This Week's Project/Assignment is--5th and 6th Grade Builds a Colony on Mars (Week of May 11-15)

Please complete activities from the choice board to be submitted for feedback. We recommend a few activities a day, but feel free to complete more. Feedback may be submitted in one of the following ways: 1. Phone call or email to or from the teacher summarizing learning for the week. 2. Send a message to the teacher or post a picture using a communication platform such as Class Dojo or Google Classroom.

ELA Standards/Skills: I can explain my ideas clearly using correct grammar, spelling, and punctuation (L.5.2, L.6.1, L.6.2). I can compare and contrast topics. (RI.5.5)

Writing and Speaking Standards/Skills: I can write opinion pieces supporting a point of view with reasons and information (W.5.1). I can initiate and participate in collaborative discussions, respond thoughtfully, and propel conversations (SL.5.1, SL.6.1). I can write informative/explanatory texts to examine a topic and convey ideas clearly (W.5.2, W.6.2). I can write a narrative. (W.3). I can produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose, and audience (W.6.4). I can write for a range of discipline-specific tasks, purposes, and audiences (W.6.10).

Math Standards/Skills: I can find the area of polygons (6.GA.1, 6.GA.4). I can fluently multiply and divide decimals (NBT.5.7). I can solve real world multi-step problems using the correct operations (6.NSA.1). I can represent and interpret data (5.MD.B.2). I can convert like measurement units within a given measurement system (5.MD.A.1). I can find the percent of a quantity (6.RP.3.c). I can multiple and divide fractions to solve a problem (5.NF.7)

Social Studies/Science Standards/Skills: I can integrate visual information with other information in print (RH.6-8.7, SS.G.1.6-8LC). I can design, use, and revise models and record the outcomes (SEP.2)

Art/Music/Physical Education Standards/Skills: I can organize and develop artistic ideas and work (CR.3). Select or choose music to listen to and explain the connections to specific interests or experiences for a specific purpose. (MU:Re7.1.6a) Demonstrate and explain how the expressive qualities (such as dynamics, tempo, timbre, and articulation) are used in performers' and personal interpretations to reflect expressive intent (MU:RE8.1.5a) Demonstrate openness in trying new ideas, materials, methods, and approaches in making works of art and design. (VA:Cr2.1.6a) Experiment and develop skills in multiple art-making techniques and approaches through practice. (VA:Cr2.1.5a)

English/Language Arts	Math	Social Studies/Science/PLTW/Career and College Readiness	Art/Music/Physical Education

	Mars is 114.41 million miles away. How fast would you have to travel to get there in 50 years? 5 years? 5 days? 5 min?	How will you get to Mars? Build this simple rocket and see how far you can make it fly. You will need a piece of paper, pencil, scissors, straw and tape: Draw a picture of a rocket and a plain rectangle the same size. Cut out these two pieces- the rocket and the rectangle that you roll to put the straw in. Decorate the rocket in any way desired.Roll the rectangle the long way- tightly around a pencil and tape the paper to keep it rolled. Fold it over at the top and secure the fold with tape to keep it down. You should have one end of the paper closed (taped down) and one end open for the straw. Tape the rolled piece to the back of the rocket.Insert a straw into the open end of the rolled piece and blow the rocket up into the air~ again and again and again!	Sketch any of the following astronomy drawing prompts. Topics will also be posted on the South View Facebook page along with other information about astronomy: asteroids, Milky Way, Man in the Moon, Aurora Borealis Sky, comet, solar system, satellite, and star constellations.

	Inside the orbit of Jupiter, our solar system has five large objects; four of these are the planets Mercury, Venus, Earth and Mars. The fifth object is our own moon! These objects are almost perfectly round, but they are not all the same size. From the clues below, can you figure out just how large the planet Mars is in kilometers? Clue 1 – Mercury is 7/5 the diameter of the Moon. Clue 2 – The Moon is 7/25 the diameter of Earth Clue 3 – Mars is 7/5 the diameter of Mercury Clue 4 – The diameter of Earth is 13,000 kilometers (8,000 miles).	The study of mars has been around since the Ancient Egyptians astronomers. Galileo studied Mars with his own designed telescope in 1610. Since then Mars has been a hot topic of research. Since the 1960's NASA has sent many multi-robotic spacecraft to explore the planet. In 1920, the temperature was measured at -85degrees to 7 degrees C. Before that even in 1877 refined maps were being created about the Red Planet by researchers. Before that, in 1870 there were yellow clouds observed on Mars thought to be sand blowing/windstorms I am thinking that led to the refined maps in 1877. Then in 1947 the atmosphere was researched by Gerad Kuiper. Mars has always been a hot topic for research. You need to create a timeline and label it using the information so that you can use this information on building a colony.	The War of the Worlds is a famous science fiction story by H.G. Wells was also an infamous radio broadcast in 1938 that caused a panic because people thought Martians really were invading Earth! Draw a picture of a "Martian" as you imagine it, or, even better, if you can do some research, draw a Martian as H.G. Wells described them. Pretend you are an art director in charge of a remake of the movie (it's already been made into a movie at least 6 times) and you need to show a sketch of how you will depict the Martians to your director.

Create the rocketship that will take you and your friends to mars. What do you think it will be made of? What is its shape...why? How many people will it hold? What safety mechanisms will need to be thought of. Draw the ship and label all the parts of it, then write an informative article about your ship.	Mars is known as the “Red Planet” because the soil is filled with orange-red particles. The gravity of Mars is 38% of Earth's gravity. Calculate your weight on Mars. (Multiply your weight in pounds by 0.38).	Make a Paper Mars Helicopter: NASA's Perseverance Mars rover, launching in July 2020, will carry the first helicopter to the surface of Mars! This helicopter has to be super lightweight to fly on Mars, where there is a thin atmosphere. It also needs large blades that can rotate really fast so it can generate enough lift to overcome the gravity of the Red Planet and lift off the ground. Mars’s atmosphere has only 1% of the particles of Earth’s atmosphere. To generate enough lift for the Mars helicopter, engineers gave it two sets of enormous blades that are 4 feet (1.2 meters) across and rotate about 10 times as fast as helicopters on Earth. Experiment with the design of your helicopter to see what works best.	Create a stained glass suncatcher of Mars by gathering some liquid glue, a plastic circular lid and some food dye or paint. First, cover the inside of your lid using your liquid glue. We know that Mars is called the "Red Planet", so drop in some colors using food dye or paint to create a swirl of warm colors (Red, Orange and Yellow). Use the end of a paintbrush or a toothpick to mix up your colors a bit. Let your creation dry overnight. When it is dry, pop your stained glass out of the lid by gently pushing or bending it. Hang up your masterpiece in the window and enjoy!
Create a poster to advertise your new colony on Mars. Why should people want to leave Earth and relocate to your colony? Why would it be better than Earth? Be creative!	A Martian year is 687 days. There are 365 days per year on Earth. If you are 10 years old, you have lived 3,650 days. How many days would you have to live to be 10 years old on Mars? Calculate your age on Mars. Multiply your Earth age by 365. That will give you the amount of days lived on Earth as of your last birthday. Then, divide that by 687. That will give you your age, in years on Mars. Mr. Cravens would be a youthful 22 years old on Mars! Bonus question: How old is Mr.	One of the interesting things about gravity on other planets is how our weight "changes" on other planets in our solar system. When working out, one of the ways to challenge your body is to add weight. Instead of throwing them away, wash out 2 gallon milk jugs (or half-gallon if that is what you have) milk jugs - with soap and water- and then fill them with water and put the cap back on. Now go for a run, carrying the extra weight of the milk jugs. (Hint: this is how some sports teams get their players in shape!)	You are now tasked with describing the new music the colonists have created on Mars. Make sure you answer all of the following questions. What's the speed of the music (tempo)? What instruments are playing? How loud or soft is it (dynamics)? What Earth song is closest to the new music they've created? What message are the colonists trying to spread with their music?

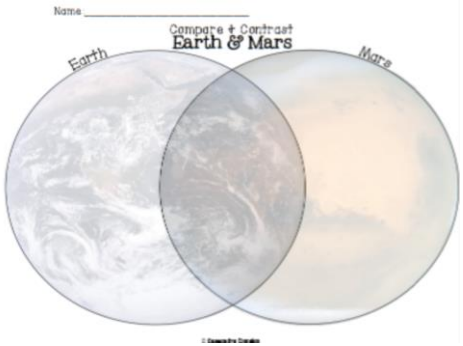
	Cravens here on Earth?		
Imagine if you're an astronaut. What's it like? Research and write about it in 3-5 paragraphs.	Since Mars has less mass than Earth, the surface gravity on Mars is less than the surface gravity on Earth. The surface gravity on Mars is only about 38% of the surface gravity on Earth or 38/100. So, if you weigh 100 pounds on Earth, you would weigh only 38 pounds on Mars. What would you weigh on Mars if you weighed 150 pounds on Earth? 200 pounds? Mr. Cravens weighs 250 pounds here on Earth. What would he weigh on Mars?	Mars is red because the surface dust has iron oxide, or rust particles in it. List 10 common, everyday objects that, if exposed to the elements, will rust.	Go outside and create a model of what your travel path from Earth to Mars will look like. Use any materials you can find outside - rocks, grass, chalk, sticks. Be sure to include the Earth, Mars, any other planets you may pass or see, the moon, your space craft. Be creative! Take a picture of it and send it to your teacher!

Pretend you have landed on Mars and you are writing a letter home to a family member or friend. What did you find on Mars? How was your trip from Earth to Mars? Where do you think you landed on the Red Planet? Why should your family member or friend visit you on Mars? Here are guidelines for your letter: 1. Write your address at the top (you can make up your Mars address). 2. Skip a line, then write the date. 3. Skip a line and write the recipient's address (the recipient means the person receiving your letter... either your family member or friend. 4. Skip a line and write the greeting: Dear _____, 5. Write the body of your letter (The body of the letter is where you write about how your trip went/is going, what you have found, where you landed, why your family should visit, etc.) 6. Write your closing: Sincerely, _____. 7. Sign your name.	Mars is home to the highest mountain in our solar system, a volcano called Olympus Mons. It stands at a whopping 24 kilometers high, and about three times the height of Mount Everest! How tall is Mount Everest in kilometers AND meters? Hint: 1 meter = 0.001 Kilometers	Compare weather patterns of Earth (use the weather from your area) to the weather patterns of Mars. Use charts and tables to find Earth and Mars' temperature, wind speed and direction, barometric pressure, and any other information regarding weather or atmosphere. How does the weather on Mars compare to the weather in your area? Which planet did you expect to have a higher temperature? How does wind speed and direction affect the atmosphere?	Are you familiar with the concept of a "fairy garden"? It's a garden in miniature. Using clean junk - throw-aways like milk jug caps (wash with soap and water anything that's washable) toilet paper cardboard rolls, etc., and natural materials you can find outside, such as rocks, sticks, etc. - to create a Mars landscape. The surface itself is pretty bare, but you can use your materials to build a miniature Mars colony.

Predict what you think you will find on Mars? What kind of rocks? Is there any water? If so, how much? What does the ground look like? What does the sky look like? Are there any people or animals? Write your prediction and describe the above in a 3 (or more) paragraph narrative.	You are allowed to bring personal items on the space craft with you, however they must fit in the NASA approved bag. The bag is 5 inches by 8 inches by 2inches and can weigh a maximum of 1.5 pounds. Think carefully, what personal items would you bring to space with you that would fit in the approved bag?	What are hydroponic plants? What do plants need to grow? If plants can grow without soil, what do you think they need instead of soil? One cubic yard of dry topsoil weighs 2,000 pounds (1 Ton). Topsoil is the top layer of dirt on the Earth's surface. The weight of soil is extremely heavy, and it is not realistic to transport soil to Mars.	Mars is known as the "red planet". Using whatever art supplies you have available, create a "study in red". You can use watercolors, markers, crayons, food coloring, chalk. Layer the colors, create a pattern...and if you can, share a picture with your teacher.
Write a speech stating your opinion why you should be selected as one the first people on Mars. What qualities do you possess that would make you a good candidate? If you could bring one person along with you, who would it be and why would you bring them along?	Traveling to Mars takes between six to eight months. To become an eligible passenger, a person must train for 4 months. One revolution of Mars is almost twice the length of a year on Earth. Because of the negative impact on the body, people cannot remain on Mars for more than 2 Mars years and must remain on Earth for at least 6 Earth months. No more than 80 passengers (not including the flight crew) can be on the shuttle at one time. Using this information, design a schedule to send a team of 240 colony developers on a rotation basis that includes a training schedule, a schedule for traveling to Mars, a schedule for returning to Earth, and an Earth layover schedule. The colony developers have 8 years to finish the set up.	If you build a 100 sq ft space area to plant your garden, how many plants can you plant if the plants are 8 inches apart?	Building shelters will require a lot of heavy lifting! Take a few minutes each day to do 15 push-ups and 15 squats to improve your overall strength! After a week or two add 5 more to each.

Fables are short stories that usually involve talking animals and teach a moral or lesson at the end. Imagine a new animal or critter we might find on Mars. Write a Martian fable using the new animal as the main character. You use all made up characters or, incorporate a Martian and Earth animal into the story.	NASA allows 3.8 pounds of food per person per day on a space flight. (1 lb. of that weight is packaging). If the journey to Mars takes 200 days how many pounds must be carried to feed one person? A crew of 4? 100 passengers?	Mars One is an actual organization that has the goal of starting a human colony on Mars. Over 30,000 Americans have already filmed video applications to join them on their one way trip to the red planet. Only about 100 of them will be picked to join Mars One. Write a script for your video application to Mars One. Explain what skills you have that make you a valuable crew-member. How will you deal with the harsh climate of Mars? Why are you fine with leaving Earth forever? What makes you stand out compared to all the other applicants?	The colonists have decided that they want to encourage more people to come to Mars. Write a short song that could be played on Earth that convinces them that they should come to Mars.

Resources



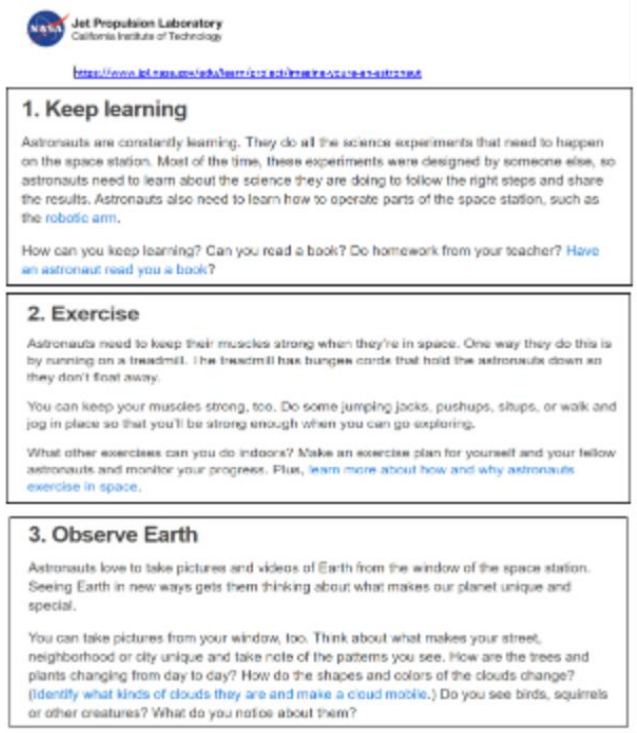
Name: _____

Informative Writing Graphic Organizer

Title: _____

Topic Sentence		
Fact #1	**Fact #2**	**Fact #3**
Detail #1	**Detail #2**	**Detail #3**
Conclusion		

"Mars would be better than Earth because..." "I think you should move to Mars because..." "Mars! The best colony to be on because..." "Looking for a new place to call home...then Mars is the place for you and here is why..."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1. Keep learning

Astronauts are constantly learning. They do all the science experiments that need to happen on the space station. Most of the time, these experiments were designed by someone else, so astronauts need to learn about the science they are doing to follow the right steps and share the results. Astronauts also need to learn how to operate parts of the space station, such as the robotic arm.

How can you keep learning? Can you read a book? Do homework from your teacher? Have an astronaut read you a book?

2. Exercise

Astronauts need to keep their muscles strong when they're in space. One way they do this is by running on a treadmill. The treadmill has bungee cords that hold the astronauts down so they don't float away.

You can keep your muscles strong, too. Do some jumping jacks, pushups, situps, or walk and jog in place so that you'll be strong enough when you can go exploring.

What other exercises can you do indoors? Make an exercise plan for yourself and your fellow astronauts and monitor your progress. Plus, learn more about how and why astronauts exercise in space.

3. Observe Earth

Astronauts love to take pictures and videos of Earth from the window of the space station. Seeing Earth in new ways gets them thinking about what makes our planet unique and special.

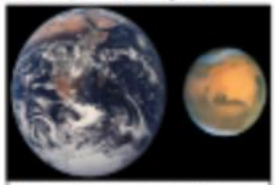
You can take pictures from your window, too. Think about what makes your street, neighborhood or city unique and take note of the patterns you see. How are the trees and plants changing from day to day? How do the shapes and colors of the clouds change? (Identify what kinds of clouds they are and make a cloud mobile.) Do you see birds, squirrels or other creatures? What do you notice about them?

All About Mars

Welcome to the Red Planet, and the fourth planet from the sun, Mars!

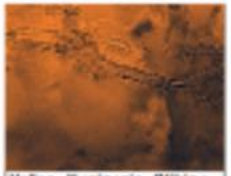
What does Mars look like?

In many ways Mars looks like planet Earth, except instead of blues and greens seen from afar, Mars looks reddish in color. Its surface is covered in canyons, volcanoes, and deserts. Mars has 2 small moons, Phobos and Deimos.



Mars is ½ the size of Earth.

The Red Planet has many craters (more than 43,000) from **meteorites** and **asteroids** hitting the planet. Mars has northern and southern polar ice caps.



Valles Marineris (Viking spacecraft image)

Mars is home to the largest mountain in the solar system, Olympus Mons, which is over 15 miles high! If that doesn't make this planet special enough, it is also home to the largest **canyon** in the solar system, Valles Marineris, which stretches 2,485 miles across the surface.

Mars Statistics	
Distance from the Sun	142,000,000 miles
1 Year (1 Revolution)	687 Earth Days
1 Day (1 Rotation)	24 hrs. 37 mins.
Hottest Temperature	86°F
Lowest Temperature	-246°F

What is Mars like?

Similar to Earth, Mars has seasons. However, they are much longer than ours since a year on Mars is almost twice as long as a year on Earth. The temperatures on Mars are also much colder. Mars has a very thin atmosphere, so it does not retain heat from the sun like Earth. The dust storms on Mars are larger than any other planet in our solar system.

What have we seen of Mars?

Scientists wonder if there may have been life on Mars in the past because it has water found in its polar ice caps, as well as in other parts of the planet. Mars has satellites orbiting it and **rovers** that have landed on it making close observations and studying its surface.

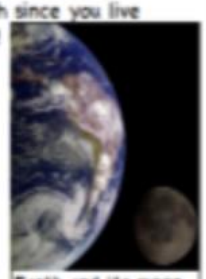
All About Earth

Welcome to your home planet, and the third planet from the sun, planet Earth! You may think you know everything about Earth since you live here, but there is a lot more to learn about our planet!

What does Earth look like?

When seen from space, much of Earth is covered by clouds and **water vapor**. Earth is *not* a perfect **sphere**, because the diameter between its north and south **poles** is slightly smaller than at the equator.

Earth is the only one of the four rocky, terrestrial planets to have one very large moon orbiting it.



Earth and its moon by Galileo spacecraft

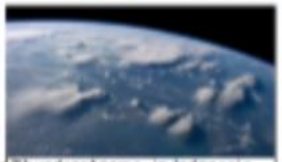
What is Earth like?

Earth's land is covered with mountains, hills, plains, deserts, and more. However, you might be surprised to know that 70% of Earth's surface is actually covered with water.

Our atmosphere is made up of mostly nitrogen, and oxygen so we can breathe. This atmosphere also protects us from incoming rocks, or **meteoroids**, coming from space by breaking them up before they have a chance to hit the surface.

Earth Statistics	
Distance from the Sun	92,960,000 miles
1 Year (1 Revolution)	365 ¼ Days
1 Day (1 Rotation)	24 Hours
Hottest Temperature	136°F
Lowest Temperature	-129°F

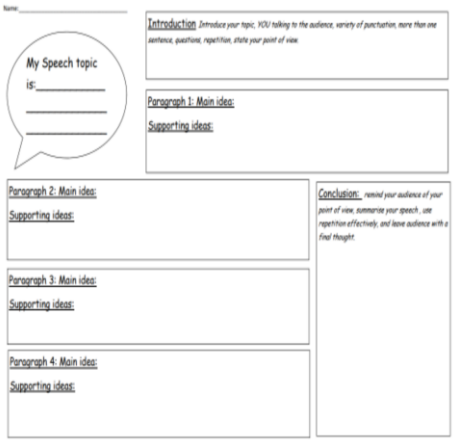
As the Earth rotates, the side of Earth facing the sun is in daytime and the side of the Earth facing away from the sun is in nighttime. As the Earth revolves around the sun, it is tilted slightly, giving us our four seasons.



Thunderstorms in Indonesia are viewed from the International Space Station

How do we see Earth from space?

We have many man-made **satellites** constantly orbiting our Earth to help us better understand climate change, pollution, weather predictions, and more about our planet.



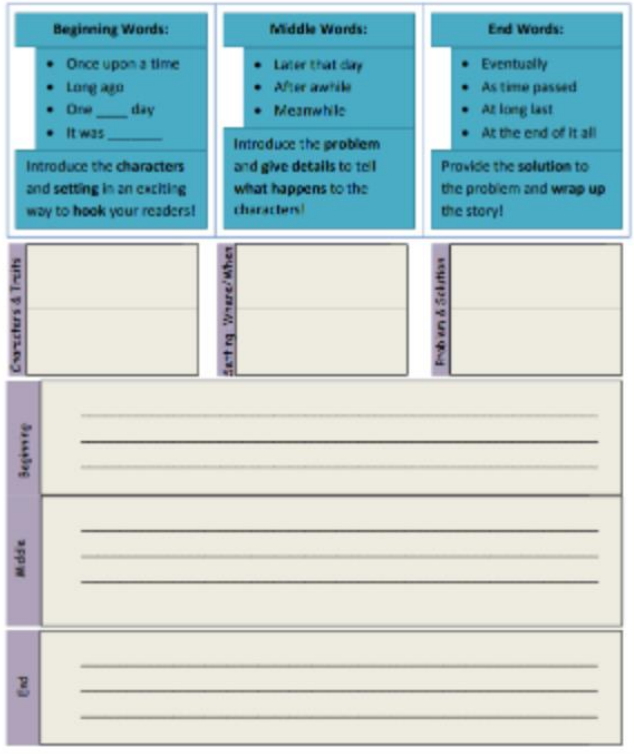
Once there was a _____ (choose an adjective that describes the animal you will select next) _____ (character 1: an animal who is sometimes naughty) who _____
(something he likes to do or shouldn't do) and a _____
(character 2: another animal) who _____
(something about the way this character looks, acts, or talks).

One day _____
(character 1) _____ (did something like jump in a mud puddle, ate spaghetti, rode a bike _____ (character 2)
_____ (reacted to what character 1 did) but then
_____ (something unusual happened that caused a problem.

"_____" said _____ (character 1)

"_____" said _____ (character 2)

Then _____ (one of the characters) _____
(did or said something surprising).



Topic Sentence:

If I traveled to Mars, I think I would find _____, _____, and _____.

Paragraph 1

Describe what the ground or sky would look like.

Paragraph 2

Are there people, aliens, or animals there?

Paragraph 3

Describe how much water there is or how many rocks you think there are.

Closing Sentence:

These are the things I think I would find if I traveled to Mars.

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4. Stay in touch

Astronauts keep in touch with their families by email and videoconference.

You can keep in touch with your family and friends by email, phone and video chat or by writing letters and drawing pictures. Make a list of the friends and relatives you want to stay in touch with. Call or write to a few people every day. They will be glad to know you are thinking about them.

You can also keep a journal of what you do every day, just like the astronauts do.

5. Stay clean

We all need to stay clean, no matter where we are. We wash our hands with warm water and soap. We brush our teeth. We take baths or showers.

Astronauts have special ways to keep clean while they're in space. Everything floats on the space station – even water! – so astronauts in space can't just hop in the shower or use a sink to wash their hands, so they need to get creative. Watch this video to see how astronauts wash their hair in space. Watch these videos to learn more about an astronaut's morning routine.

6. Get supplies

Every few months, a spacecraft travels up to the space station to bring supplies from Earth that astronauts need. During these "resupply missions," astronauts get fresh fruit – a real treat! – new experiments to work on, clean clothes to wear, clean water to drink and food to eat until the next resupply mission comes, plus a few other treats from home.

If you could plan a resupply mission for your home, what would be the most important items to include?

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7. Take time for fun

Relaxation and fun are important, whether you're in space or on Earth. Astronauts have some time every day to relax and do whatever they enjoy most.

Learn more about some of the hobbies astronauts do in space. Learn how some of your favorite toys behave in space.

What do you like to do for fun? What activities are most relaxing for you?

8. But wait, there's more!

Here are some things you can do at home that astronauts on the space station can't do:

1. Open a window. This is definitely not recommended for astronauts, who have the vacuum of space outside their window!
2. Breathe fresh air. Although the air on the space station is filtered, it's the same air that's been there for more than 20 years.
3. Wash your clothes. Can you believe there's no way to do laundry in space?
4. Walk. Okay, floating is cool, but sometimes it's nice to be able to walk around.

What else can you think of that you can do but astronauts in space can't do?