

MONTHLY ACTIVITY 3

ROCKETS

Definition

The word "rocket" may refer to lots of different objects. It is a type of flying vehicle used by astronauts and space explorers. Without rockets these space vehicles would not be able to generate enough thrust to leave the Earth. It can also be used as a weapon that can be fired from airplanes and tanks. In order for any type of rocket to move, a chemical reaction must happen in the rocket's fuel source (Propellant). This propellant can be gasoline, liquid oxygen and liquid hydrogen. Rockets are the main devices used to launch space vehicles into space.

The history of rockets goes back to at least the 13th century, when they were used for both military purposes and public entertainment. It was not until the 20th century when rockets were used worldwide for industrial, military and scientific purposes. For example, rockets enabled the Space Age to reach a whole new level, when the first man landed on the moon back in 1969.

What are Rockets used for?

Rockets are used for fireworks and weaponry, ejection seats and launch vehicles for artificial satellites, human spaceflight and exploration of other planets. While inefficient for low speed use, they are, compared to other propulsion systems, very lightweight and powerful, capable of generating large accelerations and of attaining extremely high speeds with reasonable efficiency.

Why study rockets?

Rockets are based on ancient technology and timeless physical laws of the universe and provide endless fascination to engineers and scientists who work to make new and improved rocket technology. Have you thought about becoming a rocket engineer?

Did you know?



- Rockets were invented by the Chinese more than 700 years ago. They were used as party tricks and as weapons of war.



- Sir Isaac Newton discovered the natural law that describes how rockets work in the 17th century. It is called Newton's 3rd Law and says that every action has an equal and opposite reaction. If you push against a wall, you can feel the wall pushing against you!



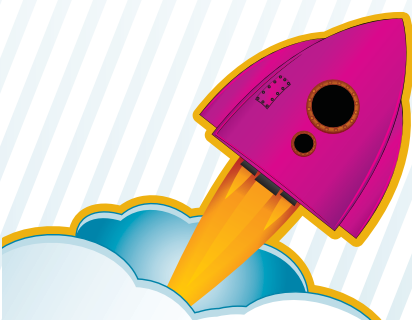
- It wasn't until April 1961 that Yuri Gagarin from Russia, made the first trip by a human being into space on board a Vostok rocket.

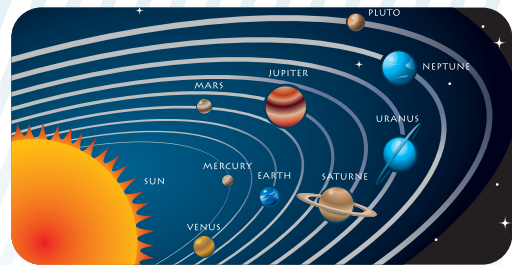
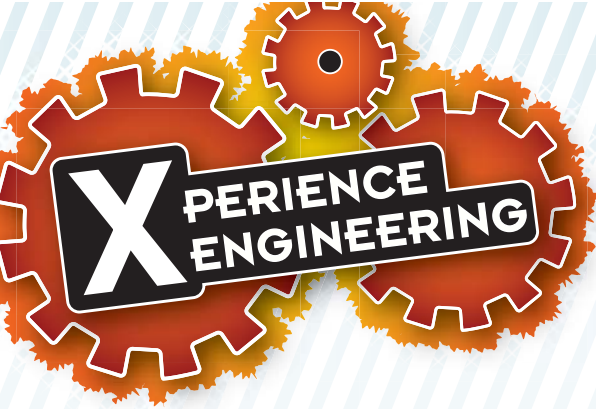


- In July 1969, American, Neil Armstrong became the first man to walk on the moon after being carried there by the Saturn V Rocket.



- Europe has designed and built its own rocket called Ariane V and parts of the rocket are made in Ireland.

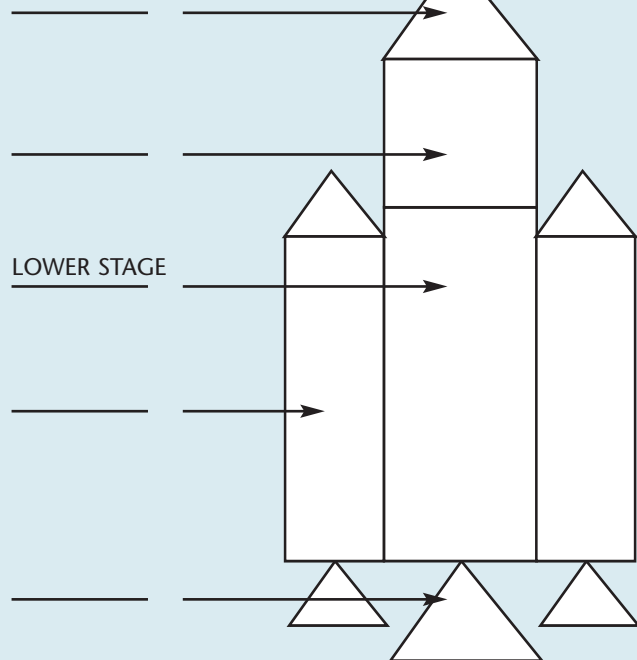




ACTIVITIES

Can you name parts of a rocket?

PAYLOAD



Travelling by different means

What speed do you travel at when cycling or driving a car - or going to space with a rocket?

Fill in the right number for each mode of transport:

	80	12	28000	50	800
Cycling				Km/h	
Riding a moped				Km/h	
Driving a car				Km/h	
Flying in an aircraft				Km/h	
Flying on a rocket				Km/h	

Can you name any famous astronauts?

- _____
- _____
- _____

See attached sheet on how to build a paper rocket.

See www.esa.int/kids for more fun information & games related to space.

Activities

The temperatures in space can be over 200 degrees Celsius in full sunlight, and minus 180 degrees Celsius in the shade.

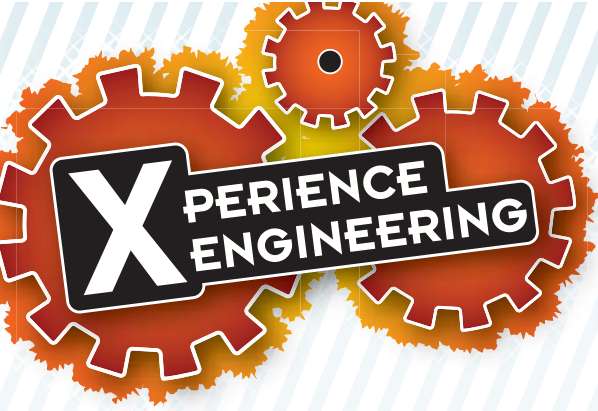
- How hot is an oven? _____
- How cold is a fridge? _____
- How cold is a freezer? _____



Space Industry Skillnet is funded by member companies and the Training Networks Programme, an initiative of Skillnets Ltd., funded from the National Training Fund through the Department of Enterprise, Trade and Employment.

Supported by Space Industry Skillnet

www.spaceskills.net



Work in teams and make a paper rocket.

You need:

- An A4 sheet
- A pair of scissors
- A pencil
- Tape
- A straw (preferably one with a wide diameter)

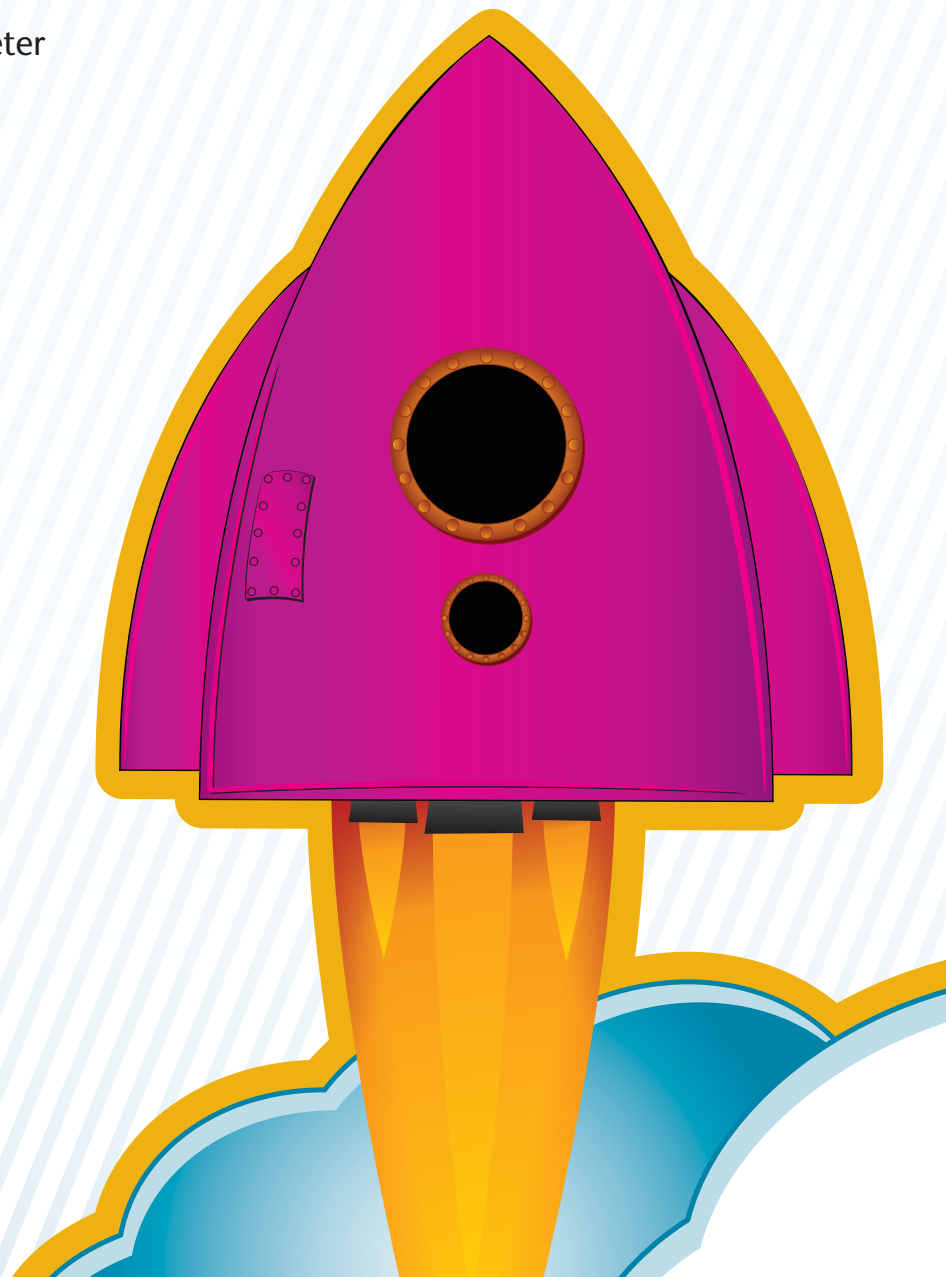
Paper rocket

1. Make the rocket's main stage:

- Cut a strip, 5 cm wide, from the long side of an A4 sheet.
- Roll the paper strip around a pencil (about the same diameter as the straw you will use to launch your rocket). Start at one end of the straw, holding the paper inclined, and roll it up so that it becomes a tube (remember to keep it tight!).
- Tape the tube at each end and at the middle of the rocket.
- Remove the pencil.
- Cut both ends.
- Fold the upper end firmly and tape it.

2. Design the rocket's nose and fins.

3. Launch your rocket by inserting the straw in the open end and blow!



INSTRUCTIONS FOR BUILDING YOUR PAPER ROCKET

