

TEACHER'S RESOURCE PACK **KEY STAGE 3** 

PROUDLY SUPPORTED BY

BAE SYSTEMS





## IN YOUR PACK

15 inserts which include:

- A fold out timeline
- A visual of Amy's flight to Australia
- Historical source material
- Curriculum linked activity suggestions
- Top tips for getting into STEM
- Links to other resources, campaigns, organisations and festival opportunities

And don't forget...Your school will have received a PDF version of this resource.

### Brought to you as part of the Amy Johnson Festival

2016 is the 75th anniversary of the death of Amy Johnson, Hull's flying heroine. Born in Hull in 1903, Amy Johnson CBE was one of the most influential and inspirational women of the twentieth century. She was the first woman to fly solo from England to Australia and set a string of other records throughout her career.

www.amyjohnsonFestival
www.amyjohnsonfestival co.uk
marks this anniversary
and celebrates Amy's life,
achievements and legacy with
an ambitious programme
of the arts and engineering
sciences appealing to all
interests and ages.

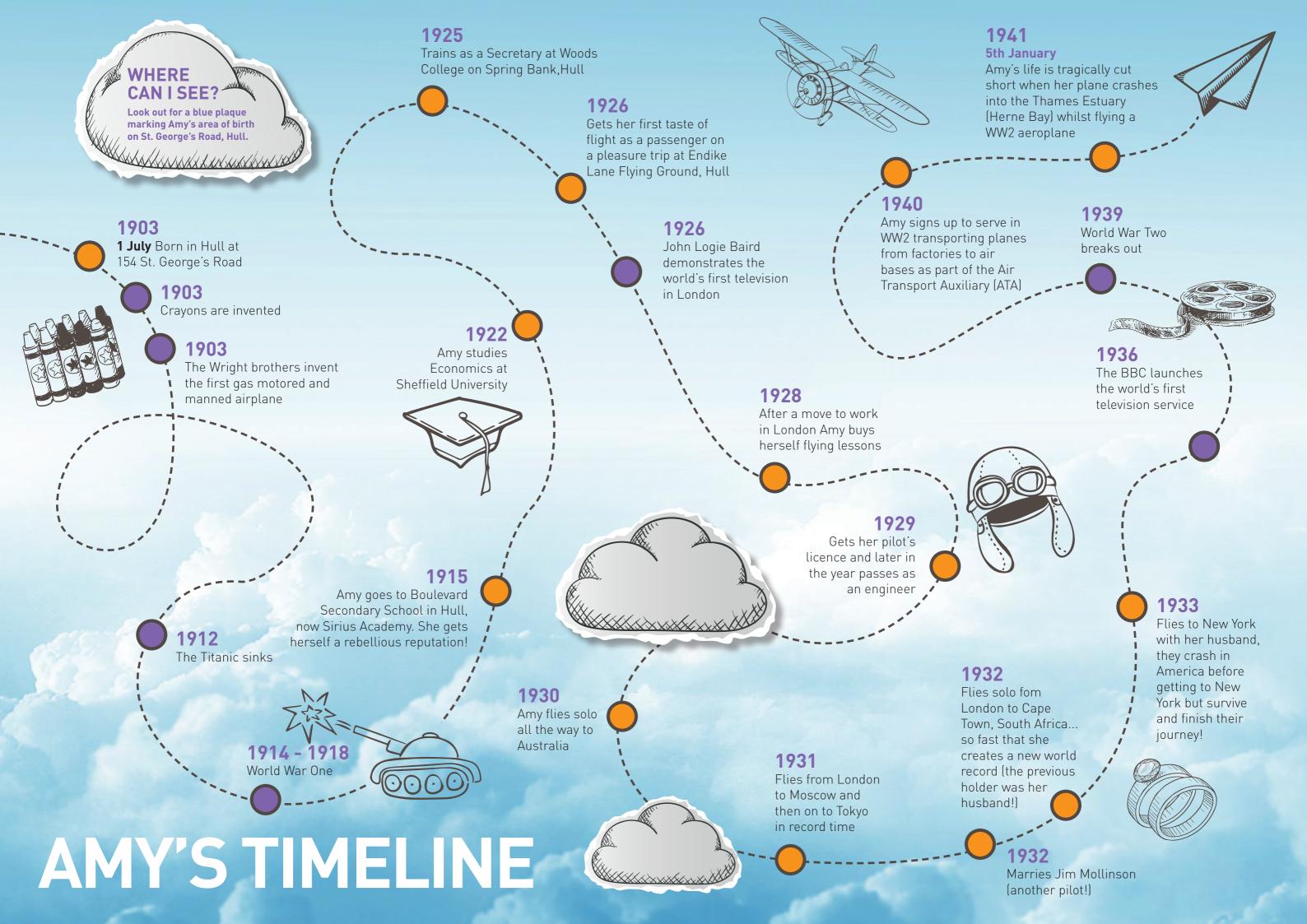
This pack is full of creative ideas to help you deliver exciting learning inspired by Amy's incredible achievements.

The pack aims to

- Raise awareness of Amy Johnson and her achievements.
- Promote Science and Technology as a rewarding career choice, in particular maximising the potential of Amy Johnson as a positive role model to encourage girls into the field
- Give teachers creative and cross-curricular ideas and activities that will enhance their delivery of Science, Technology and History subjects.
- Bring together high quality Amy Johnson related historical source material and science material for use in the classroom.

Cover image and image above courtesy of Hull Daily Mail.





# UNLOCK THE SECRETS OF AMY'S TIMELINE

Chart Amy's path from her beginnings in Hull through to becoming a high flying, world famous pilot with these curriculum linked activities.



KS3



#### **ENGLISH / HISTORY:**



Write a script based on an element of Amy's life, such as her life as a young person in Hull or her solo flight to Australia. Use the source material to support research of Amy's life as well as other suggested online sources, including personal letters. Practice and perform the short plays as a sequence to tell her life's story.



#### **ART AND DESIGN:**

Use the timeline as inspiration for creating illustrations; these could be in a comic book style, illustrating elements of Amy's life alongside key events from British history that occurred during her lifetime. Students should undertake research into the artist or illustrator who they are taking inspiration from.



#### **HISTORY:**

Undertake an enquiry around the roles of women during Amy's lifetime with the aim of answering the question: 'Was Amy Johnson a liberated woman?' Students should draw on learning about women's suffrage, roles of women during the First World War and the impact of education, social status and upbringing (including social expectations of women) would have had on freedoms for women during Amy's lifetime. Extend by making comparisons to women's lives in Great Britain today. Use in conjunction with the contemporary account of Amy's journey to Darwin as found on the 'Amy the Rebel' page to develop understanding about how women were viewed at the time.

## ACTIVITY DEAS

#### FOR AMY'S FAMOUS FLIGHT

Amy touched down in lots of exotic countries during her famous flight to Darwin, Australia. Get creative and use the activity suggestions below.

The world record for flying to Australia was fifteen and a half days and I really wanted to beat it but the dreadful weather slowed me down never the less I pushed on and made it in 19 days!



#### KS3



#### **GEOGRAPHY / HISTORY**



Using the map as a historical source, students should identify which places along Amy's route have different names to those we use today.

Students should use maps to focus on the Middle East and Asia, looking specifically at key physical and human characteristics in the modern-day countries. Students, in groups, should then undertake research into how that country has developed from the time that Amy visited in 1930.



#### **MUSIC**

Research music, historical and modern day, which are synonymous with the countries that Amy stopped at during her trip to Darwin. In groups, allocate a country for the pupils to research and become inspired by their musical traditions. Create a soundscape of Amy's journey to Australia.



#### **SCIENCE (PHYSICS) / MATHS**



Using the modern day price of aviation fuel, work out how much it would have cost for Amy to travel her route. Students should take into consideration the fuel capacity and range of 'Jason', Amy's de Havilland DH.60 Gipsy Moth plane. Students will need to use the equation: distance = speed x time and the information provided within the source material to find out how far she travelled between the different places. We recommend using elements of the resource created by Sewerby Hall and Gardens to support the teaching of these tasks.

Download teacher pack: http://tinyurl.com/zkhl5xc



Create a Spotify playlist of songs associated with Amy and the countries she visited.



AMY RECORD

She flew an incredible 11,000 miles!



## **DISCOVERING AMY... AMY'S FAMOUS FLIGHT**



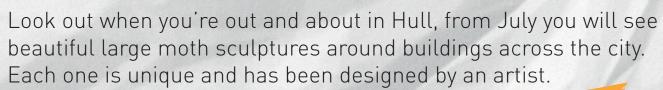


## A MOTH FOR AMY



## ACTIVIDEAS

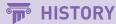
#### A MOTH FOR AMY



The project 'A Moth for Amy' is inspired by the plane she flew; a de Havilland Gipsy Moth.



The manufacturer of the plane that Amy flew, Geoffrey de Havilland was a lepidopterist that means he was fascinated by moths! In tribute he named many of his planes after them, such as the Puss, Tiger, Hawk, and Gipsy to name but a few!



Students should undertake some research into the significance of the 'moth' and why it is associated with Amy. They could look at the company, de Havilland, who were aircraft manufacturers from the 1920s until 1964. In particular, students should look at the founder of the company, Geoffrey de Havilland who was an avid lepidopterist as well as an aircraft designer. Students could create a timeline of aviation developments, from the earliest flying machines through to the present day.



Tom Purvis, a guest at the luncheon in honour of Amy after her historic flight from the UK to Darwin in Australia, was a highly successful poster artist from 1923 - 1945. His most recognised works are posters he designed for the London and North Eastern Railway (LNER) which depicted destinations in Britain, including some across Yorkshire. Provide a series of examples of Purvis' poster designs for your students to look at. Look at the style, use of colour, the purpose and key messages of the posters. Your students should then have a go creating a 'Moth for Amy' (using the template) in the style of Purvis. Their design could either focus on one of the destinations she visited on her epic flights or focus on Amy herself, using photographs of her as featured in the downloadable resource

#### WHERE **CANISEE?**

Look out for the moths around prominent buildings in Hull like the History Centre.



The master sculpture has been created by East Riding Sculptor Saffron Waghorn.

Find out about her work here www.hull2017.co.uk/discover/ article/meet-artist-saffron-waghorn/

For inspiration look at the moth gallery online to see the artists' beautiful designs www.amyjohnsonfestival.co.uk/



AMY IN POPULAR CULTURE

## SONNET in Homage to MISS AMY JOHNSON, C.B.E.

Pity the soul that has not longed for wings

Nor in the mind compassed the world's bright round,

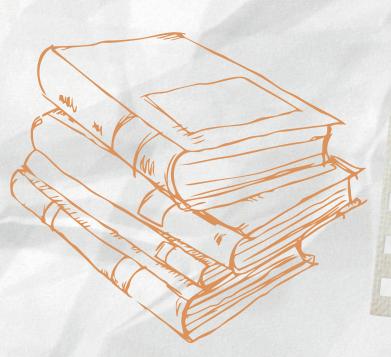
But even in daydream to the dull earth clings

And narrows the world to its own plot of ground.

Envy the soul that wings has sought and found, who sunward, as the sun is rising, springs...
Though before sunset hurricanes hound
Deathward this soul and its imaginings.

Honour the victor soul that, while resound worldshout and tribute in the mouth of Kings, owns her felicity to most abound In the sweet knowledge acclamation brings, - That by her deed the victim too is crowned And those who dreamed not have discovered wings!

#### ROBERT NICHOLS





## The Last Testament of Amy Johnson

An ATA First Officer, I know my ground crews wink or sneer as if to say, "Just look at her!" who're safe down there while I'm up here. If those we fight, I've learned to hate, Still those we guard I truly love not institutions of this state or its stuffed shirts: I set above them home and sisters back in Hull. Most men I meet I find a bore, the lives they plan for women dull, as dull the life I had in store a different route in life I planned and very different maps unfurled: I bought a cheap De Havilland and chased the sun around the world to my born place's opposite, a Gypsy in my Gypsy Moth. So while the brows of men might knit, I cut my coat from heaven's cloth and chose to wear this uniform and ferry planes I helped to build, not chasing sun, but through the storm, to burn or fall, all I have willed. A moth or Icarus or what you might choose to call me, I don't care you might love words, but I do not. All I love's silent, in this air.

#### lan Duhig

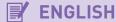
Based on Yeats' 'An Irish Airman Forsees His Death'

## ACTIVITY IDEAS **AMY IN POPULAR CULTURE**



Look out for the statue in honour of Amy on Prospect Street in Hull

When Amy set off on her flight to Australia in 1930 nobody knew who she was. By the time she returned she was a celebrity across the world! The media were fascinated by her incredible achievements, especially by the fact that she was a woman. In the 1930s men dominated the fields of aviation and exploration. Amy was a powerful striking figure for the age, standing up for her beliefs and rebelling against the attitudes of the time. Because of this she has inspired artists, musicians, filmmakers and poets across the decades to make tributes to her.



Provide copies of the two poems to the students. Begin by reading the poems aloud. Lead a discussion on the use of key vocabulary, figurative language and imagery, poetic conventions and structures to determine the significance of the poems. Students should compare the two poems - both are about Amy but written decades apart. They should think about whether this has an impact on remembering Amy, particularly through the change in language and style. Students should attempt to answer the question: 'What effect do the poems have on the reader?'



#### **ENGLISH / HISTORY**

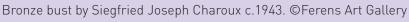


Robert Nichols was an English writer and war poet of the First World War. Students should research his life and his works to write a biography.



**MUSIC** 

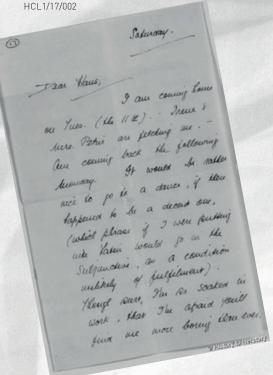
Provide the lyrics to the song, 'Amy, Wonderful Amy' by Jack Hylton and his Orchestra. In groups, students should compose music to accompany the lyrics using a range of instruments and drawing on the music that they like and listen to. Once their compositions have been created, play them the version by Jack Hylton. Allow the groups to perform their compositions to an audience.







Amy Johnson, letter to Hans Arregger, 8 November 1924



#### ACTIVITY IDEAS LINKED TO AMY'S LETTERS





#### **ENGLISH AND HISTORY**

Read the two letter extracts from Amy. You should discuss the significance of personal letters in helping us learn more about people's lives from the past. Hans Arregger, Amy's partner from 1922 – 1928, kept his letters from Amy which are now kept at the Hull History Centre. Ask the students how many of them write personal letters to friends or family.

Students should have a go writing a personal letter to Amy. They should think about what they would tell Amy. They may want to comment on her role as a significant and influential woman, about her legacy or how we celebrate her achievements.

## LETTERS FROM AMY

Amy's first big love was when she was 18 with a man called Hans. During their romance she wrote hundreds of letters to him. Hans married someone else in the end, but kept Amy's letters for the rest of his life! The originals are now kept at the Hull History Centre.

Amy Johnson letter to Hans Arregger, 8 Nov 1924. Transcription:

Dear Hans,

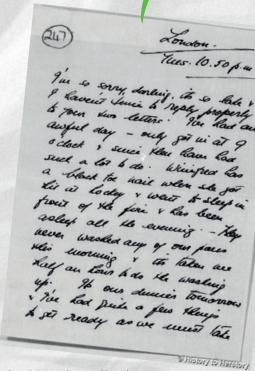
I am coming home on Tuesday (the 11th) Irene and Mrs Petrice are fetching me. Am coming back the following Monday. It would be rather nice to go to a dance, if there happened to be a decent one (which phrase if I were putting into Latin would go in the subjunctive as a condition unlikely of fulfilment). Though sure, I'm so soaked in work, that I'm afraid you'll find me more boring than ever... you really were a dear to write...

Goodbye for the present Amy

#### Amy Johnson letter to Hans Arregger, 14 Dec 1927.

#### **Transcription:**

I'm so sorry, darling, it's so late & I haven't time to reply properly to your two letters. I've had an awful day - only got in at 9 o'clock and since then have had such a lot to do. Winifred has a black toe nail where she got hit at hockey & went to sleep in front of the fire & has been asleep all of the evening. They never washed any of our pots this evening & it's taken me half an hour to do the washing up....I've had quite a few things to get ready...



Amy Johnson, letter to Hans Arregger, 14 December 1927 HCL1/247/002



**WHERE CAN I SEE?** 

Thank you to West Yorkshire Archives. www.archives.wyjs.org.uk

Copies of Amy's letters to Hans Arregger can be viewed online see link below

IMAGES © History to Herstory
Digitised versions of Amy's letters to Hans Arregger can be viewed using
the catalogue at: www.historytoherstory.org.uk/index.html

## **AMY THE REBEL**

In the 1930s women's role in society was different to what it is today. Attitudes to women, what they should do with their lives, even how they should dress, were very strict and often decided for them by other people. Their main role was to bring up a family and look after their husbands. Amy stood up against this and followed her own path!

#### CONTEMPORARY ACCOUNT

This extract is from an article that was written about Amy to celebrate her famous flight.

#### "DEA EX MACHINA"

By Sylvia Thompson

ago, Woman first rode a bicycle. Rode it precariously, gripping strange handle bars in defiance of convention, pedalling bravely and yet a little uncertainly off the beaten track of tradition. Yesterday Woman advanced (in a suitably designed and decent costume) on two wheels, ringing the small and yet so significant bell that heralded her approach round unknown corners, and warned the world that a frail sex might be as capable of guiding a vehicle as rocking a cradle, and as able to understand the working of machinery as to comprehend the comparatively simple mechanism of the masculine mind.



#### WHERE CAN I SEE?

The souvenir book in honour of Amy's flight to Australia can be seen at the Hull History Centre. Please call in advance to arrange a viewing. "We ought to have the same when we're doing precisely the same job, don't you agree?"



## ACTIVITY IDEAS

KS3



#### **HISTORY**

Allow students to read through the article. (full source in the PDF version) Explain that "Dea Ex Machina" means 'Goddess from the Machine' in Latin. Pose questions to your students about the account of Amy's journey to Australia. Beginning with the first two paragraphs, discuss attitudes to women – drawing on vocabulary used – and then compare with the last paragraph of the article. Have attitudes to women changed because of Amy?



#### **ENGLISH**

Using the account as a stimulus, students should write an account of the achievements of a famous man today using the style and techniques of Sylvia Thompson. They should think about the attitudes we hold towards men today, particularly those who are famous.

Alternatively, your students could edit and rewrite the account of Amy by Sylvia Thompson to reflect today's attitudes to women. Have attitudes to women changed? Do women still face discrimination in maledominated careers? How would Amy have been viewed in modern society?



Saturday.

Dear Haus,

I am coming home ou Tues. (the 11th). - Ineue & Mers. Petrie are fetching me. an coming back the following Miouday. It would be rather mice to go to a dance, if there happened to be a decent one, (which phrase if I were putting wite Latin would go wi the Sulpunction, as a condition unlikely of fulfelment). Though sure, I'm no soaked in work, Har The apaid youll buix une more borney Man ever. 247)

Хопою . - Ушег. 10.50 р.ш.

The so sorry donling, to so lake & I havent Levie to reply properly to your sur letters. The had an awful day - only got in at 9 o clock & sence Her have had such a lot b do . Whirifed has a black toe hail where she got his at locky & went to sleep in pour of the fire & has been asleep all the evening - They wever wasked any of our paus this morning or the taken we Kalf au lour to do He washing 16 ous dunier tomorrow i Toe had Junte a few thereis to see ready as we werest lake

## "DEA EX MACHINA"

#### By Sylvia Thompson

ESTERDAY, not so many yesterdays ago, Woman first rode a bicycle. Rode it precariously, gripping strange handle bars in defiance of convention, pedalling bravely and yet a little uncertainly off the beaten track of tradition. Yesterday Woman advanced (in a suitably designed and decent costume) on two wheels, ringing the small and yet so significant bell that heralded her approach round unknown corners, and warned the world that a frail sex might be as capable of guiding a vehicle as rocking a cradle, and as able to understand the working of machinery as to comprehend the comparatively simple mechanism of the masculine mind.

To-day Woman, controlling the machine, rides an air where convention never breathed, and defies the elements on a path untrodden and unimagined by any tradition. To-day Woman, in the person of Amy Johnson, has swept diagonally across the map of the world, and alone, with magnificent composure, defying her dangers and grasping her difficulties, has put a girdle round half the earth in nineteen days.

From England to Australia. Across three continents . . . across mountains and seas and deserts. . . . The story reads fantastically. The mere names of the places strung together on that flight

have an epic glow: Vienna, Stamboul, Aleppo, Baghdad. . . . (A girl alone in that throbbing winged machine, pressing southward, eastward, cleaving steadily through the air) . . . Bandar-Abass, Karachi, Jhansi, Calcutta, Rangoon—Bangkok, Singora, Singapore . . . (the machine still bearing south and east through strange weathers and over fatal seas)—Tjormal, Sourabaya, Atamboa—Port Darwin. 12,000 miles! Europe, Asia, Australia in nineteen days.

Examine the details of such a flight. The dazzling quality is what we see, the shining speed, the jewelled names of places linked across the world; but the thing was done deliberately and coolly, without show or boasting.

Amy Johnson left Croydon on May 5th in her Gipsy Moth. Her flight was an independent venture. (Briefly, she had wanted to fly to Australia and in due course had gained the experience and the machine which enabled her to try and do so.) She flew for ten hours and landed in Vienna. The next day she flew via Belgrade and Sofia to Constantinople; she landed here flying 800 miles in twelve hours. Next day she crossed the Bosphorus and flew over Asia Minor, landing at Aleppo, after 550 miles in the air. (She had never crossed the Channel before, nor flown more than 200 miles at a stretch.) Her next stage was across the desert to

Baghdad. A sandstorm forced her down in the desert, where she waited for two hours, struggling to hold her machine to the ground, piling her luggage against the wheels to prevent it nosing over, and holding ready a pistol against the very possible hostility of Arabs. reached Baghdad at the end of her fourth day. On the fifth day she passed over Basra and got to Bandar-Abass on the Persian Gulf. On the sixth day she got to Karachi, the gateway to Indiabreaking Hinckler's record to Karachi (of eight days). She then began her flight across India, landing at Jhansi to get petrol and stay the night. The next day she crossed the great plains of India, alighted at Alahabad, and then went on to Calcutta. Calcutta she had done 7,000 miles in eight days.

On the ninth day she started on the dangerous stage to Rangoon, passing over the Yomas Mountain range at 12,000 feet. Landing at Rangoon, taxi-ing over unknown ground, she ran into a ditch, damaging her machine. Its repair took two days. When she set off on May 16th she met heavy rain, and after flying over dense jungle and mountainous country she reached Bangkok.

The next day she flew towards Singapore, fighting rain storms and strong head winds, and had to drop at Singora after six hours. On the fourteenth day she reached Singapore; the next day she crossed Java Sea in heavy storms and made a forced landing at a sugar plantation. She spent the night there and

resumed her flight via Samarang to Sourabaya. Here she prepared her machine for the last hazardous stages of her journey. She had to cross the Dutch East Indies and the Timor Sea. She started from Sourabaya at 6 a.m. For the following day and night nothing was heard of her; no news came through. . . .

But news came the next morning. She landed near Atamboea. Then she started on her last stage across the sea. At 3 p.m. on May 24th, by a triumph of navigational skill, she located and landed at Port Darwin.

Twelve thousand miles across three continents in nineteen days. . . .

We must pay a hundred tributes to the woman whose qualities of mind and character drove her to such a feat, recognising it as a tremendous proof of her skill and bravery, tenacity and in-But it isn't only as an dependence. individual that Amy Johnson commands our admiration; it isn't merely as the heroine of a single great flight that she captures the public mind. The imagination sees in her not only a Heroine, but the Heroic Spirit; sees her achievement as part of a tradition of gallant and magnificent adventure. In a world of stereotyped materialism, in an age stupefied by comfort and dulled by security, the hungry imagination looks up and is strangely intoxicated by the vision of a girl, a calm "goddess in a machine," flying in the face of the elements—and of Providence—neither shaken nor discouraged nor overawed by their incalculable power.

# **CELEBRATIONS FOR AMY**

## **MENU**

Cantaloup Frappé Caviar d'Astrakan Hors d'Œuvre Parisiens



Œufs Pochés Port Darwin



Délice de Sole Jason



Suprême de Volaille Montpensier Cœur de Romaine Amy Johnson



Pêches et Framboises Grand Succès Parfait Glacé Napolitaine Délices des Dames



Café



#### WHERE CAN I SEE?

The menu features in a souvenir booklet from August 6, 1930 that can be viewed at the Hull History Centre, call ahead to arrange a viewing 01482 317500.

## ACTIVITY IDEAS **MENU**

This menu was taken from a souvenir booklet made for a luncheon held at the Savoy Hotel in London, on August 6th 1930, a celebration of Amy's famous flight to Australia.



#### KS3



#### **TOTAL** HISTORY / LANGUAGES



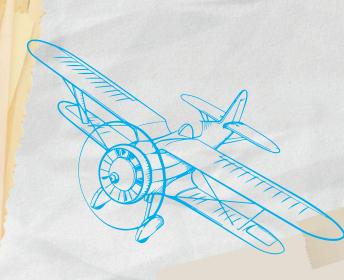
Students should look at the menu and, using the source material, identify any references to Amy. Translate the menu from French in to English, using a dictionary if required.



#### **DESIGN AND TECHNOLOGY**

Students should choose a dish they would like to prepare. They should research the dish, finding a suitable recipe and source the correct ingredients. Where possible, they should use the appropriate techniques and equipment to create a set of dishes to replicate a commemoration dinner for Amy.







WHERE CAN I SEE?

See the original souvenir booklet at Hull's History Centre, it even has Amy's signature on the front!

Call ahead to arrange access to the archives 01482 317500.

AMY'S WORLD -THE 1930s

The leading lights of the day were invited to a celebration of Amy's incredible achievement. The guest list reads like a who's who of important people from the 1930s. It shows how respected she was.

Another great insight into Amy's world in the 1930s is to look at some of the books she owned.

Here's a reading list from my personal library of some of my favourite books



#### **GUESTS**

## HIS MAJESTY'S GOVERNMENT

THE RT. HON. J. H. THOMAS, M.P., AND MRS. THOMAS

#### AUSTRALIA

Major-Gen. The Hon. Sir Granville de Laune Ryrie, K.C.M.G., C.B., C.M.G., V.D., and Lady Ryrie Mr Percy E. Colman

#### CITY OF HULL

The Rt. Hon. The Lord Mayor and Lady Mayoress of Hull The Deputy Lord Mayor of Hull and Mrs. Pearlman The Sheriff and Lady Sherriff of Hull The Town Clerk of Hull

Mr. J. W. Johnson Mrs. J. W. Johnson Miss Molly Johnson Miss Betty Johnson

#### LITERATURE

Mr. Robert Nichols Mr. J. B. Priestley Mr. Evelyn Waugh

#### SCIENCE AND ART

Mr. John L. Baird Mr. Cecil Beaton Mr. Tom Purvis

#### STAGE AND CINEMA

Mr. Noel Coward Mr. Alfred Hitchcock Mr. Charles Laughton Mr. Ivor Novello



#### Amy's reading list

Modern Ballroom Dancing Victor Silvester (Herbert Jennings ltd.)

The Flight of Birds Horton C. Smith

Of Mice and Men John Steinbeck (Heinemann 1937)

Flying as a Career Major D Stewart (Pitman 1934)

Lady, What of Life? L.Storm (1931)

Round the world J.P. Thomas (Outridge Printing Co. 1904)

Swimming the American Crawl J Wetsmuller (Putnam 1934)

South Africa A.W. Wells (Dent 1947)

England Have My Bones T.H. White (Collins 1936)

Who's Who in British Aviation – (Airways publications 1931)

A House of Pomegranates Oscar Wilde (Methuen 1924)

A Book for the Lonely W. Wynne James Clark C.1937

Fame & Faith Reverend F.T.B. Westlake (Skeffington)

View the full guest list in the PDF version of this resource.





The guest list features in a souvenir booklet from August 6, 1930 that can be viewed at the Hull History Centre. Call ahead to book a viewing **01482 317500**.

## LINKED TO LIFE IN THE 1930s

This menu was taken from a souvenir booklet made for a Luncheon held at the Savoy Hotel in London, on August 6th 1930, a celebration of Amy's famous flight to Australia.

KS3



#### **HISTORY / ENGLISH**



Provide the list of names of the guest list to your students. Do the students recognise any of the names? In small groups, provide a key figure that they should research and create a short biography for. They should look for a variety of sources to enhance their biography, such as images. They should also look at the style of a biography and include stylistic devices in their own pieces.

Students should look at the list of books from Amy's personal collection. If they didn't know much about Amy and her life, what could they learn about her by her choice of books? To support the students, you could provide them with a synopsis of each of the books.



You can see portraits of past Lord Mayors of Hull at the Guildhall in Hull.



## **GUESTS**

## HIS MAJESTY'S GOVERNMENT

THE RT. HON. J. H. THOMAS, M.P., AND Mrs. THOMAS

#### AUSTRALIA

Major-Gen. The Hon. Sir Granville de Laune Ryrie, k.c.m.g., c.b., c.m.g., v.d., and Lady Ryrie Mr. Percy E. Colman

#### CITY OF HULL

THE RT. HON. THE LORD MAYOR AND LADY MAYORESS OF HULL

THE DEPUTY LORD MAYOR OF HULL AND MRS. PEARLMAN

THE SHERIFF AND LADY SHERIFF OF HULL
THE TOWN CLERK OF HULL

MR. J. W. JOHNSON MRS. J. W. JOHNSON MISS MOLLY JOHNSON MISS BETTY JOHNSON

#### AIR MINISTRY

AIR-VICE-MARSHAL SIR SEFTON BRANCKER, K.C.B., A.F.C.
AIR-COMMODORE F. V. HOLT, C.M.G., D.S.O. DR. G. C. SIMPSON, C.B., F.R.S.
LIEUT.-COL. H. W. S. OUTRAM, C.B.E.
MR. F. G. L. BERTRAM, C.B.E.
MR. F. TYMMS, M.C.
MAJOR L. F. RICHARD
MR. ALLAN ATTRIDE

## AIR LEAGUE OF THE BRITISH EMPIRE

Kathleen Countess of Drogheda, c.b.e.
Lady Patricia Moore
Brig.-Gen. Sir Charles DelmeRadcliffe, K.C.M.G., C.V.O., C.B., C.M.G.
Lieut.-Col. N. G. Thwaites, c.b.e.,
M.V.O., M.C.

#### ROYAL AERO CLUB

THE RT. HON. SIR PHILIP SASSOON, G.B.E., C.M.G., M.P.
MAJOR K. M. BEAUMONT, D.S.O.
COMMANDER H. E. PERRIN
MR. B. STEVENSON

#### AVIATION

FLYING-OFFICER D. F. W. ATCHERLEY CAPT. C. D. BARNARD AND MRS. BARNARD LIEUT.-COL. W. A. BISHOP, V.C., D.S.O., M.C., D.F.C. MISS WINIFRED BROWN MISS D. C. GUEST CAPT. LAWRENCE HOPE THE HON. MISS M. N. LEITH THE HON. MRS. EVAN MORGAN Mr. NIGEL NORMAN MISS S. O'BRIEN SQUADRON-LEADER A. H. ORLEBAR, A.F.C., AND MRS. ORLEBAR CAPT. E. W. PERCIVAL FLIGHT-LIEUT. H. M. SCHOFIELD COL. THE MASTER OF SEMPILL. MISS SUZAN SLADE MISS MURIEL ROBINSON MISS WINIFRED SPOONER FLIGHT-LIEUT. G. H. STAINFORTH AND MRS. STAINFORTH MISS F. M. WOOD

#### "DAILY MAIL" PRIZE WINNERS AND PIONEERS OF AVIATION

M. L. BLERIOT FLIGHT-LIEUT. J. S. CHICK, M.C., A.F.C., AND MRS. CHICK Mr. T. W. K. CLARKE LIEUT. CONNEAU (A. BEAUMONT) MR. E. C. GORDON ENGLAND MR. CLAUDE GRAHAME-WHITE SQUADRON-LEADER H. B. HINKLER CAPT. G. A. LINGHAM CAPT. NORMAN MACMILLAN, M.C., A.F.C. M. L. PAULHAN FLYING-OFFICER R. L. RAGG, A.F.C. Mr. A. GEO. REYNOLDS SIR ALLIOTT V. ROE MAJOR J. C. SAVAGE SIR A. WHITTEN-BROWN

#### ARCHITECTURE

MR. R. A. DUNCAN, A.R.I.B.A.
MRS. ST. JOHN HARRISON, A.R.I.B.A.
Mr. D. F. MARTIN-SMITH, A.R.I.B.A.
MRS. HOWARD ROBERTSON, A.R.I.B.A.

#### BRITISH BROADCASTING CORPORATION

Mr. GLADSTONE MURRAY

#### COMMERCE

THE HON. MAXWELL AITKEN
MR. EDWARD BARFORD
MR. EDWARD S. BARON
MR. RICHARD G. BURBIDGE
SIR WM. MORRIS, BART.
MAJOR COLIN COOPER
MR. H. GORDON SELFRIDGE, JUN.
MR. R. R. STOKES
MR. ANTHONY VICKERS

#### **EDUCATION**

MR. J. A. BOYD-CARPENTER
MISS K. JOHNSTON
MR. H. TREVOR LLOYD
MISS H. M. LYON
MR. RAYMOND MORTIMER
THE RT. HON. BARON PENTLAND OF LYTH
MISS VALERIE WALLACE

#### LITERATURE

MR. VERNON BARTLETT MR. GERALD BULLETT MR. DAVID GARNETT MR. VAL. GEILGUD MR. WM. GERHARDI MR. HENRY GREEN Mr. RICHARD HUGHES Mrs. Manning-Sanders MR. HOLT MARVELL MR. BEVERLEY NICHOLS MR. ROBERT NICHOLS MR. J. B. PRIESTLEY MR. EDWARD SACKVILLE-WEST Mr. R. C. Sherriff MISS SYLVIA THOMPSON MR. ALEC WAUGH MR. EVELYN WAUGH

#### MOTORING AND MOTOR CYCLING

Capt. Woolf Barnato
Capt. H. R. S. Birkin
The Hon. Mrs. Victor Bruce
Miss Violette Cordery
Miss Marjorie Cottle
Mr. S. C. H. Davis
Mr. Clive Dunfee
Mrs. W. Urquhart Dykes
Mr. V. Gillow
Mr. K. E. Lee Guinness
Mr. Wal. Handley
Mr. "Tony" Howard
Lieut-Comdr. Glen Kidston
Mr. H. J. Tyrell Smith

#### MUSIC

MR. JOHN BARBIROLLI

MISS ETHEL BARTLETT

MR. ARTHUR BLISS

MISS HARRIET COHEN

MR. KEITH FALKNER

Mr. Eugene Goossens, Jun.

Mr. Leon Goossens

MISS SIDONIE GOOSSENS

MR. HEDDLE NASH

MISS ORREA PERNEL

MISS RAE ROBERTSON

Mr. STUART ROBERTSON

DR. MALCOLM SARGENT

#### POLITICS

MR. B. BRACKEN, M.P.

CAPT. V. A. CAZALET, M.C., M.P.

MR. N. C. D. COLMAN, M.P.

MR. E. MARJORIBANKS, M.P.

MR. S. FRANK MARKHAM, M.P.

MR. W. S. MORRISON, M.C., M.P.

THE HON. HENRY MOND, M.P.

MR. FRANK OWEN, M.P.

THE HON. OLIVER F. G. STANLEY, M.P.

#### SCIENCE AND ART

MR. JOHN L. BAIRD

MR. CECIL BEATON

MR. SMITHSON BROADHEAD

MR. ARTHUR FERRIER

MR. S. C. JAGGER

MR. A. K. LAWRENCE

MISS JOAN MANNING-SANDERS

MR. OLIVER MESSEL

MR. TOM PURVIS

MISS VIOLET WHITE, M.SC., F.R.A.S.

MR. GILBERT WILKINSON

#### SPORT AND ATHLETICS

MR. HAROLD M. ABRAHAMS

MR. H. W. AUSTIN

MR. A. F. BARRETT

MR. A. G. BOWER

MR. T. A. BROCKLEBANK

MISS DORIS CHAMBERS

Mr. T. D. A. COLLET

MR. I. G. COLLINS

ENGINEER-COMMANDER S. F. COOPPER

Mrs. M. A. Cornell

MR. R. COVE-SMITH

Mr. S. T. COZENS

MR. STANLEY EARLE

MISS DIANA FISHWICK

MRS. IVY GILL

CAPTAIN W. A. GODDARD, O.B.E.

LIEUT. E. H. G. GREGSON

MR. T. W. GUBB

MR. D. GUYE

MR. R. HAMILTON-WICKS

MR. LISTER HARTLEY

MR. REX HARTLEY

MISS IVY HAWKE

MR. DAVID JACK

MR. H. C. JOLLY

MR. E. KAIL

MR. C. H. KINGSLEY

MR. A. J. LACEY

MISS F. E. LATHAM

MISS MARJORIE LOCKLEY

Miss G. A. Lunn

MRS. LYCETT

Mr. D. J. MacMyn

MISS VERA MONTGOMERY

MR. FRANK OSBORNE

MISS EDITH PARNELL

SOUADRON-LEADER A. E. PETTINGELL

MR. E. A. PHELPS

Mrs. J. B. PITTMAN

MISS JOAN RIDLEY

MR. R. L. SMEDDLE

Mr. F. W. Southall

MR. H. B. STALLARD

MR. G. V. STEPHENSON

MISS G. R. STERRY

MR. E. H. TEMME

MR. A. TINGEY

MR. W. T. TWINE

MR. R. T. VAUGHAN

## SPORT AND ATHLETICS (continued)

MR. A. T. VOYCE
MR. R. H. WETHERED
MR. W. T. WHEWELL
MRS. FEARNLEY WHITTINGSTALL
MISS ENID WILSON

#### STAGE AND CINEMA

MR. BRIAN AHERNE MR. NOEL COWARD MISS ANNIE CROFT MISS GWEN FFRANGCON DAVIES MR. MAURICE EVANS MISS JEAN FORBES-ROBERTSON MISS NANCY HEATH MR. W. H. HEATH Mr. Alfred Hitchcock MR. LUPINO LANE Mr. CHARLES LAUGHTON Mr. Frank Lawton MISS AURIOL LEE MISS ALISON LEGGETT Mr. Ivor Novello MISS MABEL POULTON MR. GLEN BYAM SHAW

#### **EXPLORATION**

MRS. ROSITA FORBES

#### MEDICAL

MISS MILDRED WARDE, F.R.C.S.

## ASSOCIATED NEWSPAPERS LTD.

SIR GEORGE SUTTON, BART.
MR. W. G. FISH
MR. O. I. PULVERMACHER
MR. F. L. FITZHUGH
MR. W. A. MCWHIRTER
MR. DOUGLAS CRAWFORD
MR. S. J. BELL
MR. TOM WEBSTER
MR. P. FEARON ("Poy")
MR. CHARLES GRAVES

MR. C. S. MILLIKIN MR. S. HEAD MR. J. P. HOBBS MR. R. A. O'BRIEN

#### PRESS

AEROPLANE AIR AIRWAYS AMERICAN ASSOCIATED MAGAZINES AUSTRALIAN NEWSPAPER CABLE SERVICE AUSTRALIAN PRESS ASSOCIATION CENTRAL NEWS LTD. CHRISTIAN SCIENCE MONITOR DAILY EXPRESS DAILY HERALD DAILY MAIL DAILY MIRROR DAILY SKETCH DAILY TELEGRAPH EVENING NEWS EVENING STANDARD EXCHANGE TELEGRAPH MANCHESTER GUARDIAN MORNING POST NATIONAL PRESS AGENCY NEWS CHRONICLE NORTHCLIFFE NEWSPAPERS LTD. Press Association Ltd. REUTERS LTD. STARMER GROUP OF NEWSPAPERS TATLER TIMES WESTERN UNION TELEGRAPH CO.

#### Representatives of

Armstrong-Siddeley Motors, Ltd.
British Movietone News Ltd.
British Petroleum Co. Ltd.
Thos. Cook & Son Ltd.
DE Havilland Aircraft Co. Ltd.
Gaumont British Picture Corporation
Ltd.
Imperial Airways
Peninsula & Oriental Steam Navigation
Co.
Shell-Mex Ltd.



## ACTUITY DEAS

## LEARN ABOUT THE MANY SKILLS OF AMY

Amy liked to do things her way. As well as being a pilot she was the first woman in the country to become a qualified engineer, working on planes.

Amy was also president of a group called the Women's Engineering Society (WES). The group was set up during the First World War to support women into work, whilst men went to war. After the war, when the men returned, women were expected to give up their jobs and return to looking after the home. WES, however, continued to support women into engineering and their good work continues to this day.

For more on the Women's Engineering Society and their work with schools www.wes.org.uk

KS3



#### **HISTORY**

Show your students the image of Amy. Ask your students: Is this a woman's job? This may present some instant comments but encourage your students to write their thoughts to the question on Post-It notes. Split the class into two groups - these could be mixed, or you could split them into girls and boys. Explain that the groups are going to undertake a debate – one group for (that the task Amy's undertaking is a suitable job for a woman) and the other against. If the class is in gender groups, why not give the boy's group 'for' and the girls 'against'. Students should be encouraged to use the source material in the pack, including the contemporary account written about Amy, to help shape their case. Host the debate in the class. After the debate, ask both groups whether they found it hard to present their case convincingly. Get the students to refer back to their initial thoughts. Have their opinions changed after the debate?



#### **SCIENCE**

Linked to the image, students should compare the mechanics and workings of the engine in Amy's plane to the modern day jet engine. Students should develop learning about energy transfer through the burning of fuels, chemical reactions which occur and the physical processes and mechanisms used.



WHERE CAN I SEE?



See an important collection of Amy Johnson memorabilia including her flight helmet and goggles at Sewerby Hall and Gardens.

www.eastriding.gov.uk/sewerby-hall-museum

Image courtesy of Amy Johnson Estate.

# THE AMY JOHNSON CUP FOR COURAGE





You can see Amy's Cup for Courage at The Guildhall in Hull

## ACTUITY DEAS

#### LINKED TO AMY'S CUP FOR COURAGE

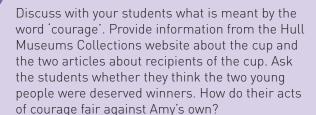
The Amy Johnson Cup for Courage which she presented to the Guildhall in 1932, is awarded every year by the Lord Mayor of Hull to a young person for an outstanding act of courage.

After Amy returned from Australia she announced at Hull City Hall that a cup for courage should be awarded every year in her name. Amy believed very strongly in the values of courage and using this to help others. The award is still given today.





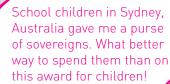
#### **HISTORY / PSHE**





#### **ENGLISH**

Using the accounts of past winners as inspiration, in small groups, students should think about a scenario that they think would warrant winning the cup. They should collaboratively create a short script showing an act of bravery. Once their scripts are written, allow the students time to practice their short performances before they showcase their short piece to the rest of the class. After all of the performances, each student should vote for who they would give the Amy Johnson Cup to Courage to. Encourage the students to avoid voting for their own!





propulsion system

like this propeller

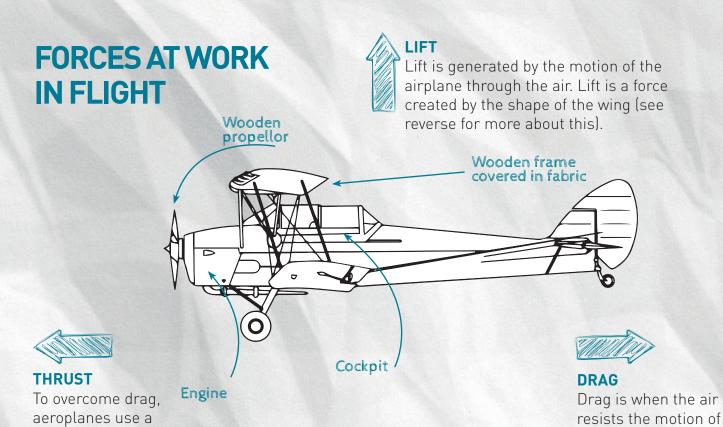
force to pull them

forwards.

to generate a thrust

## AMY'S PLANE 'JASON' HOW SCIENCE KEPT HER IN THE AIR...

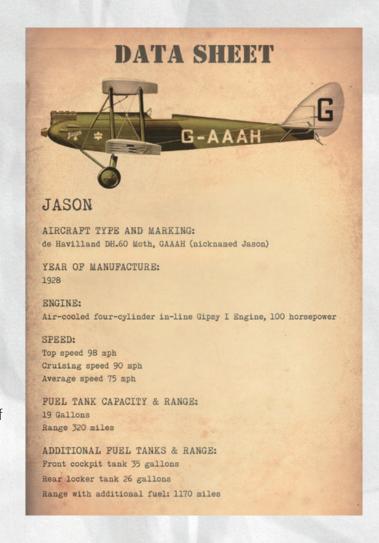
the aircraft.





#### **WEIGHT / GRAVITY**

Weight is the force that pulls an aircraft directly to the centre of the earth.



## AMY'S PLANE 'JASON' IT'S ALL IN THE CURVE!

If lift acts against gravity preventing the plane from hitting the ground how does the design of an aeroplane wing actually make lift happen? Well...it's all in the shape.

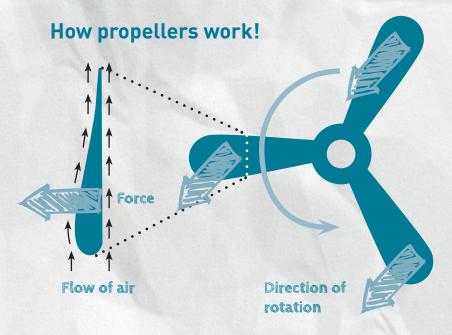
#### Diagram of aerofoil shape



Because of the curved shape of the top of the wing, the air flowing over the top has greater distance to travel and moves faster, which reduces air pressure.

The shape of the wing underneath is flat, therefore the airflow underneath the wing stays constant and pressure is higher than above the wing, creating an upwards force which lifts the wing.

So if planes can propel themselves forwards by using thrust to act against drag, how does the plane actually do this? They use a propulsion system (You can see Jason has a propellor).



A propeller is like a spinning wing. Instead of pushing air behind the plane, the airfoil shaped blades act to pull a plane forward just as an aeroplane's wings lift it upward. The amount of thrust created by a propeller depends upon how fast and at what angles its blades cut through the air.

Take a look at the Flights of Fancy activity sheet for some great practical ideas around exploring flight.



## **FLIGHTS OF FANCY**

## PRACTICAL IDEAS FOR INVESTIGATION OF FORCES IN ACTION

#### **Hoop Glider Competition**

Try throwing a plain straw through the air and measure how far it travels. Now here's your challenge, have a go at adapting your straw to make it glide in the air for as long as possible! Just like Amy you'll need to get your engineering head on for this one!

#### You will need

- Paper
- Ruler
- Scissors
- Pencil
- Non-bendable, plastic drinking straw
- Tape
- 1) Cut two strips of paper. Make one strip 2.5cm wide and 12.5cm long Make the second strip 2.5cm wide and 25cm long.
- 2) Curl each paper strip into a hoop.

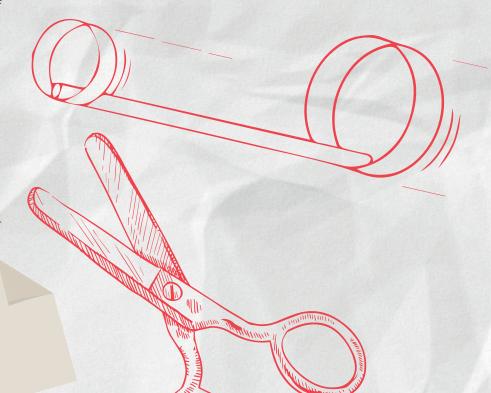
  Tape the ends together. Now you have a big hoop and a small hoop.
- 3) Tape the small hoop to one end of the straw.
- 4) Tape the big hoop on the other end of the straw. Make sure the big hoop lines up with the small hoop.
- 5) Hold your hoop glider in the middle of the straw, with the small hoop in front. Throw it gently like a spear. It might take some practice to get the hang of it. Now measure how far your straw glider can fly...

#### Review Adapt and Improve

Now experiment by changing your glider to attempt to make it fly the longest possible distance.

#### Tips

What happens if... you make the straw smaller? Change hoop size, even add a third hoop? Choose one thing at a time to change (that's called a variable). Make a prediction of what you think will happen and then test it!





## **FLIGHTS OF FANCY**

## FANCY BEING A ROCKET SCIENTIST?

Rocket STEM experiment (from BAE)





#### You will need

- One plastic specimen tube with a tight push fit lid
- One soluble alka seltza
- Water
- Safety goggles
- Test tube rack

#### What to do

- 1) Break the Alka-Seltzer tablet into 8 pieces
- 2) Put one piece of tablet into the plastic test tube
- 3) Add 1 or 2 teaspoons of water

#### DO THE NEXT STEP VERY QUICKLY

- 4) Put the lid on the test tube
- 5) Put the test tube into the rack upside down (lid on the bottom)
- 6) Stand back 5 meters
- 7) About 10 seconds later you will hear a large pop and your tube will launch up into the air

#### **CAUTION**

If it doesn't launch, wait at least 1 minute before examining your rocket. It could be the lid wasn't tight enough and the  ${\rm CO_2}$  gas escaped.

#### How does it work?

The water dissolves the tablet and starts a chemical reaction which produces carbon dioxide. The carbon dioxide starts to build up, which increases the pressure inside the tube, eventually the cap is forced off and the rocket blasts up. This principle of thrust is exactly how real rockets work.

Further investigation: How do the following changes affect the time it takes the rocket to fire and the amount of thrust created?

- Try using a greater and smaller amount of tablet
- Try breaking the tablet into smaller pieces to increase the surface area
- Try using baking powder and vinegar instead of water and alka seltzer
- See if you can get the rocket to go higher by adding fins to the bottom of the tube to increase stability

With thanks to our sponsor BAE systems who provided the content for these activities. BAE offer high quality STEM learning resources as part of their service. Please see link for further details.

www.baesystemseducation.com







# FESTIVAL OPPORTUNITIES



The Amy Johnson Festival is packed full of exciting opportunities, far too many to print here, so we've picked a selection of highlights that you won't want to miss! For details of the full programme please visit the website:

www.amyjohnsonfestival.co.uk

#### Free Gipsy Moth Plane Flat Pack Kit for all schools!

Every school will receive a batch of approximately 40 kits of card planes. They will arrive at your school flat packed. When made they are an accurate replica of the type of plane Amy flew. They measure approximately 30 x 40cm

Suitable for 8 year olds and above to construct. The planes will come with full instructions.

Once constructed children can get creative and design a decoration scheme for it! The themes can be entirely up to your school. Why not set a challenge or run a competition!

It is recommended the designs are coloured using felt tips otherwise the cardboard will weaken when wet.

Finished planes can be hung up with thread. You could create a high impact installation in your school by suspending all the planes together in a communal area.

a public installation of the finished models at a Hull city centre location.

#### Kite making workshops

In association with Artlink Community Arts Centre, the festival are offering free kite making workshops to Primary and Secondary schools in Hull and East Yorkshire. Presented by local arts workers, the workshops will provide an introduction to Amy Johnson and her amazing life, information about kites and how they fly, and a practical making session in which all children will get to make their own kite which they can bring to the Kite Weekend to fly.

Kite Workshops are available from week commecing Monday 20 June until Wednesday 20 July. For further details or to book a session for your school, contact Rachel Elms, Arts Development Manager, Artlink Community Arts Centre, telephone 01482 345104 or email artsdevelopment@artlink.uk.net



## **FESTIVAL OPPORTUNITIES**

#### Da Vinci Engineered Renaissance mechanics to contemporary art

In association with Green Port Hull and University of Hull School of Engineering, supported by BAE Systems and Spencer Group

#### Saturday 2 July - Sunday 21 August 2016 Open daily 10am - 5pm Last admissions 4pm

Amy Johnson Festival themes of engineering, flight and creativity come together in this must-see exhibition, displayed in our specially constructed gallery in Zebedee's Yard. Twelve faithful reproductions of Leonardo da Vinci's flight and wind machines loaned by Da Vinci Museum, Florence, demonstrate the remarkable prescience of this great artist and his engineering genius.

Alongside these Renaissance machines, specially commissioned and selected works by contemporary artists respond to ideas of flight or explore the use of engineering in their conceptualisation, design or production. This fascinating exhibition, curated by Lara Goodband, reminds us that the creativity of the engineer and the inspiration of the artist are two sides of the same coin of human endeavour and innovation.

A series of associated artists' talks and hands-on workshops for young people will take place throughout July and August. See the festival website for full details of these and other events.

#### **Admission prices**

Adult: £5

Concessions: £3 (Students, under 18s, senior citizens)
Available now from www.hullboxoffice.com

Please phone Festival Office **01482 224334** for special prices and arrangements for school parties and for groups of 10 or more.

#### 'Living Amy' Writing commissions

As part of the festival a series of 12 brand new works have been commissioned to celebrate Amy.

#### My Spirit Found Outlet in the Air Ruth Carslaw

A creative film documentary capturing the essence of flight and the infinite possibility of youth.

#### Amy in Love Helen Cross & Carol Adlam

Amy in Love is a ten page graphic zine, created by Carol Adlam and Helen Cross, an artist/writer partnership. It tells the story of Amy's life between 1921 and 1929, particularly in relation to her struggles for independence and her affair with Hans Arregger, an older businessman. www.caroladlam.co.uk www.helencross.net

#### Girl with Silver Wings Liz McPherson

Meet Amy Johnson, rebel and record breaker. The Girl with Silver Wings is aimed at young people who lack reading stamina and those with English as an additional language. Interest level, teen. Reading level, 11 years. Includes glossary.

#### **Amy in Moscow**

A graphic novel by Bob Moulder & Andy Messer.

#### Letters from Amy Laura Turner

"Letters From Amy" is a series of fictional letters written in the voice of Amy Johnson and hosted online to bring to life her young adult years as she discovers her passion for flying. Amy defies the conventions and expectations of a woman of her time and these letters reveal the real woman behind the pilot's goggles as she becomes an inspirational international heroine, but never forgets her Yorkshire roots.

#### I am Amy Sarah Wilkinson

A blog, based on Amy's letters to Hans, uploaded in real time several times a week throughout the Festival.

#### **Being Amy**

#### The Writing Squad's Project H Writers

A series of 6-10 sound pieces ('sound flights') each lasting 3-5 mins. Each sound flight will have its own web area, incorporating images from Amy's life and contemporary images, original and recreated documentation, a dynamic map, and a resources site for young people.

#### No Horizons Tom Glover

Join Amy Johnson on her flight to Australia as she traverses the world via your local library. 'No Horizons' is a storytelling piece that blends live performance, video streaming and books in the rip-roaring tale of one woman's refusal to accept limits.

## The Wind and the Weather Matheson Marcault (gaming company: Hollie Gramazio & Sophie Sampson)

The Wind and the Weather is a text-based game following Johnson's astonishing flight from England to Australia. It explores Johnson's experiences and the nature of long-distance flying in 1930, setting the the nineteen and a half days of her journey against fragmentary narratives of later journeys which - though less extraordinary - nevertheless help to reveal the deep strangeness of travelling around a whole planet.

#### Poetry Light Night Joe Kriss & Annie Watson

A poem film based on the concept of risk taking.

#### Flying Through her Streets Dave Windass & Dave Lee

A short film combined with new pieces of prose that cover Amy's early life in Hull, revisiting her birthplace and the streets where she lived with her family.

## The Amy Johnson Fan Club Rob Young

The Amy Johnson Fan Club is a small show with a big heart. Emily is a regular kid from Hull with one special talent: she can fly. A funny, moving one-girl-play for ages 10 - 18.

For further details on how to access these resources visit the festival website or call **01482 224334**.



# THE LIFECYCLE OF A MOTH



EGGS



CATERPILLAR



ADULT MOTH



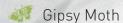
PUPA

## ACTUITY DEAS

## LIFECYCLE OF A MOTH

### Planes and Moths

Geoffrey de Havilland was fascinated by moths. The table below shows some of the moths he named his planes after.



Hawk Moth

Puss Moth



Swallow Moth



Tiger Moth



Fox Moth



Leopard Moth



Hornet Moth

#### KS3

#### Д

#### **SCIENCE / HISTORY**



Talk to the students about the significance of the 'moth' with relation to Amy. Explain how Geoffrey de Havilland, the namesake of the de Havilland aircraft company, named his planes after flying creatures including various species of moth. Look at the lifecycle of a moth and the variations between the different moths de Havilland named his planes after.



#### **SCIENCE**

Look at Peppered Moths and how the species evolved because of changes to their environment during the Industrial Revolution. Focus on the adaptation of the species to their new surroundings and how this had an effect on the pale species being able to compete successfully.





## GETTING INTO STEM

Be inspired by Amy's drive, ambition and incredible achievements. Working in STEM (Science, Technology Engineering and Mathematics) is incredibly rewarding. Have a look below at some inspiring people working in STEM today and what they have to say.

Cindy Hider, Senior Flight Systems Engineer, BAE Systems

Never be afraid to think outside the box.

Never be afraid to ask a question; only by asking will you find the answer.

Sam Tindell, Machining Apprentice, BAE Systems

"I have always had a fascination with how things work from a young age and always been involved with taking apart and fixing my bicycles, motorbikes and cars. I thought a job in engineering would be a fun and challenging job role for me."

My flight was carried out for two reasons: because I wished to carve for myself a career in aviation, and because of my innate love of adventure.



Elizabeth Hodgson, car body repair student, Hull College

Elizabeth is studying at Hull College. She is so passionate about STEM and determined to get a career in this field that she travels 120 miles a day to learn!

"I have become a lot more confident in all aspects of life and I think that is due to taking that plunge to come to a new course and college."



## GETTING INTO STEM

#### **Emily Cummins, Inventor**

When Emily was four her granddad gave her a hammer and taught her how to make toys from scraps of materials found in the garden shed, she loved the fact that they could make something out of random bits and her interest in sustainable design was born. Look at some of Emily's incredible inventions here:

www.emilycummins.co.uk/about

Tom Turner Software Engineer & STEM Ambassador

#### TOP TIPS

If you don't know what you might like to do when you grow up try lots of different things as a child, then when you have to make the decision you will know what you like and what you don't.

As a child I loved taking computers to bits and then at college I had a very enthusiastic teacher at who helped show me that IT didn't just mean typing all day, there is lots of problem solving that goes on as well.

Bruce Fitzpattrick, BAE systems, Design Engineer

Hear how Bruce got interested in engineering...

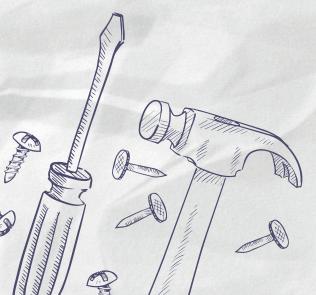
From a young age I've always been interested in how things work structurally. It started with Lego, progressed to Meccano and now I work with Aeroplanes!

I joined the school Go-Kart club around 13 years old and enjoyed it so much I didn't want to do anything else!

Bruce also supports the Robert Brough Blackburn Scholarship programme which involves working with year 9 and 10 students. They are given a design brief and are tasked to develop a design and produce a physical representation of it. This teaches them time management, team working skills, and most importantly encourages them to think about the engineered world around them and develop their own ideas

To people who might think engineering is boring, this is what Bruce says...

Everything in your life is engineering, your iPhone, the car you came to school in, the building we're sat in today... all engineering!!



## Thank you to BAE Systems and WES for providing the above quotes

For more inspiring STEM role models have a look at the links below

www.wes.org.uk/rolemodels www.baesystemseducation.com www.aerosociety.com/Careers-Education/coolaeronautics www.careers.easyjet.com/pilots/female-pilot-opportunities www.nextgenstemm.org.uk



# THE WORLD OF STEM

## ORGANISATIONS, CAMPAIGNS & LEARNING RESOURCES

This section includes links to other STEM organisations and associated resources and includes a brief overview of our sponsor BAE Systems, a major presence in the region within the field of STEM careers.



## BAE systems, a brief history 100 YEARS OF AVIATION EXCELLENCE AT BROUGH

BAE Systems is one of the world's largest defence companies, with approximately 83,400 employees spread across the globe, serving customers across the air, land, maritime and national security domains.

The Brough site is part of the air sector, and was established in 1916 by aviation pioneer Robert Blackburn.

Thousands of aircraft have been produced at the site, including the Kangaroo, Iris, B2, Shark, Firebrand, Skua, Botha, Barracuda, Beverley, Buccaneer and the Harrier. Since the 1970s the site has been involved with the Hawk aircraft, and is known to many as the 'Home of the Hawk'. There are now 1.000 Hawks sold or on order around the world.

To this day Brough's 1,000 employees have wide-ranging capabilities in design, development, manufacture and support of fast jet aircraft.

The Blackburn legacy lives on at Brough, and in this special centenary year, the site is proud to be one of the oldest sites in the world where aircraft manufacturing has continued uninterrupted.

BAE systems are committed to developing the next generation of engineers; find out more about their education programme...

www.baesystemseducation.com

# THE WORLD OF STEM

## ORGANISATIONS WITH STEM LEARNING PROVISION

#### Women's Engineering Society

One of the main objectives of the Women's Engineering Society is to encourage engineering education, it has a number of engaging programmes and campaigns including:

National Women in Engineering Day – a national campaign to support girls with careers in engineering – 23 June annually www.nwed.org.uk @nwed1919

**Magnificent Women** – A one day schools outreach activity sponsored by Northrop Grumman to encourage girls to think about engineering **www.magnificentwomen.org.uk** 

Read more about these and other initiatives here... www.wes.org.uk/content/education-and-outreach

#### **British Science Association**

Their mission is to support, grow and diversify the community of people interested and involved in science; and to strengthen their influence over science's direction and place in society. They organise major initiatives across the UK, including British Science Week; the annual British Science Festival and a range of programmes for young people in schools and colleges, find out how to get involved...

www.britishscienceassociation.org/british-science-week

www.britishscienceweek.org

#### Acknowledgements

Thank you to the following organisations for supplying content and source material:

- Our sponsor, BAE Systems
- The Amy Johnson Estate
- Sewerby Hall and Gardens
- Women's Engineering Society
- Hull Museums
- Hull History Centre
- Hull Daily Mail (Images courtesy Hull Daily Mail)
- Heritage Learning
- Process Black Design

## **HETA (Humberside Engineering Training Association)**

Set up to bridge the gap between industry and education, HETA is renowned as the leading Engineering training provider in the region. Have a look at their engaging learning programme for schools here...

www.heta.co.uk/pages/big-bang

#### Streetlife Museum

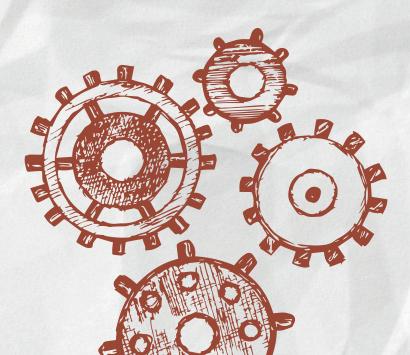
Heritage Learning run a range of stimulating STEM sessions at Streetlife Museum for KS1 & KS2. Find out more here...

www.heritage-learning.com/hl\_science/fabulous-forces-fantastic-friction

#### **NextGenSTEMM**

Formed to encourage girls to study STEMM subjects and to pursue careers that will inspire them and make the world a better place. Find out more here...

www.nextgenstemm.org.uk





Amy in flight gear – ©Hull Museums



Amy's jacket worn as part of her ATA Uniform – ©Hull Museums



Amy Arrives in Hedon (1930) – ©Amy Johnson Estate



Amy stops to refuel – ©Hull Daily Mail



Amy's Plane 'Jason' – ©Hull Daily Mail











