Asian Try Zero-G 2025　Proposal Form (Sample)（Attachment-4）

ID (for office use only)

1. Applicant Information

Experiment Title		
Personal information/ (Team Leader)	**Name**	Hanako Tsukuba
	Nationality	Japan
	Age	14
	Gender (M/F/X)	F
	School	Southern Ibaraki Junior High School
	Major (if applicable)	N/A
	E-mail	xxxxxxxx@xxxxx

Member List (if you apply with a group)

Personal information	**Name**	Jiro Ibaraki
	Nationality	Japan
	Age	14
	Gender (M/F/X)	M
	School	Southern Ibaraki Junior High School
	Major (if applicable)	N/A
	E-mail	xxxxxxxx@xxxxx
Personal information	**Name**	Sakura Ibaraki
	Nationality	Japan
	Age	12
	Gender (M/F/X)	F
	School	Southern Ibaraki Junior High School
	Major (if applicable)	N/A
	E-mail	xxxxxxxx@xxxxx
Personal information	**Name**	
	Nationality	
	Age	
	Gender (M/F/X)	
	School	
	Major (if applicable)	
	E-mail	

If you have more members, please add the list on the next page.

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Photo

Please attach your/group photo if you wish to participate in the photo session. The image/picture will be open to the public and broadcast.	

☒ I agree to the Terms and Conditions indicated in the Asian Try Zero-G 2025 Entry Guideline

☒ I am not from the EU and do not live in the EU,

☐ I reside or am from the EU and agree to GDPR in Entry Guideline (check if applicable)

*Check is needed to send proposal, if applicable.

2. Abstract (200 words)

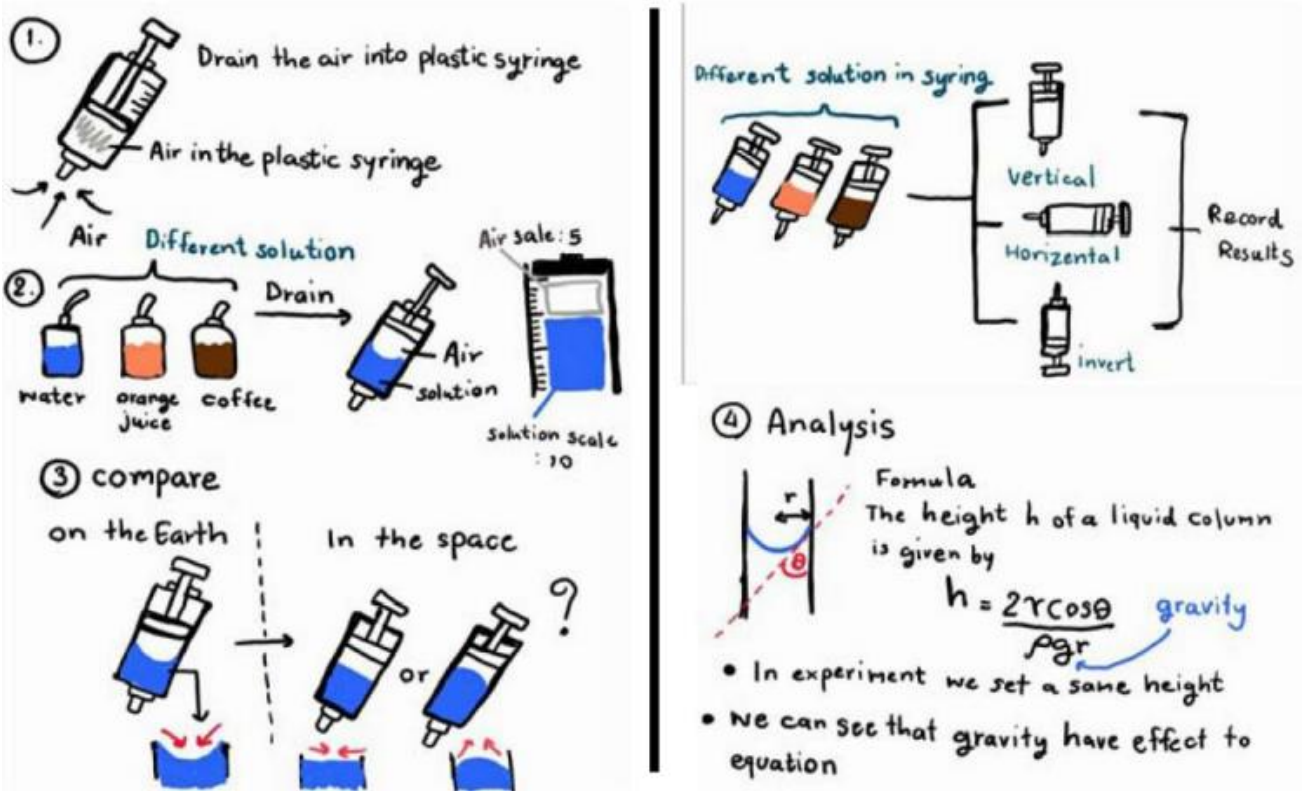
The purpose of this experiment is to analyze the difference in capillary action between the microgravity condition on the ISS and the normal gravity condition on the ground. Since water in a tube has surface tension with surface adhesion force and cohesion force, we can see in daily life that the water surface is concave down. It's called capillary action. And gravity is said to be one of the variables that can affect capital action. Therefore, in this experiment, we will fill a small plastic syringe-like tube with water, observe the water surface in a microgravity condition, and compare it with the experiment on the ground to investigate how the gravity affects the capillary phenomenon. As a result of this experiment, we expect the water surface to be parallel or convex rather than concave in a microgravity environment because the effect of gravity is less pronounced.

3. Hypothesis and Theory

- Hypothesis

Surface tension is the force which makes fluid surface acquired the least area possible. Its direction is parallel with fluid surface and perpendicular with the edge of surface is act by force in any direction. In molecules at the surface is act by force in only under direction. So, that made fluid have surface force act into center. We can see it normally in daily life when we drain water into tube. Then, water surface is concave down because water in tube have surface tension with surface adhesion force and cohesion force. It's call capillary action. And gravity is also one of variable that can affect to capitally action. So, I think that if we drain water into a small tube such as plastic syringe and then observe it in zero gravity condition how difference of surface by compare with a syringe in normal gravity condition.

- Schematic Model



- Mathematical and Theoretical Hypothesis (If applicable)

The height of liquid column is given by

$$h = 2\gamma\cos\theta / r\rho g$$

we can apply this equation to find θ

γ is the liquid-air surface tension (energy/area)

θ is the contact angle

ρ is the density of liquid (mass/volume)

g is acceleration due to gravity (length/time^2)

r is radius of tube (length)

4. Verification Methods and Procedures

- Overview of the Verification Methods

Compare and analysis syringe in zero gravity condition and compare contact angle(θ) from equation with contact angle from experiment.

- Show step by step procedures and expected time.

No	Procedure	Time*(minutes)
1	Drain air into three syringes to 5 ml scale	1

2	Drain water or other liquids into syringes to 10 ml scale	3
3	Observe them and take photos and videos	6
4	Measure contact angle and compare with syringe in normal condition (activity on ground)	
5		
6		
7		
8		
9		
10		
	Total	10

* The time required for operations on orbit is about **twice as long** as the time required for the same operations on the ground.

Add lines here as needed.

NOTE (If applicable):
If available to use one syringe, please repeat step 1-3. It will take more time.

(A video explanation is best if there are.)

Show the URL storing a video for sharing	

5. Tools and Items

- Tools and Items from Attachment 2

(Write to identify what is in Attachment 2 and amount/number pcs)

- Item No.1, Aluminum Wood block 1pcs
- Item No.11, Tippe Top 2pcs
- Item No.20, Wire Top (Type A)