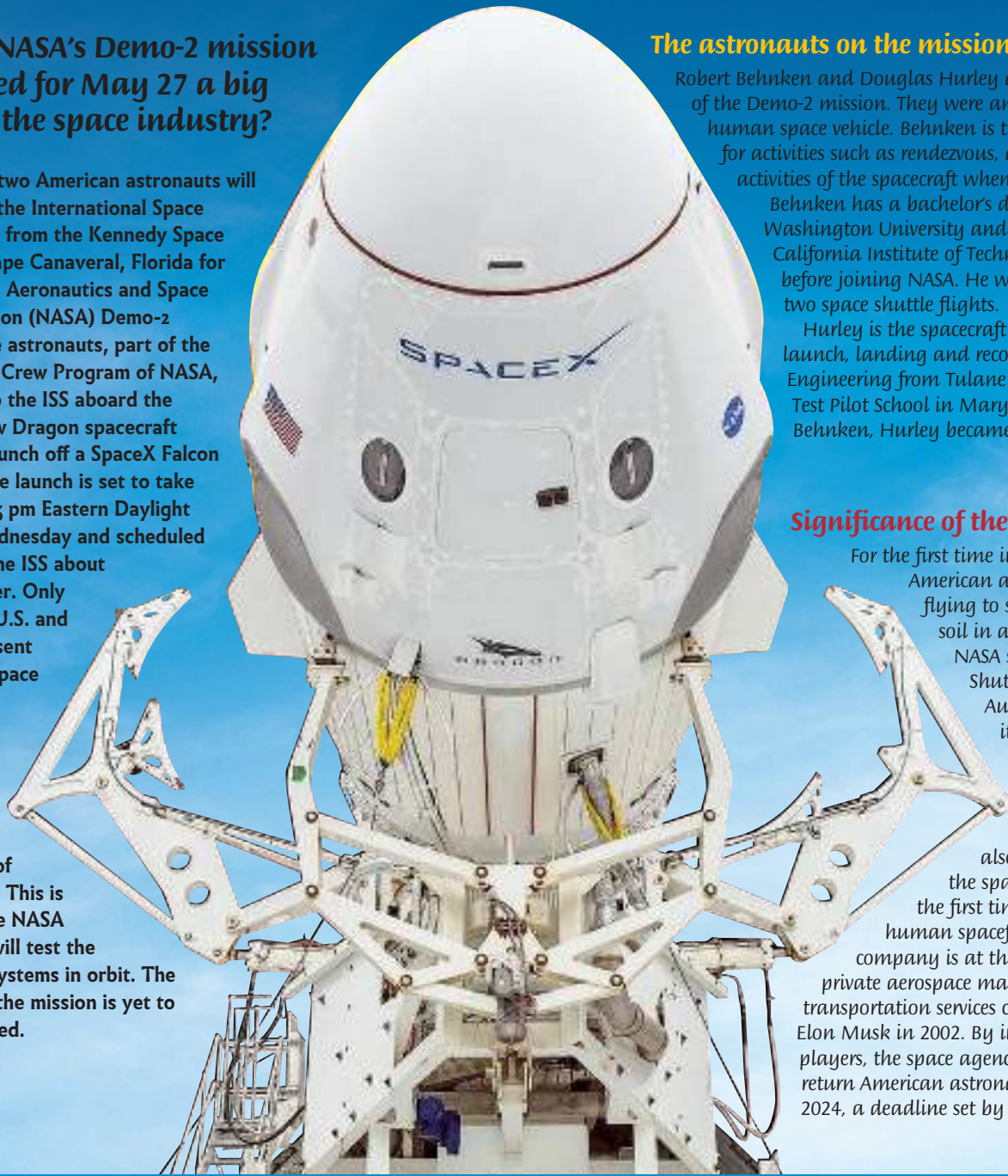


All set for Demo-2 run

Why is NASA's Demo-2 mission scheduled for May 27 a big leap for the space industry?

On May 27, two American astronauts will take off for the International Space Station (ISS) from the Kennedy Space Center in Cape Canaveral, Florida for the National Aeronautics and Space Administration (NASA) Demo-2 mission. The astronauts, part of the Commercial Crew Program of NASA, will travel to the ISS aboard the SpaceX Crew Dragon spacecraft which will launch off a SpaceX Falcon 9 rocket. The launch is set to take place at 4:33 pm Eastern Daylight Time on Wednesday and scheduled to dock at the ISS about 19 hours later. Only Russia, the U.S. and China have sent humans to space so far. This launch by NASA will take place on their home turf after a gap of seven years. This is the first time NASA astronauts will test the spacecraft systems in orbit. The duration of the mission is yet to be determined.



The astronauts on the mission

Robert Behnken and Douglas Hurley are the two astronauts who will be flying to the ISS as part of the Demo-2 mission. They were among the first astronauts to work and train on SpaceX's human space vehicle. Behnken is the joint operations commander for the mission responsible for activities such as rendezvous, docking and undocking. He will also be responsible for the activities of the spacecraft when it is docked.

Behnken has a bachelor's degree in physics and mechanical engineering from Washington University and a master's and doctorate in mechanical engineering from California Institute of Technology. He was a flight test engineer for the U.S. Air Force before joining NASA. He was selected as a NASA astronaut in 2000 and has completed two space shuttle flights.

Hurley is the spacecraft commander for Demo-2, responsible for activities such as launch, landing and recovery. He holds a Bachelor of Science degree in Civil Engineering from Tulane University in Louisiana and graduated from the U.S. Naval Test Pilot School in Maryland. He was a fighter pilot and a test pilot in the U.S. Marine Corps before joining NASA. Like Behnken, Hurley became a NASA astronaut in 2000 and has flown in two spaceflights



NASA astronauts Bob Behnken and Doug Hurley PHOTO: REUTERS

Significance of the mission

For the first time in seven years, American astronauts will be flying to space from the U.S. soil in an American rocket.

NASA shut down the Space Shuttle programme in August 2011. Ever since, it has been sending astronauts to space using the Russian Soyuz spacecraft. This mission is also path-breaking for the space industry, as this is the first time in the history of human spaceflight that a private company is at the helm. SpaceX is a private aerospace manufacturer and space transportation services company founded by Elon Musk in 2002. By involving private players, the space agency has a chance to return American astronauts to the moon by 2024, a deadline set by the White House.

Will coronavirus hamper celebrations?

With the coronavirus threat looming large, NASA has requested all space enthusiasts to stay at home and watch the live feed of the mission. However, the beaches near the Kennedy Space Center are now open to the public, and the local sheriff has asked people to come out and celebrate the joyous event.

What is the Commercial Crew Program?

NASA's Commercial Crew Program works with the American aerospace industry to send astronauts to space. It encourages private companies to develop spacecraft and launch systems capable of carrying NASA crew to low-Earth orbit and the ISS.

FUN FACTS

- The two astronauts will ride to the launch pad in a gull-winged Tesla Model X, white with black trim, colour coordinated with their new spacesuits and the rocket.
- If the Demo-2 launch is delayed, its backup window is May 30.
- Live coverage of the launch to docking will be available on NASA Television and the agency's website.

LEISURE CORNER

Make your own comic book

Tap into your imagination and come up with your own comic books and graphic novels

Watching or reading about the adventures of superheroes can be fun. But it's nothing compared to the joy of building your own characters and plots. Stan Lee, who created legendary characters such as the Hulk, Spider-Man and Doctor Strange, was just 17 when he became an editor at Marvel Comics. From an early age, he loved to read and write comic books. Whenever he could, he doodled, drawing figures and imagining their adventures.

Why it's fun:

Comics are more than just a pastime for some. They can encourage creative expression as well as motivate those who are self-conscious about their drawing skills. They are also great literary options for many reluctant readers, and amazing tools for children with learning disabilities.

Learn online

Here are some online resources that will teach you to create your own comics:
 ** **Marvel Kids** (www.marvelhq.com): You can create a 22-page graphic novel using the resources on this site. Choose from different styles



of panels and set-up given on the website. You can pick any of the existing Marvel characters including the Hulk, Falcon, and Wolverine as a protagonist, or create a web-warrior.
 ** **Make believe** (www.makebeliefscomix.com): Choose from 25 characters to fill a three-panelled comic strip and write dialogues. The site supports typing in seven different languages.
 Get ready to unleash your imagination!

QUEST

Saturn's story

A peek at a fascinating planet...

Unique rings

Saturn is a very large planet, second only to Jupiter in size. It is the sixth planet away from the sun in the solar system, and is unique because of the rings that encircle it. These rings, which are actually large particles of ice and water, are kept in place by the gravitational forces of the planet on the one hand, and those of its moons on the other. The moons shepherd the rings. Saturn has 60 moons, some of them as big as planets. In fact, Saturn's biggest moon, Titan is bigger than Pluto and Mercury. It also has an atmosphere, like a planet.

Huge, but light

Although Saturn is such a huge planet, it is actually very light. Since the planet is made up largely of gases like hydrogen and helium, it is also called a gaseous planet. It is the only planet with a density less than that of water. If there was an ocean large enough,



PHOTO: NASA/JPL/Space Science Institute via APAP

Saturn would float in it. Being gaseous, it does not have a proper surface. So, even if you could travel to Saturn, you wouldn't be able to land on it!

A day on Saturn is just 10 hours and 41 minutes long, but since its orbit around the Sun is much larger than the Earth's, it takes Saturn 29.5 earth years to complete one revolution around the Sun!

Galileo's discovery

Italian astronomer Galileo Galilei discovered the rings of Saturn. However, through his telescope, he couldn't

identify them as rings, and he thought that Saturn actually comprised three planets which rotated close to one another, keeping the same distance always.

Christiaan Huygens was the first astronomer to identify them as rings of Saturn. Saturn is a very cold planet. Its mean surface temperature is around 125 degrees C. The Cassini Huygens spacecraft launched in 1997 was in orbit around Saturn from 2004 to 2017. The space mission was able to reveal a lot of information about Saturn. It took detailed pictures of the planet, its rings and many of its moons.

Did you know?

Saturn is named after the Roman god Saturn, who is said to be the father of Jupiter, the king of gods. Saturday is named in honour of Saturn.

(Content provided by Amrita Bharati)

TECH BYTES

The need for a strong password

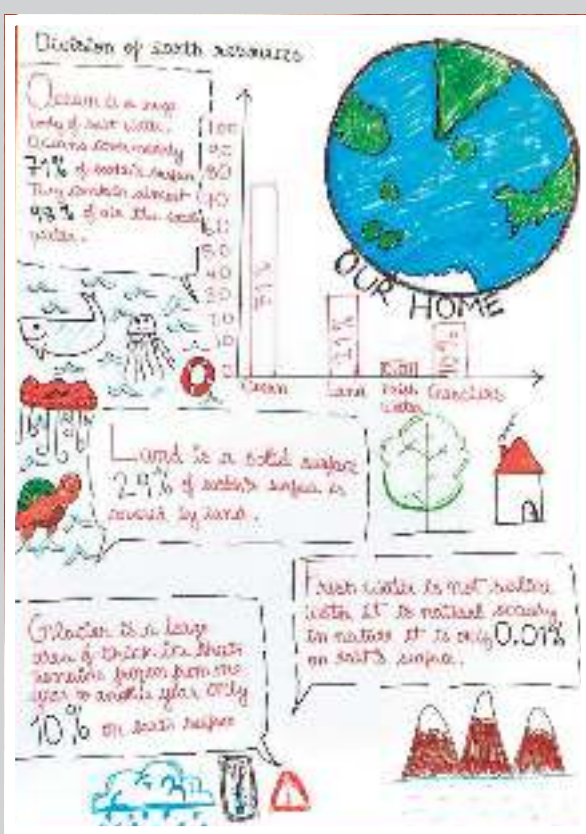
The most basic level of security used to protect online accounts is a password. It is a string of characters used for user authentication to access a system, an application or a service. A password is meant to be kept secret. Though there are different guidelines set by different websites for a password, it is good to keep in mind basic points to ensure your password is strong. This will protect your account from random people trying to access it.

Do not set your personal details as your password. It makes it easier for people to guess. Similarly, do not save your password in a file, it defeats the purpose of secrecy. Use a mix of alphabets, numbers and special characters to make your password strong and remember to memorise it. Try to set different passwords for different accounts and do not share your password with anyone at any cost.

ARTIVITY

Artwork by Sagari Santosh Kumar, Class 8, Vidya Sanskar International School

Read the newspaper and create an original artwork based on a news item that interests you and send your entry to school@thehindu.co.in with the subject - Artivity. Select entries will be published. Please mention your name, class, school and city.



Bayern out to show Dortmund who's boss

Teams face off in potential title decider



PHOTO: AFP

BERLIN, GERMANY: Bayern Munich aim to continue the Bundesliga's current trend of teams winning on the road behind closed doors when they face Borussia Dortmund in a potential title decider on Tuesday.

Leaders Bayern arrive at second-placed Dortmund four points clear and on course for an eighth straight title.

"A very decisive week"

"For us this is a very decisive week," insisted Bayern forward Thomas Müller (left).

"We've clearly set ourselves the goal of three victories this week and taking a giant step forward" towards the league title.

Bayern warmed-up by

beating Eintracht Frankfurt 5-2 at the weekend and also host relegation-threatened Fortuna Dusseldorf this Saturday.

Since the Bundesliga resumed ten days ago, behind locked doors due to the coronavirus, home advantage has counted for little with 10 of the 18 games played won by the away team.

Signal Iduna Park would normally be packed with 82,000 fans for a visit of Bayern, but the terraces will remain empty on Tuesday.

Dortmund winger Raphael Guerreiro is in form with three goals in his last two games and was on the score-sheet in Saturday's 2-0 win at Wolfsburg. AFP