



Astro Pi Mission Space Lab Challenge

Two HGS teams have successfully completed the Astro Pi Mission Space Lab Challenge this year. They were tasked with designing a Python script which ran onboard the International Space Station to determine its speed. Here are summaries of their projects:

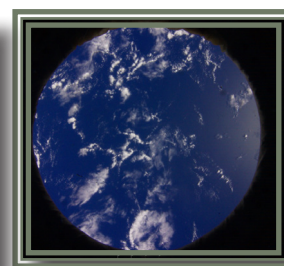
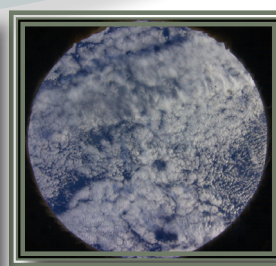
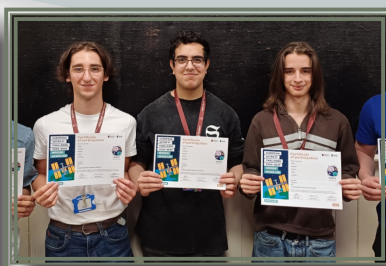
Ad Astra (Year 9 team - Sadaf Shaikh and Keidi Carino)

"Our code uses three methods to calculate the speed of the ISS. Firstly, we used the Haversine Formula, which finds the distance between two points on a sphere (Earth). Secondly, we trained a machine learning model to analyse photographs taken by the Astro Pi to calculate the speed. The third method that we used is an orbital speed formula. Finally, we take a moving average of all values to record the final speed."

Delta V (Year 12 team - Heet Virola, Angelo Fernandes, Wilson Freeman Sanchez, Taha Mir and Francis Appleyard)

"Running on the ISS's Astro Pi, the program collects the station's position and altitude every second and computes its orbital speed in real time. Direct distance-over-time measurements are combined with formulas from textbook physics, and the data is cleaned up by applying a Kalman filter and exponential smoothing to minimize noise. In order to visually cross-check the speed, a picture tagged with GPS data is also taken every minute. Ultimately, it combines all of these measurements to produce a dependable estimate of the orbital velocity of the ISS."

Both teams have shown impressive teamwork and research skills. We look forward to seeing what they accomplish next!



The above photos are photos of the Earth's surface that the students captured.

HGS Music and Drama Departments Present
HGS Production 2025

SHREK THE MUSICAL

Based on the Dreamworks Animation Motion Picture and the book by William Steig

JULY 8th + 9th + 10th

Book and Lyrics by
David Lindsay-Abaire

Music by
Jeanine Tesori

Originally produced on Broadway by
DreamWorks Theatricals and Neal Street Productions

This amateur production is presented by arrangement with Music Theatre International
All authorised performance materials are also supplied by MTI www.mtishows.co.uk

Tickets Priced £15

ON SALE!

www.ticketsource.co.uk

BIRKENSHAW BELLS

RECRUITING U16

Players for the 25/26 Junior Season

Weekly Training Days & Times

U16s (School Years 10 & 11)
as of Sept 2025

Wednesdays
@ Hope Park, BD5 8HB
7:30-9:15 pm

We are looking for players to join
our existing U16 squads for next
season competing in the
West Yorkshire
Junior Netball League

Matches played Sundays
across West Yorkshire

email birkenshawbells@outlook.com to sign up

DIARY DATES

7,9 & 10 July

School Production

"SHREK"

Mon 7 July

Year 12 Students

Bradford University Visit

Thur 10 July

Year 12 Students

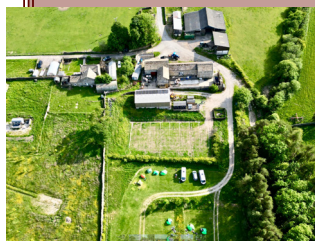
Cambridge Open Day Visit

Fri 11 July

Year 10 Students

Great Yorkshire Show
Trip

Poem for Bronze Dofe – by Eeshan, Kaysan, Deborah, Emily, Rhiya, Alaw (Year 10)



We set off bold with packs held high,
Beneath a bright blue British sky,
With maps in hand and boots laced tight,
Adventure calling left and right.
But soon the path began to stray,
We veered off course the start of that very day
The map looked fine, the signs were clear,
Yet path grew windy, and trails unclear.
"We're lost!" came whispers, nervous and low,
As winds began to softly blow.
But on we trudged through trail and field,
A muddled band, our goal in view.
Then cresting hills so steep and wide,
We saw the countryside with pride
A flock of sheep blinked calm and slow,
While birds darted far below.
Cows looked on with lazy grace,
A car sped past - gone without trace.
A hare stood tall then dashed away,
Like nature's wonder in light of day.
We found our route (or near enough),
The going hard, the weather tough.
But laughter rose with aching feet,
As fields and forests did repeat.
And then a sight both vast and grand,
We paused to rest, our spirits stirred,
Not by a screen, but breeze and bird.
Refilled our flasks, adjusted packs,
And vowed to stick closer to tracks.
But still we strayed (we can't deny),
From winding path to wrong foot high.
Each turn a puzzle, each stile a test,
Yet somehow we just guessed the rest.
With compass swung and tempers tight,
We thought left, then turned to right.
But always—always—found our way,
Before the ending of the day.

Chemistry Meets Magic: Inspiring Young Minds Across Kirklees

Miss Gledhill and members of the Chemistry Department have been bringing science to life in a truly magical way, visiting primary schools across Kirklees with their hugely popular Potions Sessions.

These engaging



outreach events combined the wonder of the wizarding world with the real-world excitement of chemistry. Students had the opportunity to create their own "potions" through safe, hands-on experiments, while also enjoying spectacular demonstrations – including the crowd-favourite Elephant's Toothpaste reaction,



which showcased chemistry in a fun and memorable way.

The sessions aimed to spark curiosity, inspire creativity, and show young learners that science is not just something you study – it's something you experience. Judging by the laughter, wide eyes, and endless questions, the mission was a resounding success.

We're incredibly proud of the department's



efforts to engage the wider community and nurture a love of science from an early age.

