University of Reading

THE FRIENDS OF THE UNIVERSITY OF READING

GRANT APPLICATION FORM

The Friends welcome applications from across the University and associated organisations that support projects which promote the welfare of the University, develop public interest in its work and aid its outreach activities. Grants will not normally be made for expenditure which would generally be funded from University academic resources. Grants are awarded on the condition that they are publicly acknowledged and that the funds are spent by 24 March the following next year. Further information on the grants process and previous grants awarded can be found on http://thefriends.org.uk

Name of Project Digital microscope for enhancing biology outreach events

Name of Applicant Dr Jonathan Mitchley Email address j.mitchley@reading.ac.uk

School/Dept/Organisation SBS Telephone number 0118 3784556

What is the grant to fund? A portable digital microscope for use indoors and out for demonstrating macro to high magnification views of flowers, leaves, fruits and the intimate floral parts of plants and other organisms during student biology lab and field classes and especially during outreach events with schools and other groups. I and colleagues, including Alastair Culham and Julie Hawkins, teach botany at BSc and MSc level and are regularly and increasingly engaged in outreach with local schools and the public in which we show them key locations at UoR including the Harris Garden, the tropical greenhouse or the herbarium. Our work involved communicating the beauty and importance of plants in all our lives and for the sustainable future of our biosphere. A key element of this work is close examination of the structure and function of different plants in the lab/herbarium and in the field/glasshouse. We encourage the use of hand lenses to examine plants more closely and this can be very effective. However for extra impact and for enhanced teaching and learning outcomes a portable digital microscope connected to a laptop computer (for small groups) or onto a larger screen via a projector (for larger groups) is a really effective way of communicating the wonder of plants and other organisms to an audience both young and older and also to our own students on or BSc and MSc programmes. This way can also enable the individuals in the audience to observe the objects and features more carefully because you can point out the relevant features on the screen which they can then check for themselves with their own specimen. With a good quality digital microscope the sky is really the limit for the demonstration of nature's beauty and diversity of structure and function. At present we do not have access to an appropriate microscope with the range of magnification or optical quality required for optimum teaching and learning impact.

I have seen a suitable digital microscope in action at Cambridge University Herbarium and the products made by Dino-Lite really exemplify what is needed: a range of magnification (here x10 to x200) with great optics and flexibility of use all at a reasonable cost. I have selected the AM7013MZT digital handheld microscope which has a 5 Megapixels sensor with adjustable polarizer abilities. Allowing you to observe things in high resolution and see things you couldn't with direct lighting. With from 10x to 200x magnification, polarization, and 2592x1944 of resolution gives great detail under any magnification. It is a robust product with an aluminium alloy it also includes a convenient Microtouch II sensor for on microscope picture taking and built in bright white LEDs to instantly illuminate objects. The microscope includes the DinoCapture 2.0 software allowing to take pictures, record video, and also annotate the images. The photography and video options are especially valuable for capturing activities for extending the teaching and learning capability and for posting on social media and our webpages for further outreach value.

Digital Microscope, USB, 10x to 70x, 200x Magnification, 5 Mega Pixel cost is £520.83 excl VAT

We will also purchase the appropriate microscope stand with rotating arm which holds the microscope securely and allows focusing to view any object placed on the stand.

RK-10A - Microscope Stand, 230mm Height, 360° Rotating Horizontal Arm cost is £213 excl VAT

The equipment can be viewed here: http://uk.farnell.com/b/dino-lite

Who will benefit from the Project? Students will benefit from enhanced macro- and micro-viewing capabilities during practical classes in the lab and during field sessions. Other beneficiaries are the school children, public groups and other organisations that attend outreach events at UoR including outside events in the Harris Garden, the tropical greenhouse and inside in the laboratory or in the herbarium.

Overall project cost (inc VAT) £880.58 Amount requested from The Friends £880.58

If the grant requested is not the same as the overall project cost, please indicate how the remainder will be funded: n/a

Are there any running costs or other ongoing costs associated with this application, if so how will these be funded? None

How will the contribution from The Friends be publicly acknowledged (e.g. by a plaque, website etc)? We will provide due acknowledgement on the relevant web pages including the Whiteknights Biodiversity Webpages and also via social media specially twitter when we will tweet student and outreach activities and include the hashtag thanks to funding from #FriendsofUoR.

Please ensure that this application has the approval of your Head of School / Service/Organisation.

Name of Head Professor Robert Jackson Email address r.w.jackson@reading.ac.uk

Please return your application to thefriends@reading.ac.uk by 17 April 2018 with subject heading Grant application.
If you have not received an acknowledgment within 5 days of submitting your application, please contact us.