

Fantastic Fieldwork

It's possible to study biology without ever leaving the classroom – but you'd be depriving yourself and your students of some of the most powerful learning experiences around, argues **Dr Joanna Rhodes...**

I was exceptionally fortunate to be taught biology at school by Dr. David Slingsby. This wonderful man – now editor-in-chief of the Society of Biology's Journal of Biological Education – was drawn to the field with a passion that surpassed all I have ever seen in education. He would reach his hands into a bog filling them with mud and moss and invite us to squelch and feel our way into the world of ecology. To a group of rather squeamish schoolgirls this was initially rather surprising but it became one of my most fortunate and forbearing memories of a fabulous biology education. It is sad therefore to learn that the Field Studies Council (FSC) reports that there has been a long and continuing decline in high-quality science fieldwork, to the point where it is now possible to study biology in secondary schools and university without leaving the classroom at all.

The importance of fieldwork

The FSC is targeting curriculum and examination developers at all levels to ensure that the profile of fieldwork is increased, however the people who can make the biggest difference to this decline are teachers themselves. You and your colleagues can take up the mantle of increasing the profile and existence of fieldwork and its importance to a full and inspiring biology curriculum – all the resources and support you need to help you are already out there! So whether you are contemplating your first ever field trip or are already a seasoned rock-pooler, here are some ideas designed to inspire you back into the field with your students:

Town and country

Playing fields can be a great place for science investigations and contain more than meets the eye. Students may well be surprised by the biodiversity in an area they think of as 'grass'. An initial fieldwork survey can take place in your own school grounds; any patch of green land will do. Identification charts are available from the FSC [Additional Resource 1] and the Nuffield Foundation provides a guide including worksheets [AR2]. These support the specialist and non-specialist teacher to guide students to develop and investigate hypotheses about plant distribution based on observations and measurements of factors such as soil, moisture, light intensity and wind speed. Fieldwork in your school grounds or local park can be an exceptionally cheap and rewarding activity. Quadrats for random



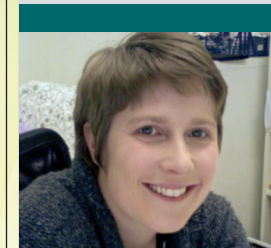
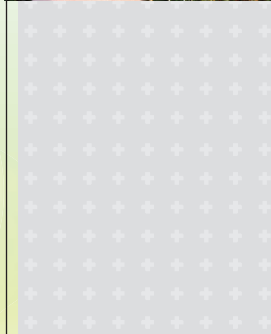
sampling can be made from plastic mesh purchased from a garden centre and further detail on the technique is available from Science and Plants for Schools (SAPS) [AR3]. Why not have a practice in the classroom first using the photographic quadrats supplied on the SAPS website [AR4]?

Rural or semi rural schools may find they also have access to a school pond or wetland area. My students are always amazed when they find tadpoles, frogs, newts and insect larvae. Identification charts are available from the FSC but for a low budget option that engages students why not get them to use the internet to create their own before you go outside? Numerous websites exist which are dedicated to pond dipping and contain photographs and descriptions of wildlife; prior investigation seems to heighten students' excitement when they find a specimen for real. You can also extend and enhance your pond visit by using microscopes back in class to investigate microscopic flora and fauna such as algae and daphnia. Howarth and Slingsby describe how you can investigate abiotic factors in a freshwater pond, even providing details on how to use washing up bowls if ponds are not available [AR5]. Once you have surveyed your pond you can also contribute to research by logging the species that you find (see 'contributing to research', below). There is also an app you can use to enhance your pond dipping trip, Pond Life [AR6]... but make sure your school iPad doesn't end up taking a dip of its own!

Schools within easy reach of the coastline can investigate rock pools and coastal plants of the rocky or sandy shore. Why not use the species in the rock pools to investigate zonation of organisms, discussing adaptations and competition and using keys to identify major groups or families of plants and animals? Introduce students to ecological relationships providing them with a food web or chain or help them to create their own. A second visit permits the investigation of adaptations to daily and seasonal changes and the impact of pollution and possible management. Time your trip to coincide with Beachwatch (see 'contributing to research', below). Useful apps include the Pocket Guide – UK Seashore; a useful and thoughtfully presented reference guide to the flora and fauna, sea defences and other features found around the UK coastline [AR7] and UK Tides [AR8]. Always check the tides before taking students out rock pooling or walking along the coast and be aware of how to contact the coastguard for the area you are visiting [AR9].

Risk assessment

One of the main reasons that fieldwork is on the decline is because teachers are concerned about the safety aspects of organising a trip, especially one that may involve open water or the sea. Your first point of call, outside expertise within your own school, would be to contact your local education authority. The council is likely to have its own generic educational visits risk assessments. Allow plenty of time to organise your visit and draw on all the help and expertise that the LA can provide.



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ADDITIONAL RESOURCES

- [AR1] [TINYURL.COM/TSFW1](https://tinyurl.com/TSFW1)
- [AR2] [TINYURL.COM/TSFW2](https://tinyurl.com/TSFW2)
- [AR3] [TINYURL.COM/TSFW3](https://tinyurl.com/TSFW3)
- [AR4] [TINYURL.COM/TSFW4](https://tinyurl.com/TSFW4)
- [AR5] [TINYURL.COM/TSFW5](https://tinyurl.com/TSFW5)
- [AR6] [TINYURL.COM/TSFW6](https://tinyurl.com/TSFW6)
- [AR7] POCKET GUIDE UK SEASHORE, IOS, SENET MOBILE UK
- [AR8] UK TIDES – TIDE PREDICTIONS, IOS, WINGISM
- [AR9] [TINYURL.COM/TSFW9](https://tinyurl.com/TSFW9)
- [AR10] [TINYURL.COM/TSFW10](https://tinyurl.com/TSFW10)
- [AR11] [TINYURL.COM/TSFW11](https://tinyurl.com/TSFW11)
- [AR12] [TINYURL.COM/TSFW12](https://tinyurl.com/TSFW12)
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- [AR20] [TINYURL.COM/TSFW20](https://tinyurl.com/TSFW20)



Day centres and residential visits

If organising and managing your own trip from scratch is a daunting prospect then why not make use of some of the many fieldwork providers from around the UK? These provide both supervised day visits and residential trips leaving you free to enjoy the fieldwork with your students. The FSC provide biology fieldwork courses at primary, secondary, A-level and university level. These offer the opportunity to build skills, knowledge and understanding in a progressive programme of biology fieldwork, using a variety of contrasting environments across a network of FSC day and residential centres. FSC courses are fully risk assessed and meet and exceed local authority requirements. Other alternatives include visiting one of the nine Wildfowl and Wetlands Trust properties that include the opportunity to conduct a pond dip and search for wildlife [AR10]. A helpful source of information is your Local Authority, which may even own a property, such as Cliffe House in Kirklees [AR11] or provide other fieldwork services.

Contributing to research

One of the most rewarding aspects of fieldwork is being able to contribute to research being collated from a huge range of amateur contributors. This type of data allows biologists to extract information and draw conclusions based on a much wider range of data from far more sources than they could possibly access themselves. Annually these include: the Big Pond Dip [AR12]; RSPB Big Schools' Birdwatch [AR13]; BBC Garden Bioblitz [AR14]; BirdTrack [AR15]; Add an Adder [AR16]; UK Ladybird Survey [AR17]; Hedge Biodiversity from the Natural History Museum [AR18] and Beachwatch [AR19], to name but a few. Students love taking part in activities on this scale but be sure to share the results with them when they are published! You can also watch professionals report back from the field with the Natural History Museum's Nature Live [AR20].

So, this September help your school to put the fieldwork back into biology. Celebrate the biodiversity in your school grounds whether they are rural or urban and get started planning a fieldtrip – whether it's your first or your fiftieth!