**Year 5 Science Curriculum - Spring 1**

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| **Theme: Earth and space** |
| **Curriculum objectives** | **Vocabulary** | **Links across the curriculum** |
| Describe the Sun, Earth and Moon as approximately spherical bodies.Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the Sun across the sky. | **Dawn** | When light first appears in the sky before sunrise. | **Diameter** | The distance across the centre of a circle or sphere. | English:* Non chronological report writing
* Recount Space Centre trip
* Oracy for presentation

Geography:* The Earth and space

Art:* Space art – Peter Thorpe

ICT* Using secondary resources for research

Maths* Interpretation of data using graphs and tables

Additional: * Year 5 space camp
* Leicester Space Centre trip
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| **Dusk** | The time after sunset when there is still some light in the sky. | **Horizon** | Where the land and sky appear to meet. |
| **Midday** | 12 noon. | **Spherical** | Shaped like a ball. |
| **Sunrise** | The time in the morning when the Sun is first seen. | **Sunset** | The time in the evening when the Sun is no longer visible. |
| **Tier 3 vocabulary** [SNAP23\_Y5\_M3\_space\_ms.docx (live.com)](https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fstatic.collins.rhapsode.com%2FSnap_Science%2FTeaching_Science%2FYear_5%2FSNAP23_Y5_M3_space_ms.docx&wdOrigin=BROWSELINK) |
| **Prior knowledge:** *What specifically have pupils learned that is relevant to this unit that they are building upon?* | **Future knowledge:** *What specifically will pupils learn in the future that is relevant to this unit?* |
| Children have previously learnt:- How day length varies with the seasons (Year 1 Biology – Seasonal changes).- That the Sun and stars are light sources and the Moon is not (Year 3 Physics – Light).- How shadows are formed and can be changed (Year 3 Physics – Light). | This prepares children for later learning:* About stars and galaxies, differences in gravitational force, and the Earth’s tilt as the explanation for seasonal variations (Key Stage 3 Physics – Space physics).
* Earth and space is an area of knowledge that is only included once in the primary National Curriculum, but it links to learning about light and draws on children’s everyday experiences of day and night and the night sky.
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| **Lesson Sequence** | **Key Knowledge** | **Key Skills** |
| What’s in space? | * When there is less background light, the stars are easier to see; in a brightly lit area at night, only the brightest stars are visible.
* There are also stars in the daytime sky but they are not visible because of the brightness of the Sun, although sometimes we can still see the Moon.
* It is dangerous to look directly at the Sun.
* The prefix ‘astro’ tells us that the word links to stars and space. Ask if they know any other words with this prefix (for example, astronaut). If they suggest ‘astrology’, explain that this is not considered to be a science although the word does show a link to the stars.
* Our Sun is one of many stars.
* Stars are light sources and also give off heat.
* There are eight planets, including Earth, moving around our Sun.
* The Earth has a moon, which we call the Moon.
* Some of the other planets also have moons.
* The Earth, Sun and Moon are approximately spherical in shape, as are the other planets.
 | Working scientifically:* Recording data and results of increasing complexity using scientific diagrams and labels, [classification keys, tables, scatter graphs, bar and line graphs].

Scientific enquiry type:* Research using secondary sources of information.
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| How do the planets move? | * The planets move in circular orbits around the Sun; these do not overlap.
* The Earth takes one year (365.25 days) to complete one orbit of the Sun.
* Planets closer to the Sun have shorter orbits and move more quickly, so the length of a year is shortest for the planets that are closest to the Sun.
* Planets further from the Sun have longer orbits and move more slowly, so the length of a year is greatest for the planets that are furthest from the Sun.
* For planets closer to the Sun than the Earth is, a year is shorter than an Earth year.
* For planets further from the Sun than the Earth is, a year is longer than an Earth year.
 | Working scientifically: * Reporting and presenting findings from enquiries, including conclusions, [causal relationships and explanations of and degree of trust in results,] in [oral and] written forms [such as displays and other presentations].
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| How does the position of the sun in the sky change? | * Shadows decreases in length throughout the morning, shortest around midday and increases again in the afternoon and that position changes in an arc.
* Children make observations of changing shadows over the course of a school day.
* Demonstrate practically, and observe using images, how the changing position of the Sun
* Use diagrams to record and explain their observations.
 | Working scientifically:* Recording data and results of increasing complexity using scientific diagrams and labels, [classification keys, tables, scatter graphs, bar and line graphs].

Scientific enquiry type:* Observing change over time.
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| What causes day and night? | * Model the rotation of the Earth on its axis.
* Explain how this causes day and night, the apparent movement of the Sun across the sky and the changes in shadow length and position they have previously observed.
 | Working scientifically:* Reporting and presenting [findings from enquiries, including conclusions, causal relationships and] explanations [of and degree of trust in results,] in oral and written forms [such as displays and other presentations].
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| How does the moon move? | * The Moon orbiting the Earth once every 28 days and rotating on its axis once every 28 days.
* 300 BCE [Ancient Greek astronomer’s model].
* It is not possible to feel the Earth moving, but the Sun and Moon move200 CE [Ptolemy’s model].
* 1600s [Galileo’s model].
* 1845 [Galle’s model].
 | Working scientifically: * Identifying scientific evidence that has been used to support or refute ideas or arguments.
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| What patterns can we find in data about the planets? | * How to interpret a scatter graph.
* Identify patterns from scatter graphs.
 | Working scientifically: * Recording data and results of increasing complexity using [scientific diagrams and labels, classification keys, tables,] scatter graphs, [bar and line graphs].

Scientific enquiry type: * Pattern seeking.
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| **Themes and links** |
| **Themes (types of enquiry)** | **Where these are covered:** | **Links across the science curriculum** |
| **Observation over time** | * Lesson 3
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| **EYFS**  |  |
| **1**  |  |
| **2**  |  |
| **3**  | Rocks, fossils and soil |
| **4**  | Changes of state |
| **5**  | Earth and space |
| **6** | Evolution and inheritance  |

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| **Research** | * Lesson 1
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| **Pattern seeking** | * Lesson 6
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| **Comparative and fair testing** |  |
| **Identifying, classifying and grouping** |  |  |