TO INFINITY AND BEYOND...

YEAR 5 LEARNING CHALLENGE

How can we use the arts and media to educate our community on the wonders of space?

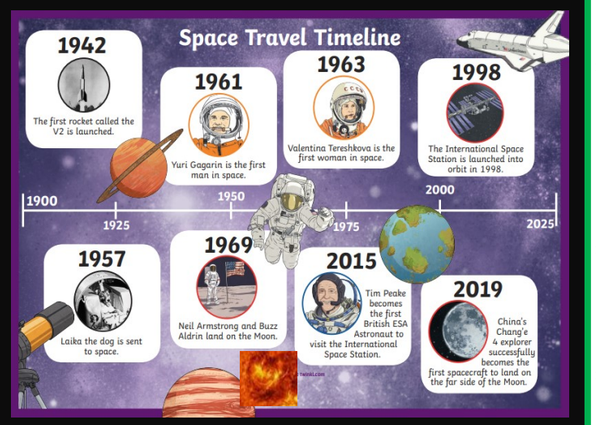
Challenge Brief

Your mission is to entertain members of your school, parents and local community. Your project will need to advertised, marketed and have the WOW factor.

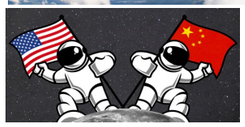
- Informative and accurate
- Well organised
- Visually appealing
- Showcasing a variety of new skills
- Inspirational to other children

We will also be welcoming some VIP's who may be able to help with this learning challenge!

KILLER QUESTIONS

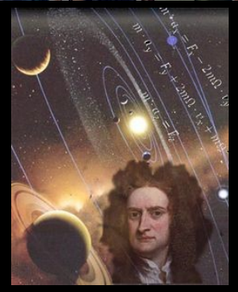


- ⇒ Which event in space history do you think has had the most impact on history and why?
- ⇒ Who were NASA's hidden figures and why were they treated - differently?
- ⇒ What would happen if there was no gravity on Earth?
- ⇒ USSR vs USA—Who really won the Space race?



GLOSSARY

Sequence	A set of related events, movements or items that follow each other in a particular
Latitude	The latitude of a place is **its distance north or south of the equator**.
Longitude	lines of longitude run the length of Earth from the North Pole to the South Pole.
Hemisphere	Hemisphere is the name given to **half a sphere, cut in half through its widest**
Equator	It is **an imaginary line around the Earth that goes exactly midway between the North Pole and the South Pole and divides it into two equal halves,**
Descends	To pass from a higher to a lower place or level.
Probe	to search into and explore very thoroughly
Engineering	Engineering is **the application of science and maths to solve problems**.
Forces	A force is a push or a pull on an object.
Shock absorbers	A device for absorbing the energy of sudden shocks in machinery or structures
Spherical body	Having the form of a sphere
Mass	Mass is **the amount of matter an object contains**.
Rotation	Rotation is **when something turns or spins around a point located at its centre.**
Axis	An axis is **an imaginary line an object turns around**. This imaginary line runs directly through the object's centre, from the north to the south poles.
Orbit	An orbit is **the path of an object around a particular point in space**, for example the path the Moon takes around the Earth.
Gravity	**an invisible force that pulls objects toward each other**. Earth's gravity is what keeps you on the ground and what makes things fall.



Q: How has advancements in technology contributed towards space exploration?

A: Computers mean communication improved, sharing information between scientists better, finding info (Google) etc.

Q: Which key events led to the space race?

A: Different wars, especially the Cold War which led towards quick advancements as all countries wanted to be better.

Q: Who are the 'Hidden Figures' and what contribution did they make o the Space race?

A. Mary W. Jackson, Katherine Johnson and Dorothy Vaughn were part of a group of very important women who helped NASA succeed in getting American astronauts into space. helped break barriers and open opportunities for African Americans and women in the field of engineering and technology.

Q: Which important scientists and people have impacted human knowledge around space?

A: Buzz Aldrin, Armstrong, Newton (gravity – forces), NASA, Galileo. American scientist Robert H. Goddard – invented first liquid-fuelled rocket. Mae C Jemison (First female Black astronaut)

Q: What are lines of longitude and latitude?

A: Lines that help us distinguish where we are positioned on our planet.

Q: How does our position on Earth will influence different factors, in terms of weather and how long our days and nights are?

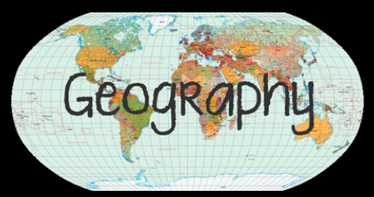
A: Position of sun in relevance to weather and seasons, length of day and exposure to sunlight for longer/shorter periods of time.

Q: Why are the equator and different hemispheres important?

A: Temperature and exposure to sun, effects seasons and weather.

Q: What are the importance of the Tropics of Cancer and Capricorn?

A: The Tropics of Cancer and Capricorn are important lines of latitude because they define the part of the earth that has a warm, tropical climate.



Q: Which figures were important in the development of space travel and exploration?

A: Understanding of different key figures from all races and backgrounds contributed, and continue to contribute, towards this.

Q: What are the similarities and differences between Van Gogh, Peter Thorpe and Sayed Haider Raza?

A: They use different mediums to show the difference between their time periods.

ARTISTS

Van Gogh – Late 1800s small focus on archaic artist (Starry Night)

Peter Thorpe – Modern 21st Century Children will explore his signature motifs and how well he combines colour and texture (drawing, painting, oil pastels and collage)

Sayed Haider Raza – 21st Century Indian painter. Raza often used concentric circles and geometric patterns which referenced the Tantric ideologies of Hinduism and Buddhism.

Can you design and make a spacecraft that can land safely on the moon?

In this challenge, children follow the engineering design process to: (1) design and build a shock-absorbing system out of paper, straws, and mini-marshmallows; (2) attach their shock absorber to a cardboard platform; and (3) improve their design based on testing results by protecting their astronaut (an egg).