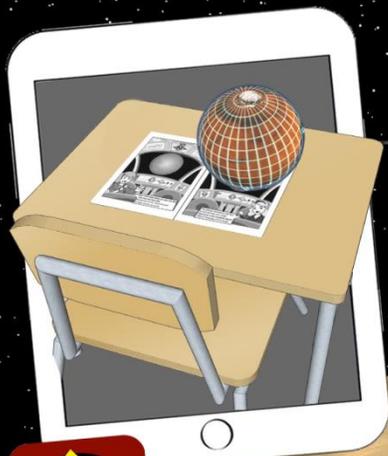




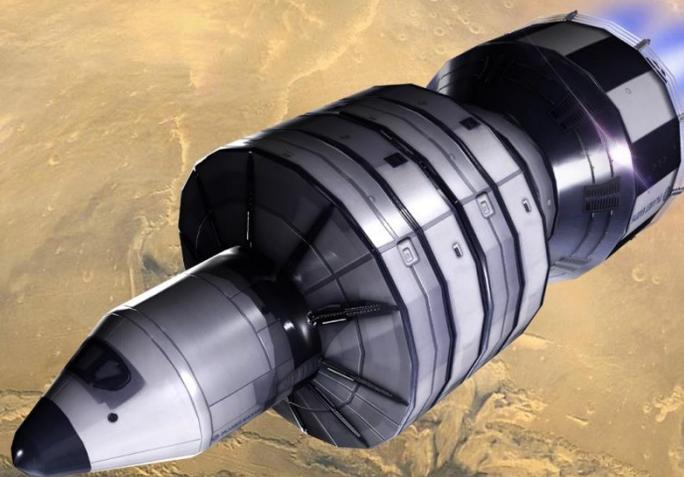
THE ROCKWELL ADVENTURES[®]

SOLAR SYSTEM EXPEDITION

FREE DIGITAL EDITION



FREE Augmented Reality App!



HANDS ON PLANET EXPLORATION!



3D INTERACTIVE ADVENTURE

- Explore & Measure The Planets
- Land Probes On Each Planet's Surface
- Space Colony Design Challenge
- Pre & Post Exploration Tests
- Correlated to State & National Standards

A Letter From StoneOak Media

March 27, 2020

Dear Educators and Parents:

We at StoneOak Media wanted to take the time to send a message of hope (and help) to everyone facing the challenges that COVID-19 has brought into our collective daily lives.

We've heard from so many of you over the past few weeks, about the difficulties you're facing. Many of you are now spending a great deal of time at home with your children, as you follow the recommendations of government health officials, and attempt to socially distance yourselves from the broader community. Trying to remain productive under these circumstances, while also engaging your children and furthering their education can be a significant challenge! It's a challenge we would like to help address.

We've recently had a number of conversations internally, and with our long-time collaborators at Zappar, about how we could leverage our cutting-edge educational content to contribute in some way during this time of collective community sacrifice. To this end, we've decided to provide several of our products that can be readily distributed via electronic means, **FREE OF CHARGE** for the next few months. This workbook is one of those products. We've enabled the digital content associated with these books to be active through August 1st, 2020, which should hopefully be enough time for life everywhere to return back to a better level of normal.

We extend our thanks to the heroic efforts of medical staff across the globe, risking their lives to help contain this virus and minimize its impacts. Our thanks also goes out to the educators and parents who are working hard to provide a sense of normalcy to students everywhere. Like everything else, this too shall pass. When it does, and our children grow old and think back to this time, it is our hope that they do so with happy memories of time with family, time to relax, and even time to learn with some engaging content. We're happy to contribute in our own small way towards making this happen.

Thanks again for your support, and stay safe!

Sincerely,

The StoneOak Media Team!

THE ROCKWELL ADVENTURES[®] SOLAR SYSTEM EXPEDITION FREE LIMITED TIME DIGITAL EDITION

ISBN: 978-0-9970192-0-9

vSSE_6.0

Copyright & Credits

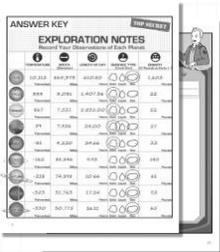
© 2015 - 2020 StoneOak Media, LLC. All rights reserved. Design and text by StoneOak Media. Augmented Reality by Zappar (www.Zappar.com). Graphics by StoneOak Media, Farid Sandoval Design, Zappar, and Shutterstock. Technology and Design Elements Patented and Patent Pending.

Getting Started: Step 1) Install the Zappar Augmented Reality App



This lesson requires the use of the FREE *Zappar* Augmented Reality application for iOS/Android tablets and smart phones. Students will use this application to scan *Zapcodes* (the circular symbol at the top of certain pages) within this book, which will activate a variety of 3D content within the lesson. The digital content associated with the zapcodes included in this complimentary lesson will expire on August 1st, 2020.

Getting Started: Step 2) Distribute and Print Lesson



IMPORTANT: To complete this lesson, distribute copies of this PDF to each student in your class. Ask that their parents print pages 6 - 24. Note that the answer key for this lesson is contained on page 4 and 5. If you/they are interested, **StoneOakMedia.com** also has additional FREE easy to download and print lesson related resources including: a Data Analysis lesson expansion pack, a Large Format Base Design Page, and much more.

Getting Started: Step 3) Launch the Zappar App and Complete Lesson

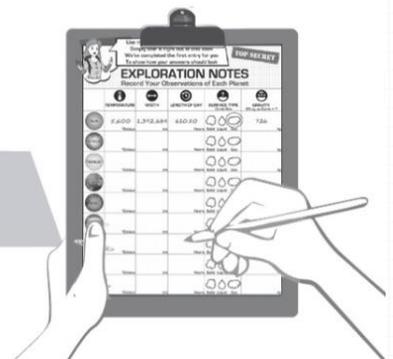
Once students have printed pages 7 - 25 of this workbook, and installed the Zappar app, have them complete the mission using the following steps:

1 Launch the Zappar app

2 Hold over each planet page

3 Explore each planet

4 Record the measurements



Visit us online at www.StoneOakMedia.com for more exciting titles!

TOP SECRET

ANSWERS

(FOR TEACHERS)

1) WHICH PLANET IS CLOSEST TO THE SUN?

MERCURY

2) WHICH PLANET HAS THE MOST GRAVITY?

JUPITER

3) WHICH FOUR PLANETS HAVE A SOLID SURFACE?

MERCURY, VENUS, EARTH, MARS

4) WHICH PLANET IS TILTED SIDEWAYS RELATIVE TO THE OTHER PLANETS?

URANUS

5) WHICH PLANET HAS THE HIGHEST AVERAGE SURFACE TEMPERATURE?

VENUS

6) WHICH PLANET HAS THE GREATEST DIAMETER (WIDTH)?

JUPITER

7) WHICH PLANET HAS THE LONGEST DAY?

VENUS

ANSWER KEY

TOP SECRET

EXPLORATION NOTES

Record Your Observations of Each Planet

	 TEMPERATURE	 WIDTH (Diameter)	 LENGTH OF DAY	 SURFACE TYPE (Circle One)	 GRAVITY 26 kg on Earth = ?
 SUN	5,600 °Celsius	1,392,684 km	610.80 Hours	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Gas	726 kg
 MERCURY	167 °Celsius	4,878 km	1,407.36 Hours	<input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	10 kg
 VENUS	464 °Celsius	12,104 km	5,832.00 Hours	<input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	24 kg
 EARTH	15 °Celsius	12,756 km	24.00 Hours	<input checked="" type="checkbox"/> Solid <input checked="" type="checkbox"/> Liquid <input type="checkbox"/> Gas	26 kg
 MARS	-63 °Celsius	6,792 km	24.66 Hours	<input checked="" type="checkbox"/> Solid <input type="checkbox"/> Liquid <input type="checkbox"/> Gas	10 kg
 JUPITER	-108 °Celsius	142,984 km	9.93 Hours	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Gas	66 kg
 SATURN	-139 °Celsius	120,536 km	10.66 Hours	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Gas	28 kg
 URANUS	-197 °Celsius	51,118 km	17.24 Hours	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Gas	24 kg
 NEPTUNE	-201 °Celsius	49,528 km	16.11 Hours	<input type="checkbox"/> Solid <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Gas	30 kg

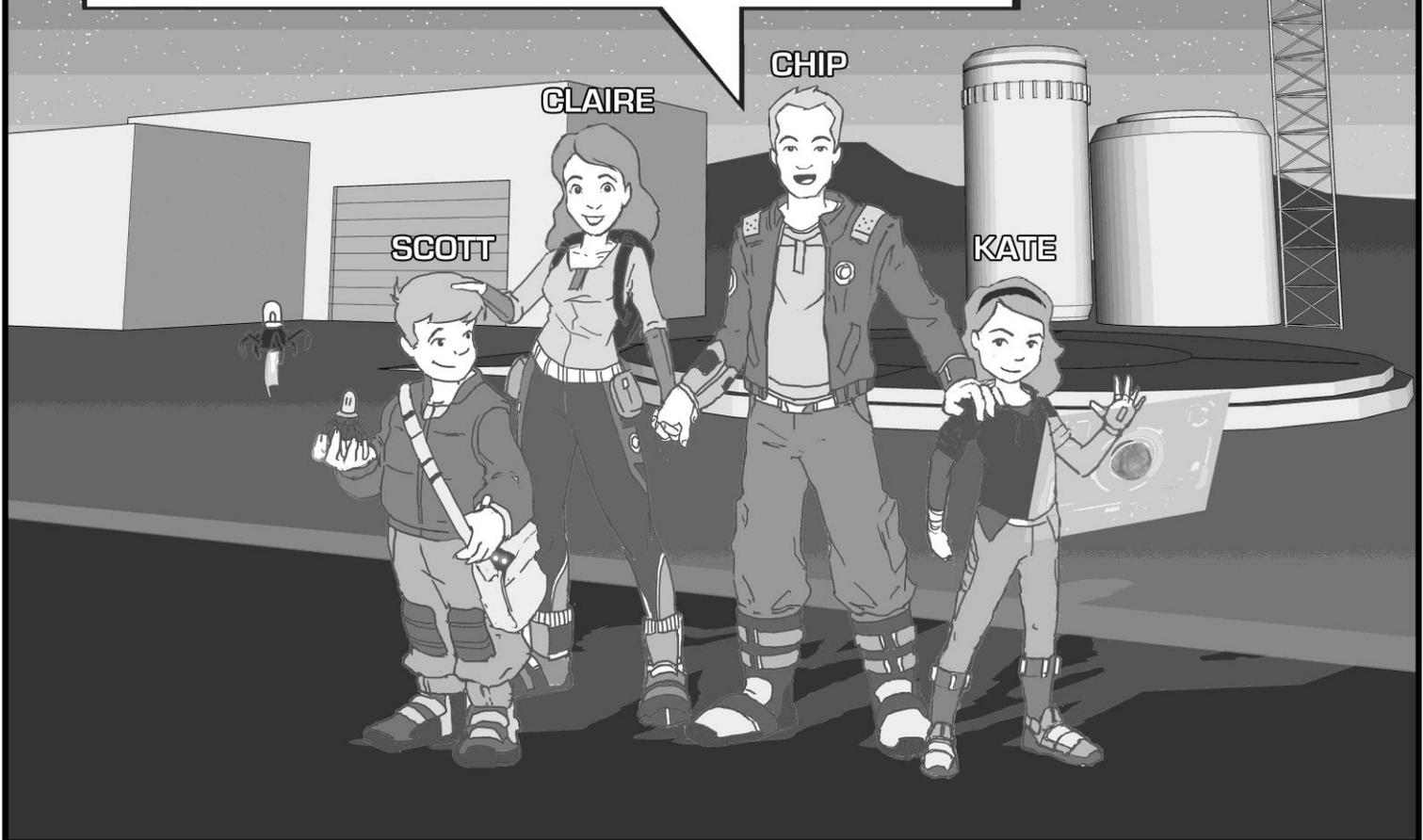
THE ROCKWELL ADVENTURES

SOLAR SYSTEM EXPEDITION

Hello, we're the Rockwell family. We're here to take you on an exciting Top Secret mission to explore the planets in our Solar System.

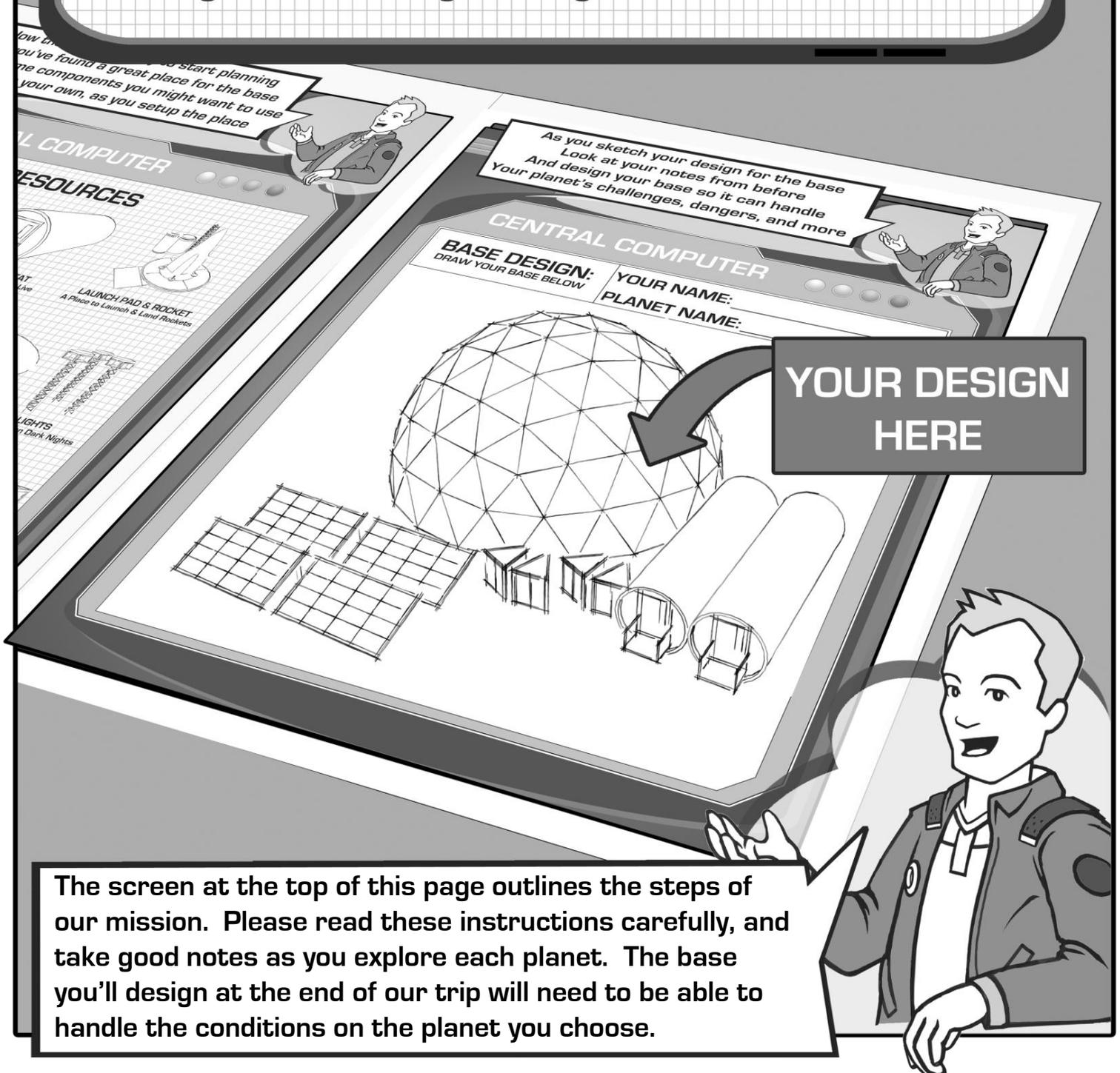
The purpose of this mission is to find a planet where we can build mankind's newest space colony. You'll be serving as the lead engineer on this mission.

Once we've explored each planet, you'll be asked to select one as the home for this new colony, and to design the base that will be built there.



TOP SECRET MISSION STEPS

1. Explore and Take Notes on Each Planet
2. Select The Planet Where Our New Base Will Be Built
3. Design a Base Tough Enough to Survive



PRE-MISSION QUESTIONS

TOP SECRET

Answer each of the following questions, if you can.
If you don't know an answer, simply leave it blank

1) WHICH PLANET IS CLOSEST TO THE SUN?

2) WHICH PLANET HAS THE MOST GRAVITY?

3) WHICH FOUR PLANETS HAVE A SOLID SURFACE?

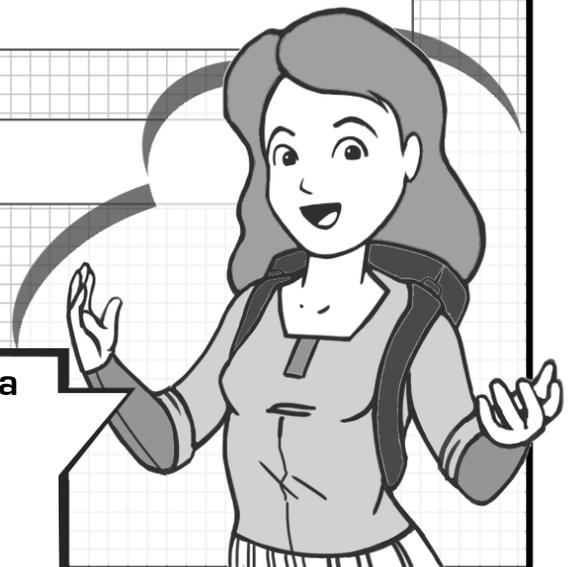
4) WHICH PLANET IS TILTED SIDEWAYS RELATIVE TO THE OTHER PLANETS?

5) WHICH PLANET HAS THE HIGHEST AVERAGE SURFACE TEMPERATURE?

6) WHICH PLANET HAS THE GREATEST DIAMETER (WIDTH)?

7) WHICH PLANET HAS THE LONGEST DAY?

To prepare for this exciting journey, we need to ask a few basic questions. These will help us better understand how much you already know about the planets. Follow the instructions at the top of the page to complete this short quiz.



Use this sheet to take notes as you explore each planet. To get you started, we've already recorded the data for our first stop, the Sun. Please fill in the other details!

TOP SECRET

EXPLORATION NOTES

Record Your Observations of Each Planet

	 TEMPERATURE	 WIDTH (Diameter)	 LENGTH OF DAY	 SURFACE TYPE (Circle One)	 GRAVITY 26 kg on Earth = ?
 SUN	5,600 °Celsius	1,392,684 km	610.80 Hours	   Solid Liquid Gas	726 kg
 MERCURY	°Celsius	km	Hours	   Solid Liquid Gas	kg
 VENUS	°Celsius	km	Hours	   Solid Liquid Gas	kg
 EARTH	°Celsius	km	Hours	   Solid Liquid Gas	kg
 MARS	°Celsius	km	Hours	   Solid Liquid Gas	kg
 JUPITER	°Celsius	km	Hours	   Solid Liquid Gas	kg
 SATURN	°Celsius	km	Hours	   Solid Liquid Gas	kg
 URANUS	°Celsius	km	Hours	   Solid Liquid Gas	kg
 NEPTUNE	°Celsius	km	Hours	   Solid Liquid Gas	kg

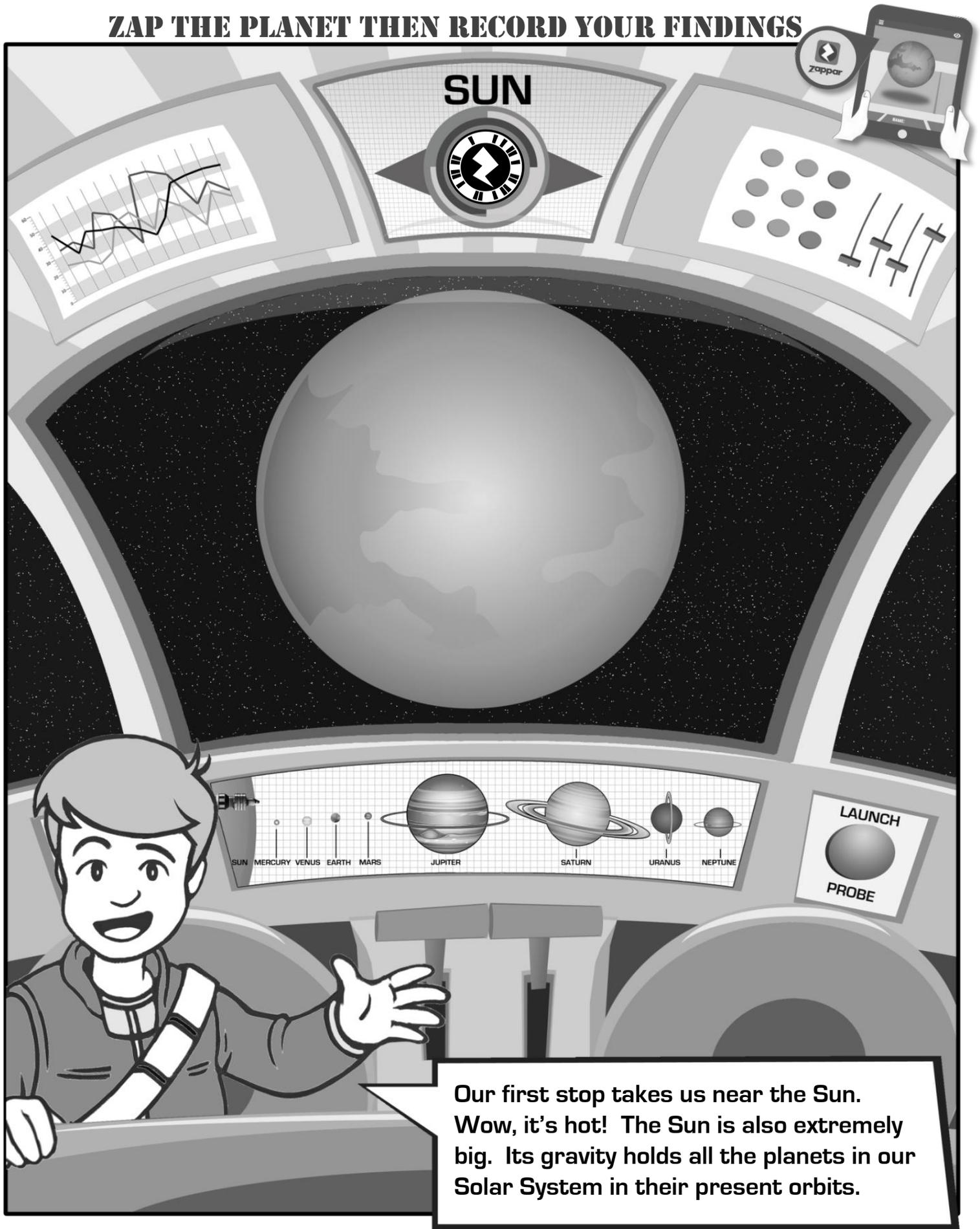
LAUNCH THE ZAPPAR APP AND SCAN THIS PAGE



Our ship is now fully fueled and ready for launch, so buckle up and hang on to your seat!

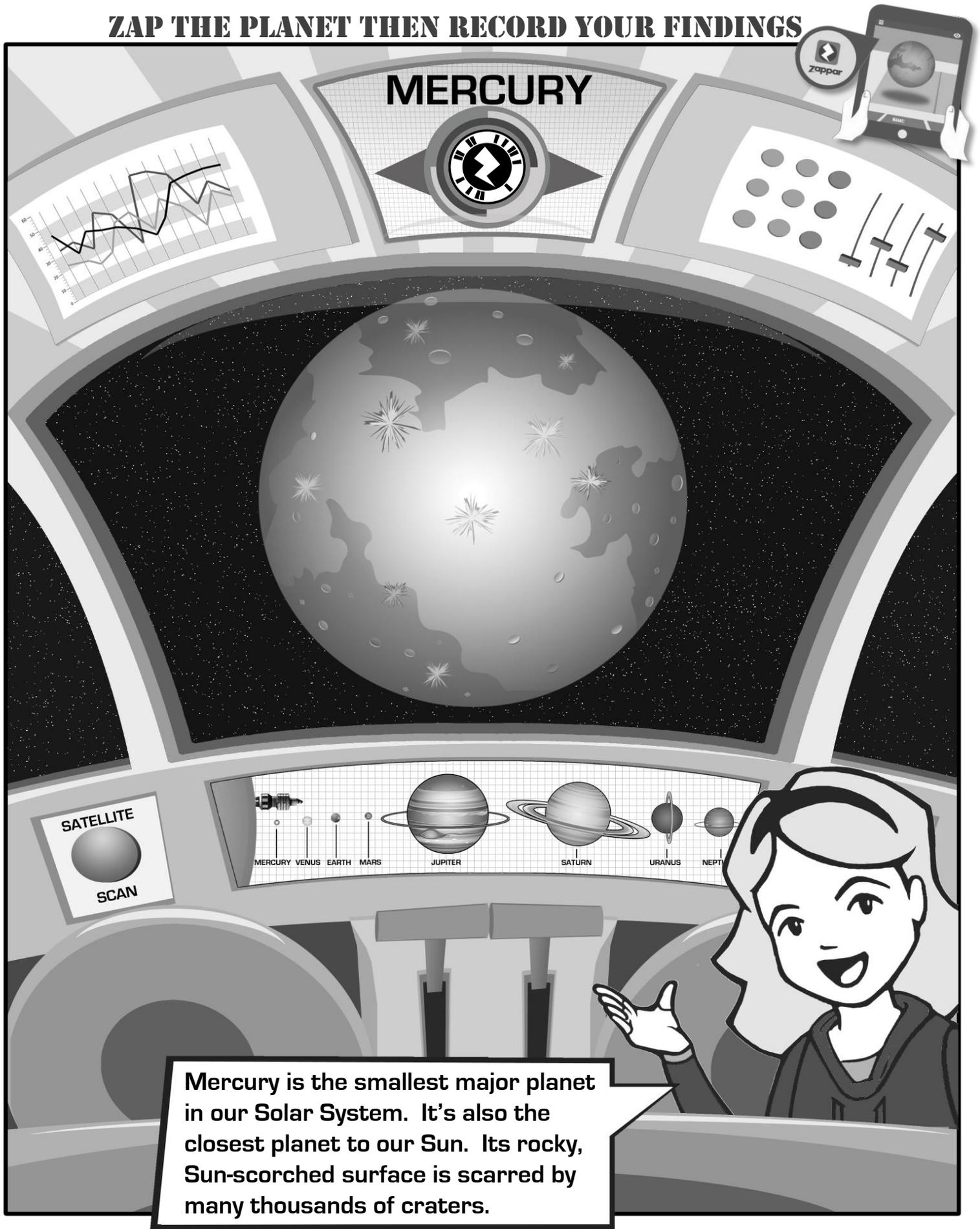
Open the blast doors by scanning the zapcode on this page with the Zappar app on your tablet. We'll take off once you've completed your scan.

ZAP THE PLANET THEN RECORD YOUR FINDINGS

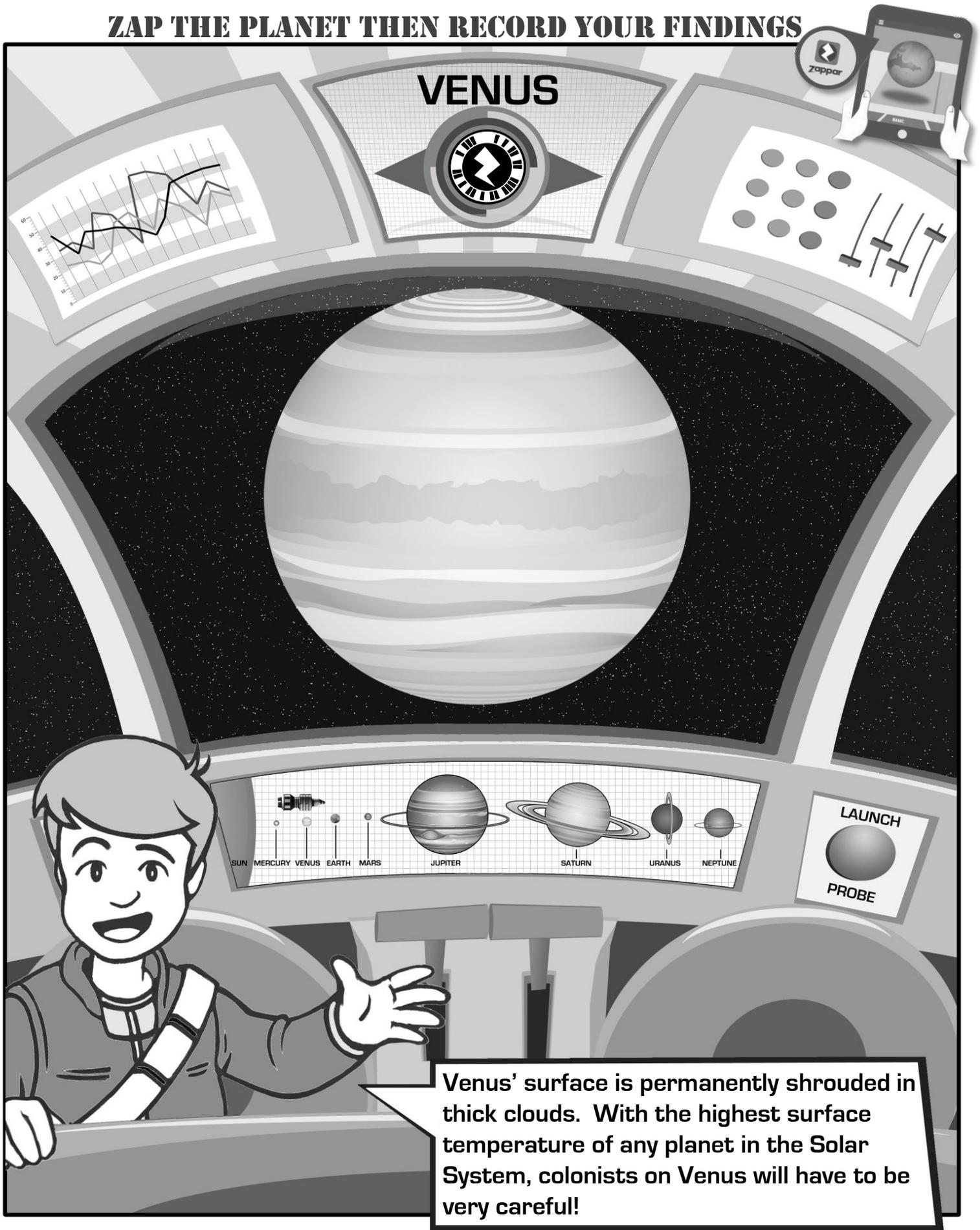


Our first stop takes us near the Sun. Wow, it's hot! The Sun is also extremely big. Its gravity holds all the planets in our Solar System in their present orbits.

ZAP THE PLANET THEN RECORD YOUR FINDINGS

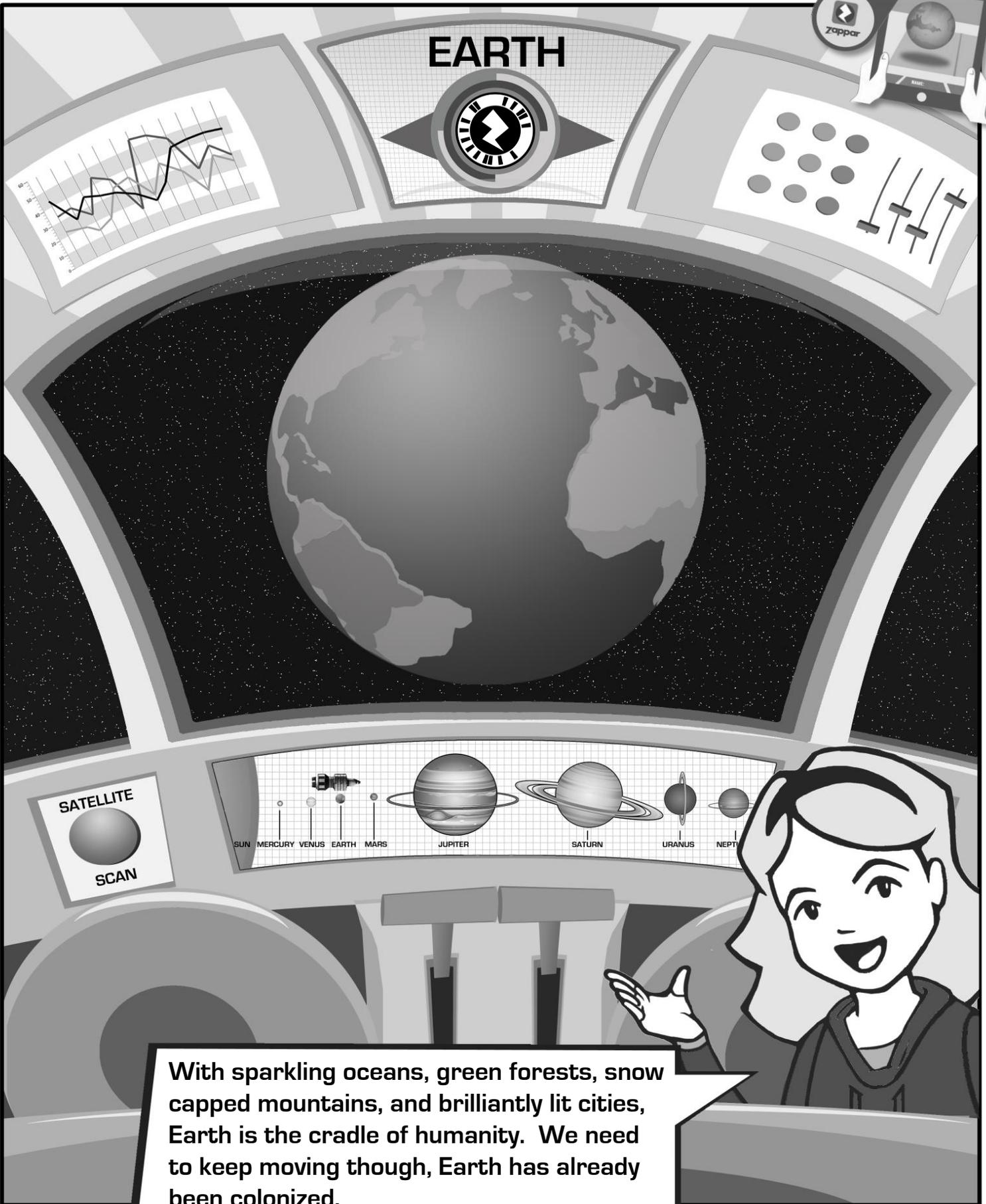


ZAP THE PLANET THEN RECORD YOUR FINDINGS



ZAP THE PLANET THEN RECORD YOUR FINDINGS

EARTH



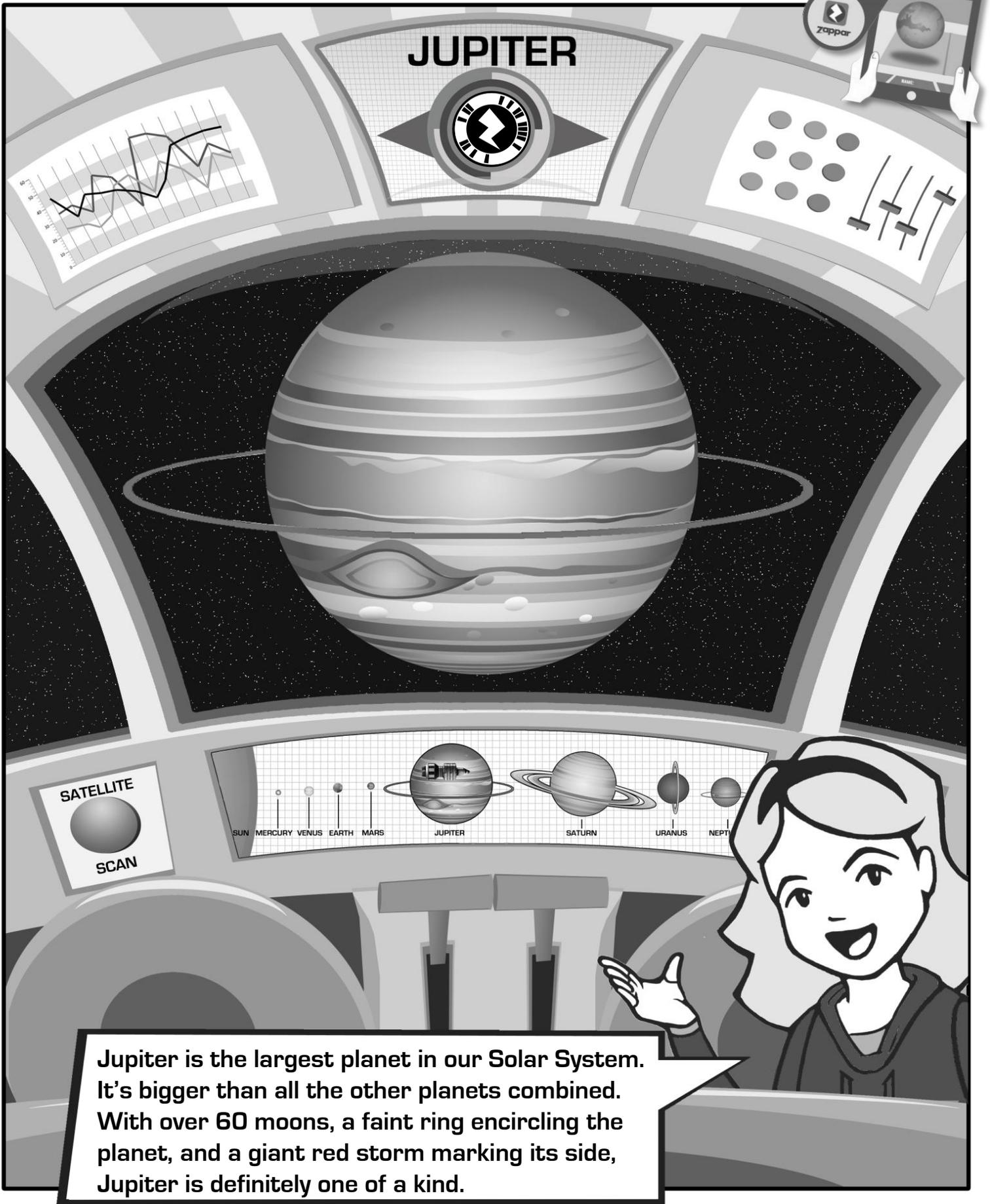
With sparkling oceans, green forests, snow capped mountains, and brilliantly lit cities, Earth is the cradle of humanity. We need to keep moving though, Earth has already been colonized.

ZAP THE PLANET THEN RECORD YOUR FINDINGS



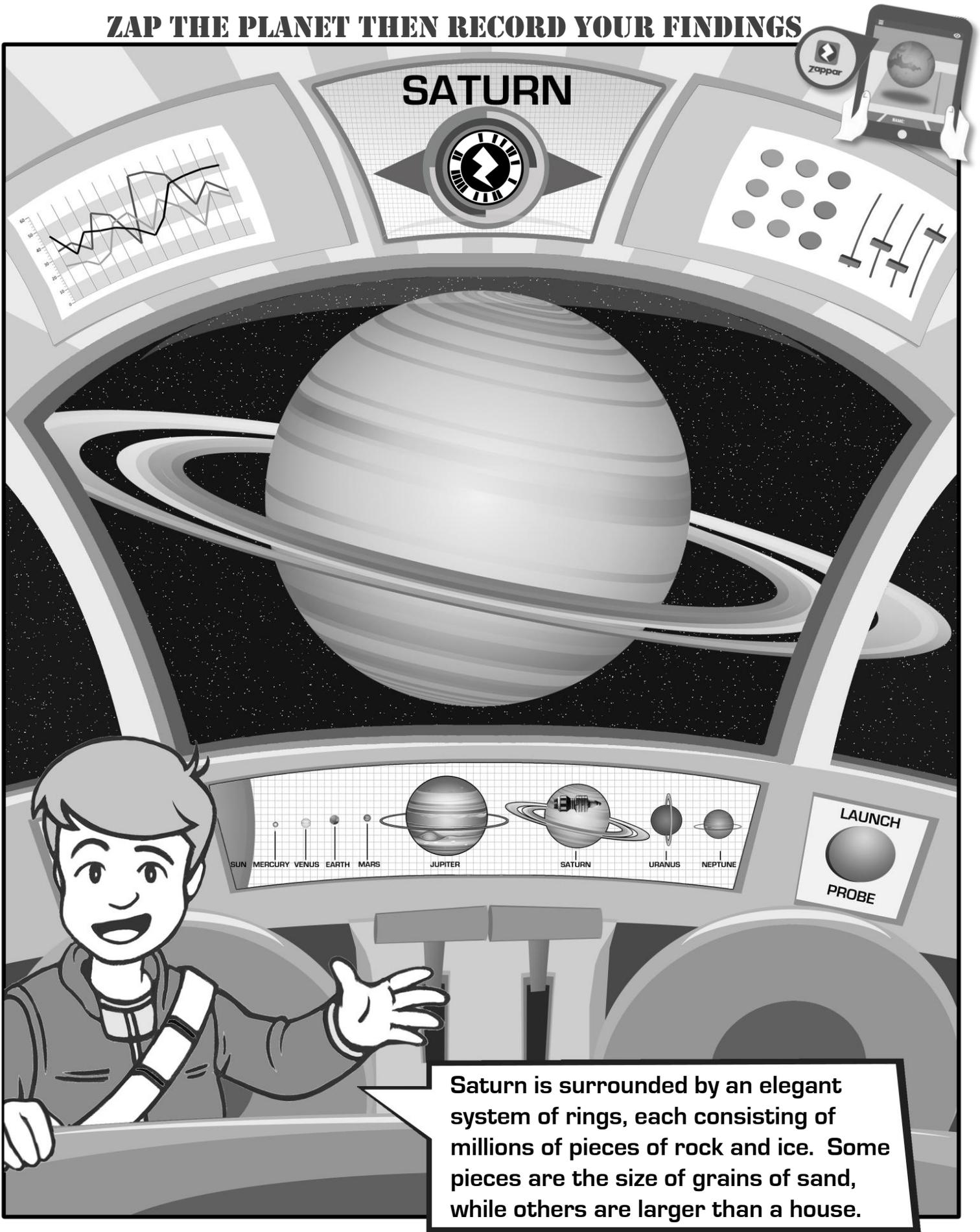
ZAP THE PLANET THEN RECORD YOUR FINDINGS

JUPITER



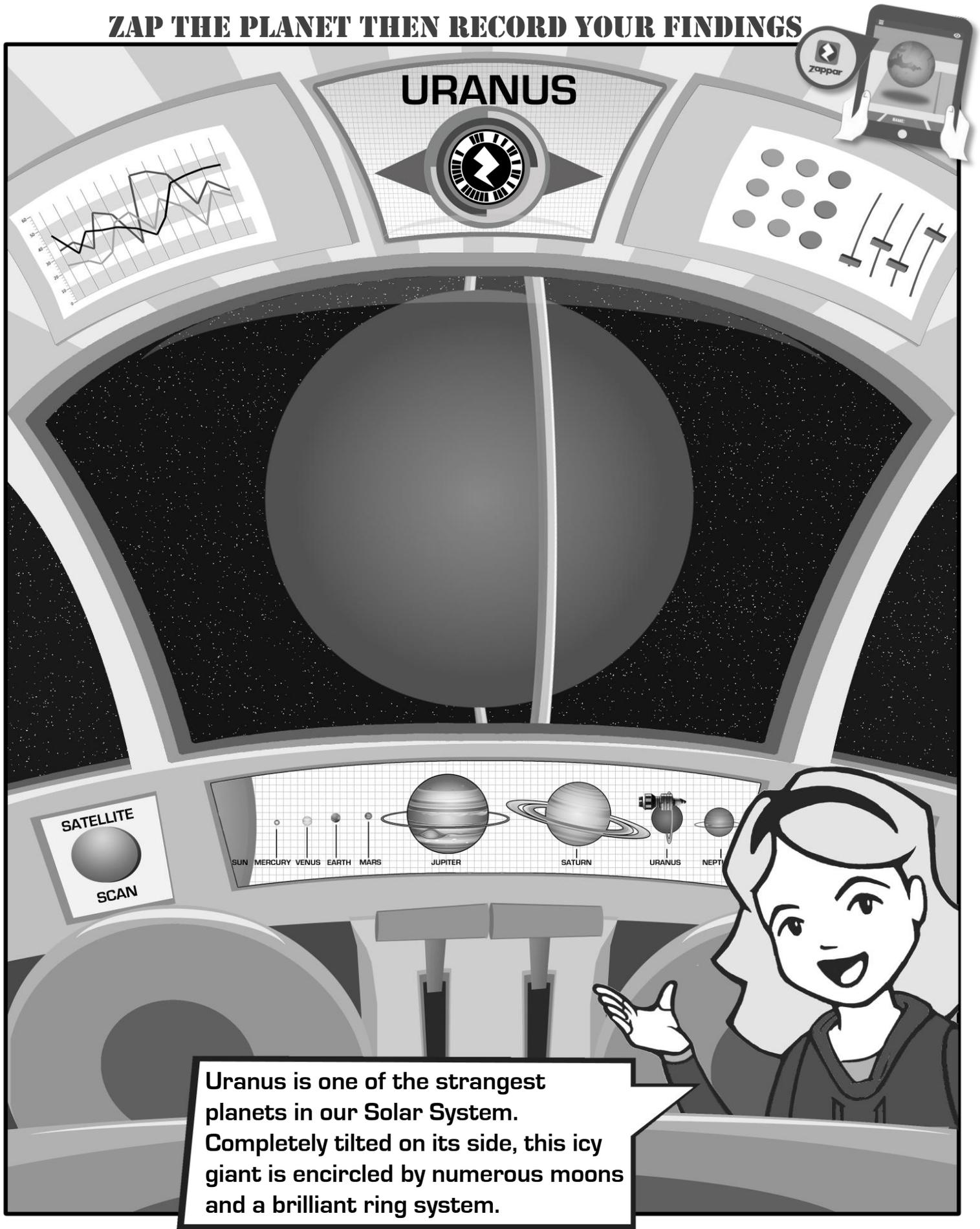
Jupiter is the largest planet in our Solar System. It's bigger than all the other planets combined. With over 60 moons, a faint ring encircling the planet, and a giant red storm marking its side, Jupiter is definitely one of a kind.

ZAP THE PLANET THEN RECORD YOUR FINDINGS



Saturn is surrounded by an elegant system of rings, each consisting of millions of pieces of rock and ice. Some pieces are the size of grains of sand, while others are larger than a house.

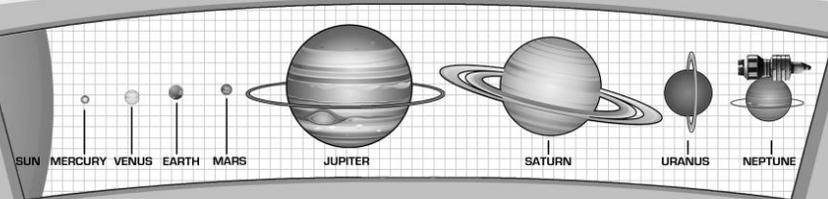
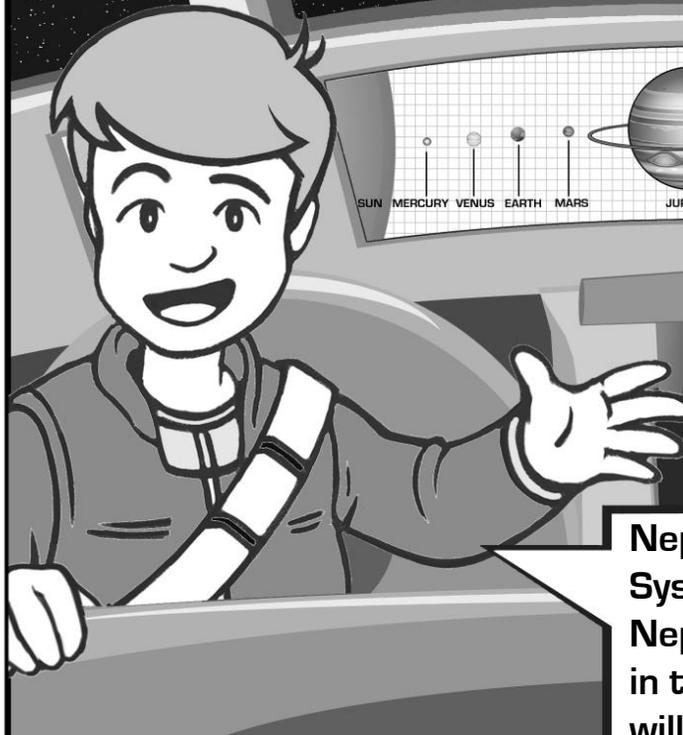
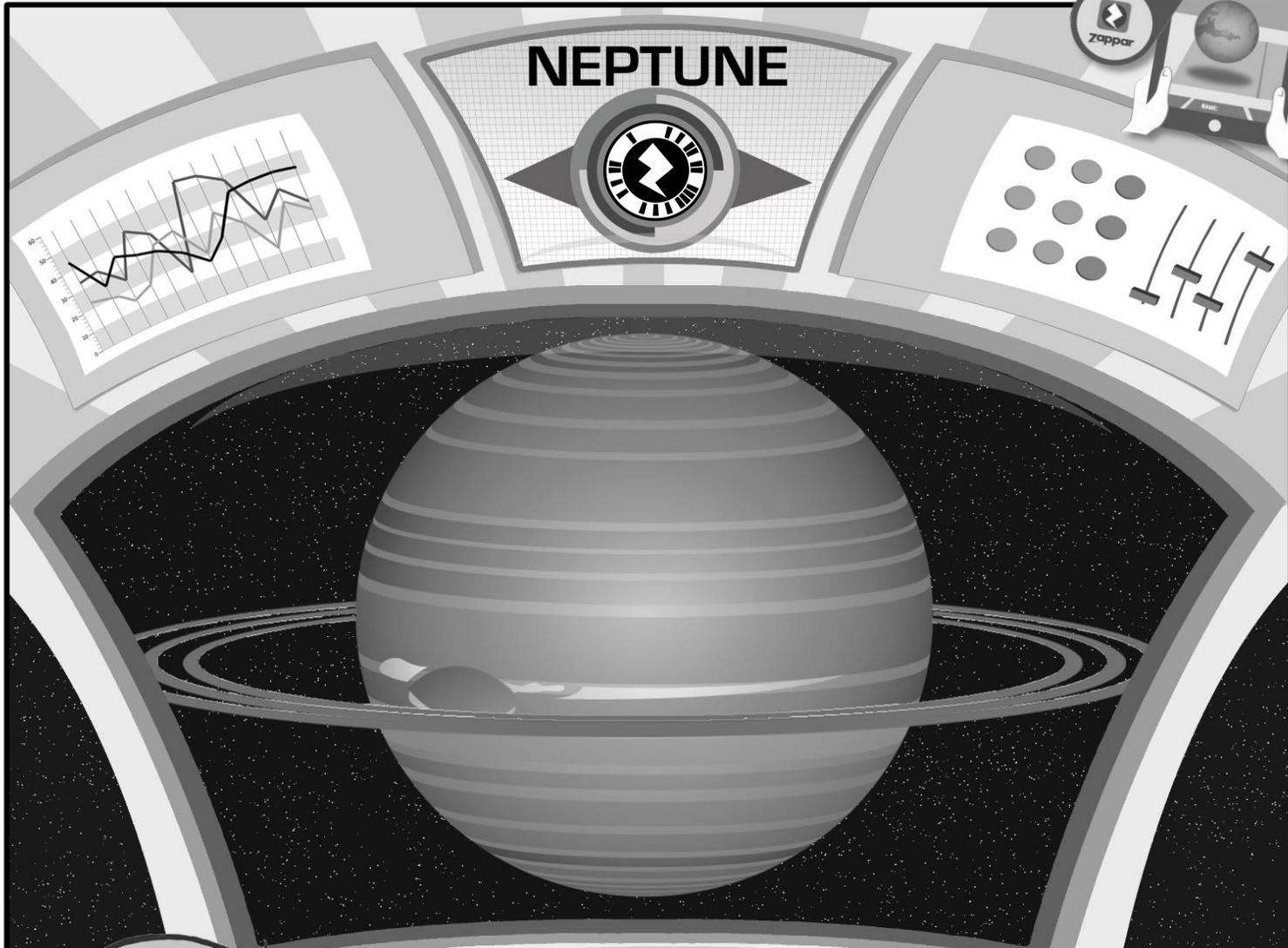
ZAP THE PLANET THEN RECORD YOUR FINDINGS



ZAP THE PLANET THEN RECORD YOUR FINDINGS



NEPTUNE



Neptune is the last major planet in our Solar System. Despite its frigid temperature, Neptune is actually home to the fastest winds in the Solar System. Colonists settling there will need to be ready for a wild ride!

POST-MISSION QUESTIONS

TOP SECRET

Refer to your notes and answer each question

1) WHICH PLANET IS CLOSEST TO THE SUN?

2) WHICH PLANET HAS THE MOST GRAVITY?

3) WHICH FOUR PLANETS HAVE A SOLID SURFACE?

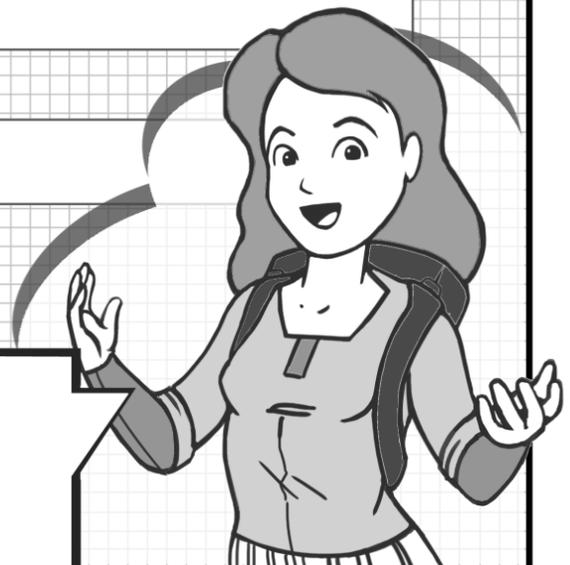
4) WHICH PLANET IS TILTED SIDEWAYS RELATIVE TO THE OTHER PLANETS?

5) WHICH PLANET HAS THE HIGHEST AVERAGE SURFACE TEMPERATURE?

6) WHICH PLANET HAS THE GREATEST DIAMETER (WIDTH)?

7) WHICH PLANET HAS THE LONGEST DAY?

Alright, it's time to retake the quiz, and see how much you have learned. Please refer to the notes you've taken and answer each of the above questions.



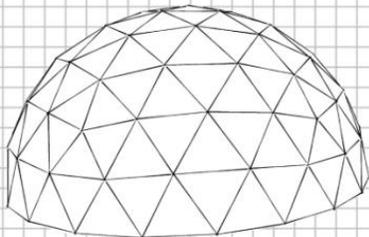
You're now ready to choose a planet, and sketch a design for our new base. Here are some optional components you might want to use in your design, or come up with your own as you setup the colony.



CENTRAL COMPUTER

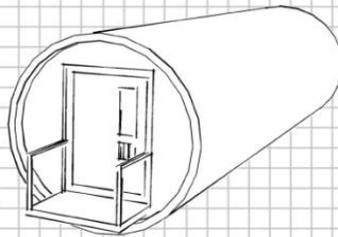


RESOURCES



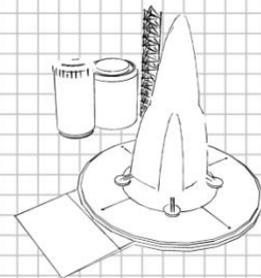
GREENHOUSE

A Place To Grow Plants For Food & Air



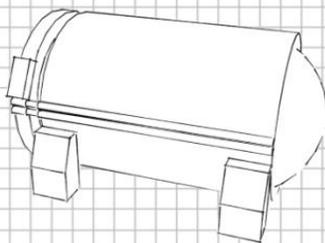
CREW HABITAT

A Place For People To Live



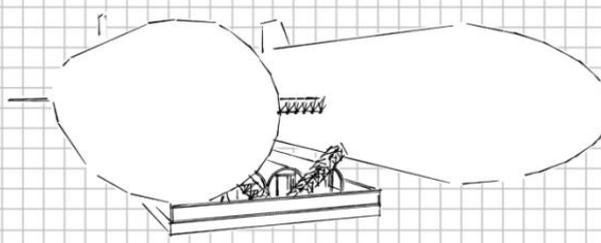
LAUNCH PAD & ROCKET

A Place to Launch & Land Rockets



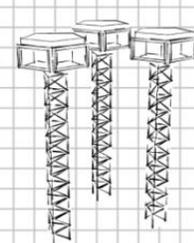
POWER GENERATOR

Makes Electricity To Power Base



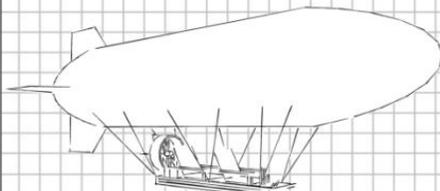
FLOATING PLATFORM

Supports Bases That Float



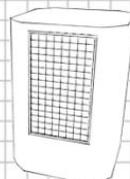
LIGHTS

To Brighten Dark Nights



BLIMP

Transportation For Your Crew



AIR CONDITIONER

Cleans, Heats, & Cools Air



FOOD & SUPPLIES

Boxes With Material To Help
Your Base Get Started

As you sketch your design for the base, look at the measurements that you previously recorded. Be sure to design your base so it can handle the conditions you measured on your planet.



CENTRAL COMPUTER



BASE DESIGN

DRAW YOUR BASE BELOW

YOUR NAME: _____

PLANET NAME: _____

A large, empty rectangular area with a thin border, intended for drawing the base design. It occupies the majority of the lower half of the page.

SCAN THE ZAPCODE TO READ THE NEWS STORY



Thanks for your help on this mission, and for the fantastic base you've designed! A construction crew from Earth will depart soon to build the new colony, based on your specifications. Who knows what treasures they'll find!

EARTH NEWS
NETWORK



TOP
STORY

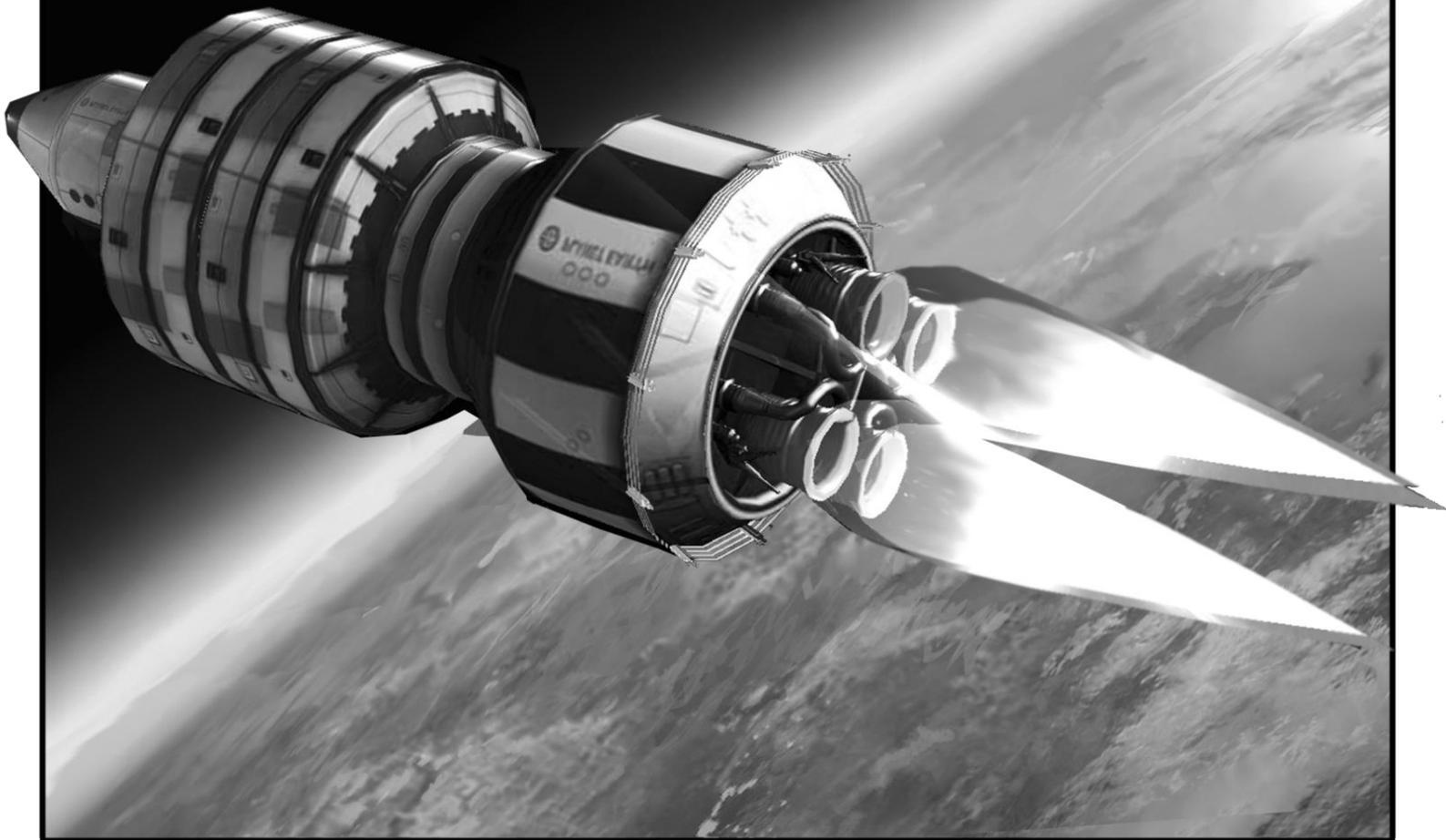
PROBE
10

Hey look, there's a message from Earth! It just came up on that screen behind us. It appears to be some kind of urgent news story. Use your device to scan the zapcode shown on the screen, so we can check it out!



**Wow, that's some amazing recognition!
Congratulations on a job well done! You're
becoming a famous space explorer and
engineer!**

**Please join us on our next adventure, as we
investigate space, science, and more.
Another assignment is waiting, there's so
much left to explore!**



Additional Resources Available At StoneOakMedia.com

ADVANCED STEM LESSONS & KITS

THE ROCKWELL ADVENTURES. SOLAR SYSTEM EXPEDITION

FREE Augmented Reality App!

HANDS ON PLANET EXPLORATION

2017-2018 SCHOOL YEAR

- Explore & Measure The Planets
- Land Probes On Each Planet's Surface
- Space Colony Design Challenge
- Pre & Post Exploration Tests
- Correlated to State & National Standards

Visit Us Online: www.StoneOakMedia.com

Solar System Expedition

THE ROCKWELL ADVENTURES WATER CYCLE ENGINEER

FREE Augmented Reality App!

2018-2019 SCHOOL YEAR

- Explore The Water Cycle At Two Moon Bases
- Inmersive 3D Virtual Environments
- Correlated to State & National Standards
- Pre & Post Exploration Tests
- Water Cycle Design Challenge

Visit: StoneOakMedia.com For Even More!

Water Cycle Engineer

3D PRINTABLE STEM KIT WIND TURBINE CHALLENGE

3D ENGINEERING CHALLENGE

- Students Research, Build, Test, and Compete With Custom Blade Designs
- Learn The Engineering Design Process
- 3D Print an Unlimited Number of Turbines
- Correlated to State & National Standards

Wind Turbine Challenge

3D DESIGN CHALLENGE PLANETARY OUTPOST

HANDS ON DESIGN

DESIGN YOUR BASE IN 3D

- Design Bases in 3D Using SketchUp
- Learn The Engineering Design Process
- Students Choose Design Challenges on 5 Missions at 7 Planets, in 5 Roles
- Correlated to State & National Standards

Planetary Outpost

STEM FOCUSED SCHOOL WORKSHOPS

THE ROCKWELL ADVENTURES SOLAR SYSTEM EXPEDITION

FREE Augmented Reality App!

HANDS ON PLANET EXPLORATION

2019 CLASSROOM EDITION

- Explore & Measure The Planets
- Land Probes On Each Planet's Surface
- Space Colony Design Challenge
- Pre & Post Exploration Tests
- Correlated to State & National Standards

Solar System Expedition Student Presentation

3D PRINTABLE STEM KIT WIND TURBINE CHALLENGE

3D ENGINEERING CHALLENGE

- Students Research, Build, Test, and Compete With Custom Blade Designs
- Learn The Engineering Design Process
- 3D Print an Unlimited Number of Turbines
- Correlated to State & National Standards

Wind Turbine Challenge Student Presentation

FREE PROFESSIONAL DEVELOPMENT

FREE WEBINARS!!!

The Future Is Here! Accelerating STEM Education Using Augmented Reality

Accelerating STEM Education Using Augmented Reality

FREE WEBINARS!!!

Low Cost, Easy To Use 3D Design & 3D Printing Resources for STEM!

Low Cost 3D Design & 3D Printing Resources for STEM

THE ADVENTURE BEGINS

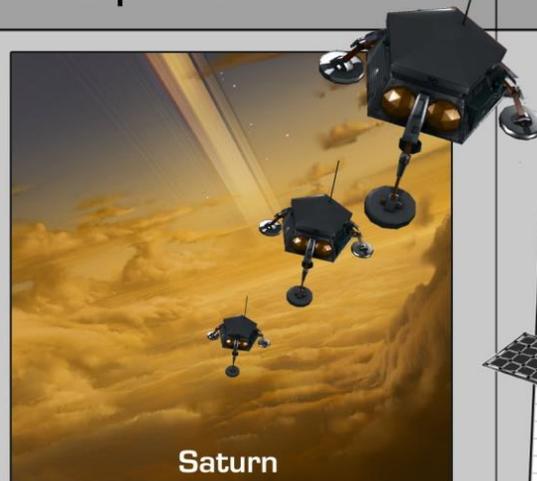


Join the Rockwell family on their Top Secret mission to colonize a new planet. This fun-filled STEM-focused tour of the Solar System teaches students basic facts about each of the planets, and challenges them to design a base that is appropriate for the planet they choose to colonize. During this mission, students use this workbook and the companion Zappar augmented reality app to:

Measure Each Planet



Explore Each Planet



Saturn

Design A Suitable Base

