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| **Identify star constellations** | | | | | |
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| A night stargazing activity to find and identify star constellations | | | | | |
| **Subject(s):** Design & Technology, Science  **Approx. time:** 50 - 60 minutes (including after dark activity) |  | | **Key words / Topics:**   * Constellation * Star * Compass * Stargazing | |
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| **Suggested Learning Outcomes** |  | |  | |
| * To know what a star constellation is * To be able to find North, East, South or West on a compass * To be able to look and identify star constellations in the summer sky | | | | |
| **Introduction** |  | |  | |
| This is one of a set of resources designed to allow learners to use seasonal themes to support the delivery of key topics within design & technology, maths, and science. This resource is based on night stargazing and identifying star constellations in the summer sky.  This activity introduces the concept of finding direction and identifying star constellations in the summer night sky. It should be noted that this needs to be carried out after nightfall, on a clear night when the moon is not too bright – as such it is especially suited to be carried out as a homework activity (providing there is access to a controlled safe area to carry it out) or during any activities that are extended overnight (such as school ‘sleep-overs’ or residential trips). | | | | |
| **Purpose of this activity**  In this activity learners will discover the key star constellations in the summer sky. They will know how to use a star chart, use a compass to find a direction and find star constellations.  This activity could be used as a main lesson activity, to teach learners about the star constellations contributing to learning in maths and science.  Additionally, this could be used to start a discussion on the solar system and the position of planets and the sun. | | | | |
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| **Activity** |  | | **Teacher notes** | |
| **Introduction (5 minutes)**  Teacher to introduce the activity, to explore the summer night sky and discover the key star constellations using a constellation check sheet.  **Demonstration (10-15 minutes)**  Teacher to discuss what star constellations are and some of the main ones (18) that can been seen in the Summer. Teacher may refer to the UK night sky chart.  This is an outdoor activity and learners will need to be suitably dressed in warm clothing with access to an appropriate safe and controlled area.   * Step 1 – Choose a clear night when the moon is not too bright. A crescent moon is best. If possible, stay away from bright streetlights. It will take 20 minutes for the eyes to adjust to the dark. Use a compass to find the right viewing direction. * Step 2 – Find North and look into the sky to find Ursa Major, the plough. * Step 3 – Explore the sky in the East, South and West. Learners to tick off each constellation as they find them.   **Performing the Activity (After dark, 25 minutes)**  Learners to carry out the stargazing activity when it gets dark at home.  **Plenary (following day, 10-15 minutes)**  Learners to share their experiences about the stargazing activity. How many constellations did they see? Which stars were the clearest and brightest? |  | | **Night stargazing activity**  Print the activity sheet onto paper and distribute to the learners.  A UK night sky chart is available from the **Astronomy Now** website (refer to additional websites below).  Step 1 – Teacher may wish to demonstrate how to find the direction using a compass. Start looking North to find Ursa Major, the plough. Either use an actual compass or a compass app on a smartphone.  If time is available, another way to view the star constellations is to use the circular constellations on the activity sheet. Cut each one out and poke a hole through each star with a sharp pencil and an eraser behind it. Then place the disc on the end of a torch, with the black towards the torch. In a darkened room the constellation will appear on the wall. This approach is particularly useful if this activity is being demonstrated so it can be set as a homework. | |
| **Differentiation** |  | |  | | |
| **Basic** |  | | **Extension** | |
| * Provide learners with pre-cut circles from the activity sheet for each constellation. |  | | * Learners to use the internet to research the individual constellations and find out where they got their names from. * Watch **YouTube**: How to find the Summer Constellations (3600): <https://www.youtube.com/watch?v=EieqUGAJHMw> | |
| **Resources** |  | | icon-ppt**Required files** icon-docicon-pdf | |
| * Printed activity sheets * UK Star Chart * Compass * Thin card * Pencil * Eraser * Binoculars/telescope |  | | Identify star constellations presentation  icon-doc Identify star constellations handout | |
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| **Additional websites** |  | |  | |
| * **Astronomy Now**: https://astronomynow.com/uk-sky-chart: UK Night Sky Chart * **YouTube**: Crash Course Kids: The Zodiac Constellations: <https://www.youtube.com/watch?v=eBIS17Va9sA> * **YouTube**: Crash Course Kids: Constellation Location: <https://www.youtube.com/watch?v=BbzCA0Lgf3Y> * **YouTube**: How to find the Summer Constellations (3600): <https://www.youtube.com/watch?v=EieqUGAJHMw> | | | | |
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| **Related activities (to build a full lesson)** |  | |  |
| **Starters** (Options)  To introduce star constellations:   * Watch **YouTube**: Crash Course Kids: The Zodiac Constellations: <https://www.youtube.com/watch?v=eBIS17Va9sA> * **YouTube**: Crash Course Kids: Constellation Location: <https://www.youtube.com/watch?v=BbzCA0Lgf3Y> * Show an example of the UK night star chart. | | **Extension** (Options)   * Learners to use the internet to research the individual constellations and find out where they got their names from. * Watch **YouTube**: How to find the Summer Constellations (3600): <https://www.youtube.com/watch?v=EieqUGAJHMw>   **Plenary**   * Learners to share their experiences about the stargazing activity. How many constellations did they see? Which stars were the clearest and brightest? | |
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| **The Engineering Context** film |
| * Travellers have used the stars to navigate for many years. Engineers have helped by making navigational tools, such as the sextant, that use star positions to calculate the position of a ship at sea. |

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| **Curriculum links** | |
| **England: National Curriculum**  Science  KS2 – Earth and space   * describe the movement of the Earth and other planets relative to the sun in the solar system | **Northern Ireland Curriculum**  KS2 – The World around us  Science and technology   * Sources of light |
| **Scotland: Curriculum for Excellence**  Science  KS2 Space  SCN 2-06a   * observing and researching features of our Solar System   SCN 3-06a   * the number of stars in the universe | **Wales: National Curriculum**  Science  KS2 The sustainable Earth  the relative positions and key features of the Sun and planets in the solar system | |
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| **Assessment opportunities** | | |
| * Informal formative assessment of the plenary feedback. | | |
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