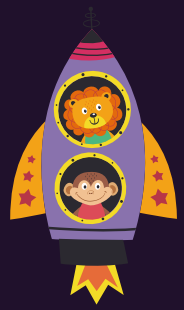
TOGO
# SCIENCE

## FUN FACTS

Before sending humans into space, animals were sent to test the survivability of spaceflights.



PLAY STEAM®


**WEBSITE:** WWW.PLAYSTEAM.COM **EMAIL:** INFO@PLAYSTEAM.COM **ADDRESS:** SUITE 35 - 36 THE DESIGNWORKS, PARK PARADE, LONDON, NW10 4HT. MANUFACTURED BY HANGZHOU ZT MODEL COMPANY LIMITED. ADDRESS: NO 6 MINGDE RD., PUYAN, BINJIANG, HANGZHOU, CHINA.

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# LEARNING BOOKLET

## Reaction Rocket

0-3

⚠ **WARNING:**
**CHOKING HAZARD** -Small parts, Not for children under 3 years.

AGES 8+

# WARNING MESSAGE

## GENERAL WARNING

*Before you begin, please read through the instructions together with your children. Make sure you understand the safety messages. Please keep the packaging and instructions, as they contain important information.*

*This kit is designed for children over 8 years of age. This product contains small parts which may pose a choking hazard. It is not suitable for children under 3 years old. Please keep individual parts and the fully-assembled product away from children under 3 years of age.*

*Warning! Do not aim at eyes or face.*

*Screws and other metal parts may have sharp edges. Children should have adult supervision when assembling the product.*

*Last but not least, please clean the parts and finished product with a damp cloth. Do not use any soap or cleaning solutions.*

## Package Contents

- Cabin ring

- Rocket

- Launch platform

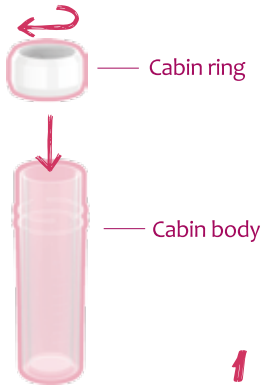
- Feet

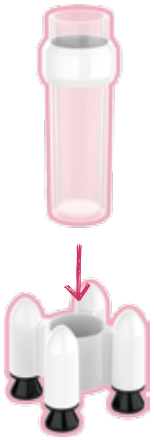
- Cabin body

## Installation steps

1. As shown in the figure, insert the four feet into the bottom of the launch platform.


2. Insert the cabin ring into the body of the cabin, rotate and tighten.

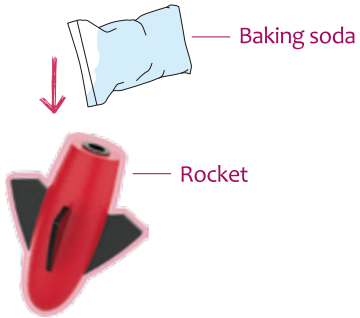




3. Put the completed cabin assembly on the launch platform.

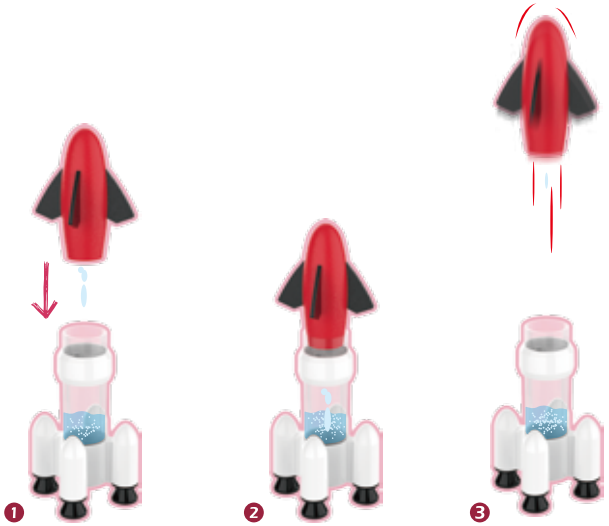

4. Pour some vinegar into the cabin.


5. Pour the powder into the rocket compartment hole.






6. Insert the rocket with the powdered baking soda into the completed cabin assembly and seal it. As the powdered baking soda slowly drops into the cabin and reacts with the vinegar, a large number of bubbles will appear. The air pressure in the cabin will increase and the rocket will launch.




You will notice that different amounts of vinegar and baking soda will lead to different situations. You can try yourself to adjust the quantities and check the results. (try start from 1 ml vinegar and slowly increase the amount)
You can also try different combinations with different substances (i.e. using dissolved citric acid instead of vinegar ) to see if they can propel the rocket.

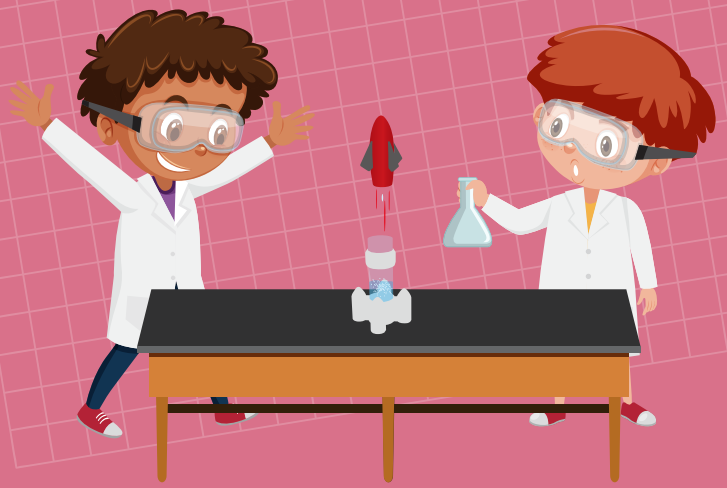
*Do not aim at eyes or face while launching.


# What does it do?

When you let the liquid and the powder mix together in the rocket, a chemical reaction will happen. The reaction will create a gas that will suddenly propel the rocket into into the sky. Be careful when you launch it.

# How does it work?

In chemistry terms, baking soda is a "base" and the mix of citric acid and water is an "acid". When mixed together, a chemical reaction occurs which creates a gas. This gas increases the pressure and propels the rocket up and away.



# FUN FACTS

## FUN FACTS 01

The airbags in a car work in almost the same way. A powder reacts with the air to create a gas that inflates the bag. For airbags, the chemical reaction is very very quick to ensure that the bag will completely inflate before a passenger in a collision is injured by the hard surfaces of the car.

## FUN FACTS 02

Using stronger chemical reactions, real rockets are propelled in almost the same way. A chemical reaction occurs in the rocket and a "propellant" is ejected. As the propellant is ejected downward, the rocket is propelled upward.

## FUN FACTS 03

Before sending humans into space, animals were sent to test the survivability of spaceflights. In 1948, Albert I was the first monkey to be launched into space by the U.S.

## Build your own rocket parachute.

Cut a 20cm diameter circle in a plastic bag. Make 5 holes equally spread around the edge of the circle. Attach 5 strings and tie them together at about 25cm from the plastic bag. Then, tie them to the rocket. Fold the parachute as shown and place it on top of the rocket. Launch your rocket and watch the parachute deploy itself while falling.