

# STEM HIGH FLIERS

England & Wales · Charity number 1178285

## Details

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**Status** Registered

**Legal form** CIO

**Registered** 2018-05-08

**Register** [View on the Charity Commission register](#)

## Contact

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**Address** 12 Church Road  
Codsall  
Wolverhampton  
WV8 1EA

**Phone** 01902844523

**Email** [stemhighfliers@btinternet.com](mailto:stemhighfliers@btinternet.com)

## Activities

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**Objects:** 1) TO ADVANCE EDUCATION AMONG CHILDREN AND YOUNG PEOPLE IN THE WEST MIDLANDS AND SURROUNDING AREAS IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS ("STEM") SUBJECTS IN PARTICULAR BUT NOT EXCLUSIVELY THROUGH PRACTICAL PARTICIPATION IN ENGINEERING PROJECTS PRINCIPALLY THOUGH NOT EXCLUSIVELY BASED ON AEROSPACE.2) TO ADVANCE IN LIFE AND HELP YOUNG PEOPLE IN THE WEST MIDLANDS AND SURROUNDING AREAS BY PROVIDING ACTIVITIES AND EDUCATIONAL PROGRAMMES WHICH DEVELOP THEIR SKILLS, CAPACITIES AND CAPABILITIES TO ENABLE THEM TO PARTICIPATE IN SOCIETY AS MATURE AND RESPONSIBLE INDIVIDUALS.

**Activities:** To encourage young people in STEM activities and to enhance their general education and personal development by building full size, 2 seat aircraft kits in schools.

## Classification

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- **How:** Provides Services, Other Charitable Activities
- **What:** Education/training
- **Who:** Children/young People

## Geography

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- Dudley
- Shropshire
- Staffordshire
- Telford & Wrekin
- Walsall
- Wolverhampton

## Finances

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Period end	Income	Expenditure	Assets	Employees
2025-07-31	£19,900	£335	-	-
2024-07-31	£0	£21,906	-	-
2023-07-31	£7,417	£1,760	-	-
2022-07-31	£19,330	£496	-	-
2021-07-31	£0	£0	-	-

## Trustees

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Name	Role	Appointed
CHRISTOPHER IAN HUGHES CENGFRAES		2018-01-11
GRAHAM FREDERICK ELVIS AUMIST		2019-12-16
GRAHAM PAUL WILEY		2019-12-16
MICHAEL OLDHAM ROACH		2020-01-20

**STEM HIGH FLIERS**

England & Wales - Charity number 1178285

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# Accounts

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# STEM HIGH FLIERS

Report and Accounts for the year ended 31 July 2025

CHARITY NO 1178285

## ANNUAL REPORT

**Address** 12 Church Road  
Codsall  
WV81EA

### Trustees

The following trustees served during the year:

Christopher Ian Hughes BSc CEng FRAeS	(Chairman)
Michael Oldham Roach	(Secretary)
Graham Frederick Elvis AUMIST	
Graham Paul Wiley	
Anthony Charles Cotton BSc FCA	(Retired 30 November 2024)

Mr Cotton has stated that his resignation is prompted by the onerous requirements placed on Chartered Accountant trustees by the ICAEW and that the charity continues to have his full support and confidence.

### Structure

The charity is a Charitable Incorporated Organisation, registered with the Charity Commission 1178285. It was constituted on 11 January 2018 and received registration on 8 May 2018. It is managed by the Trustees in accordance with the Constitution. The trustees may appoint additional trustees, who will be chosen on the basis of their ability to contribute to the objectives of the charity. One third of trustees stand down and may offer themselves for reappointment at the Annual General Meeting.

## Activities and Objectives

### Introduction

Our prime objective is to inspire young people towards Science, Technology, Engineering & Maths (STEM), by having them build a light aircraft and then fly in it.

We comprise an experienced group of volunteers who have already managed two such programmes with schools. We felt that our two projects had such great impact that we have launched this project, registered as a charity.

### Background

There are few experiences for a young teenager that can be more inspirational and motivational than being actively involved in constructing and then flying in a real aircraft.

The Birmingham, Wolverhampton and Cosford branch of the Royal Aeronautical Society (“BWC”) was directly responsible for the management of two such projects, including the display (both flying and static) of the completed aircraft at major international events such as the Farnborough Air Show and RIAT. We directly observed the life-changing effects that engagement in such a project has by significantly improving a student’s prospects in further education or first employment. This has been both through promotion of STEM, and in the personal development of the participants, encouraging confidence, determination, resilience and ambition. A number of students who applied for apprenticeships stated that the Build-a-Plane project was a “game

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2025

changer” at interview. Our aim is to continue this successful project, independently of RAeS but with its support.

### **Objective**

The objective of STEM High Fliers is to provide a challenging and enjoyable educational opportunity in STEM for young people in our geographic area. We know from our two successful projects that, as well as the direct engineering, design and scientific experience, there are valuable lessons in teamwork, persistence, resilience and an increase in self-confidence. When exhibiting our aircraft at displays, shows and conventions, many thousands of young people have experienced the project and been inspired towards STEM activities. Our experience has confirmed that the programme is equally successful irrespective of gender and has a positive effect on social mobility.

### **A Proven Engineering Project**

We have selected the UK manufactured Sherwood Ranger biplane which provides experience in metal, wood and composite construction. Its “vintage” appearance in a modern design attracts attention and helps motivate both participants and supporters. It has been successfully built by other school and youth-based projects.

The aircraft is assembled largely by the young participants, under the close guidance of our volunteers who have many years’ experience in senior roles within the aerospace and engineering industries and/or the military services. They have already successfully completed two such projects, training and guiding almost 100 students in the process, and supported another four. Our volunteers are registered STEM ambassadors, with DBS clearances, and are well-versed in operating in safety with appropriate risk assessment.

Construction is in accordance with the LAA’s rules for amateur built aircraft, is independently inspected at regular intervals by local LAA inspectors, and monitored overall by the LAA, which is responsible for issuing the aircraft’s permit to fly. We are not considering a high-performance sports aircraft, nor one in which the construction technology is so advanced that there is little to be gained by the pupils. The major benefit for them is derived from the build process itself and the disciplines that must be learned as part of it. The construction therefore must be within the capabilities of inexperienced teenagers, given suitable instruction. The Sherwood Ranger has a successful track record in other similar projects.

Schools and youth organisations have been invited to participate, on the basis of a long-term commitment to see the programme through to completion. The anticipated timescale is between four and five years for the build, up to first flight and certification. A further six months to a year will be dedicated to giving all pupils that were involved the opportunity for a flight experience. Several of our volunteers are highly experienced pilots.

### **Finance and Organisation**

The Sherwood Ranger kit may be bought for a total of approximately £60,000 including VAT and engine. Since the kit is available in modular form, the project may proceed even without full funding being initially in place and in this regard the kit suppliers have been highly supportive. The staging of fundings is especially the case with regard to the engine and fitting kit, and indeed the engine type can be determined at a very late stage. Beyond the capital cost of the aircraft kit, the costs of consumable materials, fuel, insurances and other associated costs will have to be met, until the point where the completed aircraft can be sold.

Finance is by funding from individuals, companies and charitable foundations with any shortfall covered by loans from supporters. Donations will enable the project to self-perpetuate by the proceeds of the first aircraft being used to finance a second. Since the finished aircraft will be an attractive design constructed to the highest standards it is expected to have a ready market. The option then exists for the CIO to repay

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2025

members' and sponsors' original loans or to continue with a further project, depending on the wishes of the lenders.

### **Participating Schools**

The ideal age for participants' involvement in this project is from 13 to 15 years, or school years 9 and 10. This is early enough for the project to have some influence on their subject choices and it will also benefit them in acquiring life-skills, such as determination and persistence, needed in their later studies, but without directly impinging on their time in Y11 which should be focussed towards GCSEs. Most projects have found that the involvement of Y12 pupils helps in strengthening the management and organisation of the work, and in the passing on of acquired skills and experience.

The success of a school's participation depends heavily upon committed members of staff to support the pupils over the duration of the project. Involvement in an aircraft building project offers a school a huge range of opportunities to build into the established curriculum. We encourage our partner schools to facilitate the widest possible impact of the project on their pupils' education.

### **Achievements and Performance**

We have continued to work with Millenium Point Trust and Dudley Academies Trust, a group of 4 secondary and 2 primary academies within the Borough of Dudley. Each of the secondary schools has nominated pupils to build the Sherwood Ranger. The construction site has been kindly provided by Black Country & Marches Institute of Technology. This is a superb facility which is able to provide outstanding engineering support where needed. The environment gives a positive interpretation of the study of engineering and the potential for careers within its sectors.

The academies with whom we work are:

Beacon Hill Academy  
St James Academy  
Pegasus Academy  
The Link Academy

In order to fit with the academies' structure, it has been necessary to introduce new students in each year as earlier participants leave the project to pursue academic objectives. Whilst this inevitably lessens the impact on each individual student it increases the number of students who are reached.

The learners have been trained to safely and effectively operate hand and light machine tools. Safety is our priority at all times. The mix of materials in the Sherwood Ranger has so far given experience in working with wood and aluminium. During the course of the year, our learners have again cut, drilled, sanded and machined the parts of the aircraft and the jigs to make them. Assembly of wings and main fuselage has progressed though as a result of logistical issues, somewhat more slowly than we had hoped. However, we were delighted to transport the airframe in its current state to Millenium Point for a STEM exhibition during the summer.

The young engineers continue to demonstrate a willingness and aptitude to learn new skills and processes, and to learn to work to the level of precision necessary for the safe construction of the airframe. Each learner has prepared a record of their achievements, and have learnt the necessity of supporting engineering skills with appropriate documentation. We believe that these demonstrations of achievement will prove helpful in the students' academic and career paths. Many of our learners have moved on and have been replaced by new and enthusiastic students who have undergone the induction process which has included a visit to Halfpenny Green Airfield to view other microlights.

During the course of the year TLAC, the kit supplier, have announced their intention to dispose of the Sherwood Ranger project. However, it is their stated intention to dispose to a suitable successor, and to support the aircraft in build and service until one is identified. In view of these assurances and the supportive community of Sherwood Ranger builders/users we do not regard this as a significant risk.

**STEM HIGH FLIERS** (charity no 1178285)  
Report and Accounts for the year ended 31 July 2025

The trustees would like to place on record their thanks to the Institute, the Academies and Millenium Point Trust, and to the ongoing support of TLAC. In addition to the trustees, other volunteers have provided invaluable skilled input.

A number of our volunteers have also continued mentoring pupils of a local Engineering Academy in the completion of a Slingshot aircraft kit provided by the Air League.

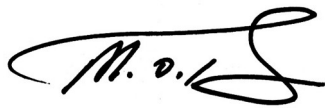
**Financial Review**

We have in previous years received financial support from local businesses, from the Royal Aeronautical Society, and from individuals. During this year a further tranche of support has been gratefully received from Millenium Point Trust. This has not yet been spent, but has been set aside towards the purchase of instruments and engine.

The trustees remain confident that the project will proceed successfully and that funds will become available to enable a successful conclusion.

The trustees declare that they have approved the trustees' report above.

Signed on behalf of the charity's trustees.

A handwritten signature in black ink, appearing to read 'M. O. Roach', with a large, stylized flourish at the end.

MO Roach  
Secretary  
2 September 2025

Statement of Financial Activities for the year ended 31 July 2025

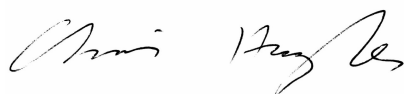
	Notes	Unrestricted funds £	Total 2025 £	2024 £
<b>Incoming resources</b>				
Voluntary income	3	19,900	19,900	-
<b>Incoming resources from charitable activities</b>		<u>19,900</u>	<u>19,900</u>	<u>-</u>
<b>Total incoming resources</b>		<u>19,900</u>	<u>19,900</u>	<u>-</u>
<b>Resources expended</b>				
Charitable activities		335	335	21,906
Governance costs	4	-	-	-
<b>Total resources expended</b>		<u>335</u>	<u>335</u>	<u>21,906</u>
<b>Net incoming / (outgoing) resources</b>		19,565	19,565	(21,906)
<b>Total funds brought forward</b>		<u>920</u>	<u>920</u>	<u>22,826</u>
<b>Total funds carried forward</b>		<u>20,485</u>	<u>20,485</u>	<u>920</u>

STEM HIGH FLIERS (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2025

Balance Sheet at 31 July 2025

	2025 £	2024 £
<b>Current assets</b>		
Cash at bank and in hand	20,985	1,420
<b>Total current assets</b>	<u>20,985</u>	<u>1,420</u>
<b>Net current assets</b>	<u>20,985</u>	<u>1,420</u>
<b>Total assets less current liabilities</b>	<u>20,985</u>	<u>1,420</u>
<b>Creditors: amounts falling due after one year</b>	500	500
<b>Provisions for liabilities and charges</b>	-	-
<b>Net assets</b>	<u>20,485</u>	<u>920</u>
<b>Funds of the Charity</b>		
<b>Unrestricted funds</b>	20,485	920
<b>Total funds</b>	<u>20,485</u>	<u>920</u>

Approved by the Trustees and signed on behalf of all the trustees



Cl Hughes  
 Chairman  
 2 September 2025

## Notes to the Accounts

### 1 Basis of preparation

#### 1.1 Basis of accounting

These accounts have been prepared on the basis of historic cost in accordance with Accounting and Reporting by Charities – Statement of Recommended Practice (SORP 2005) and with Financial Reporting Standards for Smaller Enterprises (FRSSE) and with the Charities Act.

### 2 Accounting policies

#### INCOMING RESOURCES

##### Recognition of incoming resources

These are included in the Statement of Financial Activities (SoFA) when:

- the charity becomes entitled to the resources;
- the trustees are virtually certain they will receive the resources; and
- the monetary value can be measured with sufficient reliability.

##### Incoming resources with related expenditure

Where incoming resources have related expenditure (as with fundraising or contract income) the incoming resources and related expenditure are reported gross in the SoFA.

##### Grants and donations

Grants and donations are only included in the SoFA when the charity has unconditional entitlement to the resources.

##### Tax reclaims on donations and gifts

Incoming resources from tax reclaims are included in the SoFA at the same time as the gift to which they relate.

##### Contractual income and performance related grants

This is only included in the SoFA once the related goods or services have been delivered.

##### Gifts in kind

Gifts in kind are accounted for at a reasonable estimate of their value to the charity or the amount actually realised.

Gifts in kind for sale or distribution are included in the accounts as gifts only when sold or distributed by the charity.

Gifts in kind for use by the charity are included in the SoFA as incoming resources when receivable.

##### Donated services and facilities

These are only included in incoming resources (with an equivalent amount in resources expended) where the benefit to the charity is reasonably quantifiable, measurable and material. The value placed on these resources is the estimated value to the charity of the service or facility received.

##### Volunteer help

The value of any voluntary help received is not included in the accounts but is described in the trustees' annual report.

##### Investment income

This is included in the accounts when receivable.

#### EXPENDITURE AND LIABILITIES

##### Liability recognition

Liabilities are recognised as soon as there is a legal or constructive obligation committing the charity to pay out resources.

##### Governance costs

Include costs of the preparation and examination of statutory accounts, the costs of trustee meetings and cost of any legal advice to trustees on governance or constitutional matters.

##### Grants with performance conditions

Where the charity gives a grant with conditions for its payment being a specific level of service or output to be provided, such grants are only recognised in the SoFA once the recipient of the grant has provided the specified service or output.

**STEM HIGH FLIERS** (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2025

**Grants payable without performance conditions**

These are only recognised in the accounts when a commitment has been made and there are no conditions to be met relating to the grant which remain in the control of the charity.

**Support Costs**

Support costs include central functions and have been allocated to activity cost categories on a basis consistent with the use of resources, eg allocating property costs by floor areas, or per capita, staff costs by the time spent and other costs by their usage.

**ASSETS**

**Tangible fixed assets for use by charity**

These are capitalised if they can be used for more than one year, and cost at least £1,000. They are valued at cost or a reasonable value on receipt.

**Investments**

Investments quoted on a recognised stock exchange are valued at market value at the year end. Other investment assets are included at trustees' best estimate of market value.

**Stocks and work in progress**

These are valued at the lower of cost or market value.

**3 Incoming Resources**

	<b>2025</b>	<b>2024</b>
	<b>£</b>	<b>£</b>
Donations	19,900	-
Total	<u>19,900</u>	<u>-</u>

**4 Trustee expenses**

No expenses or remuneration were paid in 2025 or 2024.

**5 Creditors and accruals**

	<b>2025</b>	<b>2024</b>
	<b>£</b>	<b>£</b>
Amounts falling due after 1 year		
Loans and overdrafts	500	500
Total	<u>500</u>	<u>500</u>

Loans are repayable on completion of the project, or earlier at the discretion of the trustees.

**STEM HIGH FLIERS**

England & Wales - Charity number 1178285

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# Accounts

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# STEM HIGH FLIERS

Report and Accounts for the year ended 31 July 2024

CHARITY NO 1178285

## ANNUAL REPORT

**Address** 12 Church Road  
Codsall  
WV81EA

### Trustees

The following trustees served during the year:

Christopher Ian Hughes BSc CEng FRAeS	(Chairman)
Michael Oldham Roach	(Secretary)
Anthony Charles Cotton BSc FCA	(Treasurer)
Graham Frederick Elvis AUMIST	
Graham Paul Wiley	

### Structure

The charity is a Charitable Incorporated Organisation, registered with the Charity Commission 1178285. It was constituted on 11 January 2018 and received registration on 8 May 2018. It is managed by the Trustees in accordance with the Constitution. The trustees may appoint additional trustees, who will be chosen on the basis of their ability to contribute to the objectives of the charity. One third of trustees stand down and may offer themselves for reappointment at the Annual General Meeting.

### Activities and Objectives

#### Introduction

Our prime objective is to inspire young people towards Science, Technology, Engineering & Maths (STEM), by having them build a light aircraft and then fly in it.

We comprise an experienced group of volunteers who have already managed two such programmes with schools. We felt that our two projects had such great impact that we have launched this project, registered as a charity, and independent of RAeS but with its support.

#### Background

There are few experiences for a young teenager that can be more inspirational and motivational than being actively involved in constructing and flying a real aircraft.

The Birmingham, Wolverhampton and Cosford branch of the Royal Aeronautical Society (“BWC”) has been directly responsible for the management of two such projects, including the display (flying and static) of the completed aircraft at major international events such as the Farnborough Air Show. These were sponsored by Boeing who after several years of support have ended their programme. We directly observed the life-changing effects that engagement in such a project has by significantly improving a student’s prospects in further education or first employment. This has been both through promotion of STEM, and in the personal development of the participants, encouraging confidence, determination, resilience and ambition.

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2024

### **Objective**

The objective of STEM High Fliers is to provide a challenging and enjoyable educational opportunity in STEM (Science, Technology, Engineering and Maths) for school pupils and youth group members in our geographic area. We know from successful projects that as well as the direct engineering, design and scientific experience, there are valuable lessons in teamwork, persistence, resilience and an increase in self-confidence. When exhibiting our aircraft at displays, shows and conventions, many thousands of young people have experienced the project and been inspired towards STEM activities. Our experience has confirmed that the programme is equally successful irrespective of gender and has a positive effect on social mobility.

### **A Proven Engineering Project**

We have selected the UK manufactured Sherwood Ranger biplane which is considered to be well engineered and provides experience in metal, wood and composite construction. Its “vintage” appearance in a modern design attracts attention and helps motivate both participants and supporters. It has been successfully built by other school and youth-based projects.

The aircraft will be assembled largely by the young participants, under the close guidance of our volunteers who have many years’ experience in senior roles within the aerospace and industries. Our volunteers are registered STEM ambassadors, with DBS clearances, and are well-versed in operating in safety with appropriate risk assessment.

Construction is in accordance with the LAA’s rules for amateur built aircraft, will be inspected at regular intervals by local LAA inspectors, and monitored overall by the LAA, responsible for issuing the aircraft’s permit to fly. We are not considering a high-performance sports aircraft, nor one in which the construction technology is so advanced that there is little to be gained by the pupils. The major benefit for them is derived from the build process itself and the disciplines that must be learned as part of it. The construction therefore must be within the capabilities of inexperienced teenagers, given suitable instruction. The Sherwood Ranger has a successful track record in other similar projects.

Schools and youth organisations have been invited to participate, on the basis of a long-term commitment to see the programme through to completion. The anticipated timescale is between four and five years for the build, up to first flight and certification. A further six months to a year will be dedicated to giving all pupils that were involved the opportunity for a flight experience. Several of our volunteers are highly experienced pilots.

### **Finance and Organisation**

The Sherwood Ranger kit may be bought for a total of approximately £60,000 including VAT and engine. Since the kit is available in modular form, the project may proceed even without full funding being initially in place and in this regard the kit suppliers have been highly supportive. The staging of fundings is especially the case with regard to the engine and fitting kit, and indeed the engine type can be determined at a very late stage. Beyond the capital cost of the aircraft kit, the costs of consumable materials, fuel, insurances and other associated costs will have to be met, until the point where the completed aircraft can be sold.

Finance is by funding from individuals, companies and charitable foundations with any shortfall covered by loans from supporters. Donations will enable the project to self-perpetuate by the proceeds of the first aircraft being used to finance a second. Since the finished aircraft will be an attractive design constructed to the highest standards it is expected to have a ready market. The option then exists for the CIO to repay members’ and sponsors’ original loans or to continue with a further project, depending on the wishes of the lenders.

**STEM HIGH FLIERS** (charity no 1178285)  
Report and Accounts for the year ended 31 July 2024

**Participating Schools**

The ideal age for participants' involvement in this project is from 13 to 15 years, or school years 9 and 10. This is early enough for the project to have some influence on their subject choices and it will also benefit them in acquiring life-skills, such as determination and persistence, needed in their later studies, but without directly impinging on their time in Y11 which should be focussed towards GCSEs. Most projects have found that the involvement of Y12 pupils helps in strengthening the management and organisation of the work, and in the passing on of acquired skills and experience.

We expect at least 40 young people to be involved in the project, but we expect that it will be seen by and inspire several hundred children in a year.

The success of a school's participation depends heavily upon committed members of staff to support the pupils over the two to three years anticipated duration of the project. Involvement in an aircraft building project offers a school a huge range of opportunities to build into the established curriculum. In order to be considered for inclusion, we would expect schools to demonstrate the widest possible impact of the project on their pupils' education.

**Achievements and Performance**

We have continued to work with Millenium Point Trust and Dudley Academies Trust, a group of 4 secondary and 2 primary academies within the Borough of Dudley. Each of the secondary schools has nominated pupils to build the Sherwood Ranger. The construction site has been kindly provided by Black Country & Marches Institute of Technology. This is a superb facility which is able to provide outstanding engineering support where needed. The environment gives a positive interpretation of the study of engineering and the potential for careers within its sectors.

The academies with whom we work are:

Beacon Hill Academy  
St James Academy  
Pegasus Academy  
The Link Academy

Each school participates once every 2 weeks, which allows a larger number of participants.

The learners are split into an engineering team and a support team. The engineering team have been trained to safely and effectively operate hand and light machine tools. Safety is our priority at all times. The mix of materials in the Sherwood Ranger has so far given experience in working with wood and aluminium. During the course of the year, our learners have again cut, drilled, sanded and machined the parts of the aircraft and the jigs to make them. The fuselage kit has now been received, and work has proceeded in priming the aluminium parts for assembly, cutting and adjusting fuselage fittings to a high standard of fit, preparing and assembling ailerons, and full trial assembly of a wing and the fuselage centre section. It is expected that permanent assembly of both will commence on resumption of the project in the new academic year.

We have been delighted by the diligence of the young engineers and their willingness to learn new skills and processes, and to learn to work to the level of precision necessary for the safe construction of the airframe. Each learner has prepared a record of their achievements, and have learnt the necessity of supporting engineering skills with appropriate documentation. Some of our learners have moved on and have been replaced by new and enthusiastic students who have undergone the induction process.

The support team have recorded the progress of the project for social media and have learnt aspects of aviation technology.

**STEM HIGH FLIERS** (charity no 1178285)  
Report and Accounts for the year ended 31 July 2024

The trustees would like to place on record their thanks to the Institute, the Academies and Millenium Point Trust, and to the ongoing support of the kit supplier, TLAC. In addition to the trustees, other volunteers have provided invaluable skilled input.

A number of our volunteers have also continued mentoring pupils of a local Engineering Academy in the completion of a Slingshot aircraft kit provided by the Air League.

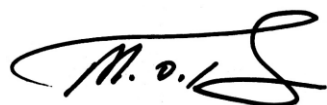
**Financial Review**

We have in previous years received financial support from local businesses, from the Royal Aeronautical Society, and from individuals. No additional funding has been received during the year whilst the purchase of the fuselage and empennage kits has reduced reserves and cash to a minimum operating level.

The trustees remain confident that the project will proceed successfully and that funds will become available to enable a successful conclusion.

The trustees declare that they have approved the trustees' report above.

Signed on behalf of the charity's trustees.

A handwritten signature in black ink, appearing to read 'M. O. Roach', written in a cursive style.

MO Roach  
Secretary  
15 August 2024

Statement of Financial Activities for the year ended 31 July 2024

	Notes	Unrestricted funds £	Total 2024 £	2023 £
<b>Incoming resources</b>				
Voluntary income	3	-	-	7,417
<b>Incoming resources from charitable activities</b>				
		-	-	7,417
<b>Total incoming resources</b>				
		-	-	7,417
<b>Resources expended</b>				
Charitable activities		21,906	21,906	1,760
Governance costs	4	-	-	-
<b>Total resources expended</b>				
		21,906	21,906	1,760
<b>Net (outgoing) / incoming resources</b>				
		(21,906)	(21,906)	5,657
<b>Total funds brought forward</b>				
		22,826	22,826	17,169
<b>Total funds carried forward</b>				
		920	920	22,826

STEM HIGH FLIERS (charity no 1178285)  
Report and Accounts for the year ended 31 July 2024

Balance Sheet at 31 July 2024

		2024	2023
		£	£
<b>Current assets</b>	Note		
Cash at bank and in hand		1,420	22,076
Debtors and prepayments	6	-	1,250
<b>Total current assets</b>		<u>1,420</u>	<u>23,326</u>
<b>Net current assets</b>		<u>1,420</u>	<u>23,326</u>
<b>Total assets less current liabilities</b>		<u>1,420</u>	<u>23,326</u>
<b>Creditors: amounts falling due after one year</b>	6	500	500
<b>Provisions for liabilities and charges</b>		-	-
<b>Net assets</b>		<u>920</u>	<u>22,826</u>
<b>Funds of the Charity</b>			
<b>Unrestricted funds</b>		920	22,826
<b>Total funds</b>		<u>920</u>	<u>22,826</u>

Approved by the Trustees and signed on behalf of all the trustees



AC Cotton  
Treasurer  
15 August 2024

## Notes to the Accounts

### 1 Basis of preparation

#### 1.1 Basis of accounting

These accounts have been prepared on the basis of historic cost in accordance with Accounting and Reporting by Charities – Statement of Recommended Practice (SORP 2005) and with Financial Reporting Standards for Smaller Enterprises (FRSSE) and with the Charities Act.

### 2 Accounting policies

#### INCOMING RESOURCES

##### Recognition of incoming resources

These are included in the Statement of Financial Activities (SoFA) when:

- the charity becomes entitled to the resources;
- the trustees are virtually certain they will receive the resources; and
- the monetary value can be measured with sufficient reliability.

##### Incoming resources with related expenditure

Where incoming resources have related expenditure (as with fundraising or contract income) the incoming resources and related expenditure are reported gross in the SoFA.

##### Grants and donations

Grants and donations are only included in the SoFA when the charity has unconditional entitlement to the resources.

##### Tax reclaims on donations and gifts

Incoming resources from tax reclaims are included in the SoFA at the same time as the gift to which they relate.

##### Contractual income and performance related grants

This is only included in the SoFA once the related goods or services have been delivered.

##### Gifts in kind

Gifts in kind are accounted for at a reasonable estimate of their value to the charity or the amount actually realised.

Gifts in kind for sale or distribution are included in the accounts as gifts only when sold or distributed by the charity.

Gifts in kind for use by the charity are included in the SoFA as incoming resources when receivable.

##### Donated services and facilities

These are only included in incoming resources (with an equivalent amount in resources expended) where the benefit to the charity is reasonably quantifiable, measurable and material. The value placed on these resources is the estimated value to the charity of the service or facility received.

##### Volunteer help

The value of any voluntary help received is not included in the accounts but is described in the trustees' annual report.

##### Investment income

This is included in the accounts when receivable.

#### EXPENDITURE AND LIABILITIES

##### Liability recognition

Liabilities are recognised as soon as there is a legal or constructive obligation committing the charity to pay out resources.

##### Governance costs

Include costs of the preparation and examination of statutory accounts, the costs of trustee meetings and cost of any legal advice to trustees on governance or constitutional matters.

##### Grants with performance conditions

Where the charity gives a grant with conditions for its payment being a specific level of service or output to be provided, such grants are only recognised in the SoFA once the recipient of the grant has provided the specified service or output.

**STEM HIGH FLIERS** (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2024

**Grants payable without performance conditions**

These are only recognised in the accounts when a commitment has been made and there are no conditions to be met relating to the grant which remain in the control of the charity.

**Support Costs**

Support costs include central functions and have been allocated to activity cost categories on a basis consistent with the use of resources, eg allocating property costs by floor areas, or per capita, staff costs by the time spent and other costs by their usage.

**ASSETS**

**Tangible fixed assets for use by charity**

These are capitalised if they can be used for more than one year, and cost at least £1,000. They are valued at cost or a reasonable value on receipt.

**Investments**

Investments quoted on a recognised stock exchange are valued at market value at the year end. Other investment assets are included at trustees' best estimate of market value.

**Stocks and work in progress**

These are valued at the lower of cost or market value.

**3 Incoming Resources**

	<b>2024</b>	<b>2023</b>
	<b>£</b>	<b>£</b>
Donations	-	6,167
Gift Aid	-	1,250
Total	<u>-</u>	<u>7,417</u>

**4 Trustee expenses**

No expenses or remuneration were paid in 2024 or 2023.

**5 Debtors and Prepayments**

	<b>2024</b>	<b>2023</b>
	<b>£</b>	<b>£</b>
Gift Aid Recoverable	-	1,250
Total	<u>-</u>	<u>1,250</u>

**6 Creditors and accruals**

	<b>2024</b>	<b>2023</b>
	<b>£</b>	<b>£</b>
Amounts falling due after 1 year		
Loans and overdrafts	500	500
Total	<u>500</u>	<u>500</u>

Loans are repayable on completion of the project, or earlier at the discretion of the trustees.

**STEM HIGH FLIERS**

England & Wales - Charity number 1178285

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# Accounts

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# STEM HIGH FLIERS

Report and Accounts for the year ended 31 July 2023

CHARITY NO 1178285

## ANNUAL REPORT

**Address**           12 Church Road  
                          Codsall  
                          WV81EA

### Trustees

The following trustees served during the year:

Christopher Ian Hughes BSc CEng FRAeS	(Chairman)
Michael Oldham Roach	(Secretary)
Anthony Charles Cotton BSc FCA	(Treasurer)
Graham Frederick Elvis AUMIST	
Graham Paul Wiley	

### Structure

The charity is a Charitable Incorporated Organisation, registered with the Charity Commission 1178285. It was constituted on 11 January 2018 and received registration on 8 May 2018. It is managed by the Trustees in accordance with the Constitution. The trustees may appoint additional trustees, who will be chosen on the basis of their ability to contribute to the objectives of the charity. One third of trustees stand down and may offer themselves for reappointment at the Annual General Meeting.

### Activities and Objectives

#### Introduction

Our prime objective is to inspire young people towards Science, Technology, Engineering & Maths (STEM), by having them build a light aircraft and then fly in it.

We comprise an experienced group of volunteers who have already managed two such programmes with schools. We felt that our two projects had such great impact that we have launched this project, registered as a charity, and independent of RAeS but with its support.

#### Background

There are few experiences for a young teenager that can be more inspirational and motivational than being actively involved in constructing and flying a real aircraft.

The Birmingham, Wolverhampton and Cosford branch of the Royal Aeronautical Society (“BWC”) has been directly responsible for the management of two such projects, including the display (both flying and static) of the completed aircraft at major international events such as the Farnborough Air Show and RIAT. These were sponsored by Boeing who after several years of support have ended their programme. We directly observed the life-changing effects that engagement in such a project has by significantly improving a student’s prospects in further education or first employment. This has been both through promotion of STEM, and in the personal development of the participants, encouraging confidence, determination, resilience and ambition. A number

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2023

of students who applied for apprenticeships stated that the Build-a-Plane project was a “game changer” at interview.

### **Objective**

The objective of STEM High Fliers is to provide a challenging and enjoyable educational opportunity in STEM (Science, Technology, Engineering and Maths) for school pupils and youth group members in our geographic area. We know from our two successful projects that, as well as the direct engineering, design and scientific experience, there are valuable lessons in teamwork, persistence, resilience and an increase in self-confidence. When exhibiting our aircraft at displays, shows and conventions, many thousands of young people have experienced the project and been inspired towards STEM activities. Our experience has confirmed that the programme is equally successful irrespective of gender and has a positive effect on social mobility.

### **A Proven Engineering Project**

We have selected the UK manufactured Sherwood Ranger biplane which is considered to be well engineered and provides experience in metal, wood and composite construction. Its “vintage” appearance in a modern design attracts attention and helps motivate both participants and supporters. It has been successfully built by other school and youth-based projects.

The aircraft will be assembled largely by the young participants, under the close guidance of our volunteers who have many years’ experience in senior roles within the aerospace and engineering industries and/or the military services. They have already successfully completed two such projects, training and guiding almost 100 students in the process. Our volunteers are registered STEM ambassadors, with DBS clearances, and are well-versed in operating in safety with appropriate risk assessment.

Construction is in accordance with the LAA’s rules for amateur built aircraft, will be independently inspected at regular intervals by local LAA inspectors, and monitored overall by the LAA, which is responsible for issuing the aircraft’s permit to fly. We are not considering a high-performance sports aircraft, nor one in which the construction technology is so advanced that there is little to be gained by the pupils. The major benefit for them is derived from the build process itself and the disciplines that must be learned as part of it. The construction therefore must be within the capabilities of inexperienced teenagers, given suitable instruction. The Sherwood Ranger has a successful track record in other similar projects.

Schools and youth organisations have been invited to participate, on the basis of a long-term commitment to see the programme through to completion. The anticipated timescale would be between two and three years for the build, up to first flight and certification. A further six months to a year will be dedicated to giving all pupils that were involved the opportunity for a flight experience. Several of our volunteers are highly experienced pilots.

### **Finance and Organisation**

The Sherwood Ranger kit may be bought for a total of approximately £50,000 including VAT and engine. Since the kit is available in modular form, the project may proceed even without full funding being initially in place and in this regard the kit suppliers have been highly supportive. The staging of fundings is especially the case with regard to the engine and fitting kit, and indeed the engine type can be determined at a very late stage. Beyond the capital cost of the aircraft kit, the costs of consumable materials, fuel, insurances and other associated costs will have to be met, until the point where the completed aircraft can be sold.

Finance is by funding from individuals, companies and charitable foundations with any shortfall covered by loans from supporters. Whilst donations will enable the project to self-perpetuate by the proceeds of the first aircraft being used to finance a second, we recognise that a more realistic approach may be loan finance for

## STEM HIGH FLIERS (charity no 1178285) Report and Accounts for the year ended 31 July 2023

the kit, and donations for tools, consumables and running costs. Since the finished aircraft will be an attractive design constructed to the highest standards it is expected to have a ready market. The option then exists for the CIO to repay members' and sponsors' original loans or to continue with a further project, depending on the wishes of the lenders.

### **Participating Schools**

The ideal age for participants' involvement in this project is from 13 to 15 years, or school years 9 and 10. This is early enough for the project to have some influence on their subject choices and it will also benefit them in acquiring life-skills, such as determination and persistence, needed in their later studies, but without directly impinging on their time in Y11 which should be focussed towards GCSEs. Most projects have found that the involvement of Y12 pupils helps in strengthening the management and organisation of the work, and in the passing on of acquired skills and experience.

We expect at least 40 young people to be involved in the project, but we expect that it will be seen by and inspire several hundred children in a year.

The success of a school's participation depends heavily upon committed members of staff to support the pupils over the two to three years anticipated duration of the project. Involvement in an aircraft building project offers a school a huge range of opportunities to build into the established curriculum. In order to be considered for inclusion, we would expect schools to demonstrate the widest possible impact of the project on their pupils' education.

### **Achievements and Performance**

We have been introduced by Millenium Point Trust to Dudley Academies Trust, a group of 4 secondary and 2 primary academies within the Borough of Dudley. Each of the secondary schools has nominated pupils to build the Sherwood Ranger. The construction site has been kindly provided by Black Country & Marches Institute of Technology. This is a superb facility which is able to provide outstanding engineering support where needed. The environment gives a positive interpretation of the study of engineering and the potential for careers within its sectors.

We began working with the academies in September 2022. They are:

Beacon Hill Academy  
St James Academy  
Pegasus Academy  
The Link Academy

Each school participates once every 2 weeks, which allows a larger number of participants.

The year 9 learners are split into an engineering team and a support team. The engineering team have been trained to safely and effectively operate hand and light machine tools. Safety is our priority at all times. The mix of materials in the Sherwood Ranger has so far given experience in working with wood and aluminium. During the course of the year, our learners have cut, drilled, sanded and machined the parts of the aircraft and the jigs to make them, and have produced 4 sets of wing ribs, ready for assembly of the wings. As part of this process, test pieces were made which were subject to destructive testing to demonstrate the strength of a properly made adhesive bond.

We have been delighted by the diligence of the young engineers and their willingness to learn new skills and processes, and to learn to work to the level of precision necessary for the safe construction of the airframe. Each learner has prepared a record of their achievements, and have learnt the necessity of supporting engineering skills with appropriate documentation.

**STEM HIGH FLIERS** (charity no 1178285)  
Report and Accounts for the year ended 31 July 2023

The support team have recorded the progress of the project for social media and have learnt aspects of aviation technology.

In March 2023, some of the learners who are taking part in the project gave a presentation on it to an audience at RAF Cosford, where they were able to develop their confidence, public speaking skills and teamwork.

Shortly after the year end, the charity ordered a fuselage and empennage kit to enable the next stage of assembly to continue.

The trustees would like to place on record their thanks to the Institute, the Academies and Millenium Point Trust, and to the ongoing support of the kit supplier, TLAC.

A number of our volunteers have also continued mentoring pupils of a local Engineering Academy in the completion of a Slingshot aircraft kit provided by the Air League.

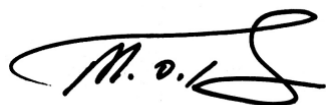
### **Financial Review**

We have continued to receive financial support from local business, from the Royal Aeronautical Society, and from individuals. Of particular significance was the conversion of a £5,000 loan to a donation which resulted in a reduction of the charity's liabilities and a Gift Aid claim, received after the year end.

The trustees remain confident that the project will proceed successfully and that funds will become available to enable a successful conclusion.

The trustees declare that they have approved the trustees' report above.

Signed on behalf of the charity's trustees.

A handwritten signature in black ink, appearing to read 'M. O. Roach', written in a cursive style.

MO Roach  
Secretary  
12 September 2023

STEM HIGH FLIERS (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2023

Statement of Financial Activities for the year ended 31 July 2023

	Notes	Unrestricted funds £	Total 2023	2022 £
<b>Incoming resources</b>				
Voluntary income	3	7,417	7,417	19,930
<b>Incoming resources from charitable activities</b>		<u>7,417</u>	<u>7,417</u>	<u>19,930</u>
<b>Total incoming resources</b>		<u>7,417</u>	<u>7,417</u>	<u>19,930</u>
<b>Resources expended</b>				
Charitable activities		1,760	1,760	496
Governance costs	4	-	-	-
<b>Total resources expended</b>		<u>1,760</u>	<u>1,760</u>	<u>496</u>
<b>Net incoming resources</b>		5,657	5,657	19,434
<b>Total funds brought forward</b>		<u>17,169</u>	<u>17,169</u>	<u>(2,265)</u>
<b>Total funds carried forward</b>		<u>22,826</u>	<u>22,826</u>	<u>17,169</u>

STEM HIGH FLIERS (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2023

Balance Sheet at 31 July 2023

		<b>2023</b>	<b>2022</b>
		<b>£</b>	<b>£</b>
<b>Current assets</b>	Note		
Cash at bank and in hand		22,076	22,669
Debtors and prepayments	6	1,250	-
<b>Total current assets</b>		<u>23,326</u>	<u>22,669</u>
<b>Net current assets</b>		<u>23,326</u>	<u>22,669</u>
<b>Total assets less current liabilities</b>		<u>23,326</u>	<u>22,669</u>
<b>Creditors: amounts falling due after one year</b>	6	500	5,500
<b>Provisions for liabilities and charges</b>		-	-
<b>Net assets</b>		<u>22,826</u>	<u>17,169</u>
<b>Funds of the Charity</b>			
<b>Unrestricted funds</b>		22,826	17,169
<b>Total funds</b>		<u>22,826</u>	<u>17,169</u>

Approved by the Trustees and signed on behalf of all the trustees



AC Cotton  
 Treasurer  
 12 September 2023

## Notes to the Accounts

### 1 Basis of preparation

#### 1.1 Basis of accounting

These accounts have been prepared on the basis of historic cost in accordance with Accounting and Reporting by Charities – Statement of Recommended Practice (SORP 2005) and with Financial Reporting Standards for Smaller Enterprises (FRSSE) and with the Charities Act.

### 2 Accounting policies

#### INCOMING RESOURCES

##### Recognition of incoming resources

These are included in the Statement of Financial Activities (SoFA) when:

- the charity becomes entitled to the resources;
- the trustees are virtually certain they will receive the resources; and
- the monetary value can be measured with sufficient reliability.

##### Incoming resources with related expenditure

Where incoming resources have related expenditure (as with fundraising or contract income) the incoming resources and related expenditure are reported gross in the SoFA.

##### Grants and donations

Grants and donations are only included in the SoFA when the charity has unconditional entitlement to the resources.

##### Tax reclaims on donations and gifts

Incoming resources from tax reclaims are included in the SoFA at the same time as the gift to which they relate.

##### Contractual income and performance related grants

This is only included in the SoFA once the related goods or services have been delivered.

##### Gifts in kind

Gifts in kind are accounted for at a reasonable estimate of their value to the charity or the amount actually realised.

Gifts in kind for sale or distribution are included in the accounts as gifts only when sold or distributed by the charity.

Gifts in kind for use by the charity are included in the SoFA as incoming resources when receivable.

##### Donated services and facilities

These are only included in incoming resources (with an equivalent amount in resources expended) where the benefit to the charity is reasonably quantifiable, measurable and material. The value placed on these resources is the estimated value to the charity of the service or facility received.

##### Volunteer help

The value of any voluntary help received is not included in the accounts but is described in the trustees' annual report.

##### Investment income

This is included in the accounts when receivable.

#### EXPENDITURE AND LIABILITIES

##### Liability recognition

Liabilities are recognised as soon as there is a legal or constructive obligation committing the charity to pay out resources.

##### Governance costs

Include costs of the preparation and examination of statutory accounts, the costs of trustee meetings and cost of any legal advice to trustees on governance or constitutional matters.

##### Grants with performance conditions

Where the charity gives a grant with conditions for its payment being a specific level of service or output to be provided, such grants are only recognised in the SoFA once the recipient of the grant has provided the specified service or output.

**STEM HIGH FLIERS** (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2023

**Grants payable without performance conditions**

These are only recognised in the accounts when a commitment has been made and there are no conditions to be met relating to the grant which remain in the control of the charity.

**Support Costs**

Support costs include central functions and have been allocated to activity cost categories on a basis consistent with the use of resources, eg allocating property costs by floor areas, or per capita, staff costs by the time spent and other costs by their usage.

**ASSETS**

**Tangible fixed assets for use by charity**

These are capitalised if they can be used for more than one year, and cost at least £1,000. They are valued at cost or a reasonable value on receipt.

**Investments**

Investments quoted on a recognised stock exchange are valued at market value at the year end. Other investment assets are included at trustees' best estimate of market value.

**Stocks and work in progress**

These are valued at the lower of cost or market value.

**3 Incoming Resources**

	<b>2023</b>	<b>2022</b>
	<b>£</b>	<b>£</b>
Donations	6,167	19,930
Gift Aid	1,250	-
<b>Total</b>	<b>7,417</b>	<b>19,930</b>

**4 Trustee expenses**

No expenses or remuneration were paid in 2023 or 2022.

**5 Debtors and Prepayments**

	<b>2023</b>	<b>2022</b>
	<b>£</b>	<b>£</b>
Gift Aid Recoverable	1,250	-
<b>Total</b>	<b>1,250</b>	<b>-</b>

**6 Creditors and accruals**

	<b>2023</b>	<b>2022</b>
	<b>£</b>	<b>£</b>
Amounts falling due after 1 year		
Loans and overdrafts	500	5,500
<b>Total</b>	<b>500</b>	<b>5,500</b>

Loans are repayable on completion of the project, or earlier at the discretion of the trustees.

**STEM HIGH FLIERS**

England & Wales - Charity number 1178285

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# Accounts

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# STEM HIGH FLIERS

Report and Accounts for the year ended 31 July 2022

CHARITY NO 1178285

## ANNUAL REPORT

**Address**        12 Church Road  
                      Codsall  
                      WV81EA

### Trustees

The following trustees served during the year:

Christopher Ian Hughes BSc CEng FRAeS	(Chairman)
Michael Oldham Roach	(Secretary)
Anthony Charles Cotton BSc FCA	(Treasurer)
Graham Frederick Elvis AUMIST	
Graham Paul Wiley	

### Structure

The charity is a Charitable Incorporated Organisation, registered with the Charity Commission 1178285. It was constituted on 11 January 2018 and received registration on 8 May 2018. It is managed by the Trustees in accordance with the Constitution. The trustees may appoint additional trustees, who will be chosen on the basis of their ability to contribute to the objectives of the charity. One third of trustees stand down and may offer themselves for reappointment at the Annual General Meeting.

### Activities and Objectives

#### Introduction

Our prime objective is to inspire young people towards Science, Technology, Engineering & Maths (STEM), by having them build a light aircraft and then fly in it.

We comprise an experienced group of volunteers who have already managed two such programmes with schools. These were Ercall Wood Technology College and Ormiston New Academy, Wolverhampton, whose students successfully built and then flew in a microlight aircraft. Both of these projects were integral with the Royal Aeronautical Society's (RAeS) Schools Build-a-Plane Programme, supported by Boeing and the Light Aircraft Association ("LAA"), and managed through its local Branch.

RAeS has now terminated its highly successful six aircraft programme nationally. Locally, we felt that our two projects had such great impact, that we have launched another project, registered as a charity, and independent of RAeS but with its support.

#### Background

There are few experiences for a young teenager that can be more inspirational and motivational than being actively involved in constructing and flying a real aircraft.

## STEM HIGH FLIERS (charity no 1178285) Report and Accounts for the year ended 31 July 2022

The Birmingham, Wolverhampton and Cosford branch of the Royal Aeronautical Society (“BWC”) has been directly responsible for the management of two such projects, including the display (both flying and static) of the completed aircraft at major international events such as the Farnborough Air Show and RIAT. These were sponsored by Boeing who after several years of support have ended their programme. We have directly observed the life-changing effects that engagement in such a project has by significantly improving a student’s prospects in further education or first employment. This has been both through promotion of STEM, and in the personal development of the participants, encouraging confidence, determination, resilience and ambition. A number of students who applied for apprenticeships stated that the Build-a-Plane project was a “game changer” at interview.

### **Objective**

The objective of STEM High Fliers is to provide a challenging and enjoyable educational opportunity in STEM (Science, Technology, Engineering and Maths) for school pupils and youth group members in our geographic area.. We know from our two successful projects that, as well as the direct engineering, design and scientific experience, there are valuable lessons in teamwork, persistence, resilience and an increase in self-confidence. When exhibiting our aircraft at displays, shows and conventions, many thousands of young people have experienced the project and been inspired towards STEM activities. Our experience has confirmed that the programme is equally successful irrespective of gender and has a positive effect on social mobility.

### **A Proven Engineering Project**

We have selected the UK manufactured Sherwood Ranger biplane which is considered to be well engineered and provides experience in metal, wood and composite construction. Its “vintage” appearance in a modern design attracts attention and helps motivate both participants and supporters. It has been successfully built by other school and youth-based projects.

The aircraft will be assembled largely by the young participants, under the close guidance of our volunteers who have many years’ experience in senior roles within the aerospace and engineering industries and/or the military services. They have already successfully completed two such projects, training and guiding almost 100 students in the process. Our volunteers are registered STEM ambassadors, with DBS clearances, and are well-versed in operating in safety with appropriate risk assessment.

Construction will be in accordance with the LAA’s rules for amateur built aircraft, will be independently inspected at regular intervals by local LAA inspectors, and monitored overall by the LAA, which is responsible for issuing the aircraft’s permit to fly. We are not considering a high-performance sports aircraft, nor one in which the construction technology is so advanced that there is little to be gained by the pupils. The major benefit for them is derived from the build process itself and the disciplines that must be learned as part of it. The construction therefore must be within the capabilities of inexperienced teenagers, given suitable instruction. The Sherwood Ranger has a successful track record in other similar projects.

Schools and youth organisations have been invited to participate, on the basis of a long-term commitment to see the programme through to completion. The anticipated timescale would be between two and three years for the build, up to first flight and certification. A further six months to a year will be dedicated to giving all pupils that were involved the opportunity for a flight experience. Several of our volunteers are highly experienced pilots.

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2022

### **Finance and Organisation**

The Sherwood Ranger kit may be bought for a total of approximately £50,000 including VAT and engine. Since the kit is available in modular form, the project may proceed even without full funding being initially in place and in this regard the kit suppliers have been highly supportive. The staging of fundings is especially the case with regard to the engine and fitting kit, and indeed the engine type can be determined at a very late stage. Beyond the capital cost of the aircraft kit, the costs of consumable materials, fuel, insurances and other associated costs will have to be met, until the point where the completed aircraft can be sold.

Finance is by funding from individuals, companies and charitable foundations with any shortfall covered by loans from supporters. Whilst donations will enable the project to self-perpetuate by the proceeds of the first aircraft being used to finance a second, we recognise that a more realistic approach may be loan finance for the kit, and donations for tools, consumables and running costs. Since the finished aircraft will be an attractive design constructed to the highest standards it is expected to have a ready market. The option then exists for the CIO to repay members' and sponsors' original loans or to continue with a further project, depending on the wishes of the lenders.

### **Participating Schools**

The ideal age for participants' involvement in this project is from 13 to 15 years, or school years 9 and 10. This is early enough for the project to have some influence on their subject choices and it will also benefit them in acquiring life-skills, such as determination and persistence, needed in their later studies, but without directly impinging on their time in Y11 which should be focussed towards GCSEs. Most projects have found that the involvement of Y12 pupils helps in strengthening the management and organisation of the work, and in the passing on of acquired skills and experience.

We expect at least 40 young people to be involved in the project, but we expect that it will be seen by and inspire several hundred children in a year.

The success of a school's participation depends heavily upon committed members of staff to support the pupils over the two to three years anticipated duration of the project. Involvement in an aircraft building project offers a school a huge range of opportunities to build into the established curriculum. In order to be considered for inclusion, we would expect schools to demonstrate the widest possible impact of the project on their pupils' education.

### **Achievements and Performance**

When we last reported in November 2021 we anticipated restarting construction of the aircraft in facilities at RAF Cosford. Difficulties with contractors refurbishing the premises delayed our ability to create a hangar with the airframe parts being located for assembly. We began our project by introducing constructional techniques and engineering practices by constructing small pedal planes, suitable for young children to play with. By mid 2022 changes in the structure of the facilities at RAF Cosford moved us to a new location. We were within a week of commencing construction when a further change of direction outside our control and outside that of our immediate supporters meant we were unable to continue at the location.

We were, however, then delighted to be introduced by Millenium Point Trust to Dudley Academies Trust, a group of 4 secondary and 2 primary academies within the Borough of Dudley. It is planned that each of the secondary schools will nominate pupils to build the Sherwood Ranger. The construction site has been kindly provided by Black Country & Marches Institute of Technology. This is a superb facility which is able to provide an outstanding with excellent engineering support where needed. The environment gives a positive interpretation of the study of engineering and the potential for careers within its sectors.

**STEM HIGH FLIERS** (charity no 1178285)  
Report and Accounts for the year ended 31 July 2022

At the date of this report, we have started working with the students in the facility and can report great enthusiasm from the participants and tremendous support from the Institute, the Academies and Millenium Trust. We therefore enter a new phase of our project with enthusiasm.

Our volunteers have also continued mentoring pupils of a local Engineering Academy in the completion of a Slingshot aircraft kit provided by the Air League.

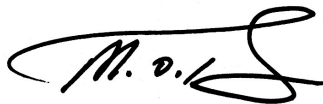
**Financial Review**

We received a significant donation from Millenium Point Trust in September 2021, and were able to sell a guitar kindly donated by a customer of TLAC, the kit suppliers. We continued to receive donations from individuals.

The trustees remain confident that the project will proceed successfully and that funds will become available to enable a successful conclusion.

The trustees declare that they have approved the trustees' report above.

Signed on behalf of the charity's trustees.

A handwritten signature in black ink, appearing to read 'M. O. Roach', with a large, stylized flourish at the end.

MO Roach  
Secretary  
18 December 2022

STEM HIGH FLIERS (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2022

Statement of Financial Activities for the year ended 31 July 2022

	Notes	Unrestricted funds £	Total 2022	2021 £
<b>Incoming resources</b>				
Voluntary income	3	19,930	19,930	-
<b>Incoming resources from charitable activities</b>				
		19,930	19,930	-
<b>Total incoming resources</b>				
		-	-	-
<b>Resources expended</b>				
Charitable activities		496	496	-
Governance costs	4	-	-	-
<b>Total resources expended</b>				
		496	496	-
<b>Net incoming resources</b>				
		19,434	19,434	-
<b>Total funds / (deficit) brought forward</b>				
		(2,265)	(2,265)	(2,265)
<b>Total funds / (deficit) carried forward</b>				
		17,169	17,169	(2,265)

STEM HIGH FLIERS (charity no 1178285)  
Report and Accounts for the year ended 31 July 2022

Balance Sheet at 31 July 2022

		2022 £	2021 £
<b>Current assets</b>	Note		
Cash at bank and in hand		22,669	3,235
<b>Total current assets</b>		<u>22,669</u>	<u>3,235</u>
<b>Net current assets</b>		<u>22,669</u>	<u>3,235</u>
<b>Total assets less current liabilities</b>		<u>22,669</u>	<u>3,235</u>
<b>Creditors: amounts falling due after one year</b>	5	5,500	5,500
<b>Provisions for liabilities and charges</b>		-	-
<b>Net assets</b>		<u>17,169</u>	<u>(2,265)</u>
<b>Funds of the Charity</b>			
<b>Unrestricted funds</b>		17,169	(2,265)
<b>Total funds</b>		<u>17,169</u>	<u>(2,265)</u>

Approved by the Trustees and signed on behalf of all the trustees



AC Cotton  
Treasurer  
18 December 2022

## Notes to the Accounts

### 1 Basis of preparation

#### 1.1 Basis of accounting

These accounts have been prepared on the basis of historic cost in accordance with Accounting and Reporting by Charities – Statement of Recommended Practice (SORP 2005) and with Financial Reporting Standards for Smaller Enterprises (FRSSE) and with the Charities Act.

### 2 Accounting policies

#### INCOMING RESOURCES

##### Recognition of incoming resources

These are included in the Statement of Financial Activities (SoFA) when:

- the charity becomes entitled to the resources;
- the trustees are virtually certain they will receive the resources; and
- the monetary value can be measured with sufficient reliability.

##### Incoming resources with related expenditure

Where incoming resources have related expenditure (as with fundraising or contract income) the incoming resources and related expenditure are reported gross in the SoFA.

##### Grants and donations

Grants and donations are only included in the SoFA when the charity has unconditional entitlement to the resources.

##### Tax reclaims on donations and gifts

Incoming resources from tax reclaims are included in the SoFA at the same time as the gift to which they relate.

##### Contractual income and performance related grants

This is only included in the SoFA once the related goods or services have been delivered.

##### Gifts in kind

Gifts in kind are accounted for at a reasonable estimate of their value to the charity or the amount actually realised.

Gifts in kind for sale or distribution are included in the accounts as gifts only when sold or distributed by the charity.

Gifts in kind for use by the charity are included in the SoFA as incoming resources when receivable.

##### Donated services and facilities

These are only included in incoming resources (with an equivalent amount in resources expended) where the benefit to the charity is reasonably quantifiable, measurable and material. The value placed on these resources is the estimated value to the charity of the service or facility received.

##### Volunteer help

The value of any voluntary help received is not included in the accounts but is described in the trustees' annual report.

##### Investment income

This is included in the accounts when receivable.

#### EXPENDITURE AND LIABILITIES

##### Liability recognition

Liabilities are recognised as soon as there is a legal or constructive obligation committing the charity to pay out resources.

##### Governance costs

Include costs of the preparation and examination of statutory accounts, the costs of trustee meetings and cost of any legal advice to trustees on governance or constitutional matters.

##### Grants with performance conditions

Where the charity gives a grant with conditions for its payment being a specific level of service or output to be provided, such grants are only recognised in the SoFA once the recipient of the grant has provided the specified service or output.

STEM HIGH FLIERS (charity no 1178285)  
Report and Accounts for the year ended 31 July 2022

**Grants payable without performance conditions**

These are only recognised in the accounts when a commitment has been made and there are no conditions to be met relating to the grant which remain in the control of the charity.

**Support Costs**

Support costs include central functions and have been allocated to activity cost categories on a basis consistent with the use of resources, eg allocating property costs by floor areas, or per capita, staff costs by the time spent and other costs by their usage.

**ASSETS**

**Tangible fixed assets for use by charity**

These are capitalised if they can be used for more than one year, and cost at least £1,000. They are valued at cost or a reasonable value on receipt.

**Investments**

Investments quoted on a recognised stock exchange are valued at market value at the year end. Other investment assets are included at trustees' best estimate of market value.

**Stocks and work in progress**

These are valued at the lower of cost or market value.

**3 Incoming Resources**

	<b>2022</b>	<b>2021</b>
	<b>£</b>	<b>£</b>
<b>Donations</b>	19,930	-
<b>Gifts in Kind</b>	-	-
<b>Total</b>	<u>19,930</u>	<u>-</u>

**4 Trustee expenses**

	<b>2022</b>	<b>2021</b>
Number of trustees who were paid expenses	-	-
Nature of the expenses -N/A	-	-

**5 Creditors and accruals**

	<b>2022</b>	<b>2021</b>
	<b>£</b>	<b>£</b>
<b>Amounts falling due after 1 year</b>		
<b>Loans and overdrafts</b>	<u>5,500</u>	<u>5,500</u>
<b>Total</b>	<u>5,500</u>	<u>5,500</u>

Loans are repayable on completion of the project, or earlier at the discretion of the trustees..

**STEM HIGH FLIERS**

England & Wales - Charity number 1178285

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# Accounts

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# STEM HIGH FLIERS

CHARITY NO 1178285

STEM HIGH FLIERS (charity no 1178285)  
Report and Accounts for the year ended 31 July 2021

## ANNUAL REPORT

**Address** 12 Church Road  
Codsall  
WV81EA

### Trustees

The following trustees served during the year:

Christopher Ian Hughes BSc CEng FRAeS	(Chairman)
Graham Peter Harris BSc CEng FRAeS	(Secretary) (Resigned 7 October 2020)
Anthony Charles Cotton BSc FCA	(Treasurer)
Graham Frederick Elvis AUMIST	
Graham Paul Wiley	
Michael Oldham Roach	

### Structure

The charity is a Charitable Incorporated Organisation, registered with the Charity Commission 1178285. It was constituted on 11 January 2018 and received registration on 8 May 2018. It is managed by the Trustees in accordance with the Constitution. The trustees may appoint additional trustees, who will be chosen on the basis of their ability to contribute to the objectives of the charity. One third of trustees stand down and may offer themselves for reappointment at the Annual General Meeting.

### Activities and Objectives

#### Introduction

Our prime objective is to inspire young people towards Science, Technology, Engineering & Maths (STEM), by having them build a light aircraft and then fly in it.

We comprise an experienced group of volunteers who have already managed two such programmes with schools. These were Ercall Wood Technology College and Ormiston New Academy, Wolverhampton, whose students successfully built and then flew in a microlight aircraft. Both of these projects were integral with the Royal Aeronautical Society's (RAeS) Schools Build-a-Plane Programme, supported by Boeing and the Light Aircraft Association ("LAA"), and managed through its local Branch.

RAeS has now terminated its highly successful six aircraft programme nationally. Locally, we felt that our two projects had such great impact, that we have launched another project, registered as a charity, and independent of RAeS but with its support.

#### Background

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2021

There are few experiences for a young teenager that can be more inspirational and motivational than being actively involved in constructing and flying a real aircraft.

The Birmingham, Wolverhampton and Cosford branch of the Royal Aeronautical Society (“BWC”) has been directly responsible for the management of two such projects, including the display ([both](#) flying and static) of the completed aircraft at major international events such as the Farnborough Air Show [and RIAT](#). These were sponsored by Boeing who after several years of support have ended their programme. We have directly observed the life-changing effects that engagement in such a project has by significantly improving a student’s prospects in further education or first employment. This has been both through promotion of STEM, and in the personal development of the participants, encouraging confidence, determination, resilience and ambition. [A number of students who applied for apprenticeships stated that the Build-a-Plane project was a “game changer” at interview.](#)

### **Objective**

The objective of STEM High Fliers is to provide a challenging and enjoyable educational opportunity in STEM (Science, Technology, Engineering and Maths) for school pupils and youth group members in our geographic area.. We know from [our two](#) successful projects that, as well as the direct engineering, design and scientific experience, there are valuable lessons in teamwork, persistence, resilience and an increase in self-confidence. When exhibiting our aircraft at displays, shows and conventions, many thousands of young people have experienced the project and been inspired towards STEM activities. Our experience has confirmed that the programme is equally successful irrespective of gender and has a positive effect on social mobility.

### **A Proven Engineering Project**

Finance will be raised to enable the purchase of a kit aircraft from a reputable and established manufacturer. We have selected the UK manufactured Sherwood Ranger biplane which is considered to be well engineered and provides experience in metal, wood and composite construction. Its “vintage” appearance in a modern design attracts attention and helps motivate both participants and supporters. It has been successfully built by other school and youth-based projects.

The aircraft will be assembled largely by the young participants, under the close guidance of our volunteers who have many years’ experience in senior roles within the aerospace and [engineering industries and/or the military services](#). [They have already successfully completed two such projects, training and guiding almost 100 students in the process.](#) Our volunteers are registered STEM ambassadors, with DBS clearances, and are well-versed in operating in safety with appropriate risk assessment.

Construction will be in accordance with the LAA’s rules for amateur built aircraft, will be [independently](#) inspected at regular intervals by local LAA inspectors, and monitored overall by the LAA, [which is](#) responsible for issuing the aircraft’s permit to fly. We are not considering a high-performance sports aircraft, nor one in which the construction technology is so advanced that there is little to be gained by the pupils. The major benefit for them is derived from the build process itself and the disciplines that must be learned as part of it. The construction therefore must be within the capabilities of

# STEM HIGH FLIERS (charity no 1178285)

## Report and Accounts for the year ended 31 July 2021

inexperienced teenagers, given suitable instruction. The Sherwood Ranger has a successful track record in other similar projects.

Schools and youth organisations have been invited to participate, on the basis of a long-term commitment to see the programme through to completion. The anticipated timescale would be between two and three years for the build, up to first flight and certification. A further six months to a year will be dedicated to giving all pupils that were involved the opportunity for a flight experience. Several of our volunteers are highly experienced pilots.

### **Finance and Organisation**

The Sherwood Ranger kit may be bought for a total of approximately £45,000 including VAT and engine. Since the kit is available in modular form, the project may proceed even without full funding being initially in place and in this regard the kit suppliers have been highly supportive. The staging of fundings is especially the case with regard to the engine and fitting kit, and indeed the engine type can be determined at a very late stage. Beyond the capital cost of the aircraft kit, the costs of consumable materials, fuel, insurances and other associated costs will have to be met, until the point where the completed aircraft can be sold.

Finance is by funding from individuals, companies and charitable foundations with any shortfall covered by loans from supporters. Whilst donations will enable the project to self-perpetuate by the proceeds of the first aircraft being used to finance a second, we recognise that a more realistic approach may be loan finance for the kit, and donations for tools, consumables and running costs. Since the finished aircraft will be an attractive design constructed to the highest standards it is expected to have a ready market. The option then exists for the CIO to repay members' and sponsors' original loans or to continue with a further project, depending on the wishes of the lenders.

### **Participating Schools and Youth Groups**

The ideal age for participants' involvement in this project is from 13 to 15 years, or school years 9 and 10. This is early enough for the project to have some influence on their subject choices and it will also benefit them in acquiring life-skills, such as determination and persistence, needed in their later studies, but without directly impinging on their time in Y11 which should be focussed towards GCSEs. Most projects have found that the involvement of Y12 pupils helps in strengthening the management and organisation of the work, and in the passing on of acquired skills and experience.

We expect at least 40 young people to be involved in the project, but we expect that it will be seen and inspire several hundred children in a year during school and youth organisation visits to Cosford, and at shows including the prestigious Cosford Air Show.

The success of a school's participation depends heavily upon committed members of staff to support the pupils over the two to three years anticipated duration of the project. Involvement in an aircraft building project offers a school a huge range of opportunities

**STEM HIGH FLIERS** (charity no 1178285)  
Report and Accounts for the year ended 31 July 2021

to build into the established curriculum. In order to be considered for inclusion, we would expect schools to demonstrate the widest possible impact of the project on their pupils' education.

### **Achievements and Performance**

The lockdown requirements arising from Covid 19 resulted in the suspension of the project with effect from March 2021. This continued during the whole of the 2020/21 school year. Towards the end of the year it became clear that the space requirements of schools have changed greatly as a result of the pandemic and the build areas we had kindly been allocated were required for other educational needs. As a result, the partnership with the schools has, with mutual thanks and regret, been terminated. We are, however, pleased that a local youth organisation and a local Engineering Academy have expressed interest and we are currently re-establishing the project with an aim of a December 2021 restart in recently refurbished bespoke premises at Cosford . This has been substantially supported by a grant from Millennium Point Trust which was received in September 2021.

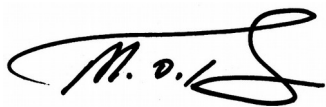
Our volunteers have also recently re-started mentoring pupils of a local Engineering Academy in the completion of a SkyRanger microlight kit and a Slingshot microlight kit provided by the Air League.

### **Financial Review**

There has been no financial activity during the year. The trustees remain confident that the project will still proceed successfully and that funds will become available to enable a successful conclusion.

The trustees declare that they have approved the trustees' report above.

Signed on behalf of the charity's trustees.



MO Roach  
Secretary  
24 November 2021

STEM HIGH FLIERS (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2021

Statement of Financial Activities for the year ended 31  
 July 2021

	Notes	Unrestric ted funds £	Total 2021	2020 £
<b>Incoming resources</b>				
Voluntary income	3	-	-	1,208
<b>Incoming resources from charitable activities</b>		-	-	1,208
<b>Total incoming resources</b>		-	-	1,707
<b>Resources expended</b>				
Charitable activities		-	-	5,156
Governance costs	4	-	-	-
<b>Total resources expended</b>		-	-	24
<b>Net incoming/(outgoing) resources</b>		-	-)	1,68 3
<b>Total funds brought forward</b>		(2,265)	(2,265)	-
<b>Total funds / (deficit) carried forward</b>		(2,265)	(2,265)	1,68 3

STEM HIGH FLIERS (charity no 1178285)  
Report and Accounts for the year ended 31 July 2021

Balance Sheet at 31 July 2021

	2021	2020
	£	£
<b>Current assets</b>		
Cash at bank and in hand	3,235	3,235
<b>Total current assets</b>	<u>3,235</u>	<u>3,235</u>
<b>Net current assets</b>	<u>3,235</u>	<u>3,235</u>
<b>Total assets less current liabilities</b>	<u>3,235</u>	<u>3,235</u>
<b>Creditors: amounts falling due after one year</b>	5,500	5,500
<b>Provisions for liabilities and charges</b>	-	-
<b>Net assets</b>	<u>(2,265)</u>	<u>(2,265)</u>
<b>Funds of the Charity</b>		
<b>Unrestricted funds</b>	(2,265)	(2,265)
<b>Total funds</b>	<u>(2,265)</u>	<u>(2,265)</u>
		3,235

Approved by the Trustees and signed on behalf of all the trustees



AC Cotton  
Treasurer  
24 November 2021

## Notes to the Accounts

### 1 Basis of preparation

#### 1.1 Basis of accounting

These accounts have been prepared on the basis of historic cost in accordance with Accounting and Reporting by Charities – Statement of Recommended Practice (SORP 2005) and with Financial Reporting Standards for Smaller Enterprises (FRSSE) and with the Charities Act.

### 2 Accounting policies

#### INCOMING RESOURCES

##### Recognition of incoming resources

These are included in the Statement of Financial Activities (SoFA) when:

- the charity becomes entitled to the resources;
- the trustees are virtually certain they will receive the resources; and
- the monetary value can be measured with sufficient reliability.

##### Incoming resources with related expenditure

Where incoming resources have related expenditure (as with fundraising or contract income) the incoming resources and related expenditure are reported gross in the SoFA.

##### Grants and donations

Grants and donations are only included in the SoFA when the charity has unconditional entitlement to the resources.

##### Tax reclaims on donations and gifts

Incoming resources from tax reclaims are included in the SoFA at the same time as the gift to which they relate.

##### Contractual income and performance related grants

This is only included in the SoFA once the related goods or services have been delivered.

##### Gifts in kind

Gifts in kind are accounted for at a reasonable estimate of their value to the charity or the amount actually realised.

Gifts in kind for sale or distribution are included in the accounts as gifts only when sold or distributed by the charity.

Gifts in kind for use by the charity are included in the SoFA as incoming resources when receivable.

##### Donated services and facilities

These are only included in incoming resources (with an equivalent amount in resources expended) where the benefit to the charity is reasonably quantifiable, measurable and material. The value placed on these resources is the estimated value to the charity of the service or facility received.

##### Volunteer help

The value of any voluntary help received is not included in the accounts but is described in the trustees' annual report.

##### Investment income

This is included in the accounts when receivable.

#### EXPENDITURE AND LIABILITIES

##### Liability recognition

Liabilities are recognised as soon as there is a legal or constructive obligation committing the charity to pay out resources.

**STEM HIGH FLIERS** (charity no 1178285)  
 Report and Accounts for the year ended 31 July 2021

<b>Governance costs</b>	Include costs of the preparation and examination of statutory accounts, the costs of trustee meetings and cost of any legal advice to trustees on governance or constitutional matters.
<b>Grants with performance conditions</b>	Where the charity gives a grant with conditions for its payment being a specific level of service or output to be provided, such grants are only recognised in the SoFA once the recipient of the grant has provided the specified service or output.
<b>Grants payable without performance conditions</b>	These are only recognised in the accounts when a commitment has been made and there are no conditions to be met relating to the grant which remain in the control of the charity.
<b>Support Costs</b>	Support costs include central functions and have been allocated to activity cost categories on a basis consistent with the use of resources, eg allocating property costs by floor areas, or per capita, staff costs by the time spent and other costs by their usage.
<b>ASSETS</b>	
<b>Tangible fixed assets for use by charity</b>	These are capitalised if they can be used for more than one year, and cost at least £1,000. They are valued at cost or a reasonable value on receipt.
<b>Investments</b>	Investments quoted on a recognised stock exchange are valued at market value at the year end. Other investment assets are included at trustees' best estimate of market value.
<b>Stocks and work in progress</b>	These are valued at the lower of cost or market value.

**3 Incoming Resources**

	<b>2021</b>	<b>2020</b>
	<b>£</b>	<b>£</b>
<b>Donations</b>	-	586
<b>Gifts in Kind</b>	-	622
<b>Total</b>	<u>-</u>	<u>1,208</u>

**4 Trustee expenses**

	<b>2021</b>	<b>2020</b>
Number of trustees who were paid expenses	-	-
Nature of the expenses -N/A	-	-

**5 Creditors and accruals**

	<b>2021</b>	<b>2020</b>
	<b>£</b>	<b>£</b>
<b>Amounts falling due after 1 year</b>		

STEM HIGH FLIERS (charity no 1178285)  
Report and Accounts for the year ended 31 July 2021

<b>Loans and overdrafts</b>	<u>5,500</u>	<u>5,500</u>
<b>Total</b>	<u>5,500</u>	<u>5,500</u>

Loans are repayable on completion of the project.