

# Technology and Data Practice Study

## Using diagnostic questions

**Centre:** Stoke on Trent College **Name:** Martin Newton (now at MEI), Kerry Roberts

Stoke on Trent College is the largest Further Education (FE) user of Eedi's diagnostic questions, having responded to 200 000 questions. We've spoken to Martin Newton, who worked at the college but now works at MEI, and Kerry Roberts who is a teacher at the college. They both explain more about how they've been using diagnostic questions and how they and their students have benefitted from it.

### What practice has your centre been doing relating to the key principles for technology and data?

We have used Eedi's diagnostic questions to devise pre- and post-tests for the last two years. We split the curriculum into five topics: algebra, geometry, statistics and probability, proportional reasoning and number. For each topic, a pre-test was taken and evaluated to decide what to teach the whole class and for students to identify three key topic areas to work on individually. At the end of a section of work a post-test was then taken with similar questions on the same topics, to assess how much progress individuals and classes had made over the unit. This enthused teachers and students as they knew we were focusing on their weaknesses or gaps.

### Why did you decide to introduce this approach?

We had very low GCSE resit results and thought it would be worthwhile to try a new approach where we could target learning effectively. The use of diagnostic questions gave us an easy way to document what individual students and different classes already knew, where the common misconceptions were and which topics needed most focus. It was hard for staff initially to move away from teaching the whole specification in nine months. I knew that this would be a different approach to what the local schools did and thought that anything new and different would be more likely to engage students rather than repeating teaching they had previously failed to grasp.

### How did you approach introducing this way of working?

**Martin:** I tested diagnostic questioning with my own students, then showed it to the rest of the team in a continued professional development (CPD) session. Another colleague then trialled it with their students with positive feedback so we decided to give it a go. We replaced our linear scheme of work (SoW) with a version developed by MEI (MEI had been working with the college as consultants). In this version we had resources and ideas to teach a topic and would pick from these after we had the results of the pre-test. Students engaged well so we replaced our whole year initial assessment with five initial assessments staged throughout the year. Teachers liked it as it gave instant feedback with individual, class and whole college analysis. There was no marking and we were able to see if students were progressing during the year. It took time to explain to management and Ofsted but once they understood and saw the value of it they liked it.

### How many teachers and students have been involved?

Everyone teaching maths to students aged 16–18 uses it: approximately 10 teachers and 1200 students each year.

### What do you think the outcomes have been? Why do you think it has been effective?

Learning has been targeted to specific needs so we have not been spending time re-teaching topics that students are already confident in. Teachers feel more confident as we are informed of what needs teaching.

Feedback from students verbally or written has praised the approach and they like and understand the process. All measures of achievement improved, including progress measure, number of high grades and number of students progressing between grades.