Year 5 SCIENCE Topic 7: Star Trek (5 Weeks)		
Assessment Questions: How long does the Moon take to orbit the Earth? How long does the Earth take to orbit the Sun? What shape are the Moon, Earth and Sun? What is gravity measured in? How could you make a car go faster? Can you give an example where gears and pulley are used in day to day life?		
Values: Truthfulness and Trust		
KNOW	DO	UNDERSTAND
Science (Forces) **N.C. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object** **N.C. identify the effects of air resistance, water resistance and friction, that act between moving surfaces** **N.C. recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect** ***Vocabulary:*** *gravity, air resistance, water resistance, friction, mechanisms, levers, pulleys, gears, Newtons.* Children know that an unsupported object will fall towards the centre of the Earth, because of gravity. Children know that gravity is measured in Newtons. Children will list the effects of air resistance, water resistance and friction. Children that levers, pulleys and gears allow a smaller force to be used to have a greater effect. Children can give examples of when gears, levers and pulleys are used. **Science (Earth and Space)** **N.C. describe the movement of the Earth and other planets relative to the sun in the solar system** **N.C. describe the movement of the moon relative to the Earth** **N.C. describe the sun, Earth and moon as approximately spherical bodies** **N.C. use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky** **Vocabulary:** relative, solar system, spherical bodies, rotation, orbit, names of the planets. Children know that the Earth and all of the other planets orbit the sun – this takes the Earth approx. 364 days. Children know that this is because of gravity – the larger the mass, the greater the gravitational pull. They know that the Moon orbits the Earth – this takes approx. 28 days. They know that the Earth completes a full rotation every 24 hours – this creates day and night. The Sun, Earth and Moon are approximate spherical bodies. Children know that even though it looks like the sun moves across the sky, it doesn't – the Earth moves.	**WS: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary** **WS: taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate** **WS: reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations** **WS: identifying scientific evidence that has been used to support or refute ideas or arguments.** Children can plan scientific enquires to test the effect of gravity, air resistance, water resistance and friction. Children can control the variables when carrying out these experiments to ensure they are carrying out a fair test. Children will take repeated readings to ensure reliability of results. Children will record findings using a table and will try their own conclusions from their results. Children can draw scientific diagrams/ illustrations to show the movement of the Earth and Moon around the Sun. Children can use scientific language to explain Earth and Space.	*PRIOR KNOWLEDGE: Children will build on knowledge from year 3, when they looked at friction as a force. In year 3, they used ramps to test materials.* Children will understand how objects, such as planes, boats, F1 cars are affected by forces. Children can use their knowledge to suggest improvements to objects, in order to make them more efficient. *PRIOR KNOWLEDGE: Children have not studied space explicitly in school before, although they have looked at shadows and how they change throughout the day – linking to the sun and how it appears to move throughout the day.* Children build on the idea of gravity in the Space unit, as the larger the mass, the greater the gravitational pull.

Year 5 ART Topic 7: Star Trek		
Assessment Questions Who is Peter Thorpe? What do you know? Why have you learnt about him? How has he inspired your art work? Why have you chosen those colours in your work? **Truthfulness and trust**		
KNOW	DO	UNDERSTAND
Know how to use chalk pastels to create a specific effect. Can explain about contrasting colours and how to use them. Can explain about suggested space and voids in my own work. Key vocabulary: Effect Contrasting colour Blend Shade Space Void Form	Children us the work of Peter Thorpe as inspiration to create their own 'space art'. They use chalk pastels to replicate light travelling from stars and constellations, focusing on colour development and complimentary colours on black paper. **NC Aims:** - produce creative work, exploring their ideas and recording their experiences - become proficient in chalk/pastels - evaluate and analyse creative works using the language of art - know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms. **NC Content:** Pupils should be taught to develop their techniques, including their control and their use of materials, with creativity, experimentation and an increasing awareness of different kinds of art, craft and design. - to create sketch books to record their observations and use them to review and revisit ideas - to improve their mastery of art and design techniques	Children explore lots of different aspects of Space; this art work allows them to focus their learning on stars and astrological constellations, following on from their trip to the National Space Centre and their learning in the planetarium. Children have previously used chalk pastels in sessions like Black History Day, Bonfire night art work, Diwali celebrations, but not for specifically planned content from the art curriculum.

Year 5 MUSIC Topic 7: Star Trek		
KNOW	DO	UNDERSTAND
I know that: • A wide range of dynamics can be used to create descriptive sound sequences (and they will know the notation for these dynamics) • Music can be composed with a complex range of textures to create musical effects • When listening to music, they can describe the effect of it using their knowledge of musical dimensions (pitch, duration, dynamics, timbre, texture, structure) **Vocabulary:** **Notation of dynamics *(f, mf, mp, p < > cresc. and dim signs)*** *Ostinato* *Graphic score* *Elements* Pitch Duration Timbre structure **Texture**	**Music express:** **Solar system (6)** Children will listen to and learn 'Sun blast' which also contains lots of science facts about stars. They will then listen to *Music of the starry night* by George Crumb and discuss the composer's use of dynamics in relation to what the children know about the universe. They will then look at sun blast in more detail, seeing how the dynamics change. The children will look loudometer graphs, using notation *(f, mf, mp, p < > cresc. and dim signs).* They will listen to four extracts from The Planets by Gustav Holst: Mars, Venus, Jupiter, Uranus and will try and match the dynamic changes shown in the three 'loudometer' graphs to three of the extracts. They will relisten to Music of a starry night and identify the ostinato pattern. Using tuned percussion, and notation for the ostinato, they will then accompany the music working out when to play, when to stop and when to change dynamics. The children will explore rhythm and emphasis or words when learning and performing the Sunburst rap. They will then explore Holst's 'The Planets' further, looking at how musical elements (especially tempo) create scenes in their heads. They will look at 6 fragments of music and attribute them to planets. Using tuned instruments, they will use these to create a 'musical' orrery (a machine which shows how the planets orbit). They will listen to and learn the song 'Footprints on the moon', which is based on Debussy's 'Clair de Lune'. They will then watch the movie 'Moonlight textures' which shows a graphic representation of 'Clair de Lune'. They will talk about the texture of the line as well as duration, pitch and dynamics. They will then move onto listening to the orchestral piece 'Sunrise' from Strauss' 'Also sprach Zarathustra' (music is often used to accompany space images on tv/film). They will look at the graphic score and see how timbre, texture, pitch and dynamics play an important part in creating the gradual expanding/building effect. They will then listen to 'Space shot', a poem narrated to music and talk about the imagery created by the words. They will then look in depth at how and why the texture thickens and thins throughout. Cross curricular links: Opportunities to listen to a range of space themed soundtracks: Star Trek, Gravity, ET, Star Wars, 2001 a Space Oddity.	*The children have learnt about all the different musical elements as they have progressed up the school. This unit focuses more on the more developed range of dynamics which a composer uses and looks deeper at texture element and how and why the composer changes it.* **NC Areas covered:** • Pupils listen to, review, and evaluate music across a range of historical periods, including the works of the great composers • Pupils explore dynamics, timbre, tempo, and texture • Pupils use and understand staff and other musical notations • Pupils learn to sing with expression • Pupils develop an understanding of musical composition