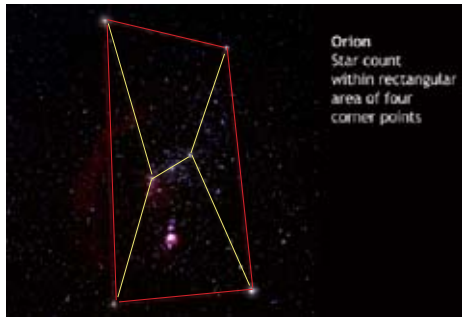
Dark Skies
Activity Card 1
Counting the stars with your eyes

Location: School playground; field or garden (away from bright lights)
Time: 30-40 minutes
Audience: KS2
Timing: End of January to beginning of Feburary when the moon is at its weakest and it gets dark early.
Equipment: A torch with a red light to allow you to see and move around safely, yet still preserve night vision (this can be made by covering a torch with a brown paper bag or a red balloon with the neck cut off); pencil and paper; compass to help find South-West and warm clothes!

Activity:
This activity should take around 30 minutes but you may also need another 10 minutes for you and your students' eyes to adjust to the darkness. Count the number of stars you can see within the four corner points of the Orion constellation. The easiest way to find Orion is to look in the southwest sky, the same direction that household satellite dishes face. You are looking for three bright stars close together in an almost-straight line. These stars are named Alnitak, Alnilam, and Mintaka and form Orion's belt. The two bright stars to the north (named Betelgeuse, Bellatrix) represent his shoulders and the two bright starts to the south (named Rigel and Saiph) his feet. You don't need to count these corner stars, just the stars you can see within them.



Orion, according to Greek mythology, is named after a great hunter who was honoured by Zeus by being placed among the stars following his death.

How do you work out the star count?
If you are carrying out this activity as a class it is important to remember that everyone's eyes have a slightly different degrees of sensitivity to light. It is therefore best to record the number of stars seen by each person and then calculate an average by adding up all the counts and dividing that total by the number of star counters.

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How do you work out the star count?
If the activity is being carried out at home the student should count the number of stars three or four times and calculate an average by adding all the counts and dividing that total by the number of star counts they did.

What do you need to do before the activity?
Please record the date and time at which you made your observations, as well as the location (either in the form of a postcode, but preferably in the form of latitude and longitude coordinates). The simplest way to find the latitude and longitude coordinates of your location is by finding your recording location on Google Maps (instruction on how to this can be found in the Dark Skies Teachers Resource Information Pack).

Moon phases will affect the number of stars you can see. The fuller the moon phase the harder it will be to count the stars. To find out when the moon is at its weakest visit www.moonconnection.com/moon_phases_calendar.phtml

What do you also have to consider?
Although you should only record if the sky is clear and free from interfering cloud cover, it would be helpful if you could estimate the level of any cloud cover that is present using the scale below:

Clear | Quarter of the sky | Half of the sky | More than half the sky

What do your results mean?
The more stars you count within Orion's four corner stars, the darker the sky in your location. If you see more than thirty stars you're lucky enough to have truly dark skies; fewer than ten indicates severe light pollution typically associated with heavily lit urban areas.

Please record your results on the forms at www.highweald.org/learn-about/education/education-resources

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