

STEM and Policy Education Programme Legacy – Policy Initiatives Fund Application

Main Report

Background

1. The Ponds Project was a project at Hampstead Heath to reduce the risk of pond overtopping, embankment erosion, failure and potential loss of life downstream in line with the Reservoirs Act 1975 while meeting the obligations of the Hampstead Heath Act 1871.
2. In 2014, the Policy and Resources Committee agreed to fund a 3 year education programme to capitalise on the learning opportunities presented by the engineering project.
3. Research demonstrates that it can be difficult for young people to see links between what they learn in school and what they will be doing in the future, including the benefits of science education for future progression and career pathways.^{1,2} Using Hampstead Heath and the Ponds Project as a real case study allowed students to make stronger links between theoretical and practical learning.
4. The number of young people entering into further STEM studies and careers continues to be smaller than other areas of learning.³ There are strong indicators that young people are more likely to study STEM if they gain a broader understanding of career paths, see STEM as relevant to everyday life, and are engaged in practical activities.²

Current Position

5. Over 3000 secondary school students and 850 primary school students have participated in learning activities around STEM subjects and public debate in science using the ponds project as a case study to bring learning alive.
6. 98% of teachers participating in the sessions reported that their learning objectives were met and 88% felt that their students made substantial progress in their learning. 67% of students who participated felt they had learned more about how humans impact the environment and 57% reported their intention to take positive action for the environment in the future.
7. The project is also developing legacy resources which raise career aspirations for young people studying STEM through a set of online films and resources for teachers and students.
8. However, learning from the current 3 year project has identified that barriers still exist with engaging secondary schools in learning outside the classroom. Large year group sizes, timetable restrictions, funding and pressure around exams all lead teachers to choose not to attend sessions outside the classroom.
9. Overall the project has enabled us to develop a variety of learning programmes which engage students with the Heath and enhance the National Curriculum. The programmes have been received positively by teachers and

students, and we now want to create a legacy resource which will enhance access and engagement levels by introducing flexibility, recognising the specialist expertise of secondary school teachers, and minimising financial costs for schools.

Proposals

10. The proposed next stage of the project will further enable school access by readdressing the barriers of timetable restrictions and large year group sizes by providing teachers with the flexibility to run the activities themselves at a time which works for them.
11. We will enable more schools to participate in our programmes through an approach which:
 - a. provides flexibility in dates and times
 - b. harnesses the expertise of school specialist-subject teachers in leading sessions
 - c. supports sustainability through minimal charges to schools
 - d. links to the National Curriculum
 - e. supports students to see the relevance and application of their learning, including showcasing career paths
 - f. utilises the rich and unique resources of the Heath, widening access and building a connection with green spaces
 - g. enables more students to benefit from resources created within our specialist learning team (CoL Open Spaces)
12. We will provide teachers with a menu of themed activities which they can access on our website. Themes will include environmental change, ecosystems, working scientifically and careers, and the activities will be designed to link the classroom, the Heath and the wider world.
13. Teachers will be able to combine these activities to create their own structured days on the Heath and incorporate them within their schemes of work. The sessions will be designed by our specialist learning team and delivered by school teachers both at school and on the Heath. This will utilise the expertise of teachers and the OS learning team, as well as providing teachers with flexible times and dates.
14. There will be an option of hiring activity equipment from the Education Centre for some of the activities on the Heath, and these will be subject to a small charge. Bookable, facilitated sessions will also be available as part of this wider secondary school offer.
15. Online resources will include videos of staff talking about their work, its relevance, and the skills and knowledge involved. This will support students in linking their learning to careers and the wider world – something which research has shown to be a challenge for many students. Additionally,

students will be supported in linking learning on the Heath with learning in the classroom, which will strengthen their learning journeys.

16. The outputs of the project will include:
 - a. 20 themed activities available to download from our website (for use on the Heath and in the classroom).
 - b. 3 bookable, facilitated sessions for secondary schools incorporated within our Hampstead Heath school programme.
 - c. 3 bespoke training sessions to equip our Education Ranger team in facilitating the secondary schools sessions
 - d. 6 videos of our staff which will raise aspirations and inspire further studies and careers related to science, geography and green spaces.
 - e. 6 types of equipment sets with activities, available to hire and use on Hampstead Heath.
 - f. A new landing page and associated pages on our website specifically for secondary schools. The website will enable teachers to search on themes, school subjects and activity type.
17. Costings for the project are under £50,000. Please see appendix one for costings.
18. The ponds education project legacy proposal will make an important contribution to the Open Spaces Learning Strategy and the Corporate Education Strategy. The learning strategy articulates a clear vision to connect people more powerfully to their local green space through meaningful and engaging learning activities. The strategy identifies the five impact areas of understanding, confidence, involvement, wellbeing and connection as key to achieving this vision.
19. The Ponds Education Project will play a significant role in delivering these impact areas, with an emphasis on understanding, confidence and connection. Through our creative learning activities, we will enable students to develop their understanding of specific, relevant areas of the National Curriculum, and to build an understanding of the relevance and application of their learning. In addition, our activities will enable students to make connections experientially with green spaces, which act as a rich stimulus for their creative thinking and learning. Finally, by working closely with teachers and reflecting on feedback from our audiences, our programmes will provide experiences which are both challenging and achievable, and the personal achievement experienced by participants will help to build confidence.

Corporate & Strategic Implications

20. The Ponds Project Educational outreach work supports the City's vision for "high quality, accessible and responsive services benefiting its communities, neighbours, London and the nation", and specifically supports KPP5 "Increasing the impact of the City's cultural and heritage offer on the life of London and the nation".

21. The project supports the aspirations of the City of London Education Strategy 2016-2019, particularly in respect of strategic aim 1) Ensuring that the City Corporation's outstanding cultural and historical resources enrich the creative experience of all London's learners; specifically by the Prioritised Action to Promote the national STEM (science, technology, engineering and maths) education agenda through working in partnership across our venues; and strategic aim 3) Develop excellent employment opportunities and pathways and specifically by the Prioritised Action of Work-related learning and work interactions.

Implications

22. It is anticipated that the programme will cost a total of £48,600 to fund a project officer, development of specialist resources including videos, and materials and equipment.
23. The proposed costs can be met from the Policy Initiatives Fund, categorised as "Communities" and charged to City's Cash.
24. The current uncommitted balance available within your Committee's Policy Initiatives Fund amounts to £258,100 prior to any allowance being made for any other proposals on today's agenda.

Conclusion

25. The proposed next stage of the project presents an excellent opportunity to embed the learning and achievements of the current 3 year programme using innovative approaches. In particular, the project will focus on developing flexible and sustainable solutions to engaging with secondary schools, creating relevance for in class learning, showcasing STEM career paths, and supporting teachers to take learning out of the classroom. This supports the City of London's Education Strategy.

References

¹ Archer, L., Osborne, J., DeWitt, J., Dillon, J. & Wong, B. (2013). *ASPIRES. Young people's science and career aspirations age 10-14.* Retrieved from <https://www.kcl.ac.uk/sspp/departments/education/research/aspires/ASPIRES-final-report-December-2013.pdf>

² National Foundation for Educational Research (NFER) report prepared for the Wellcome Trust (2011) *Exploring young people's views on science education* Retrieved from https://wellcome.ac.uk/sites/default/files/wtvm052732_0.pdf

³ Parliamentary Office of Science and Technology. (2013). STEM education for 14-19 year olds. *Postnote, 430.* Retrieved from <http://researchbriefings.files.parliament.uk/documents/POST-PN-430/POST-PN-430.pdf>

Appendices

- Appendix 1 – Proposed budget for Ponds Education Programme

Abigail Tinkler

Learning Manager, Open Spaces

T: 07740 537 582

E: abigail.tinkler@cityoflondon.gov.uk**Grace Rawnsley**

Head of Learning, Open Spaces

T: 020 7332 3523

E: grace.rawnsley@cityoflondon.gov.uk**Proposed budget for Ponds Education Programme**

	£
Basic Pay	31,000
Superannuation	5,000
National Insurance	1000
Total Direct Employee Expenses	37,000
Staff Travelling Expenses	250
Equipment	5500
Materials	5500
Training	300
Stationery	50
Total supplies, services and office expenses	11600
Total Expenditure	48,600
Total Net Expenditure/Income	48,600