Application Form 1
Asian Try Zero-G

Sample

ID (Official Use Only)

1. Applicant Information	
Category:	1
Nationality:	Japan
Name (in case of group application, representative):	Hanako Tsukuba
Age / Grade:	14
Gender:	Female
School, Major (if any):	Southern Ibaraki Junior High School
Occupation:	Student
Zip code / Address:	305-8505, 2-1-1 Sengen, Tsukuba, Ibaraki, Japan
Phone Number:	+81-50-3362-XXXX
E-Mail Address:	hanako.tsukuba@jaxa.jp

Group member list (in case of group application)			
Name, Age/grade, Gender	Name:	Age/Grade:	Gender:
	Jiro Ibaraki	14	Male
	Sakura Ibaraki	12	Female

2. Supervisor/Guardian Information (in case of Category 1)	
Name:	Taro Tsukuba
Relationship / Occupation:	Father
Zip code / Address:	305-8505, 2-1-1 Sengen, Tsukuba, Ibaraki, Japan
Phone Number:	+81-50-3362-XXXX
E-Mail Address:	taro.tsukuba@jaxa.jp

Application Form 2
Asian Try Zero-G

Sample

ID (Official Use Only):

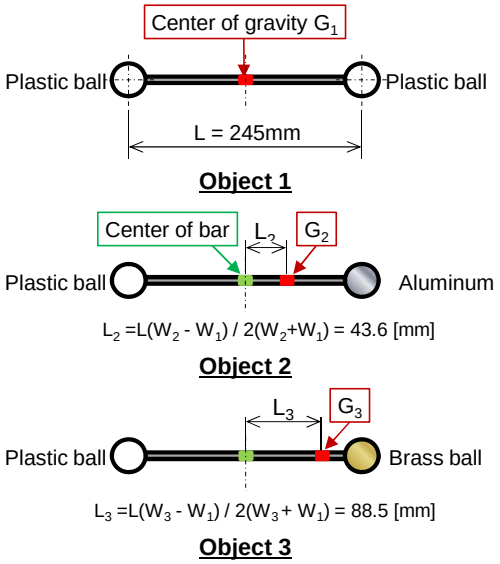
1. Activity Title: *Transition of center of Gravity*

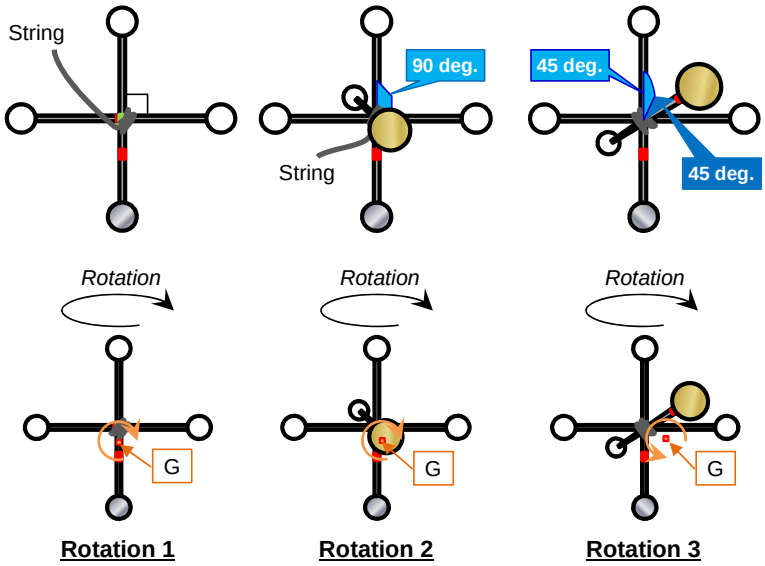
2. Hypothesis and Theory

<Hypothesis>

The shapes of objects are the same, but they have different centers of gravity. The object 1 and 2 are assembled to cross, and the center of gravity is moved and it will rotate at the point of new center. It is supposed to be simple rotation around the axis because the center of gravity is transit on the same plane. Next, the object 3 is additionally assembled to object 1 and 2. The center of gravity is moved again and it will rotate at the point of new center. It is supposed to be complicated rotation because the center of gravity has coordinates on triaxial.

<Schematic Model>





<Mathematical Assumption> (For Category 2; young scientists and engineers up to 27 years old)

(1) Measure distances from the center of bar to the centers of gravity
(2) Verify the centers of rotations via video camera step by step.
(3) Observe and compare the changes of rotations with the hypothesis

3. Verification method and Requirement

<Break down of procedure and estimated crew time>

(1) Measure distances from the center of bar to the centers of gravity for Object 2 and 3: 3 min
(2) Assemble Object 1 and 2: 30 sec
(3) Rotation 1: 1 min
(4) Assemble all Object: 30 sec
(5) Rotation 2: 1 min
(6) Change cross angle of Object 3: 30 sec
(7) Rotation 3: 1 min

Application Form 2
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Sample

ID (Official Use Only):

4. Tool, Item

<Designated item(s) from Available onboard items list >

Item No.	*Name*	*Remarks*
16	*Rotator Pack (Weights attached bar's both ends)*	*Use all 3 types*

<Proposed launch item(s) *If applicable, some photos/illustrations shall be attached>

Name	*Quantity*	*Description (e.g. size, weight, material)*	*Photo/illustration*
Strings	*2*	*Diameter 1.0m,Length 30cm, Cotton*	

<Others>

Video camera, Scale

Application Form 2
Asian Try Zero-G

Sample

ID (Official Use Only):

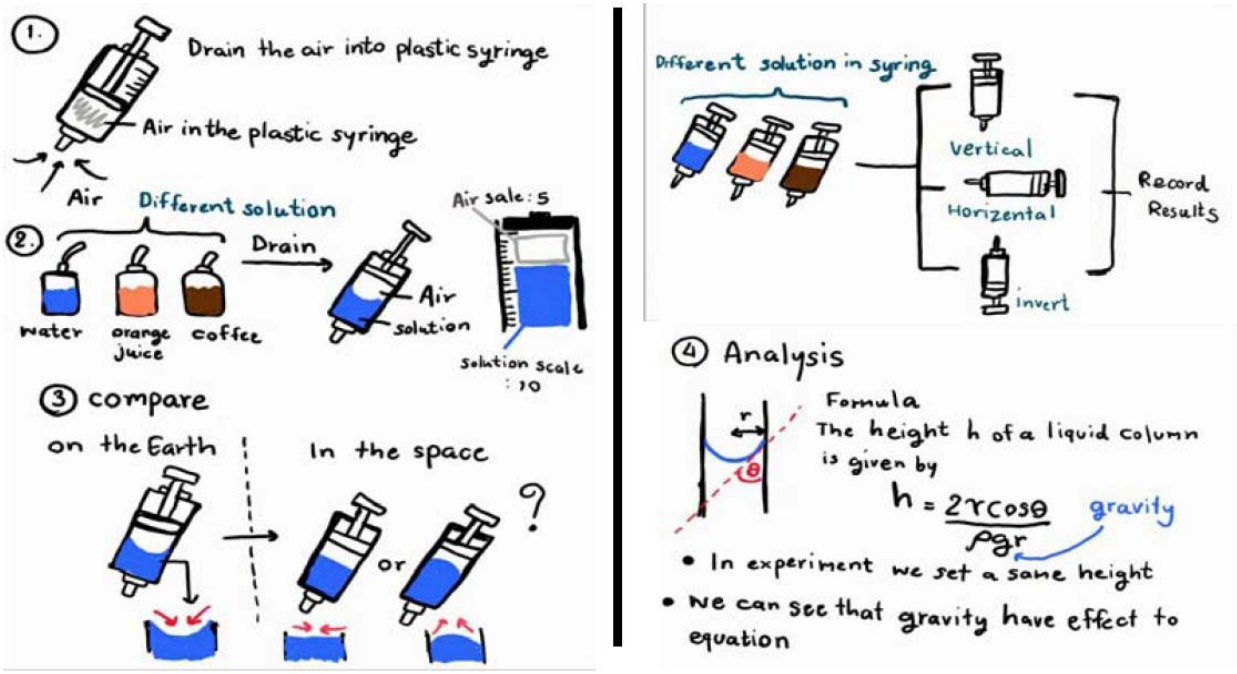
1. Activity Title: *Capillary in Zero gravity*

2. Hypothesis and Theory

<Hypothesis>

Surface tension is the force which makes fluid surface acquired the least area possible. It 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 Assumption> (For Category 2; young scientists and engineers up to 27 years old)

The height of liquid column is given by

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

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)

3. Verification method and Requirement

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

<Break down of procedure and estimated crew time>

1. Drain air into syringe to 5 ml scale
2. Drain water into syringe 10 ml scale
3. Observe it and take photo and video
4. Measure contact angle and compare with syringe in normal condition
Estimated crew time : 10 minutes

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ID (Official Use Only):

4. Tool, Item

<Designated item(s) from Available onboard items list >

Item No.	*Name*	*Remarks*
15	*Plastic Syringe*	

<Proposed launch item(s) *If applicable, some photos/illustrations shall be attached>

Name	*Quantity*	*Description (e.g. size, weight, material)*	*Photo/illustration*

<Others>

Camera and video camera, Water, Tape measure