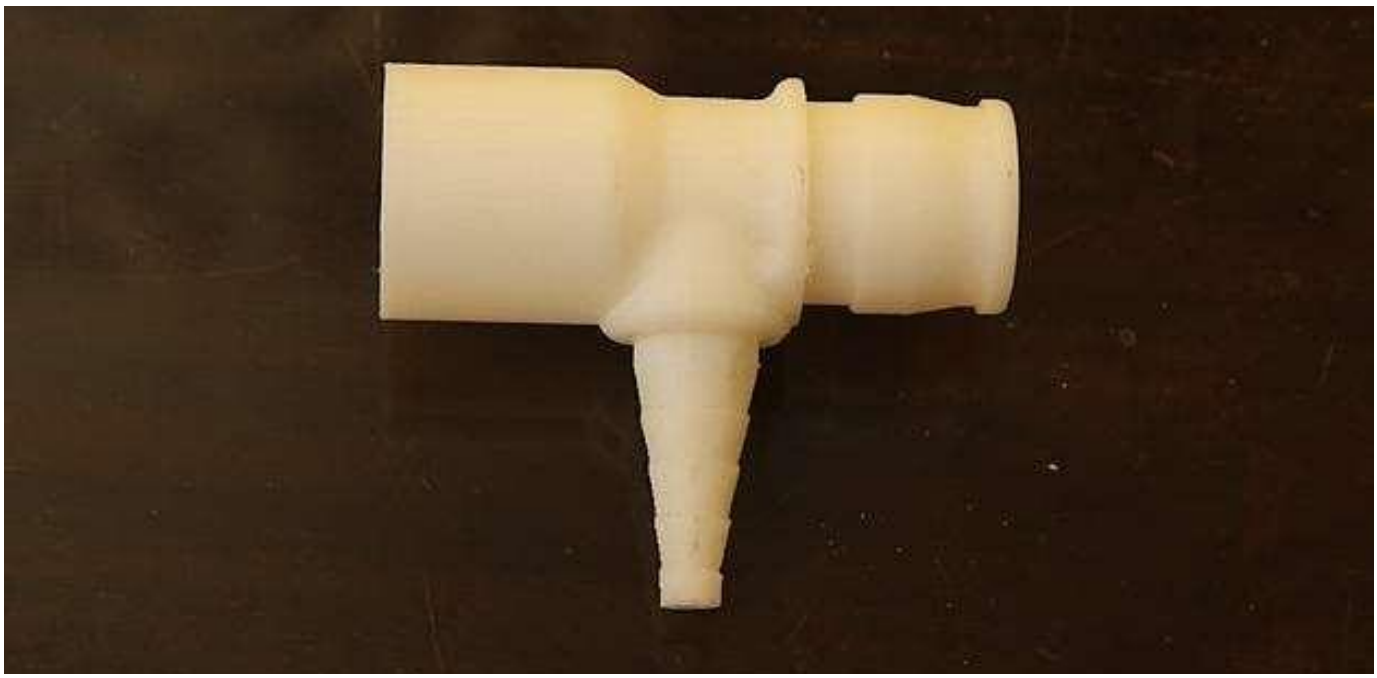
Critical Tools: 3D Printer

Location: Haiti

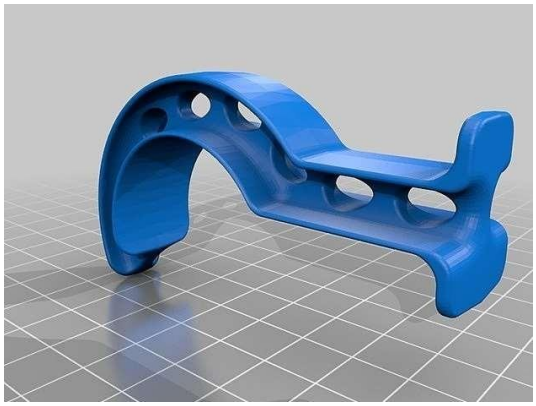
Material: ABS Plastic

Description: Allows other gases to be mixed into a nebuliser supply

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	
Tech	3	



OPA (Oropharyngeal Airway)



Name: OPA (Oropharyngeal Airway)

Part Number: HL029

Critical Tools: 3D Printer

Location: Haiti

Material: ABS Plastic

Description: This is a medical device used to maintain or open a patient's airway.

Readiness Levels		Risk
Field	4	2
Maker	3	
User	4	
Tech	3	

Otoscope

Name: Otoscope

Part Number: HL030

Critical Tools: 3D Printer

Location: Nepal

Material: ABS Plastic

Description: For examining the external canal and tympanic membrane of the ear

Readiness Levels		Risk
Field	4	4
Maker	4	
User	5	
Tech	5	

Height Beyond Measure App

Name: Height Beyond Measure App

Part Number: HL031

Critical Tools: Arduino

Location: Iraq

Material: Arduino

Description: A mobile phone application to measure the height of the child

Readiness Levels		Risk
Field	5	5
Maker	3	
User	5	
Tech	4	

Height Measure Board

Name: Height Measure Board

Part Number: HL032

Critical Tools: Jigsaw or laser cutter

Location: Bhutan & Fiji

Material: Plywood

Description: A wooden contruction to measure the height of the child

Readiness Levels		Risk
Field	4	5
Maker	4	
User	4	
Tech	5	

Autoclave

Name: Autoclave

Part Number: HL033

Critical Tools: Electronics kit

Location: Kenya

Material: Electronics

Description: Replacement of locally sourced heating element parts

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	

Centrifuge

Name: Centrifuge

Part Number: HL034

Critical Tools: 3D Printer

Location: Kenya

Material: ABS Plastic

Description: Replacement 3D printed centrifuge tube holders

Readiness Levels		Risk
Field	5	3
Maker	4	
User	5	
Tech	4	

Fetoscope (Electrical)

Name: Fetoscope (Electrical)

Part Number: HL035

Critical Tools: Electronics kit

Location: Kenya

Material: Electronics

Description: A device used to obtain information about a fetus within the uterus

Readiness Levels		Risk
Field	4	4
Maker	3	
User	4	
Tech	4	

Fetoscope (Wooden)

Name: Fetoscope (Wooden)

Part Number: HL036

Critical Tools: Wood lathe

Location: Kenya

Material: Timber

Description: A device used to obtain information about a fetus within the uterus

Readiness Levels		Risk
Field	5	4
Maker	4	
User	4	

Kidney Tray (Vac Form)

Name: Kidney Tray (Vac Form)

Part Number: HL037

Critical Tools: Vacuum former

Location: Kenya

Material: ABS plastic sheet

Description: For medical wards to receive soiled dressings and other medical waste

Readiness Levels		Risk
Field	5	3
Maker	4	
User	4	
Tech	5	

Prosthetic hand

Name: Prosthetic hand

Part Number: HL038

Critical Tools: 3D Printer

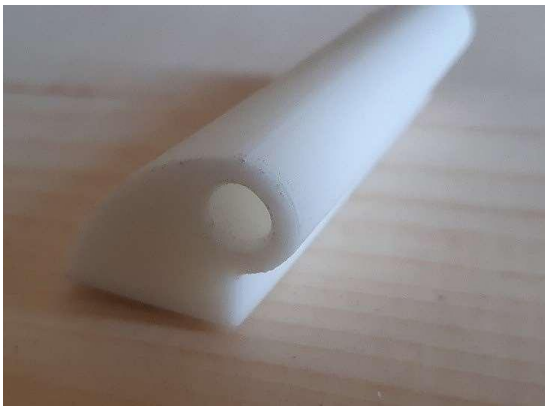
Location: USA

Material: ABS Plastic

Description: 3D printed prosthetic hand that did not require any fasteners or tools to assemble

Readiness Levels		Risk
Field	4	4
Maker	3	
User	3	
Tech	3	

Incubator Door Hinge



Name: Incubator Door Hinge

Part Number: HL039

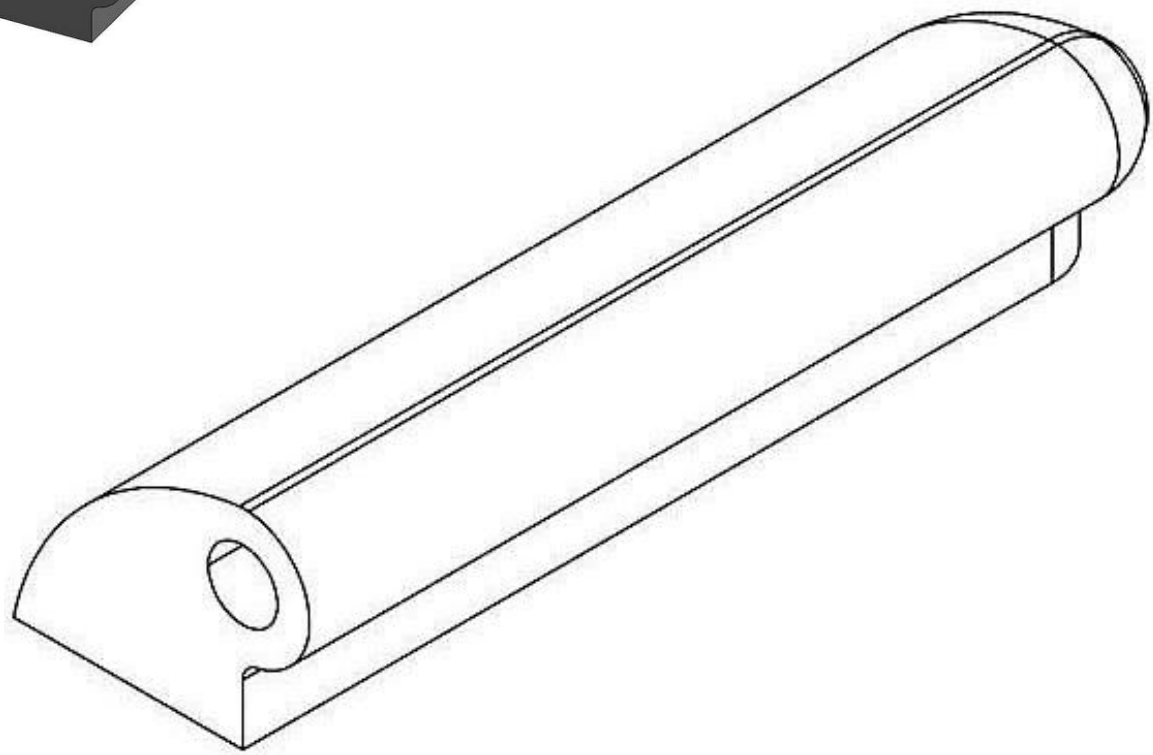
Critical Tools: 3D Printer

Location: Iraq

Material: ABS Plastic

Description: Used to fix the door

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	



Incubator Door Lock (Small)

Name: Incubator Door Lock (Small)

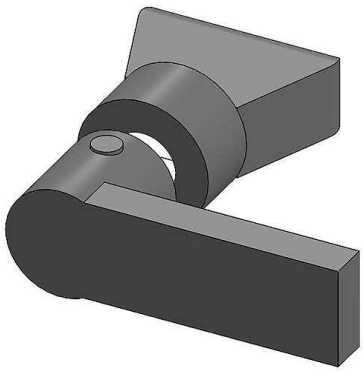
Part Number: HL040

Critical Tools: 3D Printer

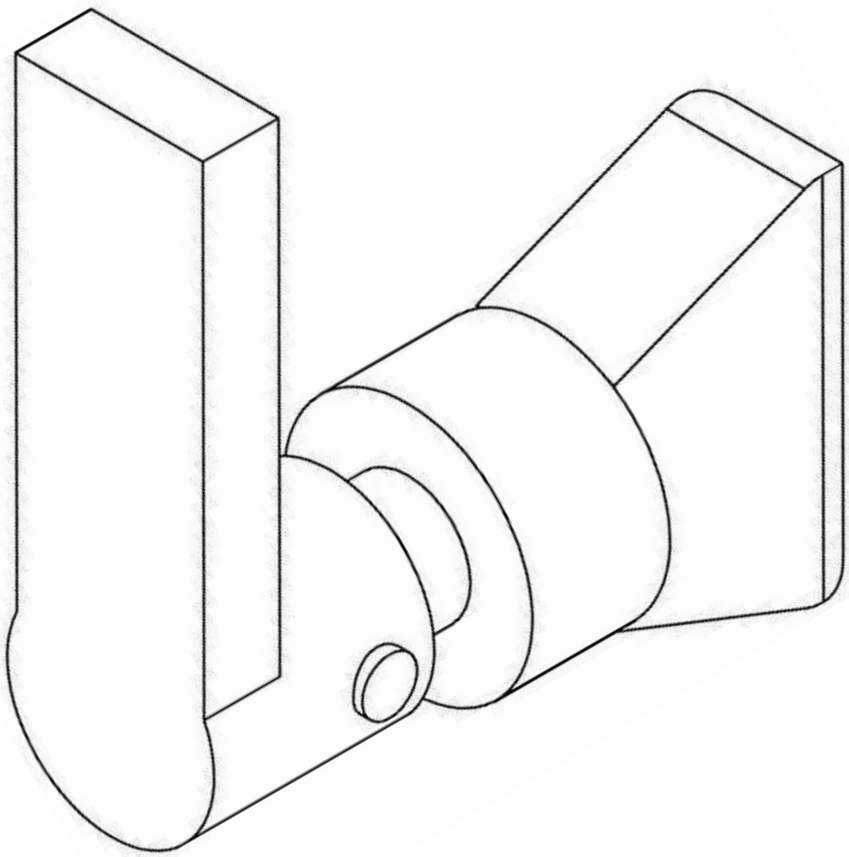
Location: Iraq

Material: ABS Plastic

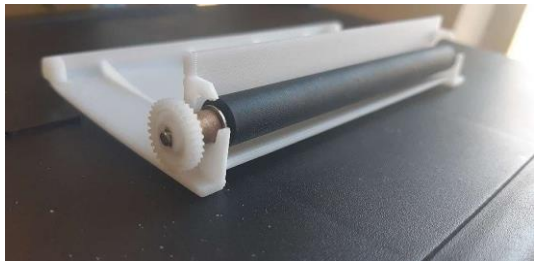
Description: Used to lock the door



Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	



Incubator Gear Mechanism



Name: Incubator Gear Mechanism

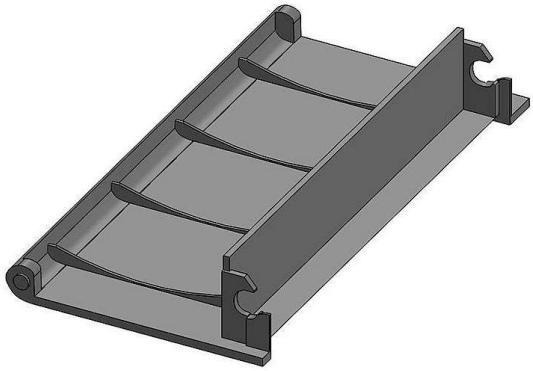
Part Number: HL041

Critical Tools: 3D Printer

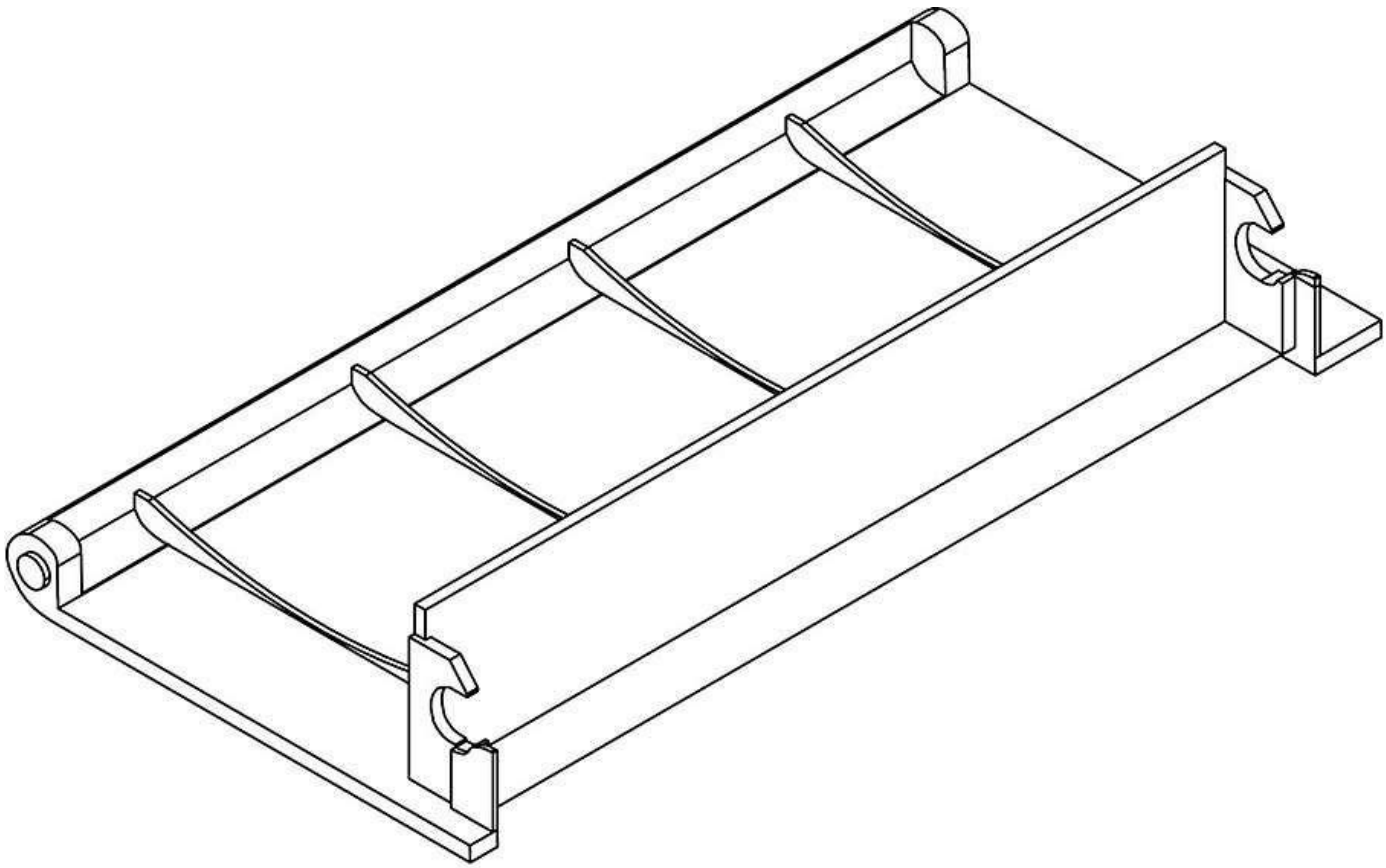
Location: Iraq

Material: ABS Plastic

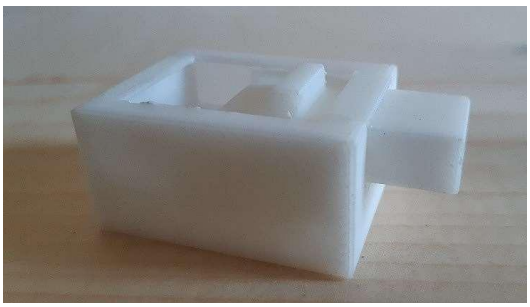
Description: Used to make the paper of ECG device fit inside the ECG



Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	



Incubator Door Lock (Large)



Name: Incubator Door Lock (Large)

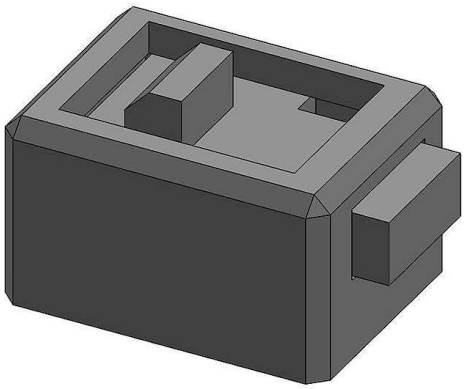
Part Number: HL042

Critical Tools: 3D Printer

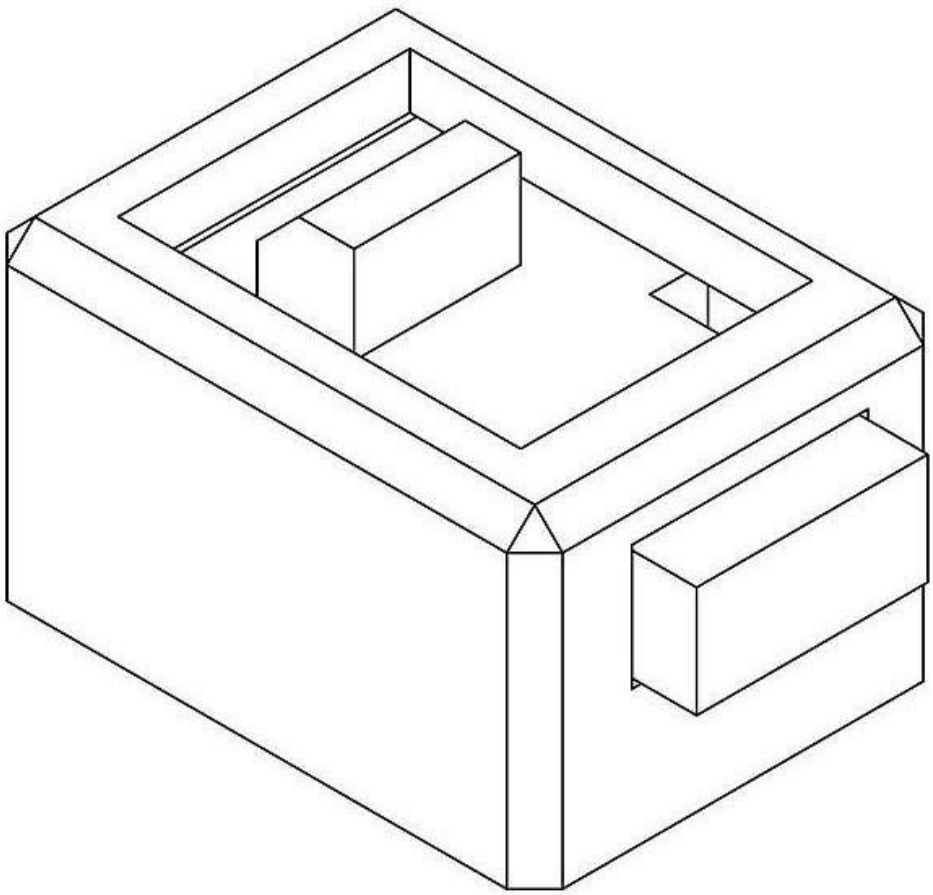
Location: Iraq

Material: ABS Plastic

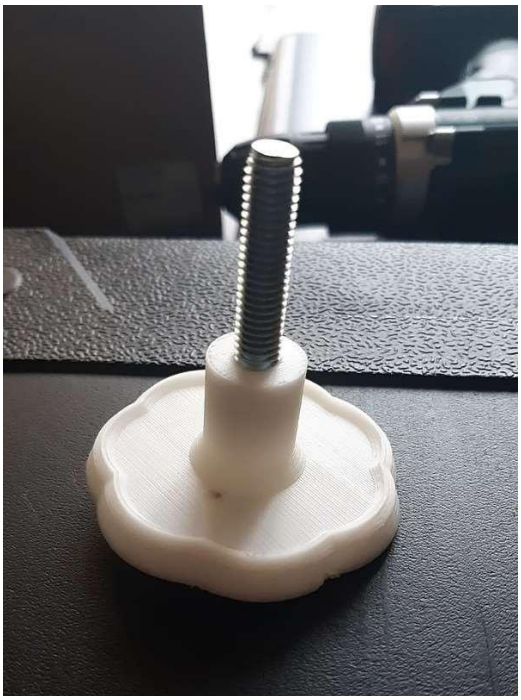
Description: Used to lock the door



Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	



Incubator Screw Handle



Name: Incubator Screw Handle

Part Number: HL043

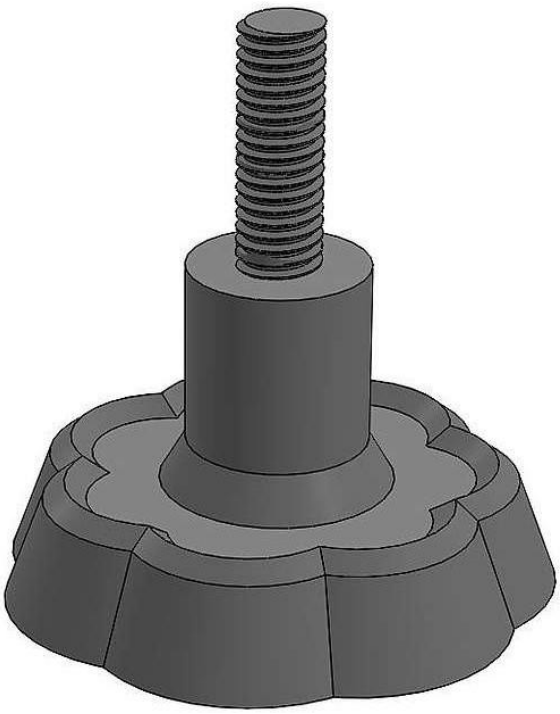
Critical Tools: 3D Printer

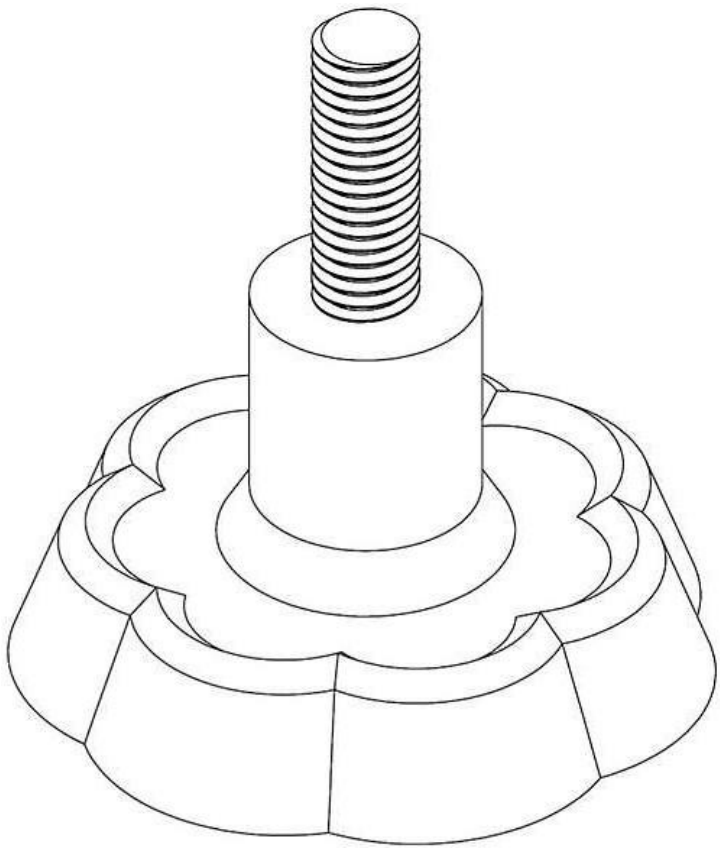
Location: Iraq

Material: ABS Plastic

Description: Used to lock the bar of the Injury shoulder recovery Tools

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	





Incubator Door Holder (Small)

Name: Incubator Door Holder (Small)

Part Number: HL044

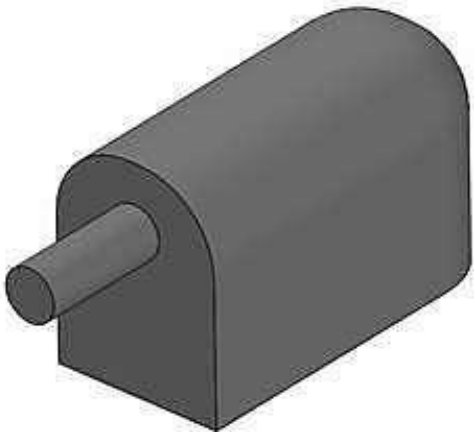
Critical Tools: 3D Printer

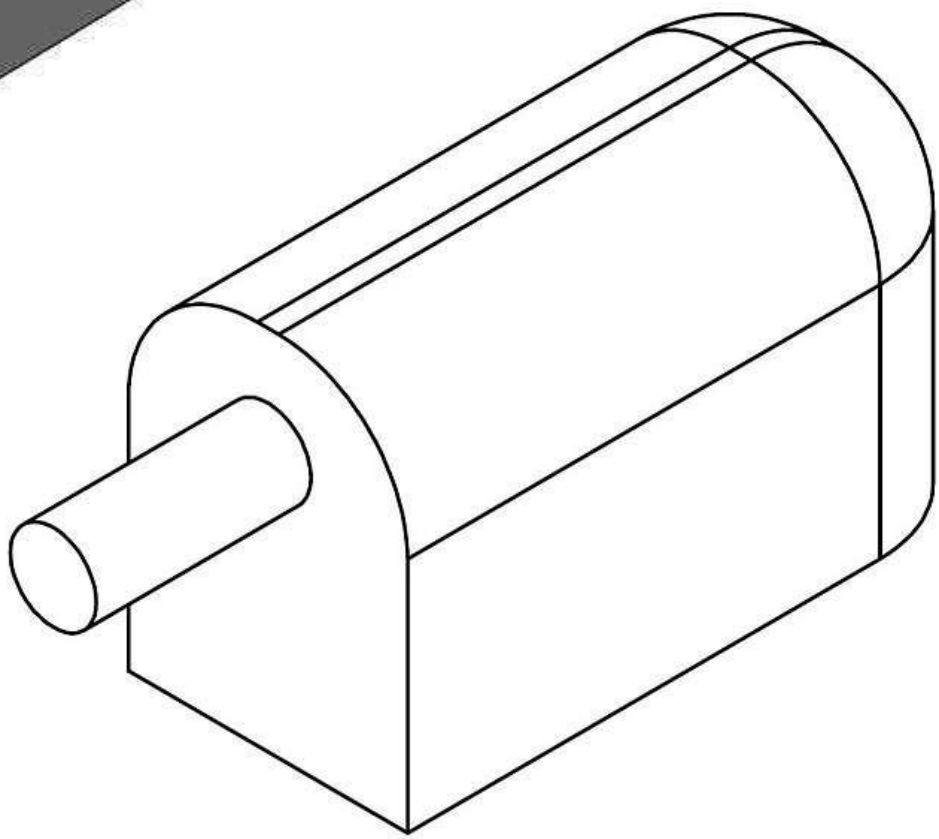
Location: Iraq

Material: ABS Plastic

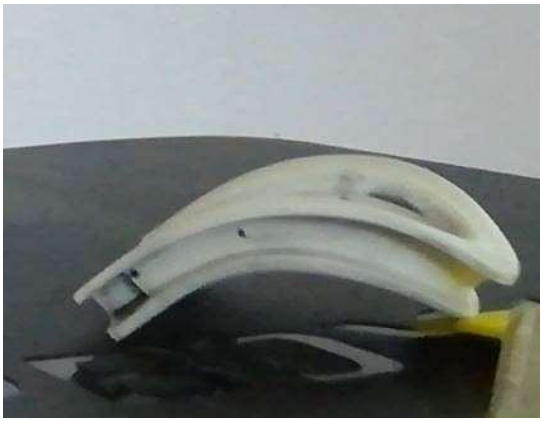
Description: Used to fix the new baby incubator door

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	





Incubator Side Seal



Name: Incubator Side Seal

Part Number: HL045

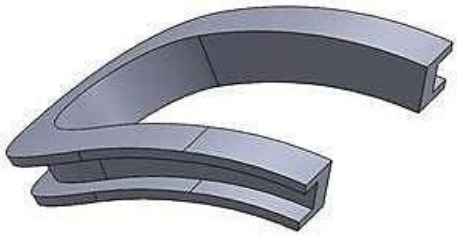
Critical Tools: 3D Printer

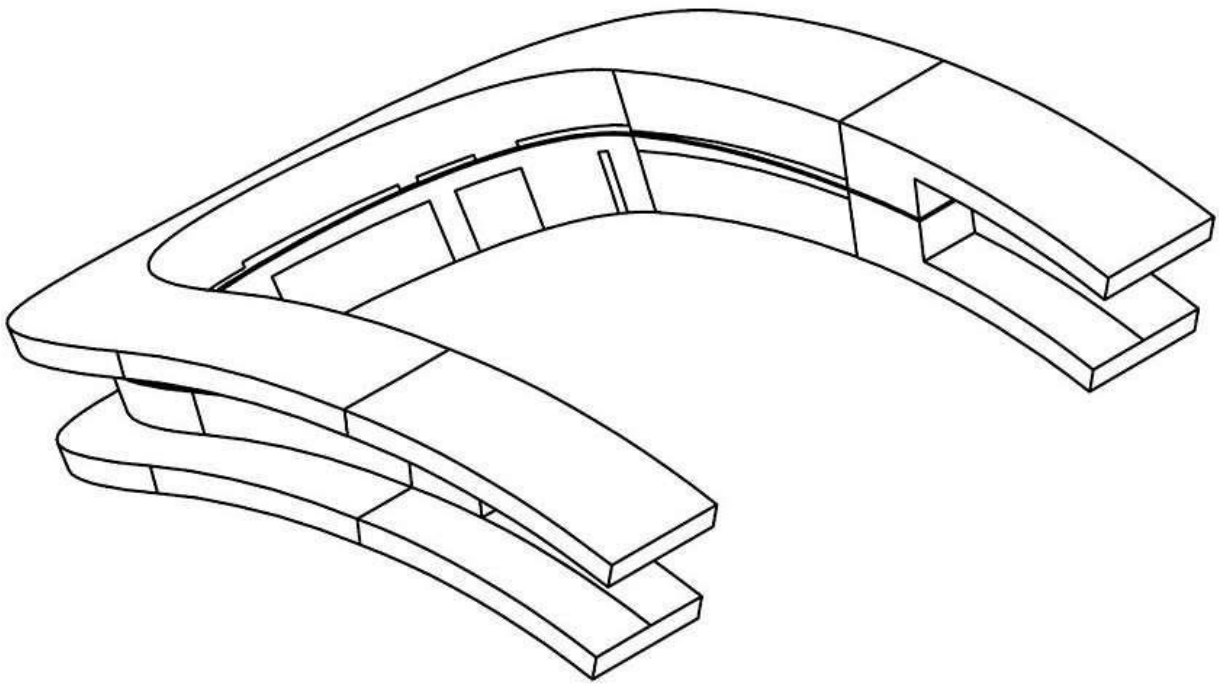
Location: Iraq

Material: ABS Plastic

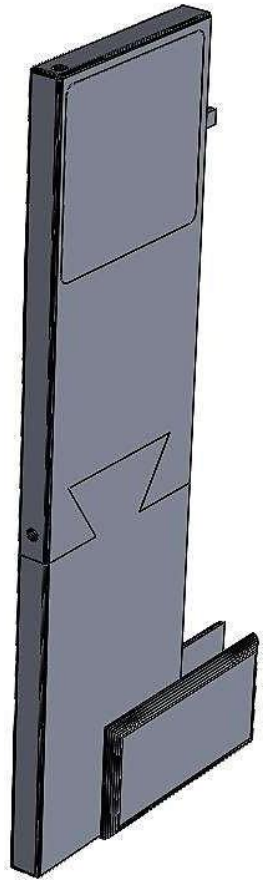
Description: Used to create a seal around the pipes that enter inside the chamber

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	4	





X-Ray Cassette Adaptor



Name: X-Ray Cassette Adaptor

Part Number: HL046

Critical Tools: 3D Printer

Location: Syria

Material: ABS Plastic

Description: In Syria only one size of Fujifilm CR cassette (Type CC) are available (15×30cm). This adapter extends the size of X-rays that are possible.

Readiness Levels		Risk
Field	5	4
Maker	3	
User	5	
Tech	4	

Child Protection

Upcycled Toys

Name: Upcycled Toys

Part Number: CP001

Critical Tools: Hand tools

Location: Jordan

Material: Recycled materials such as plastic bottles

Description: Provides adolescents in under resourced settings locally made educational toys

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	

Download link: http://www.arvindguptatoys.com

Purpose: To provide adolescents in under resourced settings educational toys they can make locally. We can make a numerous toys. It is only limited by creativity but some examples include: cars, bowling, doll-houses, stilts, “walkie talkie” and many more.

Baby Crib

Name: Baby Crib

Part Number: CP002

Critical Tools: Saw & drill

Location: Colombia

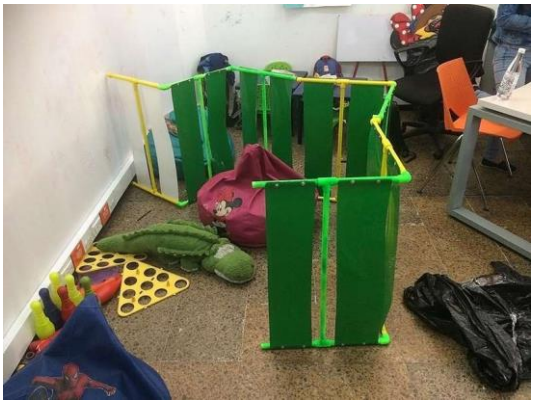
Material: PVC pipe, PVC sheet, mesh & foam

Description: Provides a safe area for a baby to sleep

Readiness Levels	
Field	5
Maker	4
User	5
Tech	4

Risk
3

Play Pen



Name: Play Pen

Part Number: CP003

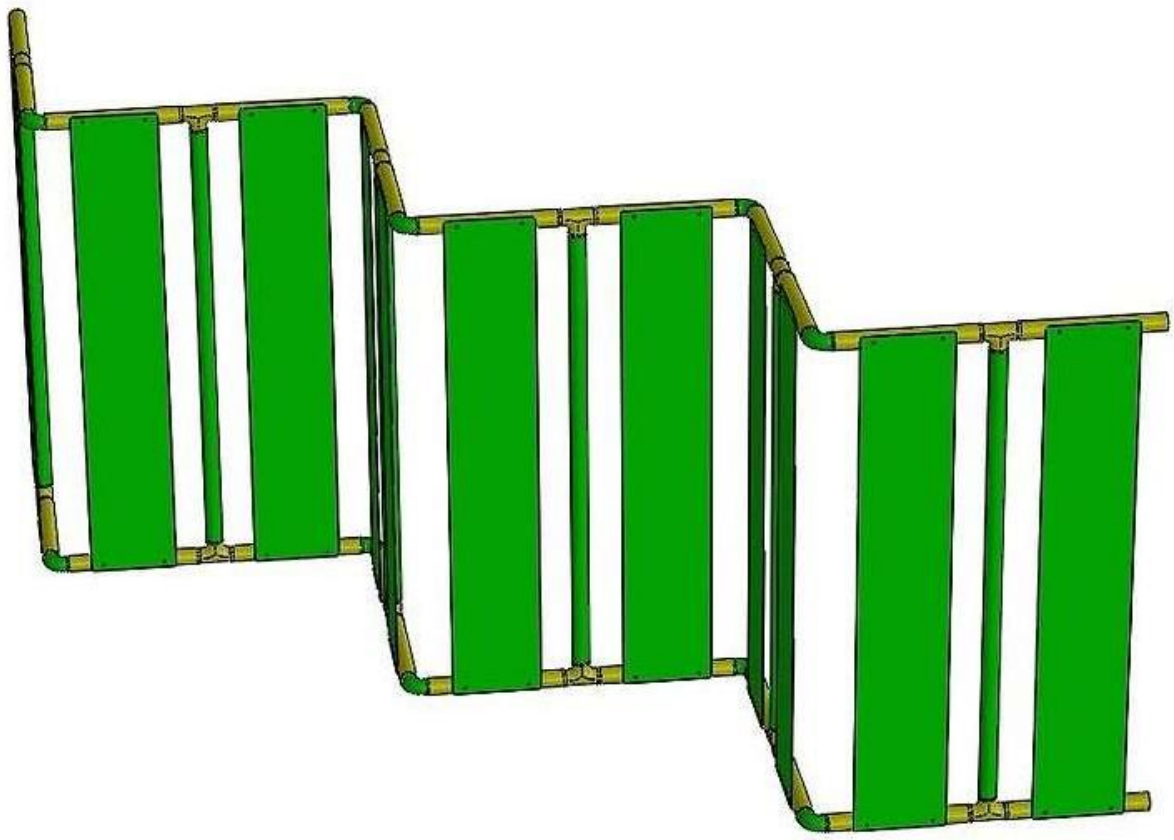
Critical Tools: Saw & drill

Location: Colombia

Material: PVC pipe & PVC sheet

Description: Provides a safe area for a child to play

Readiness Levels		Risk
Field	5	4
Maker	4	
User	5	
Tech	5	



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