

# INTRODUCTION

## Microscale Biology - The advantages

This guide comprises 8 experiments "in miniature". Some of the benefits of microscale work include a reduction in the volume of consumable reagents, limited use of glassware and associated clean-up time and quick replication times. In addition, it promotes a focus on accurate measurements and fine motor skills.

The practical work outlined in this guide is consistent with our vision of providing robust, inexpensive, versatile and reliable experiments that demonstrate the link with living things.

## The Experiments

There are eight experiments in this guide. Four of the experiments introduce learners to enzymes as biological catalysts that speed up reactions. One of these enzymes, **catalase**, is often used in industry for a variety of processes and provides an opportunity to address SCN 4-13b. The titration looks at the vitamin C content of citrus fruits and serves as a springboard into discussions focused on healthy lifestyles and a balanced diet, within the wider context of the digestive system (SCN 3-12a). Fermentation (perhaps at N4 or N5 level) can be explored using the microscale assay in this guide, whereas the microscale standard curve to determine glucose concentration could be used in senior phase biology during exploration of diabetes. Although independent variables have been suggested for each experiment, these can be adapted and the accompanying activity boards are available in powerpoint format for editing purposes (also in PDF format).

## Health & Safety

For each experiment, health and safety guidance is included to support risk assessment within your setting. The lower volumes of all reagents reduces the risks associated with identified hazards.