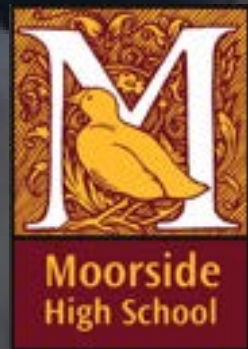




Integrating Microsoft Tools into
the Mathematics Classroom:



A Case Study at Moorside High School



Introduction

Moorside High School is a coeducational 11-16 secondary school located in Werrington, Staffordshire. The Headteacher, Mr D Robinson, describes the school as a “successful and vibrant school with a vision to ensure students not only aspire to but also have the knowledge, skills, and opportunities to be the very best they can be”.

In September 2023, Moorside High School launched a 1:1 device programme, starting with year 7 students. This initiative aims to provide each student with a personal digital device, with plans to extend the programme to all year groups on an annual basis.

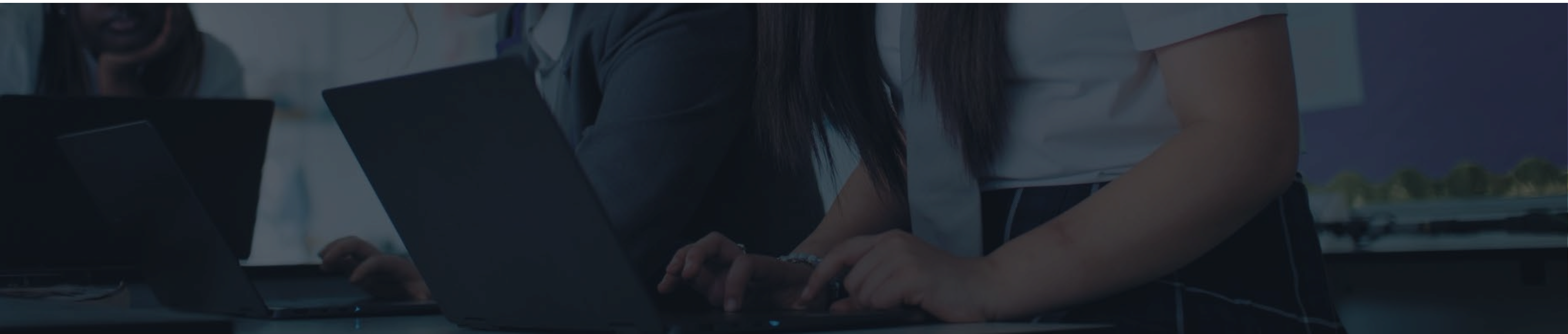


Purpose of the Case Study

This case study aims to explore the integration of Microsoft tools into the teaching and learning of mathematics at Moorside High School. By examining the implementation process, challenges, and outcomes, we aim to highlight the transformative impact of technology on teaching and learning practices. This study will provide insights and recommendations for other educational institutions looking to implement a 1:1 device programme.

Background

This case study aims to explore the integration of Microsoft tools into the teaching and learning of mathematics at Moorside High School. By examining the implementation process, challenges, and outcomes, we aim to highlight the transformative impact of technology on teaching and learning practices. This study will provide insights and recommendations for other educational institutions looking to implement a 1:1 device programme.



Objectives

Using Microsoft Forms and Teams assignments to conduct assessments and provide timely feedback.

Utilising Microsoft Teams as a digital hub for students to access task materials both in school and at home

Encouraging collaboration among students through the Class Team and shared resources.

Reducing administrative tasks for teachers by using digital resources, automated marking and digitalisation of repeated tasks.

Expected outcomes include:



Enhanced Accessibility

Students will have seamless access to task materials both in school and at home through Microsoft Teams.



Reduced Administrative Burden

Teachers will experience a reduction in administrative tasks due to the use of digital resources, automated marking, and the digitalisation of repetitive tasks.



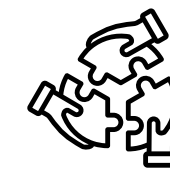
Efficient Assessments

Streamlined assessment processes using Microsoft Forms and Teams assignments, allowing for timely and effective feedback.



Overall Improvement in Learning Experience

Both students and teachers will benefit from a more efficient, interactive, and engaging learning environment.



Improved Collaboration

Increased student collaboration and engagement through the use of Class Teams and shared digital resources.

Initial observations, recommendations and intended outcomes

TA assigned a consultant who is a former Head of Maths, specialising in Microsoft tools for Education. The consultant visited the school on 25th October 2024 to meet with the class teacher, observe a year 8 class, and discuss the project. It was decided to focus on year 7 and year 8 classes, as these students have 1:1 devices. The consultant observed a year 8 class in a maths lesson and a history lesson.

Initial observations, recommendations and expected outcomes are outlined below.

Observations	Recommendations	Intended Outcomes
<ul style="list-style-type: none"> The front of class display is used by the teacher to display a PowerPoint. The display's integrated software is used to annotate over the displayed material. 	<ul style="list-style-type: none"> Utilise the draw tools within PowerPoint to annotate the slides. Utilise the draw tools in One Note to annotate a printout of the pdf worksheet. 	<ul style="list-style-type: none"> Annotations are retained for future reference. Pupils can track live via their devices and refer back for revision.
<ul style="list-style-type: none"> Students are required to copy titles, objectives and learning material from the front of class display into their exercise books. Some students take more time to complete this task, while others are waiting to move on. 	<ul style="list-style-type: none"> Titles and objectives are shared via a Teams post. Titles, objectives and a printout of the worksheet are prepopulated onto a Class Notebook page that is distributed to each pupil. 	<ul style="list-style-type: none"> Pupils can copy into their books and move on to the next task at a pace that fits their needs. Pupils proceed directly to the task while still having the title and objectives for reference.
<ul style="list-style-type: none"> The teacher displays the recall task and tips on the front display, then reviews the correct answers for self-marking. Students complete the task in their books, but varying completion times lead to some waiting to move on while others don't finish before answers are revealed. 	<ul style="list-style-type: none"> Recall questions are incorporated into the Teams post for the lesson. Recall questions are incorporated into a self-marked Microsoft forms Quiz, which is shared via an assignment. Auto feedback is added to each question. Results are shared and discussed using present mode. 	<ul style="list-style-type: none"> Pupils complete the task at a pace that fits their needs and retain access to the questions for future reference. Completion rates are tracked and monitored. Pupils receive immediate individual feedback. Whole class feedback is targeted based on responses. Results are added to Teams grades data.

Observations

Recommendations

Intended Outcomes

<ul style="list-style-type: none">• The main student task is a paper-based worksheet which the teacher has photocopied before the lesson.	<ul style="list-style-type: none">• Worksheets are shared via Class Materials within the Class Team.	<ul style="list-style-type: none">• Reduced photocopying costs and time saved in producing resources for the teacher.
<ul style="list-style-type: none">• Students complete the main task in their exercise books. For questions requiring coordinate grids, an additional paper sheet is provided to each pupil. These sheets are copied by the teacher before the lesson.	<ul style="list-style-type: none">• Share the worksheet via a Teams assignment.• Pupils annotate on the pdf and submit the assignment.• Prepopulate a OneNote page in the Content Library of the Class Notebook.• Page distributed to pupils via an assignment.	<ul style="list-style-type: none">• Reduced photocopying costs and time saved producing resources for the teacher.• Digital feedback and scores can be given by the teacher and added to Teams grades data.• Reduced photocopying costs and time saved producing resources for the teacher.• Digital feedback and scores can be given by the teacher and added to Teams grades data.• Pupils work added to digital portfolio for reference and review.

For additional context, the same year 8 class was also observed in a history class where the use of their devices was clearly embedded into the curriculum and the classroom routines. This demonstrated the capability of the students regarding their use of the devices in their lessons.

Implementation and Impact

Activity

- TA provided training for the Class Teacher on setting up Microsoft Teams, including how to create and manage channels, utilising the class materials feature and sharing links with appropriate permissions.
- Following the training, the class teacher set up Class Teams for each class, ensuring access permissions were correct, creating channels for each unit of work, and populating Class Materials with read-only worksheets.

Activity

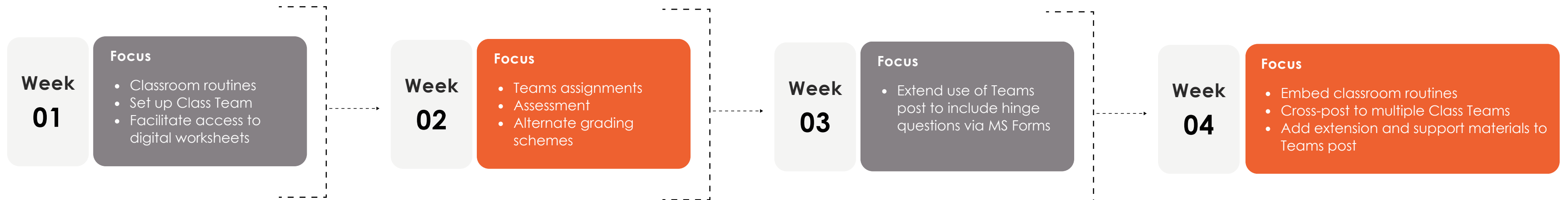
- TA provided training on Teams assignments and the use of Alternate Grading Schemes to ensure the data collected would align with the school's assessment system at Key Stage 3
- Assessments are conducted on paper, the Team assignment is utilised to collate the data and provide feedback.

Activity

- TA provided training on the use of Microsoft Forms quizzes, highlighting self-marking and the option to conduct live assessments through present mode.
- Following the training the teacher used Forms for formative assessment via a hinge question. A True or False question, shared through a Teams post with the responses presented live to the class.

Activity

- Embed classroom routines with 1:1 devices.
- Continued use of a Teams post for each lesson.
- Pupil-facing versions of the lesson PowerPoint are shared via a read-only link for pupils to view alongside the front-of-class display.
- Links to GCSE questions shared with pupils as extension tasks.



Impact

- Immediate reduction in costs incurred and time spent photocopying paper-based resources.
- More flexible pace for students when copying the title and objectives.
- Some students are voluntarily revisiting classwork tasks at home.

Impact

- Teacher has a digital record of pupils assessment results and is able to track progress over time.
- Pupils have independent access to their grades and marks and are using these to reflect on their own performance.
- Some students are sharing assignment data with their parents at home.

Impact

- Whole class engagement in the questions. Responses are recorded and tracked.
- Immediate enables the teacher to adapt the lesson delivery to address misconceptions and ensure full understanding before moving on.

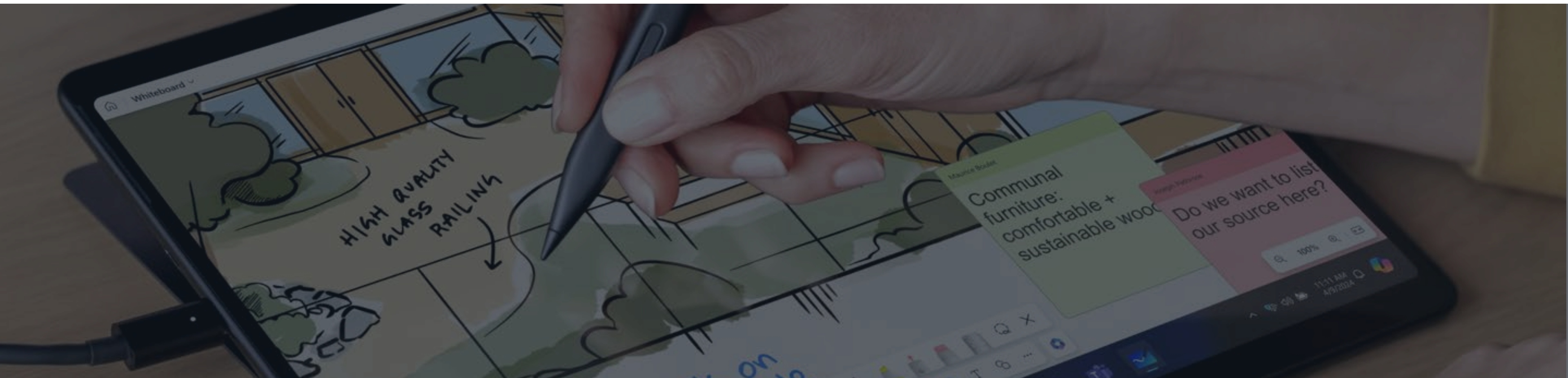
Impact

- Majority of pupils are beginning the lesson independently allowing the teacher to focus on individuals who require support.
- Teacher planning time is significantly reduced by cross posting the lesson materials to multiple Class Teams.
- Pupils are able to self-navigate through the tasks, seeking support where required and moving on to more complex tasks where they are able.
- Pupils continue to revisit classwork and extension tasks outside of the lesson.

Key Findings

The case study highlighted the successful integration of Microsoft tools in Year 7 and Year 8 maths classrooms, leading to significant improvements in staff efficiency and student engagement.

Key findings included reduced photocopying costs and time, more flexible pacing for pupils, and increased independent learning. The use of Teams assignments and Microsoft Forms quizzes provided immediate feedback and allowed for adaptive lesson delivery. Embedding digital routines and sharing materials via Teams posts enabled pupils to start lessons independently and revisit tasks outside of their timetabled lesson.





Statement from Class Teacher

“Developing my knowledge of Teams, it’s functionality and its versatility, has offered me freedom in the classroom and out. No longer confined to my desk, I have more authority over my classroom and professional life, giving time back previously spent planning and printing. Students feel a noticeable difference in the pace, power and independence of their learning and are highly motivated to engage!”

Statement from Assistant Head Teacher

“The work completed with the Maths department has had a huge impact on staff confidence in the use of devices. It has enabled staff to see how they could incorporate the one-to-one devices seamlessly into their lessons without compromising on teaching and learning and without excess additional work load. The staff have been able to save time and the school has been able to save on costs for example photocopying.

The students have gained a new level of independence during their Maths lessons which has worked brilliantly with our mixed attainment settings. Staff can differentiate work even more effectively for students to ensure those at the top are challenged and those needing additional support have intervention as needed. “

Next Steps

- ✓ Integrating the use of Microsoft Forms into Team assignments.
- ✓ Extend the use of the Grades tab to include tags for filtering different types of task.
- ✓ Extend the use of Teams assignments to include an editable version of the worksheet for pupils to complete using their stylus.
- ✓ Explore the use of Class Notebook through Teams assignments as an alternative to using exercise books.

