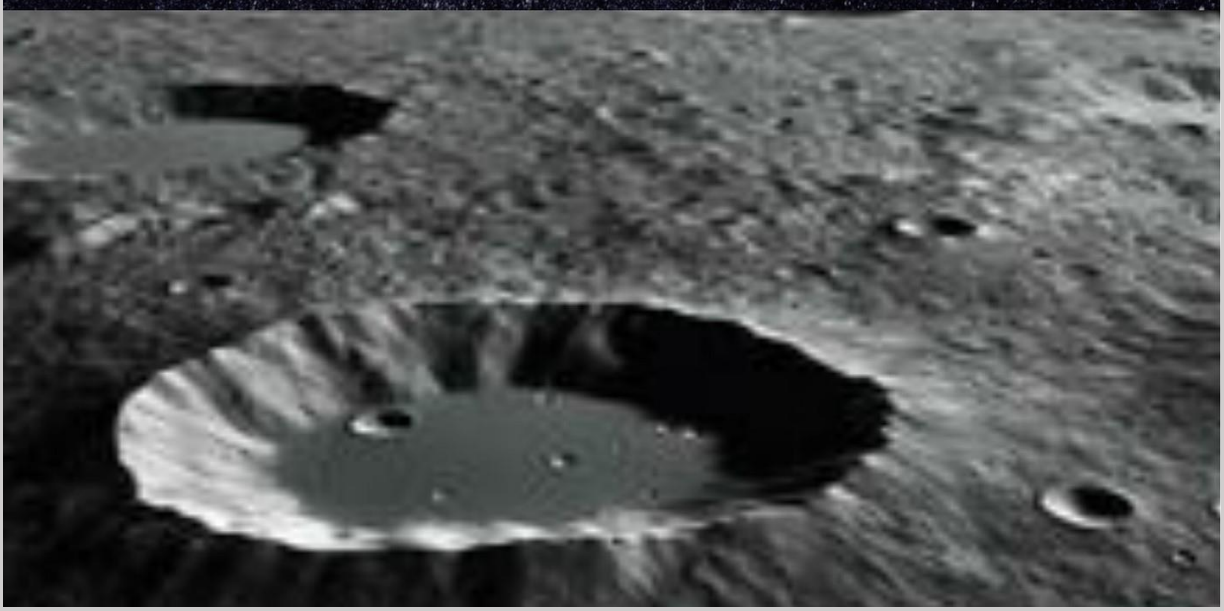
Mary Adela Blagg

1858 – 1944

Cheadle
Staffordshire Moorlands



Mary Adela Blagg

‘reach for the skies’

A teaching resource for Key Stage 2
designed and authored by
Emma Dawson Varughese
for outsidearts.org, March 2024

New Moon

Cheadle Moon

In 2024, 80 years since Mary Adela Blagg's death, the market town of Cheadle in the Staffordshire Moorlands celebrated her life through the commissioning of this learning resource, alongside an audio guide and the installation of Luke Jerram's 'Museum of the Moon' at St Giles The Abbot Church in the town from 15th March to 5th April 2024.

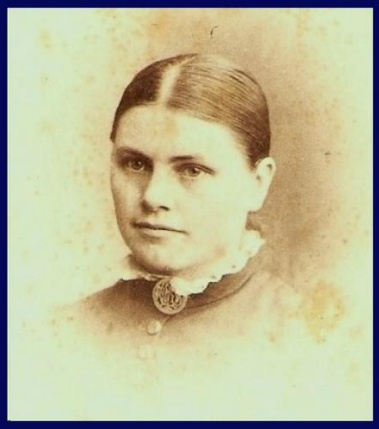
This resource has been developed to be easily adaptable into schemes of work and varied types of delivery across the curriculum. The activities here are framed by an overarching positive outlook, inspired by the life and work of Mary Adela Blagg, and expressed as 'reach for the skies'.
She was a trailblazer because, as a woman, active in scientific research in the early 1900s, she was remarkable to say the least!

This positive outlook on 'one woman's working life' is meant to be empowering, fostering a pioneering attitude and celebrating individual achievement. Its sentiment has been embedded throughout the resource, foregrounded especially through the PSHE-related activities.

The resource is structured by using the eight phases of the moon. This introductory part belongs to the 'New Moon' phase and we then move through a further seven phases: Waxing Crescent; First Quarter; Waxing Gibbous; Full Moon; Waning Gibbous; Third Quarter and Waning Crescent.

Each moon phase is visualised and labelled so that pupils can learn about how the moon changes in its appearance to us here on Earth over a course of about 30 days.

Waxing Crescent



Mary Blagg was a pioneering woman who changed the way we see the moon.

She became famous for her work in standardising the naming of craters on the moon, a practice known as ‘lunar nomenclature’.

Amazingly, she did all this groundbreaking work from her home in Cheadle in the Staffordshire Moorlands. She didn’t like to travel and was known to be a quiet and reserved person.

When Mary Blagg started her work on how the moon's features had come to be named, she found that some craters had been named twice. This meant that one crater would have two names and so part of Mary's job was to standardise these names resulting in one name for one crater. Craters and other features on the moon's surface were mainly named after people. In fact, there is a crater named after Mary Blagg! It is about 5km in diameter (just over 3 miles) – this is similar in size to 50 football pitches placed end-to-end!

Over to you - what can *you* see in the moon's surface?
Have a look at some internet search images of the moon's surface - what can you see? Shapes? Faces? Animals?

Write a short descriptive paragraph or a poem using expanded noun phrases to describe what *you* see when you look at the moon's surface.

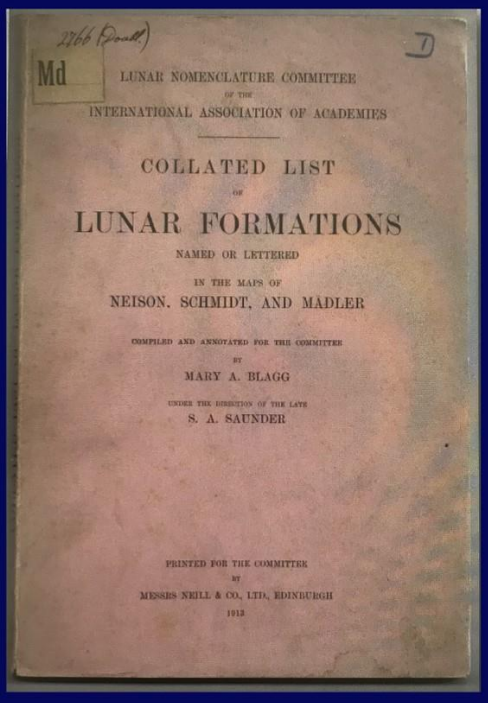
Maybe you can see an animal's scaly back when you look at the ridges on the moon's surface?
And are you sure that there are just small craters on the moon's surface
OR
are they eyes looking down at us here on earth?

The NASA website might be useful in supporting this activity
https://science.nasa.gov/moon/facts/
as it has images of the moon's surface.

First Quarter

This is a scan of the book in which Mary Blagg's list of lunar features can be found. It was published in 1913, a year before the First World War started.

Can you find Mary Blagg's name here on the cover?
What does it say that she did?



Over time, Mary Blagg came to know the moon's surface intimately. When we say the moon's surface, we actually mean the 'side' of the moon that we see from Earth. Due to Earth's gravitational pull, we only get to see half of the complete moon! The other side is known as the 'darkside' of the moon and it wasn't until the 1950s when NASA sent out Luna 3 to photograph it that we started to learn a little about what it looks like.

Mary Blagg was therefore, in effect, mapping half of the moon as it's the only bit we get to see. Moreover, even that half, we only get to see parts of it night-by-night as it moves through its 30-day cycle.

Have you noticed that in this resource the images of the waxing and waning moon have been reproduced, these images show us what those eight phases look like.

Over to you

Try and keep a diary of your own observations of the moon. Some nights, it might be easier to see the sky more fully than others because of cloud cover.

You could take a photo of the moon but try and take the photo from the *same* location every night, at the *same* time so the information you are collecting (the data) is as reliable and consistent as it can be.

Mary used to sketch what she observed so you could try that too!

Waxing Gibbous

Selenography is the scientific study of the moon's geographic features.

Here, we are going to think about the moon's craters.

You could return to the images of the moon's surface you used in the 'Waxing Crescent' phase.

How do you think the moon's craters came about?

1. From an explosion from inside the moon, bursting outwards into space?

2. From rocks and comets hitting the moon's surface?

Scientific Experiment

Set up an experiment to show how the craters have been formed on the moon by filling a 1-2 inch deep tin or tray with white baking flour, sprinkle (using a sieve) a fine layer of cocoa powder or milkshake powder over the top. Take some stones (different shapes and sizes) and drop them into the flour from different heights; beginning with a significantly high drop to see how the flour and top layer of powder are pushed outwards to form what becomes a crater.

On the moon the soil is called ‘regolith’. In using two differently coloured powders, the ‘rays’ from the impact are made visible. You should be able to see how the rays emanate from the point of impact, the bottom layer (of white) being pushed up, on to the surface of the top layer of powder. You can experiment by lightly throwing the stone into the flour from an angle, this illustrates how different ‘ejecta ray patterns’ are made on the surface of the moon (and other celestial bodies).

‘Reach for the skies’

What does it mean to achieve something?

Mary Blagg achieved a lot in her life and here is a list of some of those achievements:

- she was among the first women to be admitted as a Fellow to the Royal Society of Astronomy (in 1916)
- during World War I, she looked after Belgian refugee children who had been evacuated to Cheadle
- publishing her work in the *Monthly Notice* on eclipses
- meeting distinguished scientists at Cambridge in 1925
- conducting ground-breaking research from her home in Cheadle
- studying German and Algebra at a private boarding school in Kensington, London
- as 1 of 12 children, Mary taught her younger siblings and took much pleasure in making lessons fun for them

Can you arrange these life achievements in a rank order of importance or of impact?

What kind of impact did they have, and on whom?

What kind of things do you think are important to achieve in life?

And how can we go about achieving them?

In your opinion, which achievements are particularly special because Mary Blagg was a woman?

Mary Blagg's work in astronomy was time-consuming. It involved some observation of the night sky and a lot of compilation of data at her desk.

She was very good at Maths and used this in her scientific calculations of distances, sizes of craters or other features on the moon. Her research was often very intense and it would take a long time to complete.

Waning Gibbous

Below is a table of the kind of ‘doing’ Mary was involved in – can you connect the -ing verb with the meaning of the ‘doing’. You might wish to discuss which activities would have taken place outside and which would most likely have taken place inside her house in Cheadle, most likely at her desk.

observing	examining something in detail, usually in order to explain what it is/how it works
calculating	noticing something and realising that it is something significant.
estimating	assembling data together from various sources
analysing	working out something logically or through reason
compiling	arranging and presenting data in a table
deducing	giving an account of something that you have observed or investigated
reporting	working out the size or amount of something using a measuring instrument of some kind
measuring	roughly working out the value or number of something
tabulating	working out the amount or number of something

Answers

observing	noticing something and realising that it is something significant
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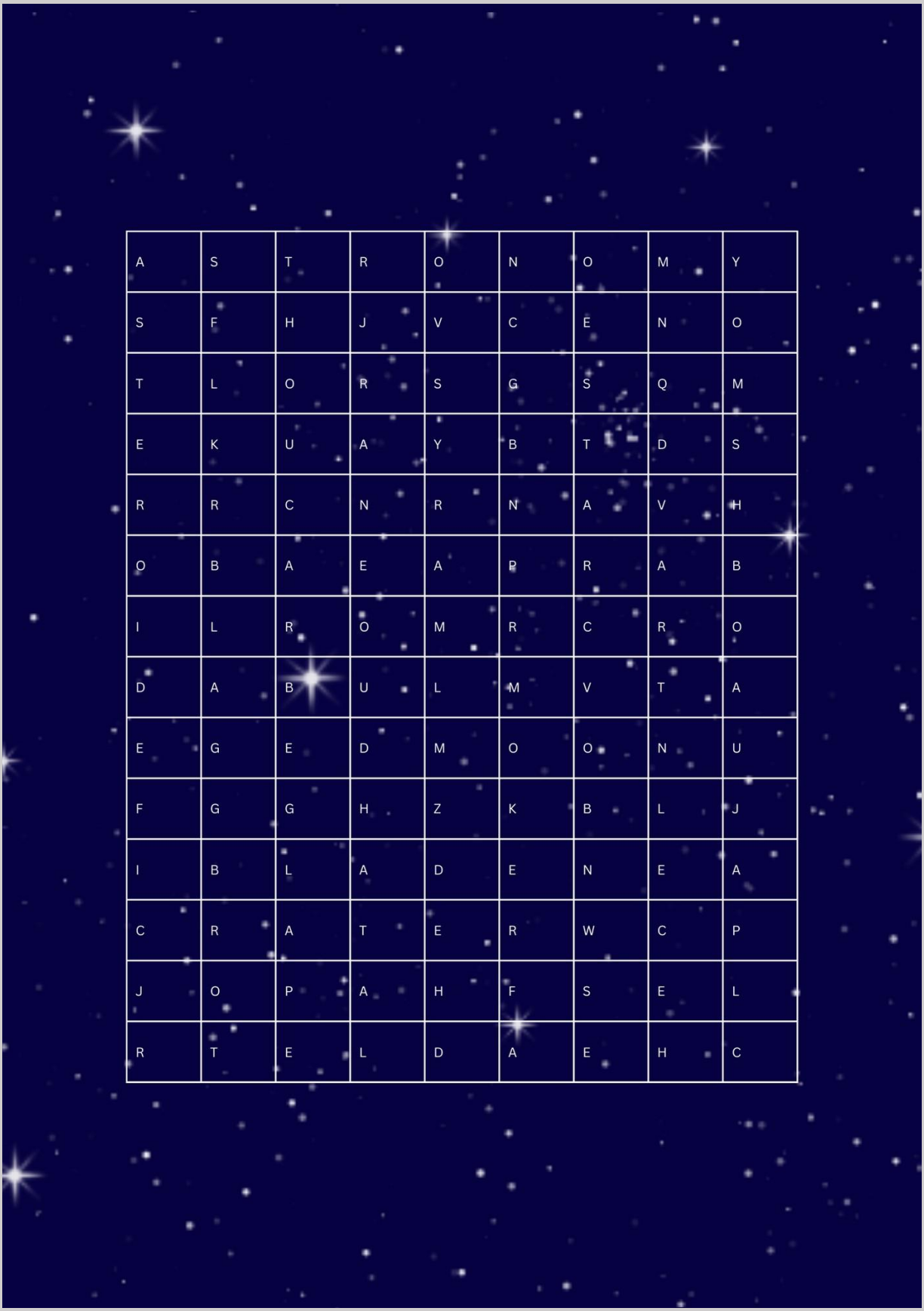
Can you find **ten** words linked to Mary Blagg (including her name) and to astronomy?

Third Quarter


A S T R O N O M Y
S F H J V C E N O
T L O R S G S Q M
E K U A Y B T D S
R R C N R N A V H
O B A E A P R A B
I L R O M R C R O
D A B U L M V T A
E G E D M O O N U
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I B L A D E N E A
C R A T E R W C P
J O P A H F S E L
R T E L D A E H C

Answers

A	S	T	R	O	N	O	M	Y
S								
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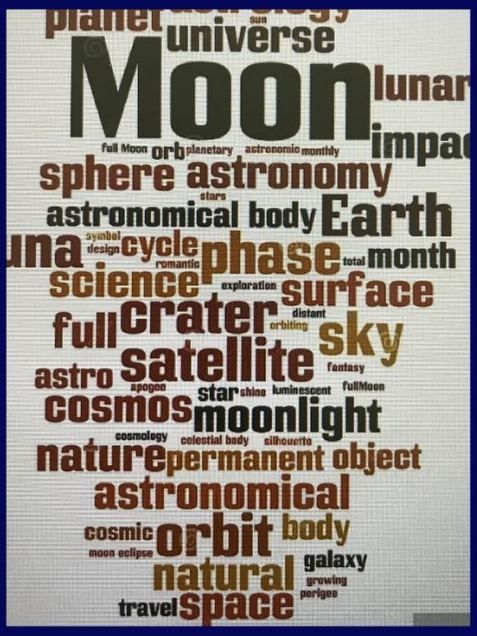

Waning Crescent

We have learnt that the naming of the craters on the moon is called ‘lunar nomenclature’. Lunar is a word we use in English to describe things to do with the moon.

‘Lunar’ comes from Latin lūnāris.

Maybe you can think of a character in Harry Potter who has a ‘moon’ name?

Some European languages’ words for ‘moon’ are very close in pronunciation to ‘lunar’. Can you pair the language with the word for ‘moon’?

La luna	Italian
La lune	Portuguese
A lua	Spanish
La luna	French

La luna	Spanish
La lune	French
A lua	Portuguese
La luna	Italian

Answers

KEY TERMS

Moon: a celestial body that orbits a planet. Earth has one moon. It is a spherical body.

Selenography: the scientific study of the moon's geographic features; a geography of the moon.

Lunar nomenclature: the naming of the craters of the moon

Regolith: lunar soil

This resource as well as the audio guide have been developed for OUTSIDE (outsidearts.org) and funded by The National Lottery Heritage Fund. Informed by archival research undertaken by OUTSIDE as well as information gathered through Cheadle Discovery Group, this resource was developed to collate information on Mary Adela Blagg and make it accessible to a young audience.

Acknowledgements

Thanks are due to:

Cheadle residents, Mike Plant and Ivan Wozniak of the Cheadle Discovery Group who initiated this project and the Royal Astronomical Society for archival information and networking and to Jeremy Shears for his guidance.

Cheadle Moon is made possible through a collaboration between OUTSIDE, St Giles the Abbot and the Parish Church Committee, Cheadle Discovery Group, Creative Cheadle and Cheadle Town Council, and supported by JCB, Alton Towers and Film Hub Midlands. Cheadle Moon is made possible with The National Lottery Heritage Fund, thanks to National Lottery players.