Rules

The Kenya Tech Challenge 2025: Drop and Dash

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Important Note About the Rules

Clarifications and additions to the rules may be made. When changes occur, registered teams will be alerted by email. See the website for more information: https://www.thetech.org/kenya

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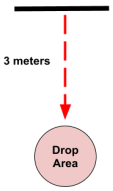
Scenario

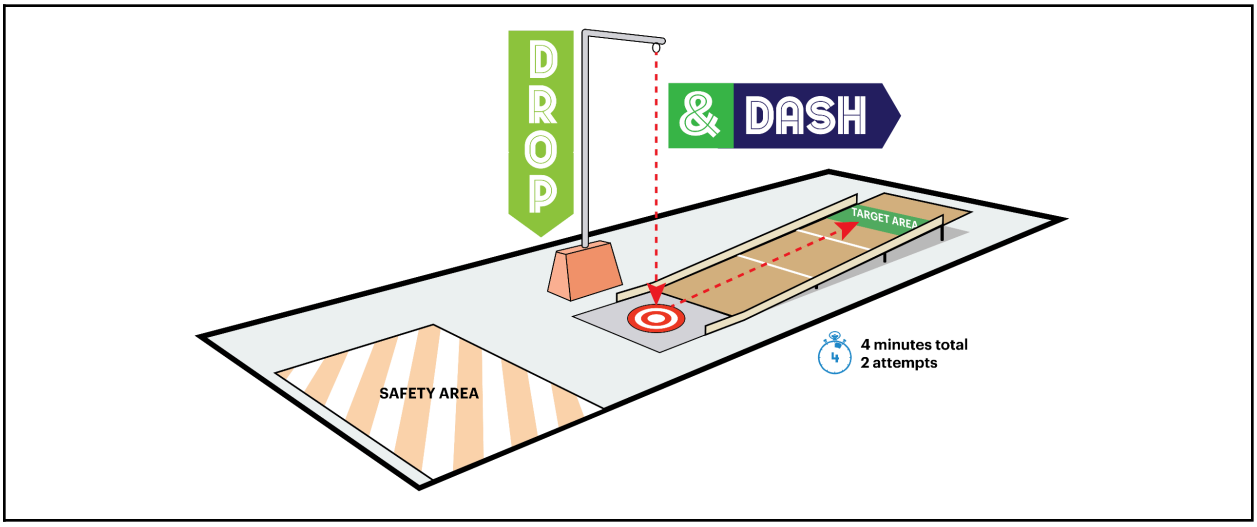
The Turkana County is experiencing a severe drought and people are struggling to find food and water. Emergency supplies like medicine, sacks of maize flour and bottles of clean water are dropped by planes and drones in open fields. But they do not reach people in remote parts of the county. How can the supplies get to the people who need them? In this year's challenge, teams will design a device that delivers something to a target area after it is dropped.

The Challenge

Design and build a device that can survive a drop and deliver supplies.
No batteries allowed!

The challenge has two parts:

Part 1	Drop device from 3 meters and land in the drop area.	
Part 2	Once landed, the device must deliver a 1 shilling coin onto a target located on an inclined surface.	



- Two attempts are allowed to achieve the Challenge within the four-minute performance period. Each attempt is made up of two parts.

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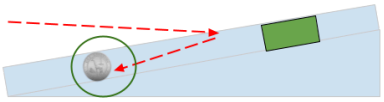
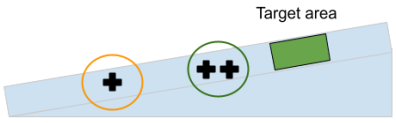
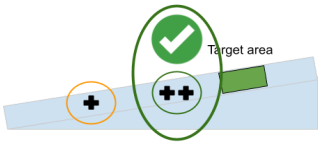
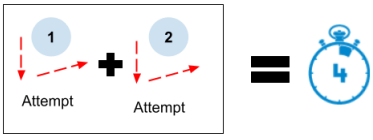
Success Criteria

Goal: Deliver the 1 shilling coin to the “target area”.

During the device performance, you are successful if:

Part 1	Some part of the device lands in the drop area	
	Shilling coin lands in the drop area	
Part 2	Shilling coin delivered to the target area on the ramp.	
	Final location where the shilling stops will determine the score. • Even if the coin moves backwards.	
	• Marks will be higher closer to the “target” area.	
	• The best of the two attempts will be marked as a final score.	
Timing	Teams will have a total of four minutes to complete the challenge.	
	They are allowed two attempts during those four minutes.	

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Important Dates

Registration Deadlines

January 24th, 2025	Announcement of The Tech Challenge Kenya: Teams may start the initial registration process
April 15th, 2025 - May 15th, 2025	Registration for Final Submission
May 15th, 2025	Deadline for Final Submission

To register for The Tech Challenge go to the website www.thetech.org/kenya

Dates for The Tech Challenge Showcase 2025 Kenya

Teams can include 2-6 students

Division	**Kisumu**	**Nakuru**
Division 1: 4th-6th grade	Saturday July 5th 2025	Saturday 12th July, 2025
Division 2: 7th-9th grade	Saturday July 5th 2025	Saturday 12th July, 2025
Division 3: Form 2-Form 4	Sunday July 6th 2025	Sunday 13th July, 2025

On the day of the Showcase, teams will be judged in three areas:

The Engineering **Journal**	The Engineering Process **Interview**	The Device **Performance**

Awards for each Division may include:

- Outstanding Overall
- Judges Choice Award (A team and design that inspired the judges)
- Outstanding Journal
- Outstanding Device Performance
- Outstanding Design Process

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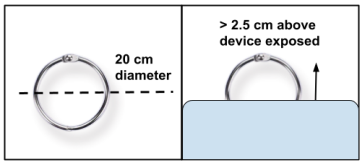
Device Rules

1. Each team is only allowed one device.
    a. Teams may not share their device or any portion of their device with other teams.
2. Devices may be composed of multiple parts that must be dropped all together.
3. Devices should include:

A 1 shilling coin (make sure it is visible)	1 way to hang the device at the top. • Use a ring to hang the device.	The team number (make sure it is clearly marked)
		

    a. The shilling coin must be plainly visible when the device stops without disassembling the device.
    b. The ring must be attached to the top of the device, so that it drops with it.
    c. The ring will hang from the drop tower. The ring should be small enough to fit into a slot about the width of a soda bottle cap (0.6 cm wide).
    d. At least 2.5 cm of the ring must be exposed above the device to allow it to hang and drop from the latch on the Test Rig.
4. Devices must meet these requirements:

	Maximum Weight Rule	No more than 1.5 kg
>	Maximum Size Rule	• No more than 60 cm wide • No more than 60 cm long • No more than 60 cm tall

5. Devices should **NOT** include:

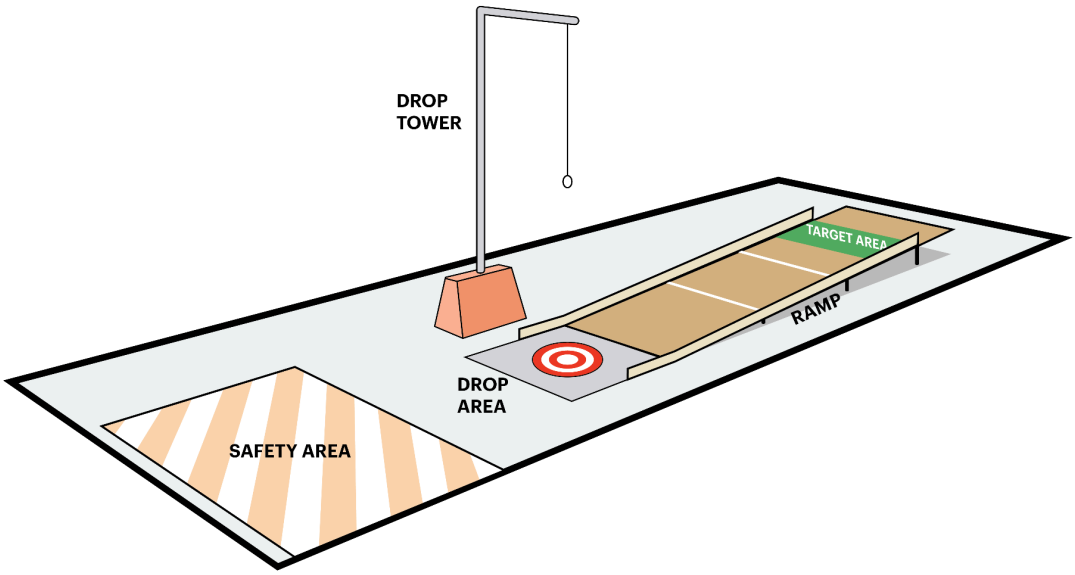
No batteries (electrical storage devices) may be used to move the device and/or deliver the shilling coin to the target area. 	**No sharp edges** are allowed (device cannot damage th Rig) 

Test Rig Details

Test Rig Includes:

A. Safety area (1.8 m x 2.4 m)	**B.** Drop tower to release device (3 meters high)	**C.** Drop area (60 cm diameter)	**D.** Ramp (2.4 m x 1.2 m ramp) (begins 0.9 m from the center of the drop area)

Figure 2: Diagram of the Test Rig



Specifications for the Test Rig

Drop tower and drop area

1. The top of the device will be dropped from a height of 3 meters.
2. Your device will be attached to a latch that is perpendicular to the ramp direction.
3. The latch is centered over a 60 cm diameter drop area.
4. The ramp direction is shown in the diagram on the previous page.

Target Area

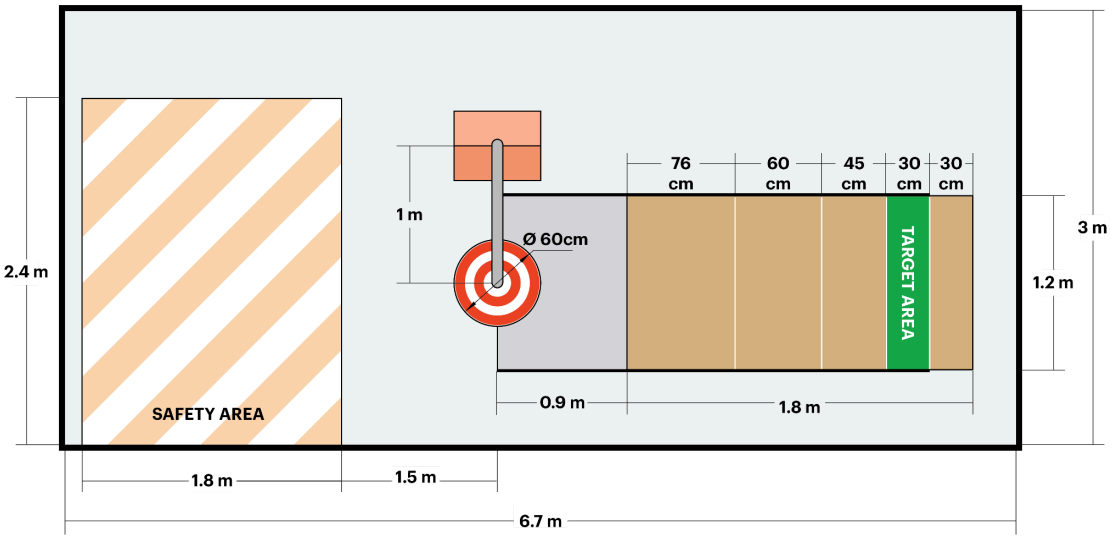
1. The target area is a 2.4 m x 1.2 m ramp.
    a. It begins 0.9 m from the center of the drop area.

2. The height of the end of the ramp:

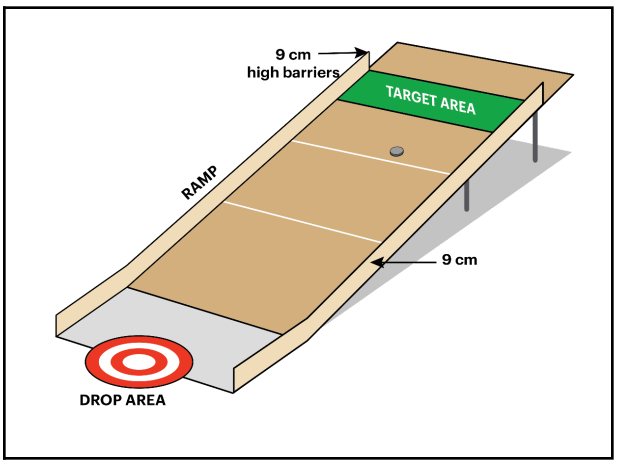
15 cm (Grades 4-9)	30 cm (Form 2-4)

3. There will be 5 areas clearly marked on the ramp. *(see diagram below)*
    a. The Target area is a green 30 cm x 1.2 m area starting 1.8 m up the ramp.

Figure 3: Aerial diagram of the Test Rig



4. To keep the device and coin from falling off the edges, there are 9 cm high barriers along both sides of the ramp.
    a. They lead from the drop area to the end of the ramp.
    b. There will not be a barrier at the end of the ramp.



Safety Area:

1. The safety area is 1.8 m x 2.4 m.
2. All participants must be in the safety area during device drops.

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How to test your device

Set up and Device Performance includes the following steps :

Step 1 →	**Step 2** →	**Step 3** →	**Step 4** →	**Step 5** →	**Step 6**
Set-up and attach device	Move to safety area	Device Dropped	Judge marks final location of shilling coin	Go ahead and set up for second attempt	Team sets up and repeats steps 1-4
Teams will have 4 minutes total for all of these steps					

Step 1: Set-up and attach device

- After being greeted by the judges, participants will set-up their device and hand it to the judge
- **TIMER STARTS NOW:** The judges will start the four minute timer when the device is handed over.
- The judge will attach the ring to the drop tower.

Step 2: Move to safety area

- Team participants must move to the identified safety area and remain there until after device performance.

Step 3: Device dropped

- A judge will release the device.
- After the device has been released, the team cannot touch or control the device until the judges say that they can.

Step 4: Judge marks the score

- The judge will mark the final location where the shilling coin has stopped.

Step 5: Go ahead and set up for second attempt

- After the marking the judge will announce that they can set up for their second attempt.

Step 6: Team sets up and repeats steps 1-4

- The team will collect their device, repeat setup and drop, within the four-minute performance period.
- Additional time will not be allowed.

The score will be determined as the best of two attempts.

Safety

Teams will be judged on safe design and implementation.
Safety is the top priority during all phases of The Tech Challenge.

Remember:

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1. Judges have full authority to stop any activity they view as unsafe. The judges' word is final.
2. Each team will identify a team safety officer who will ensure safety from design through implementation.
3. Eye protection will be provided at The Tech Challenge for each participant. The eye protection must be worn at all times when in the designated areas around test rigs or when constructing/testing their device.
4. Closed-toe shoes are highly recommended.
5. No animals.
6. Teams may not use flammable liquids or flammable gases.
7. Teams may not use pressurized gases greater than 34.475 kilopascals. Any team using pressurized gas must be able to demonstrate to the judges, by using a gauge, that the pressure does not exceed 34.475 kilopascals.
8. No pressurized tanks/cylinders are allowed.
9. The use of AC power and batteries are not permitted.
10. Teams must be able to transport their device safely without the assistance of others outside the team, including parents, advisers, siblings, friends, etc.
11. Team members must remain on the ground at all times. They may not sit, stand, climb on or go under rigs, or be lifted by other team members during the setup and performance periods. No ladders, step stools or other lifting equipment will be allowed.

Engineering Journal

As part of the challenge, teams will record their process and submit an engineering journal that will be reviewed by the judges.

1. On event day, each team must submit one engineering journal.
2. The journal must be an organized and detailed notebook or binder.
3. Journals may be typed or handwritten. Legibility and organization are important.
4. Teams should start the journal when they first start thinking about and working on the Challenge. During every meeting with the team, keep an organized record of all activities. Update it regularly.
5. Include notes on how your solution could be used in real-life and real-world factors that would affect your design.
6. The engineering journal is a record of the design process. It should show how the team works together to research, brainstorm, build, test, document, revise and repeat (iterate).

   Journals might include:

What teams are working on that day	*Brainstorms and ideas*	*Research and examples for inspiration*
What they learned	*Labeled sketches and drawings of prototypes*	*Test results, detailed measurements and data*
What they want to try next	*Problems and how they fixed them*	*Iterations, notes, and analysis*

For more information on the Engineering Journal go to the website.

Interview

1. Two judges will interview each team.
2. The adviser will not be allowed to participate in the interview.
3. Judges will ask questions about your design and the process you used to create it.
4. Be prepared to talk about:
   a. Your brainstorming.
   b. Source of your idea and creativity.
   c. Your design thinking and engineering process.
   d. How you worked as a team.
   e. How you tested your solution.
   f. How your design would work in the real world (Spirit of the Challenge)

Adviser

1. A team can include 2 to 6 students.
2. All teams *must* have an adult adviser. Team solutions must be designed, built and tested by team members, **not the adviser.**
3. The adviser role is to guide, facilitate and mentor.
4. The adviser cannot be a Tech Challenge judge.
5. An adviser may work with two teams. However, it is important that advisers ensure each team receives the necessary level of attention.

For more information, see the Adviser Guide on the website.

A message from the judges

We are looking for teams that model outstanding creativity, critical thinking, communication, and teamwork. The Tech Challenge is about challenging yourself. Show us what you can do!

- Focus on the process: Work together, test lots of ideas, and keep trying when the going gets tough. Failures are a normal part of the process. Be ready to tell us about your journey, even the times when you felt like quitting.
- We value original thinking and encourage you to pursue surprising solutions that are better than anything we might imagine. However, simple solutions are often the best.
- We admire every team that takes on the challenge. Your solution does not need to be perfect to be amazing.
- We want teams to demonstrate cooperation, collaboration, communication, and planning. All team members should participate during the performance and interview. It is up to your team to show teamwork to the judges.

Spirit of the Challenge

The Tech Challenge emphasizes the importance of engineering solutions that would be practical in real life. Test rigs involve small-scale representations of real-world conditions. Judges may ask questions like, “How would your design work in real life?”

They will also look at a team’s engineering journal to see if they have an understanding of real-world factors or notes on how their solution could be used in real-life.

FAQ (Frequently Asked Questions)

- **Can we buy materials from the store to use in our device?**
  - Although you may buy materials from the store, we encourage the use of recyclable materials and the use of resources in your communities and surrounding areas. See **www.thetech.org/kenya** for Kenya guides and more ideas of what to use. Try not to buy a pre-made kit, instead use your creativity to use a variety of materials.
- **Can we research ideas online or in books?**
  - Yes! Research existing ideas for reference and inspiration. Write down the information you find and where you found it in your engineering journal.
- **Can we dress up as a team?**
  - Yes! Show your team spirit and collaborate on costumes or matching clothes.
- **Will the judge keep our engineering journal?**
  - No, the judges will look at your journal but they will not keep it, you can take it home after the showcase.
- **What happens if we don't follow the rules and criteria of the challenge?**
  - We prefer that you keep to the regulations. Marks will be taken off for not following the rules.
- **Can I invite my family and friends to the Tech Challenge Showcase?**
  - YES! Of course you can! Your family, friends, and others are invited to the showcase! The device performance and interview sections are restricted to teams and volunteers of the Tech Challenge. However, the audience can watch everything on screens and see the team receive their medals and awards.
- **Can we write a story relating to our scenario?**
  - Yes, you can write a story telling how and why your device is needed (spirit of the challenge)

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