YEAR 5 EARTH AND SPACE PLANNING

Class: **Term:** **Subject: Science** **Unit: Earth and Space**

Differentiation and support (Detailed differentiation in weekly plans.) SEN: Support from more able partners in mixed ability work. Additional adult support. GT: Provide extension activities to apply their own knowledge and to research information independently. Encourage accurate use of scientific vocabulary and precise explanations	English: using dictionaries and / or glossaries, listening for information in video clips, extracting information from texts, new vocabulary, giving and listening to presentations, Maths: distances, measurements and the angle of the Earth's tilt ICT: videos on IWB, researching information and creating presentations History: history of astronomy Art & D+T: drawing and annotating diagrams and papier mache planets PSHCE & PE: learning not to look directly at the sun

W	Learning objective	Teaching activities	Resources	Assessment: Success Criteria
1a	To show existing knowledge about Earth and Space (10 mins)	Children to complete given a mind map with named branches e.g. Words to do with Earth and Space, The planets etc	Mind maps	Formative assessment

1b	**Lesson 1b (ICT-based version)** To know the meaning of astronomy-related terminology (45 mins)	Intro: Explain that astronomy is the study of objects in outer space Ask children to think, pair, share words related to astronomy Ask children to try to define some of the words that they thought of Revise how it is important in science that we use vocabulary and terminology accurately and precisely Explain that we are going to be learning the precise definitions of some words related to astronomy: Asteroid, Astronaut, Astronomer, Atmosphere, Comet, Constellation, Crater, Galaxy, Gravity, Moon, Nebula, Planet, Space, Star, Universe, Year Model for children how to use a dictionary and / or glossary to find the meaning of each of these words Emphasise that children need to pick the astronomy-related definition for words with more than one meaning e.g. space Also emphasise that children should try to write the definition in their own words, rather than just copy it out Model how to use Quizlet Main: Children to log-in to their accounts at Quizlet.com Children to click 'Create set' (top centre-left of page) Children to name their set 'Astronomy terminology by (their name)' Children to find the definition for the words and use them to make flashcards (make sure they enter the term in the smaller box on the left and the definition in the larger box on the right) Children to practice learning their flashcards using the various games on Quizlet in the following order (from easy game to difficult game): • scatter • learn • test • speller • space race Children to practice learning the terms and their definitions by using each other's sets to play the games Plenary: Close down computers and / or return to class Memory competition – in pairs / groups to write down as many of the terms as they can remember, and their definitions Ask pairs / groups how many they got and go to the team who says they have the most terms written down Check they got them right; if they did, award them points; if not go to pair who got the next most; repeat until find winners	Dictionaries and / or non-fiction books on astronomy PCs / laptops Account set up for class / each child on Quizlet.com	MUST: know some of the terms and their definitions SHOULD: know more of the terms and their definitions COULD: know all of the terms and their definitions

1b	**Lesson 1b (Paper-based version)** To know the meaning of astronomy-related terminology (45 mins)	Intro: Explain that astronomy is the study of objects in outer space Ask children to think, pair, share words related to astronomy Ask children to try to define some of the words that they thought of Revise how it is important in science that we use vocabulary and terminology accurately and precisely Explain that we are going to be learning the precise definitions of some words related to astronomy: Asteroid, Astronaut, Astronomer, Atmosphere, Comet, Constellation, Crater, Galaxy, Gravity, Moon, Nebula, Planet, Space, Star, Universe, Year Model for children how to use a dictionary and / or glossary to find the meaning of each of these words Emphasise that children need to pick the astronomy-related definition for words with more than one meaning e.g. space Also emphasise that children should try to write the definition in their own words, rather than just copy it out Explain how to play the game for the independent work Main: Children to work together in mixed ability partners Children to look up the meaning of the words and create memory cards: • one child writes the term on the front of a card and the meaning on the back of the **same** card • one child writes the term on one card and the meaning on a **different** card The double-sided set is set out to the side (this will be used to check answers) The two single-sided sets are set out separately and used to play 'Go Fish': • the sets are placed face down • each child takes a turn to 'Go Fish' and try to find a matching pair – if they find a matching pair, they keep it; if they do not find a matching pair, they put the cards back in the same position, face down again (the double-sided set can be used to check if the pair are in fact matching or not) • continue playing until all of the matching pairs have been found and see who has the most (To begin with, the cards can be set out facing up to make it easier) Plenary: Collect in all of the sets of cards Memory competition – in pairs / groups to write down as many of the terms as they can remember and their definitions Ask pairs / groups how many they got and go to the team who says they have the most terms written down Check they got them right; if they did, award them points; if not go to pair who got the next most; repeat until find winners	Dictionaries and non-fiction books on astronomy 3 sets of cards (printed on card) per pair of children	MUST: know some of the terms and their definitions SHOULD: know more of the terms and their definitions COULD: know all of the terms and their definitions

2	To research major celestial features (1 hour)	Intro: Ask children to think, pair, share the words and their definitions that we learnt in the previous lesson Explain how the word 'celestial' means relating to outer space e.g. the planets are celestial bodies Explain independent work Discuss what affixes and prefixes we could use when using a search engine e.g. '… for kids' Discuss what we might include in our presentations e.g. facts, images Discuss why we should not have too much text on each slide Main: In mixed ability pairs, children to research some of the major celestial features: each of the plants, Jupiter's moon, the sun, the moon, the milky way, the asteroid belt and comets Children to use what they find out to create a presentation Emphasise that children should not spend time on animations, colours and so on, until they have researched the information and added it to their presentations Plenary: Give children time to format their presentations (fonts, colours, animations etc) Print off presentations (several slides to a page) to use to practise next lesson	PCs / laptops Class organisation	MUST: research a major celestial feature and create a presentation about it SHOULD: add sufficient detail to their presentation COULD: provide support for a less able partner
3	To present information on the major celestial features To compare the major celestial features (1 hour)	Intro: Explain that children will be presenting what they found out to the rest of the class today about the major celestial features Revise what makes a good presentation, making a list of these features to act as success criteria for the children Revise how to be a good audience Explain plenary activity to encourage children to listen carefully Main: Children to give their presentations to the rest of the class Children listening to make notes Have a 5 / 10-minute break to give children a rest from listening and making notes OR split the lesson into two 30 minute lessons Plenary: Each pair to make a quiz (with a limited, set number of questions) for the rest of the class to answer Each pair to give their quiz and other pairs to try to answer their questions Pairs to swap answers and mark each other's Award points to pair who got the most right	Presentations printed out from previous lesson	MUST: give a presentation on a major celestial feature SHOULD: include *some* of the features of a good presentation COULD: remember a lot of the information given in other presentations

4	To understand how and when major astronomical theories and discoveries were made (1 hour)	Intro: Explain how people have always been fascinated by space and how ancient civilisations were interested in astronomy, just like people are today Explain the following about calendars: • thousands of years ago, people did not have systems for keeping track of time, like minutes, hours, months, years etc • then some ancient civilisations, like the Sumerians, Mayas, Greeks and Romans started to develop calendars with months and years Ask children to think, pair, share what problems we might have if we did not have a calendar • explain that a lunar calendar bases the months on the phases of the moon, whereas a solar calendar is based on how long the Earth takes to orbit the sun • the Julian calendar, which was a solar calendar, was invented by the Romans during Julius Caesar's reign Ask children to think about why people might have initially used lunar calendars, when solar calendars are preferable (because we can easily observe how the moon appears to change each day, whereas a solar calendar is more difficult to calculate) • the Gregorian calendar is very like the Julian calendar, except that Pope Gregory XIII changed the date of Easter (and some other slight alterations) Explain that in Ancient Greece an astronomer called Ptolemy suggested the geocentric view of the solar system – that the planets and the sun revolve around the Earth Explain that Ptolemy's ideas were accepted for the next 1,400 years, until Copernicus suggested the heliocentric view of the solar system – that the Earth and the other planets revolve around the sun Ask children to think, pair, share why Ptolemy might have came up with this incorrect theory (because it seems like the sun moves around the Earth when we look up at the sky, as we are standing on the Earth and cannot feel that it is moving) Revise how we often use timelines to get an overview of the key events from a period of time or for a topic Explain that we will be ordering major astronomical events and discoveries in chronological order, revising what the word 'chronological' means Revise how with BC dates, the higher the number, the longer ago the event happened, because we are saying it was *x* amount of years Before Christ Revise how AD means Anno Domini and refers to times after Christ was born Explain independent work Main: Children given a range of major events and discoveries from the history of astronomy in a jumbled up order Children need to sort them into the correct order Extension: Children to find out more about some of the events Plenary: Children to compare their work with a partner, discussing any differences	Events to cut out and order Scissors Glue Non-fiction books on astronomy and / or PCs / laptops (for extension)	MUST: understand that our understanding of astronomy has changed and developed over time SHOULD: arrange a number of events and discoveries in astronomy chronologically COULD: find out more about some of the events

To access the complete version of this Year 5 Earth and Space planning, and all of the resources to go with it, visit

http://www.saveteacherssundays.com/science/year-5/511/