Year Group: 11 Term: 5 (Separate science only – Space)

We are learning:

1. **The Solar System – Includes the Sun, planets, moons, dwarf planets, asteroids, and comets.**
2. **Life Cycle of a Star – Stars form from clouds of gas and dust (nebulae) and go through stages like main sequence, red giant, and supernova, ending as white dwarfs, neutron stars, or black holes.**
3. **Orbital Motion and Gravity – Gravity keeps planets and satellites in orbit; changing speed or radius affects orbital time and stability.**
4. **Artificial Satellites – Used for communication, weather monitoring, and scientific research; they orbit Earth due to gravitational forces.**
5. **Red-Shift and the Expanding Universe – Light from distant galaxies is red-shifted, showing they are moving away — evidence for the Big Bang theory.**
6. **The Big Bang Theory – The leading explanation for the origin of the universe; suggests it began from a very small, hot, dense point and has been expanding ever since.**

How can you support your child:

- Encourage them to make revision posters on each of the sub-topics within the topic.
- Encourage them to make cue cards with questions and answers on all the sub-topics.
- Encourage them to use the notes, videos, and quizzes, on BBC Bitesize.
- Encourage them to use Seneca Learning to supplement and secure their knowledge on the topic.

Try asking them:

1. **"How do stars form and what happens to them as they age?"**
   Answer: Stars form from clouds of gas and dust (nebulae). They go through stages like main sequence, red giant or supergiant, and end as white dwarfs, neutron stars, or black holes depending on their size.
2. **"What keeps planets and satellites in orbit?"**
   Answer: Gravity provides the force that keeps them in orbit, balancing their forward motion with the pull toward the object they orbit.
3. **"What is red-shift and why is it important?"**
   Answer: Red-shift is when light from distant galaxies shifts toward the red end of the spectrum, showing they're moving away — evidence that the universe is expanding.
4. **"What does the Big Bang theory explain?"**
   Answer: It explains how the universe began from a very small, hot, dense point and has been expanding ever since.
5. **"What are artificial satellites used for?"**
   Answer: They're used for communication, GPS, weather monitoring, and scientific research — all made possible by their stable orbits around Earth.
6. **"What's the difference between a planet, a moon, and a star?"**
   Answer: A planet orbits a star, a moon orbits a planet, and a star produces its own light and heat through nuclear fusion.

Useful Links:

Senecal Learning = https://senecalearning.com/en-GB/

BBC Bitesize = GCSE Physics (Single Science) - AQA - BBC Bitesize

Kerboodle = www.kerboodle.com