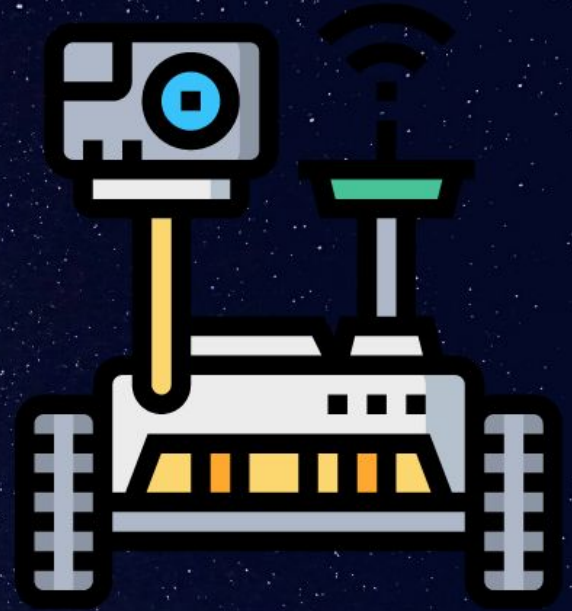


STEM SPACE

AT HOME



Build a Rover
Challenge



#STEMspaceathome



NEW WORLDS
AWAIT YOU



WEX FOUNDATION
ADVANCING CAREERS IN SPACE



STEM EDUCATION
vivify



STEM Space At Home Activity Guide

How to use STEM Space At Home:

1. Print the following student activity pages.
2. Have students watch the engineering challenge video and mission overview: [Click here to watch the video](#) and view additional resources.
3. Students use the activity guide to complete the engineering design challenge. Students can upload their completed design via Flipgrid. Teachers will need to create a Flipgrid account and topic board. More details at flipgrid.com. If not using Flipgrid, let students know to ignore the Flipgrid notes on the guide.
3. Post and view other designs using #STEMspaceathome.



Digital STEM Journal: Flipgrid

Flipgrid is a platform to share videos of design solutions. Teachers can moderate responses for a safe environment that builds community. Below is an editable template to help students with a script for their video. This can be combined with the printed or Google Slides journal.

<https://blog.flipgrid.com/gettingstarted>


Engineering Design Process

1
 Identify the Problem

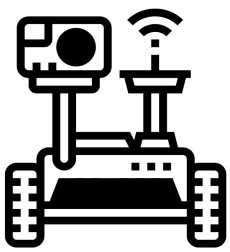
2
Brainstorm 

3
 Design

4
Build
Test & Evaluate
Redesign



5
Share Solution 



Rover Exploration Challenge

Name: _____

1

Your Mission: Design and build a rover to transport rock samples.
Go to Flipgrid for mission instructions. Code: _____

Flipgrid

2

Engineering Design Rules

- Only use provided materials
- Carry at least 1 ping pong ball a distance of 1 foot or 30 cm
- Use the vibrating motor to propel the rover forward

Gather Materials Needed

- Scissors & Tape
- 1 Coin cell battery
- 1 Vibrating motor
- 2 Bendy straws
- 1 Ping Pong Ball
- 1 Paper cup
- 3 pieces of construction paper

3

Brainstorm ideas for your design. Draw at least one idea below.

How will you use provided materials to design a rover to move a ping pong ball? Brainstorm ideas for different designs.

As you build, make sure your device meets the engineering design rules above!

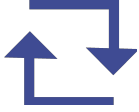
4

Build



Rover Exploration Challenge

5



Test → Evaluate → Improve

Test your rover! Complete the table below to record results. Keep making changes and re-testing to improve your design.

Trial	Does your rover move forward?	Can your rover carry a ping pong ball?	How far can your rover travel?	Design Notes
1	Yes / No	Yes / No		
2	Yes / No	Yes / No		
3	Yes / No	Yes / No		

How could you improve your rover to move the ping pong ball?

6

Share your solution on Flipgrid!



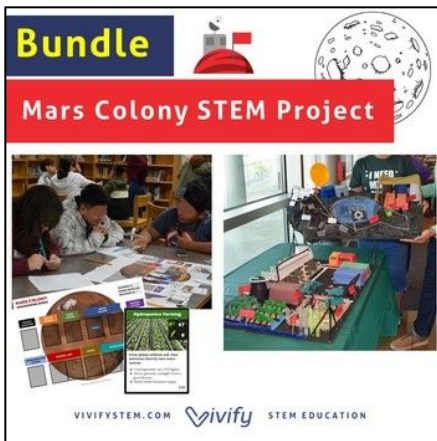
Write out a script below answering each prompt. Go to Flipgrid using the same code, and record a response to share your design.

1: Share your design! How does it work?

2: What happened during building & testing?

WANT MORE STEM?

For a complete list of all of Vivify STEM resources broken down by standards, topics, and grade levels, go here: bit.ly/VivifyResourceGuide



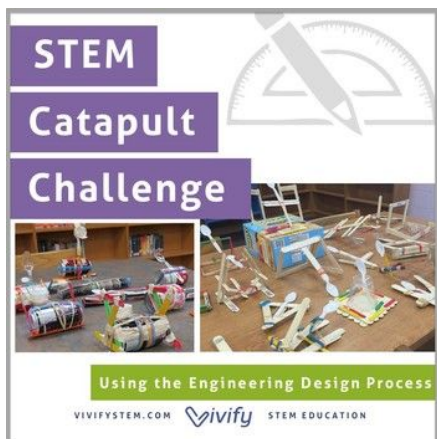
bit.ly/VivifyMars



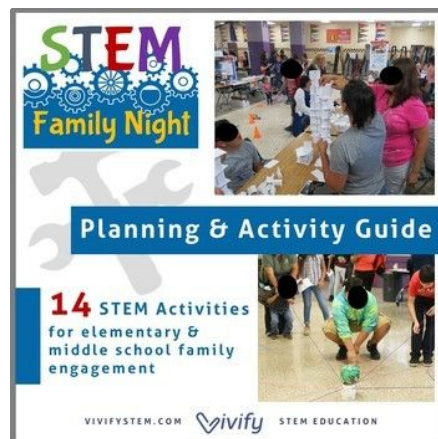
bit.ly/Vivifyspacebundle



bit.ly/icebreakerbundle



bit.ly/Vivifycatapult



bit.ly/STEMfamilynight



bit.ly/Vivifybotany

Vivify's Overview of STEM Education

Successful STEM education is an empowering interdisciplinary approach that brings math and science concepts to life through problems that mimic the complexities and excitement of the real world. STEM revolves around the Engineering Design Process that embraces failure, relies on teamwork, and requires critical thinking and creativity. While exciting, educators often become intimidated as a search for curriculum leads to an overwhelming range of activities from index towers to robotics competitions. At Vivify, we believe that not all STEM is created equal. Educators should adopt a [3 Stages of STEM](http://bit.ly/stemstages) approach by progressively building towards more complex projects.

To learn more about the 3 Stages of STEM, go here: <http://bit.ly/stemstages>

LAUNCHPAD MARS

Want a complete STEM curriculum focused on space? Check out our Mission to Mars and Mission to Moon series for elementary and middle school projects: <https://www.vivifystem.com/blog/2019/6/13/mission-to-mars-launch-kids-into-stem>



Thank You!

Thank you for downloading a Vivify product! If you have any questions, please email us at info@vivifysystem.com.

Terms of Use

All pages of this packet are copyrighted. You may not create anything to sell or share based on this packet. This packet is for one classroom use only. If others like this lesson, please direct them to the Vivify TpT Store at www.teacherspayteachers.com/Store/Vivify or to www.vivifysystem.com. You are welcome to share the cover image of this packet on your blog or via social media as long as you link back to the original product link.

About Vivify

Vivify is a team comprised of two Aerospace Engineer friends, Natasha and Claire, who live in Texas. We met as college classmates and roommates at Texas A&M University and later left engineering careers in the Department of Defense and Air Tractor to pursue our passion for STEM education. Learn more of our story [here](#).

Our goal is to bring engineering to life—to vivify learning—for kids of all ages. Please connect with us so we can learn how to better serve your students!

- Natasha & Claire, The Vivify Team



Connect with us for free STEM resources!

Subscribe to our newsletter and receive access to a library of free STEM resources through www.vivifysystem.com. Follow us on social media or listen to “The STEM Space” podcast for more resources and ideas. We also welcome you to join [“The STEM Space”](#) Facebook group to connect with other educators across the world.



bit.ly/Vivifyig



bit.ly/Vivifyfb



bit.ly/Vivifytwitter



bit.ly/thestemspace