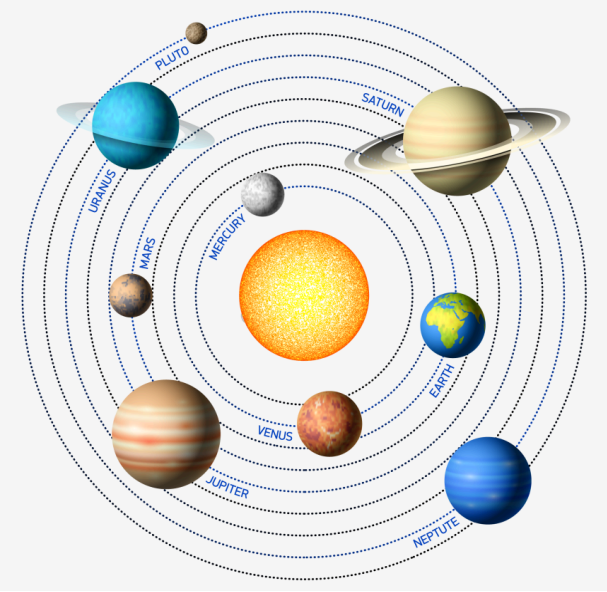
Virtual Space Day 2020



Hi Teachers!
The Space Day Committee is bummed that we cannot offer our in person activities on Friday May 1st, but we would like to offer a wide variety of activities your students can do at home. Below is a compilation of activities that you can provide to your students starting Monday, April 27th through Friday, May 1st. If your week is already packed with other curriculum, feel free to offer the Monday-Thursday info/videos/activity on Friday. Our goal is that all activities can be completed with what students have at home and they are intended to be fun. We know this is a stressful time, so these are all completely optional! If you have any questions, please reach out, roxspaceday@gmail.com.

Artistry of Space Day

(Please share with your students)
Keep your eyes peeled for Space themed rocks while on your walk around the neighborhood. Feeling creative? Paint a space themed rock and leave it for someone to find, or chalk the solar system in your driveway. Snap a picture of your rock or solar system and email it to engineering teacher, Ms. Chantel Estes (pcestes@dcsdk12.org). She will post it to the Tinker Lab Page.
(https://sites.google.com/view/tinkerlab-of-engineers/tinkering-at-home?authuser=0).

Daily Space Facts and a Video/Activity to be Shared with Your Students Each Day

Monday - Jupiter

This Friday we will be celebrating Space Day!! Woohoo!!! Each day this week we are going to offer some cool Space Day facts. Today we want to give you some fun facts about Jupiter!

Jupiter is the fourth brightest object in the solar system and is the largest planet in the solar system. It is 300 times larger than Earth. The Great Red Spot on Jupiter, is a storm that has raged for at least the last 350 years. The storm is so large that three Earths could fit inside it. The Juno Spacecraft, launched in 2011 and arrived at Jupiter on July 4th, 2016. That is one long flight! Here is a video flying over the

Great Red Spot. It was created by combining an image from the Juno Spacecraft with computer generated animation. **https://m.youtube.com/watch?v=uj3Lq7Gu94Y**

Tuesday - Mars

This Friday we will be celebrating Space Day! Can't wait! Each day this week we are going to offer some cool Space Day facts. Today we want to give you some fun facts about the planet Mars!

Mars is the fourth planet from the Sun and is the second smallest planet in the solar system. Mars is home to the tallest mountain in the solar system. Olympus Mons, a shelf volcano, is 13 miles tall, and many believe that the volcano could still be active. To compare to our tallest mountain on Earth, Mount Everest's peak is 5.5 miles above sea level. That is one tall Martian mountain! Mars has the largest dust storms in the solar system, they can last for months and cover the entire planet. There are signs of water on Mars - dark stripes on crater walls and cliffs are seen in satellite images. Due to Mars' atmosphere, this water would have to be salty to prevent it from freezing or vaporizing. At Mars' equator there is an extensive canyon system known as the Valles Marineris. It is over 2,600 miles long, and in places it is over 4 miles deep.

Humans have been exploring Mars for more than 50 years with robotic spacecraft. Below is a video that shows some of the highlights from the Mars exploration.
https://www.youtube.com/watch?v=pwipxdQ74pU

Wednesday - Moon

This Friday, we will be celebrating Space Day! Yay! Each day this week we are going to offer some cool Space Day facts. Today we want to give you some interesting facts about the Moon!

The Moon is the Earth's only natural satellite. The moon is in synchronous rotation with the Earth, which means the same side is always facing the earth. The Moon rotates around on its own axis in exactly the same time it takes to orbit the Earth. The moon has much weaker gravity than Earth, so you would weigh about one sixth of your weight on Earth. This is why the lunar astronauts could leap so high in the air during their space walks. The Moon has no atmosphere which means it's unprotected from cosmic rays, meteorites, and solar winds. This also causes huge temperature variations, when sunlight hits the moon, temperatures can reach 260 degrees Fahrenheit. When the sun goes down, temperatures can dip to minus 280 Fahrenheit. With no atmosphere, no sound can be heard on the moon, and the sky always appears black.

RXP Classes - check out the following video about the moon,
https://solarsystem.nasa.gov/resources/2476/whats-up-video-july-2019-skywatching-tips-from-nasa/

RXI Classes - check out the following video about the moon,
https://video.nationalgeographic.com/video/101-videos/00000164-b3ea-d247-ab67-b7ea483e0000

Thursday- Living in Space

Tomorrow is Space Day!! Yipee! Today we want to talk about some fun facts involving Astronauts!

Did you know that the word Astronaut comes from the Greek words “astron nautes”, which means “star sailor”? The astronaut’s space suit provides them with air, protects them from extreme temperatures of space, and protects them from radiation from the Sun. Sometimes, the spacesuits are tethered to the spacecraft so the astronaut won’t float away. Other times, the space suit is equipped with small rocket thrusters to allow the astronaut to navigate around the spacecraft. To become a NASA astronaut trainee, you are required to be a U.S. citizen. You must pass a strict physical exam, have 20/20 vision, and good blood pressure. Once selected, NASA astronauts spend 20 months training in a variety of areas. To simulate spacewalks and test equipment, astronauts often have to train underwater in swimming pools here on Earth.

RXP Classes- Dress a Friend in Space: Learn about **what astronauts wear in space** then use recyclable materials to dress a stuffed animal to go to space. Watch this **video** to learn more.

You need to prepare for:

- No oxygen
- High levels of radiation
- Extreme high and low temperatures

Materials:

- Plastic grocery bags and rubber bands (space suit)
- Empty plastic bottles (air tank and helmet)
- Straws (tubes to deliver oxygen)
- Tape


RXI Classes - Design your own space suit. See the following PDF document to learn about Spacesuit Design. **https://drive.google.com/open?id=1gV6Ik41I0XgYXaM-WKRIj2ygTy-bILIB**
What would your Spacesuit look like? What features would it have?

Remember, if you want to share your creations, don't forget to snap a picture (no videos please) and email it to engineering teacher, Ms. Chantel Estes (pcestes@dcsdk12.org) and she will post it to the Tinker Lab Page. (https://sites.google.com/view/tinkerlab-of-engineers/tinkering-at-home?authuser=0).

FRIDAY

School Wide Activities (teachers feel free to offer any of the below options to your students)

Class Space Themed Costume Party - Ask your students to dress up in their favorite space themed attire (i.e. Star Wars, Star Trek, Alien, previous Space Day Shirt, etc.) for your Friday class video call.

Celebrate the Hubble Telescope's 30th Anniversary
What did Hubble see on your birthday -
https://www.nasa.gov/content/goddard/what-did-hubble-see-on-your-birthday

Here is a video that discusses the amazing Hubble Telescope -
https://www.youtube.com/watch?v=403-XMKwqk4

Everyday Inventions that came from Space Exploration - check out this video
https://www.thelisttv.com/the-list/space-inventions/

Story time with an Astronaut - Check out **https://storytimefromspace.com/library/** (click "Read in space by…" for each link to open to the astronaut reading the book)

Build a Moon Habitat - (Kindie-4th) Learn about moon habitation and then build a moon habitat for you or a stuffed animal using newspaper, blankets and pillows, or whatever you have at home. This activity is intended for families that did not do this activity in the 5th grade moon base learning unit.
https://spaceplace.nasa.gov/moon-habitat/en/

Grade Level Activities

Kindergarten Activities
Book - All My Friends are Planets :**https://www.youtube.com/watch?v=w5YjCiE-9Hk**

Mars Critters (Activity 3) -
https://drive.google.com/open?id=1BeHTBNJ_TBXJ_fSBPNI7mE0l2BbTew_U

1st Grade Activities
Selfie in Space - NASA Selfies, Jet Propulsion Laboratory app, have parents download the app and take their child's picture in space. **https://www.jpl.nasa.gov/apps/#nasaselfies**

Astronaut Training - 1st graders normally spend a couple of hours in the gym doing astronaut training. Below are a couple activities they can do at home. See the following link for additional info:
https://drive.google.com/file/d/1YLrXwuvUNGAglhteF9_Aqgr5cYrP7dz_/view?usp=sharing

- Open the lid of a container, is it easy or hard? Now spin around in a chair or on the floor and then try to open a container. Is it easy or hard?

  Astronauts must develop muscular strength and coordination. In a reduced gravity environment, astronauts are unable to walk or do everyday tasks like they do on Earth. Instead, they coordinate their hands, arms, and feet to pull and push themselves from one place to another. During and after space flight, astronauts have challenges with balance and spatial awareness. When they return to Earth, they relearn how to use their eyes, inner ear (balance) and muscles to help control body movement.

- Take your pulse, then run in place for 30 seconds and take it again. Did your pulse change? Is your heart rate slower or faster?

  Astronauts have to physically train for being in space. They must perform physical tasks in space that require strong muscles and bones. In a reduced gravity environment, muscles and bones can become weak, so astronauts must prepare by strength training. They train with NASA exercise coaches by running and lifting weights on Earth. They continue to work out in space to keep their muscles and bones strong for exploration missions and experiments.

- Put gloves on and build with building blocks, such as legos. Is it easier or harder with the gloves? Do you think it is easy or hard for astronauts to work with space suits and gloves on?

  To protect against the hostile environment of space, astronauts wear special gloves that are pressurized and have multiple layers. They feel similar to ice hockey gloves. Astronauts must have strong muscles and endurance to overcome the bulk and pressure inside their gloves and spacesuit.

2nd Grade Activities

2020 NASA Overview Video - https://www.youtube.com/watch?v=mB1nAzriqRQ

Paper Airplane - Learn about how things fly, create paper airplanes and measure how far it goes. Make modifications and see how those modifications change the flight. Watch the following video that explains how things fly, http://howthingsfly.si.edu/ Click here to choose different airplane shapes, http://howthingsfly.si.edu/activities/paper-airplane

3rd Grade Activities

Straw rockets - Build, test, record distances of different size/design of rockets
https://www.youtube.com/watch?v=0hThMoHB88w

Create your own Mission Patch - Learn about the meaning behind mission patches and why astronauts design their own mission patches:
https://airandspace.si.edu/stories/editorial/meaning-mission-patches
Now create your own with this template:
https://drive.google.com/open?id=1ZBjsplmmSsp686N5DH6mpb5P3uQn7WPZ
Or go outside and draw one with sidewalk chalk

4th Grade Activities

Straw rockets - Build, test, record distances of different size/design of rockets
https://www.youtube.com/watch?v=0hThMoHB88w

Edible Mars Rover -
Create your own mars rover using materials you have at home. You can make it edible by using graham crackers, candy, and frosting or you can make it out of cardboard, construction paper, glue and tape.
Instructions are here:
https://drive.google.com/open?id=1qtfQVZnCOZqlwYv-TLMDq9CtnDpcKWrU

5th Grade Activities

Straw rockets - Build, test, record distances of different size/design of rockets
https://www.youtube.com/watch?v=0hThMoHB88w

Space Jeopardy - teachers can offer this on a zoom call with their students. This powerpoint presentation provides answers and questions.
https://drive.google.com/open?id=1qsQuZNaZ7-EPJeOmzh7k5v6XkJXYdSrD

6th Grade Activities

Straw rockets - Build, test, record distances of different size/design of rockets
https://www.youtube.com/watch?v=0hThMoHB88w

Astronaut Lander Mission - Create a Mars lander that will protect two astronauts landing on the Red Planet. Use a small paper or plastic cup as your cabin. Place two astronauts inside of the cup- could be two large marshmallows, two LEGO guys or anything small you have at your house. Design and build a shock absorber attached to a platform to create your lander. Drop your lander from different heights,(2', 3', 4' etc.) and see if your two passengers stay inside the cabin. If you don't have straws or marshmallows, use any materials that you have- cotton balls, bubble wrap, balled up tissue paper, old bouncy balls, sticks etc.
Watch the following video to understand the engineering challenge of landing a spacecraft on Mars.
https://www.youtube.com/watch?v=Ki_Af_o9Q9s
See the following link that explains the mission,
https://www.jpl.nasa.gov/edu/learn/project/make-an-astronaut-lander/
See the following link for teacher instructions and an example of a lander,
https://drive.google.com/file/d/1JzCBIq8NFOjsuJAjNmKQDe-LDHMatJpe/view?usp=sharing