Education Manager of Biology - Dr Annie McRobbie

Attending professional learning events at SSERC, delivered by Kate Andrews with her renowned cool, calm and collected style and a generous splash of humour on the side, has been a highlight of my professional learning as a Biology teacher. My classroom practice, enriched with practical, hands-on learning experiences, is indebted to her mentoring and, of course, the brilliant support of the wider technician team. In June 2021, my appointment as Education Manager of Biology at SSERC took effect and I look forward to continuing SSERC's innovative work, developing, expanding and leading our professional learning offers to support the delivery of practical learning experiences in our schools, colleges and community learning settings.

Figure 1 - Annie McRobbie.

About me

I am a graduate of the University of St Andrews, where I studied Biochemistry and, in typical St Andrews fashion, met my husband. Following graduation, I took a trip over the River Tay to work in the Wellcome Trust School for Life Sciences in Dundee; a place that filled me with unrelenting awe and opened my eyes to another world. I supported work within the Wellcome Centre for Anti-Infectives Research, experimentally determining the biochemistry of parasites involved in neglected tropical disease as part of their wider role in drug discovery. This experience cemented my passion for research and I was successful in securing a 4-year PhD at the University of St Andrews to explore the structure and function of proteins involved in DNA repair mechanisms. Following a brief flirtation with post-doctoral work, I applied to the University of Strathclyde to begin a PDGE in Secondary Education. Over the years, I have been fortunate enough to teach in secondary schools in Falkirk, West Lothian and Stirling, working with outstanding colleagues. My role as an SQA marker at various NQ levels has enriched my understanding of the standards required of our learners.

From the Classroom to SSERC

My passion for practical work in schools has brought me to SSERC. I have established two Teacher Working Groups since my appointment, representing many of the local authority areas around Scotland, to support my understanding of the ever-changing professional learning requirements of teachers at different stages of their career - sampling “delegate voice” is a huge part of what SSERC does to continually improve our offer.

Reflecting on practical work, and my time as a delegate at SSERC, one of my favourite investigations for learners is the colorimetric determination of dehydrogenase activity, using immobilised yeast as a model organism (Figure 2), originally published in a SSERC bulletin in 2016 [1]. This colourful investigation offers the opportunity for varied experiments across a class (so a fantastic assignment topic), with a range of possible independent variables, and can be adapted for use at various curricular levels, by using either a colorimeter to measure the absorbance of the reaction product or by recording qualitative data using a colour-matching chart [2]. >>

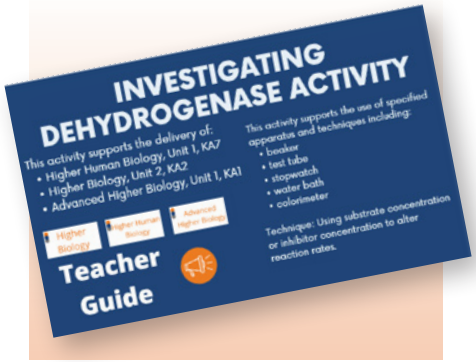

Figure 2 - Teacher Guide for Investigating Dehydrogenase Activity.

Figure 3 - Learner Guide for Investigating Dehydrogenase Activity.

This practical offers the opportunity for learners to develop a wider range of practical skills and the ability to generate quantitative data; a hallmark of an excellent school experiment for me. I have redeveloped this resource, which you can access here, and have put together a Learner Guide (Figure 3) to support learners. I have tailored the pre-existing protocol to the curriculum, focusing on substrate concentration as the independent variable. Throughout the resource, you will find voice clips, images and videos to support your delivery of this investigation, alongside suggestions for wider skill development and DYW links. I welcome any feedback on this style of resource.

As the Education Manager of Biology, I look forward to meeting many of you over the years. Look out for our Environmental Science course in September (Figure 4) and the Advanced Higher Biology courses in October and December. Visit our Professional Learning Calendar to see the full range of offers. <<

Figure 4 - Environmental Science course advert.

References

[1] Andrews, K., Quantifying respiration rate using resazurin. SSERC Bulletin [Internet], 2016 Aug, Issue 256: page 11-12. Available at https://2g1hrx40gw3t1oo1bvqfy70u-wpengine.netdna-ssl.com/wp-content/uploads/2020/08/256-Respiration-using-resazurin.pdf

[2] SSERC, Cell Respiration and Metabolic Rate: Investigating respiration rate in yeast using reduction of resazurin colour chart and using immobilised yeast and colorimeter. Available at https://www.sserc.org.uk/subject-areas/biology/higher-biology/cell-respiration-and-metabolic-rate/