



Technology Blueprint

A Guide for Implementing Remote Learning in
Education Systems

From Microsoft Education

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Document Objective

- Provide simple and clear technical guidance to implementing Remote Learning across large education systems.

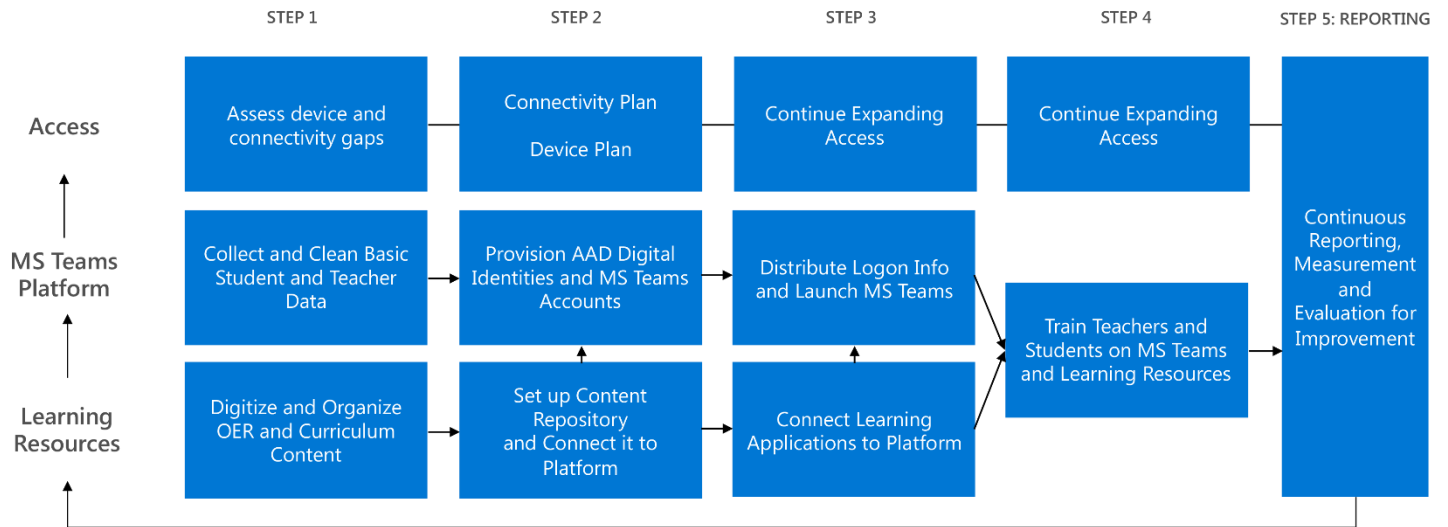
Document Organization

- Each section of the document provides guidance for a specific “Layer” of the Technology Blueprint Implementation (Connectivity, Devices, Learning Platform, Learning Resources, and Analytics).
- An implementation team can engage in each “Layer” as needed by the specifics of the education system’s needs (e.g. some may not need connectivity, some may want more focus on Learning Resources).
- A parallel document, “[Modern Teaching and Learning Training Plan](#),” outlines specific scenarios enabled by the Technology Blueprint, provides links to remote learning training resources, and suggests strategies and supports for leader, teacher, student and family capacity-building.



Remote Learning

Technology Blueprint Implementation Steps



Overview of Remote Learning Strategic Plan

In times of local or global crisis, remote learning may be the only safe way to ensure students continue to learn. Microsoft is working closely with UNESCO's Global Education Coalition and education systems around the world to support all states and nations to deploy technology for remote learning.

This Technology Blueprint document outlines **one process** for supporting all 3 stages of readiness for remote learning, based on the current readiness of an education system.

Three stages of remote learning and Microsoft Education Ecosystem



No or low connectivity

Broadcasting basic national curriculum

Emerging connectivity

Asynchronous classes using digital online curriculum on mobile phones or devices, with intermittent teacher-student communications, and attendance reporting

Full connectivity

Live online class meetings with complete digital curriculum, student and teacher collaboration, and student grades and engagement reporting

Microsoft Education Ecosystem

Using technologies from Microsoft and our partner ecosystem to lower infrastructure costs and bring connectivity to all communities. Using global device ecosystem to expand device availability.

Microsoft Education Ecosystem

Digital curriculum tools and repositories to provide access to learning resources for all learners, and Microsoft O365 and Teams for teacher, student and family communications and collaboration.

Microsoft Education Ecosystem

Microsoft Teams for both remote and in-school learning, providing advanced tools for inclusion of all learners and both synchronous and asynchronous class meetings.

Airband Initiative and Microsoft global device ecosystem

Microsoft O365 and Teams with Global and Local Digital Curriculum Partners

Microsoft O365 and Teams with Live Meetings, Video, and Partner Learning Applications

In reality, every country and education system will have a mix of readiness including all three stages of remote learning, with some schools at the “Full connectivity” stage, some at the “No connectivity” stages, and the majority of schools in the “Emerging connectivity” stage. Having **one process** to support education transformation across the whole system will help optimize progress. This guide is based on the latest programs, products, and support from our Microsoft engineering product groups, and will be updated as new supports and solutions for remote learning become available.

Ministries of Education or local education system leaders can define the scenario they seek to enable.

| | STAGE 1 | STAGE 2 | STAGE 3 |
|----------------------------------|---|---|---|
| Objective | Broadcast basic curriculum for continuity of access to learning content, supplemented by print materials and attendance as possible | Providing asynchronous digital classes with online curriculum, some teacher-student communications and regular attendance reporting | Live online class meetings with complete national curriculum, student and teacher collaboration, and grade and engagement reporting |
| Access to Devices | <ul style="list-style-type: none"> Radio or TV in every community | <ul style="list-style-type: none"> At least one connected device per family All teachers have a connected device | <ul style="list-style-type: none"> All teachers and all students have a connected device |
| Scenario Enabled | <ul style="list-style-type: none"> Radio or TV is used to broadcast basic national wide curriculum Option: when families have mobile phones, provide national attendance Form direct from EMIS via SMS, email or mail | <ul style="list-style-type: none"> Students have access to recorded lectures and national digital curriculum content Teachers can assign work and communicate with the class Engagement in digital classwork automatically captured and reported | <ul style="list-style-type: none"> Live class meetings All curriculum and lectures available online Students' progress assessed online Students and teachers collaborate continuously Student grades and engagement reported |
| Limitations | <ul style="list-style-type: none"> Attendance reporting not universal Only limited curriculum can be broadcast Uni-directional interaction | <ul style="list-style-type: none"> Student connectivity and access still limited Teacher/student interaction not always 'real time' Relies on student and family motivation | <ul style="list-style-type: none"> Devices and connectivity expensive to deploy Teacher capacity-building will need to be ongoing |
| Benefits | <ul style="list-style-type: none"> Quickest to deploy | <ul style="list-style-type: none"> More continuous student engagement with teachers and peers Teachers able to collaborate, use OER Teacher training can take place through Teams | <ul style="list-style-type: none"> Students fully interact in modern learning environment that can supplement physical schools and accelerate learning for all |
| Key parallel undertakings | <ul style="list-style-type: none"> Telecom/device partners to expand access Establish digital identities for all teachers and students | <ul style="list-style-type: none"> Digital content providers, OER Microsoft Teams deployed Local professional development partners | <ul style="list-style-type: none"> Microsoft for reporting, data analytics |

Implementation

The implementation team will generally consist of the following roles and responsibilities:

- **Project Lead / Deployment Manager** – Overall scenario planning with other system leaders, coordinating partners, providing technical and training supports, and coordinating Access and Device Plans.
- **IT Lead** – Managing O365, Digital Identity and Microsoft Teams Deployment (working closely with Microsoft FastTrack and Education Customer Success Team) and deploying initial Microsoft Teams Class Insights and system reporting of digital engagement.
- **Learning Resources and Training Plan** – Identifying and localizing Microsoft Education remote learning training materials and developing local training partners. Identify and organize digital OER and Curricular Content, and localized Learning Apps. Managing digital storage of these learning resources and connecting resources to Microsoft Teams.

In each engagement, the implementation team led by the Deployment Manager will need to gather core information to inform the “basic implementation.” The **core information** includes such questions as follows.

System Information

- How many students are in the education system?
- How many teachers are in the education system?
- How many schools are in the education system?

Access:

- What is the level of connectivity for teachers and students at home? At schools?
- Do students and teachers have connected devices at home? At schools?

Platform:

- Is there an existing Student Information System (or EMIS) that includes data for every student and teacher?
 - If not, is there any database with the names, identity numbers, and school associations of every teacher and student in the system?
- Is there a data source that includes which students are in specific school classes, and who the teacher is for each those classes?
- Does the education system already have an O365 subscription? What is the onmicrosoft.com tenant domain name for the Office 365 tenant?

Learning Resources:

- Does the education system have digital versions of any of their curriculum materials (e.g. lesson plans, textbooks, worksheets, assessments)?
- Does the education system have any learning applications that are aligned with the curriculum standards?

The implementation plan defines clear **Assumptions** to meet the timeline outlined below.

- Data: if “Basic Data” is unavailable in Student Information System or EMIS database, O365/Teams platform deployment will be delayed until that data becomes available. Deployment can begin only for those teachers and students for which “Basic Data” is available.
- Account Distribution and Training Plans: O365/Teams account provisioning will take place alongside clearly established plans for how accounts will be distributed, and training will take place.

Basic Implementation and Timeline

The timeline for the “Basic Implementation” will vary, but the following sequence provides a guide.

Week 1

- Overall scenario planning and identification of partner ecosystem.
- Access: Connectivity and Device Plans developed by implementation team and telco partners, with support from MSFT Airband Initiative.
- Platform: Submit requests to Microsoft FastTrack for set-up support. If SIS/EMIS Basic Data available, data transformed to School Data Sync format.
- Learning Resources: Digital curriculum content identified or planned. Training materials collected and training plan developed.
- Educator Development: Define remote learning pedagogical model and plan educator development. Collect and localize documents and videos related to training on the pedagogical model.

Week 2

- Access: Solutions and estimates developed for device and connectivity plans; procurement requests made to funding sources (as necessary) or RFPs sent.
- Platform: Digital Identities and O365 Accounts Provisioned; implementation teams sends username and passwords to staff and teachers; training links included.
- Learning Resources: Curriculum content storage source connected to Teams for teacher access.
- Educator Development: Set up PLC Teams for educators with training materials and process. Share basic teams training videos with Tech Leads to send with logon instructions.

Week 3 to 4

- Access: Connectivity and device plans continue.
- Platform: Teams-based help desk established. School Leader and Teacher training webinars; teachers collaborate online in staff Teams; teachers prepare first lessons; students and families receive usernames, passwords and initial training on using Teams.
- Learning Resources: Learning applications in local languages identified and connected to Teams.
- Educator Development: Train local educator champions. Champions manage local educator trainings via Teams.

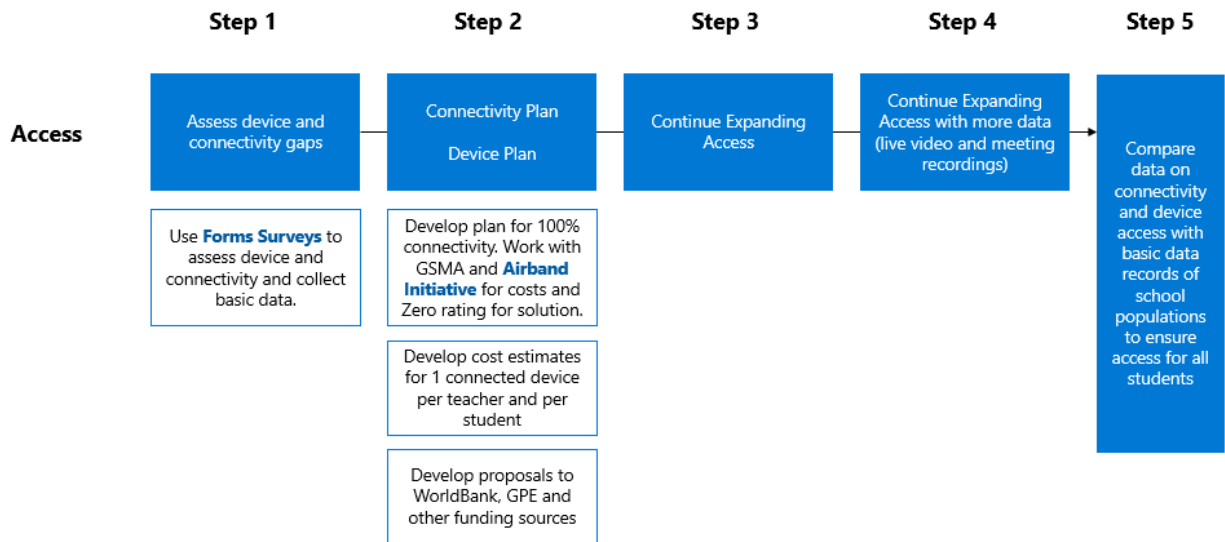
Week 4 to 6

- Access: Connectivity and device solutions continue.
- Platform: Teachers collaborate with students via Teams, assign learning, support students using Teams.
- Learning Resources: Training for teachers on using learning resources continues.
- Educator Development: Champions and local educators conduct student and family trainings.
- Reporting: Student digital activity reports for teachers in Microsoft Teams and a new digital engagement analytics pilot for system leaders

Each of the layers (Access, Platform, Learning Resources) of the Tech Blueprint are not necessarily interdependent. They may proceed at different paces. The O365 Teams platform implementation can proceed without connectivity for every student and teacher in the system. Connected devices will take much longer to plan, fund, and deploy than the Teams Platform and Learning Resources training. The intent is to support the system's Access goals, and get them started on the road to full connectivity, to proceed with platform implementation and training to get those teachers and students who have connected devices teaching and learning as quickly as possible, and to extend to the whole system as quickly as possible.

Access

Connectivity and Devices



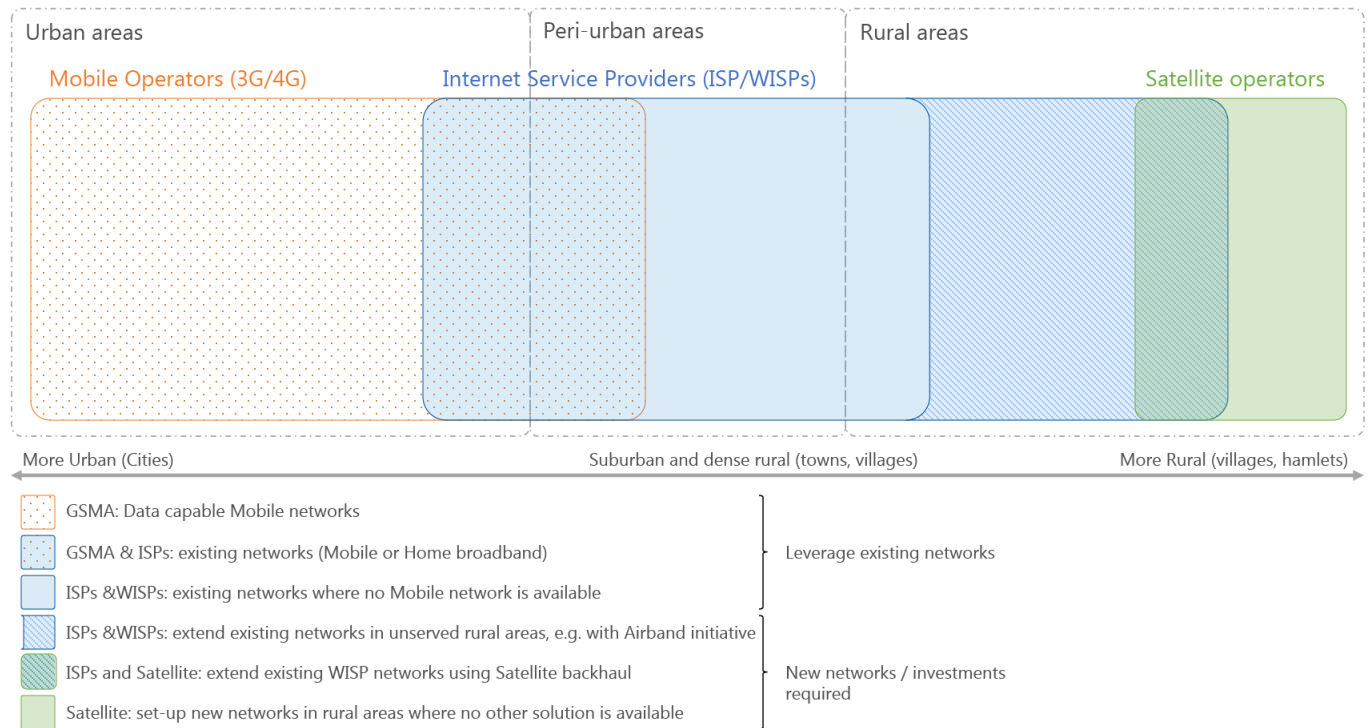
Connectivity

Microsoft does not directly provide connectivity. Systems will need to work with local or global telcos, ISPs or Satellite providers to develop plans and proposals to fund the expansion of connectivity to remote or rural areas so that every student can participate in remote learning online. However, Microsoft's [Airband Initiative Team](#) supports systems around the world in developing connectivity strategies, and they have a network of partners who specialize in "closing the gaps" in connectivity.

Access

Connectivity Landscape

To develop a plan, the implementation team should first seek information on what percent of the system’s geography is covered by what types of networks (e.g. scope the “Connectivity Landscape.”



One of the common strategies to help reduce connectivity costs for students and teachers, is to see if the platform, Microsoft Teams, can be Whitelisted: <https://docs.microsoft.com/en-us/office365/enterprise/urls-and-ip-address-ranges>, which is also called “Zero Rating.” Zero-rating, or whitelisting, is a common approach to broaden equality of access to education sites as this is often skewed by the cost of data. This only works in areas with strong mobile networks. With zero rating there is no charge for users accessing Teams.

For students living in rural areas, where there is no access to a mobile network, the connectivity plan should include other solutions (Fixed Wireless/Satellite/TV Whitespace, etc.). These companies are partners with the Airband Initiative and can help develop whole-country connectivity solutions.

Devices Acquisition and Management

Many education systems will need to provide additional devices to teachers and students to reach 100% connected devices for learning. [Local Microsoft representatives](#) can assist education systems in identifying the right type of devices needed for specific remote and hybrid learning needs and identify which manufacturers have inventories of those devices.



All day battery

Battery life that lasts the entire school day ensuring the device can keep up with the classroom hours.



Ruggedized

Choose from a variety of ruggedized devices that can withstand bumps, drops, and spills—resulting in lower repair and replacement costs.



Safe and secure

Windows 10 devices help keep students and data safe with built-in security and privacy features that reduce security events by as much as 33%⁵.



Affordable

Starting at \$219, you can have the latest Windows devices in the hands of your students quickly and within budget.

Device Management

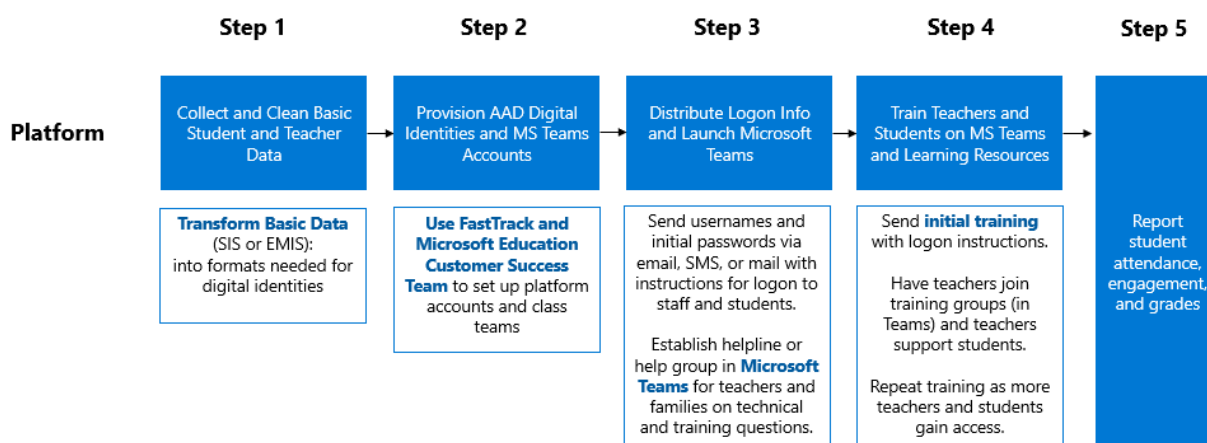
For devices that are to be managed by the education system (not personal devices owned by teachers or students), Intune provides a mobile device management solution. [Intune for Education](#) will help:

- Manage the desktop and mobile devices students use to access classroom data.
- Configure and assign the apps students use in the classroom.
- Control how students and teachers access and share classroom information.
- Apply school security requirements to devices and apps.

The Intune for Education portal is designed to include only the settings and workflows a system needs to manage school devices. Implementation teams can sign up with an Intune for Education account and learn [how to get started](#).

Platform

Implementing Microsoft Teams for Education



Implementing Microsoft Teams for Education as the Platform layer for remote learning is an important process. Microsoft [FastTrack](#) will help guide each implementation team through this process and should be leveraged for every large remote learning implementation. Large-scale implementations (over 200,000 accounts) require special tenant designs, O365 permissions and controls, and it is strongly recommended that the implementation team initiate discussions with FastTrack as early as possible to optimize deployment.

FastTrack is a service provided by Microsoft that helps customers onboard Microsoft Cloud solutions. Systems with education subscriptions to Microsoft 365, Office 365, Azure, or Dynamics 365 can use FastTrack at no additional cost as part of their subscription. FastTrack offers:

- Online resources and tools available to all customers.
- End-to-end guidance from Microsoft engineering.
- Delivery by Microsoft engineers or approved partners.
- Availability for Microsoft 365, Office 365, Azure, and Dynamics 365.

The lead for the O365 and Teams implementation should become the “O365 Global Administrator” for the O365 tenant. To understand the complete picture of the Teams platform deployment, this document should be reviewed: <https://docs.microsoft.com/en-us/schooldatasync/fast-deployment-guidance>.

Step 1: Set up Digital Identities and O365.

1. Sign up for assistance through the [FastTrack online form](#). When signing up on the [FastTrack online form](#), sign in with the O365 account of the education system and select “School Data Sync” option.
 - i. Choose “School Data Sync” from the support options on the signup form:

Step 1: Eligibility

You and your customer are eligible to request assistance for these products

You and your customer are eligible to request [onboarding assistance](#) from FastTrack for the following products at no additional cost to their eligible subscription. Use this form to request assistance on behalf of your customer from FastTrack specialists, comprised of Microsoft employees, Microsoft-approved vendors, and Microsoft-approved partners.



- ii. When the Office 365 account is created it establishes a tenant in which all the O365 accounts for the school system will reside. Review [this guide to setting up the O365 tenant for education](#). It is important to follow this process to get Education specific O365 licenses and accounts.
2. Design your O365 tenant structure (with FastTrack and the Microsoft Education Customer Success Team for large implementations).
 - a. One of the key decisions to be made is how [to design the tenant structure for very large tenants](#). Here are some key guidance elements:
 - i. Each O365 tenants should not include more than 1M users.
 - ii. Educators and Students should be co-located within the same tenant, for collaboration between them within Teams.
 - iii. If you split tenants because the education system exceeds 1M, split users by **geographical region** to reduce the number of tenants to tenant migrations required overtime.

Step 2: Collect Basic Student and Teacher Data and Set up School Data Sync. Certain basic data for students, teachers, schools, and families is needed for to provision O365 accounts for all students and teachers. This data will be used to set up digital identities, provision O365 accounts, set up Teams, and to contact students, teachers and families with logon and training instructions. This data most often exists in an education system’s “Student Information System,” EMIS, or a database managed by the system. This data can be “transformed” or connected to School Data Sync using APIs. [School Data Sync](#) (SDS) is the Microsoft solution that will use the basic data to provide many services in Teams, such as reporting of student digital activities in Teams, attendance and grades in classes and schools. **Use of School Data Sync is a requirement to enable the analytics and reporting services built into Teams.** This will enable class and system reporting through such features as [Class Insights](#), which gives teachers reports on the digital activities of students in their classes.

If the education system does not have the basic data in a SIS, EMIS or database, the Country Engagement Team tech lead can help the system collect and create the basic data:

- Develop a [Form](#) for all schools to enter the first and last names of all teachers and students associated with the school. Set up a [Power Automate](#) to import the resulting data, by school, into the CSV file formats.

- Microsoft and its global network of partners can also assist with this basic data collection and transformation to SDS files.

The “Basic Data” must be formatted in a very specific way in a set of CSV files to configure Teams with School Data Sync. The “Basic Data” for School Data Sync student and teacher files **must include**:

| Student.csv | | |
|-----------------|------------------------------|--------------------|
| Attribute | Required? | Example |
| SIS ID | Yes | 13001 |
| School SIS ID | Yes | 10001 |
| Username | Yes | Oklein |
| Password | Yes (only if creating users) | P@ssword123 |
| First Name | Yes (only if creating users) | Ora |
| Last Name | Yes (only if creating users) | Klein |
| Middle Name | No | Christopher |
| Secondary Email | No | Oklein@contoso.edu |
| Student Number | No | 13001 |
| Grade | No | 9 |
| State ID | No | WA |
| Status | No | Active |
| Birthdate | No | 4/2/2000 |
| Graduation Year | No | 2019 |

- First Name
- Last Name
- Unique Identity Number – for person (SIS ID)
- Unique School Number (School SID ID)
- Username: Standardized format for the names and emails that the user will login with
- Password: Initial Password for the account. Users will be requested to change their password once they login.

The Unique IDs, Usernames, and Passwords may need to be created via an automated process as part of Step 1. Initial strong passwords can be created using combinations of user known attributes (e.g. Birthdate + Last name + Student number). See this document for best practice guidance on [email address policies](#). Similarly, Excel functions can be used to create bulk Unique IDs for individuals, and School IDs.

[Sample CSV files](#) can be used as templates to format the data. Additional data beyond the “Basic Data” will enable other features and reporting capabilities for Teams.

Step 3: Set Up Teams, Establish Helpdesk and Support, Distribute Logon Information and Launch Microsoft Teams

1. **Set Up Teams:** Once the O365 accounts are provisioned, setting up Microsoft Teams is the next step. The O365 Global Administrator established for the O365 tenant should review [this guide](#) to Teams deployment decisions. This will allow the education system to define Teams policies and Team structures according to the security and privacy settings desired by the system. The “**Easily set up Teams**” section of [this document](#) should be reviewed in full to guide the global tenant-wide Teams set-up. It is strongly recommended that a “Team structure” is planned for how individual staff and class Teams should be set up, based on the teaching model for remote learning desired.
 - a. It is recommended to create a “Training Team” or a set of such Teams for teachers and staff with all the resources related to training included. This will establish a place within Teams for teachers to collaborate remotely as they go through the training.
2. **Establish a Help Desk:** Set up a virtual “Helpdesk” via phone, SMS, and within the Teams environment, to assist individuals with logon, navigation to Teams, and to address any problems that arise. The people or teams responsible for the Helpdesk should become familiar with the O365 logon process, will need to know how to help

individuals reset passwords, and should also become well-versed in the core support options available for Microsoft Education:

IT/O365 Admin

- Get Started with Teams for Remote Learning
<https://aka.ms/GetStartedTeamsRemoteAdmin>
- Microsoft EDU Support Guide: <https://aka.ms/O365RemoteLearning>
- MyStaff can [delegate password management](#) to schools

Community and Help

- How to use and manage [Microsoft Teams for Education](#)
- Sign up for the Remote Learning community here:
<https://aka.ms/JoinRemoteLearningCommunity>
- File a Support ticket <https://aka.ms/EDUSupport>

3. Distribute Logon Information: The next step is to distribute logon information with instructions and passwords for students and teachers. The implementation team should develop a plan to distribute new usernames and passwords once the accounts are created. Some options include:

- Emailing student accounts and passwords to parents
- Emailing student accounts to previous known email addresses
- SMS/Texting parents the student account and logon information
- Mailing (via post) the unique username and password to each student home

Along with the logon information and instructions, initial training on launching Teams should be sent out to help individuals navigate to Teams and start training within Teams as quickly as possible (for example, with link to the Team name where training materials are located and to the where helpdesk requests can be made).

Step 4: Launch Teams through Training Teachers, Students and Families

Training teachers, students and parents or guardians in how to use Teams for learning is a critical factor to the success of a remote learning strategy. Guidance for developing a comprehensive training plan for remote learning is provided in a separate document, the [Microsoft Teaching and Learning Training Plan](#). The implementation team will be responsible for ensuring that a training plan and localized training content resources are designed into the Teams launch. This means that when initial communications of usernames and passwords are distributed to teachers and students, they should include links to the specific training steps these individuals should take after logging on, such as:

- How to open www.office.com in a browser.
- How to navigate to Teams app inside office.com.
- How to install the Teams app and logon from on a phone.
- How to join a Team, and links to the specific Teams a teacher or student should join for initial training.
- How to ask for Help via phone/SMS, email, or through a Team channel.
- What documents or videos the teacher or student should view first to understand how to use Teams.

Training Material Options:

- Using Teams on a phone: <https://youtu.be/gvCRLieb7NQ>
- Teams EDU Quick Start Guide: <https://aka.ms/TeamsEDUQuickGuide>
- Microsoft EDU Remote Learning resource collection:
<https://aka.ms/RemoteLearningWakelet>
- How to [Manage Class Meetings](#) in Teams
- How to create [Assignments in Teams](#)

Use Teams for Education in Low Bandwidth Environments:

- <https://support.office.com/en-us/article/use-teams-for-schoolwork-when-bandwidth-is-low-5c5675f7-1b55-471a-9daa-ec1e6df38262>

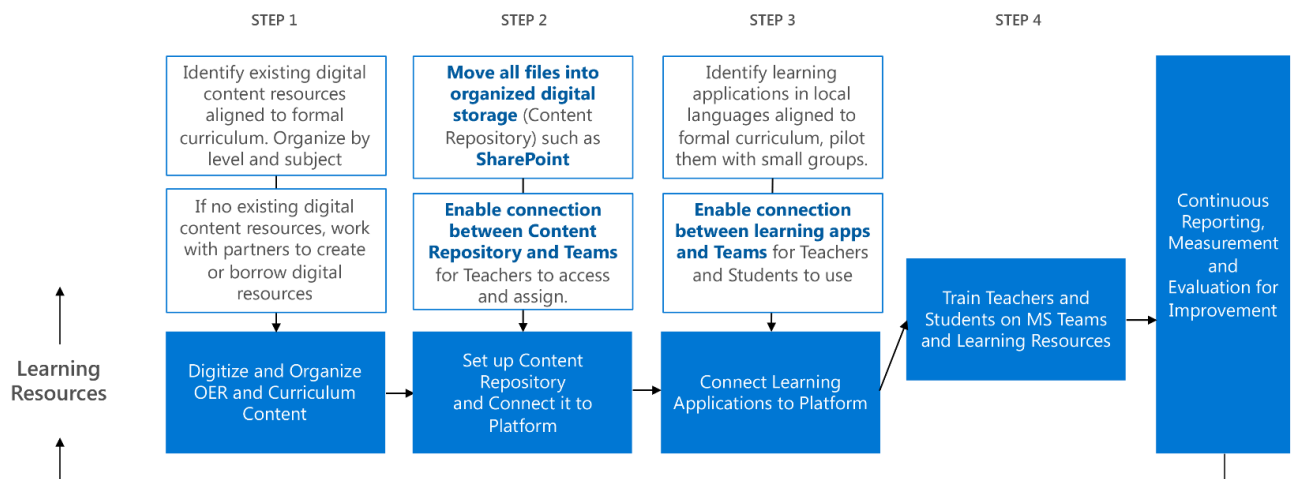
Parents

- Microsoft EDU Remote Learning parent guide: <https://aka.ms/RemoteLearningO365>
- Scheduling Parent/Teacher conferences with Teams or Staff Hub:
<https://aka.ms/ParentTeacherO365>
- Parent/Teacher conferences with Translator: <https://aka.ms/TranslatorParentTeacher>

Learning Resources

Learning resources are the third critical element of successful remote learning, alongside providing access (connected devices) and the learning platform. Learning resources include digital versions of curriculum content (such as textbooks, lesson plans, workbooks, and assessments) as well as learning applications (such as Flipgrid, Minecraft, Forms, and Quizlet). The education system should identify existing digital learning resources aligned to the curriculum or establish teams to create digital learning resources. Implementation teams can support learning resources in three areas:

1. Providing links to global OER and digital learning resource libraries.
2. Developing a digital content repository and integrating it into Microsoft Teams.
3. Identifying learning applications in the local language that can support learning.



Step 1: Providing links to global OER and digital learning resource libraries.

As education systems around the world shift to remote learning, a large set of digital learning resource libraries have been developed. Here are some that can be shared and searched for localized content:

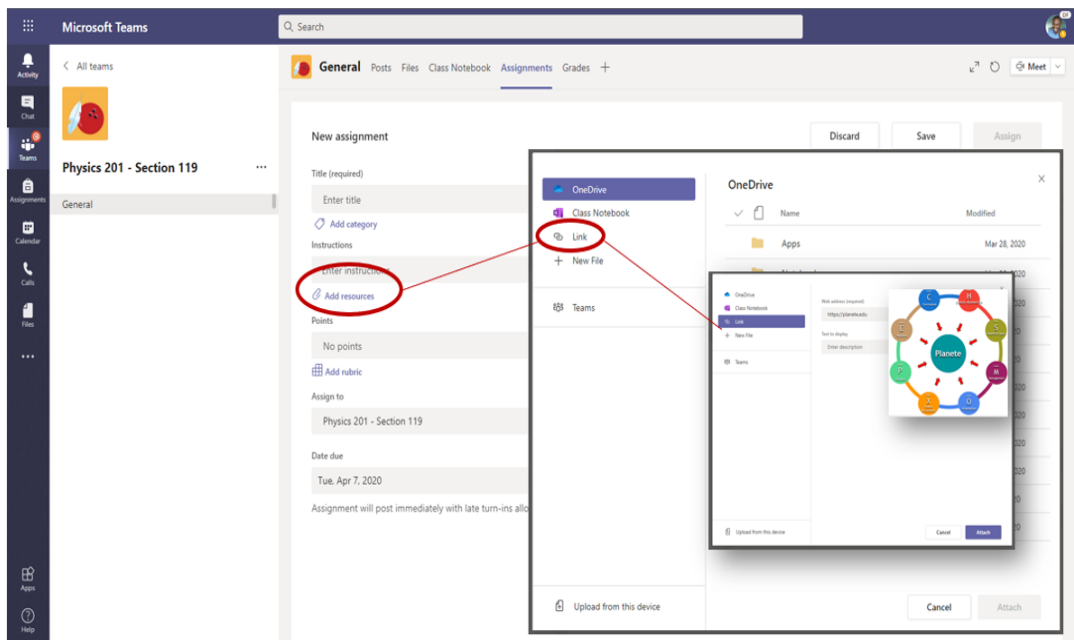
- UNESCO Global Education Coalition partner website www.globaleducationcoalition.unesco.org
- BETT collection of free education resources
- Worldbank collection of learning resources
- Global Reading Network

Step 2: Developing a digital content repository strategy.

The implementation team can develop a digital curriculum content repository so that teachers can access and assign learning resources easily from within Microsoft Teams. This can be done through setting up a SharePoint site, which is part of the O365 subscription.

1. Set up a [SharePoint online](#) site organized by grade levels and subjects. This could be used by teachers and students within O365.
 - If needed to conserve bandwidth, this can be a SharePoint onprem Document Library (e.g. on a local server).
 - Ensure the plan for storage does not exceed [SharePoint limits](#).
 - Customers should not plan to share content with individuals outside the O365 tenant (e.g. parents without guest accounts) through SharePoint.
2. Another option is to have teachers individually copy curriculum materials into [OneNote Class Notebooks](#) in their Class Teams.

After setting up the storage location and transferring files and resources to that location, it will need to be connected to Microsoft Teams. This can be done through training teachers to “Add resources” within a [Class Team Assignment](#). Teachers would copy the URL Link of the digital content location (SharePoint site, portal, or OneNote) to the assignment.

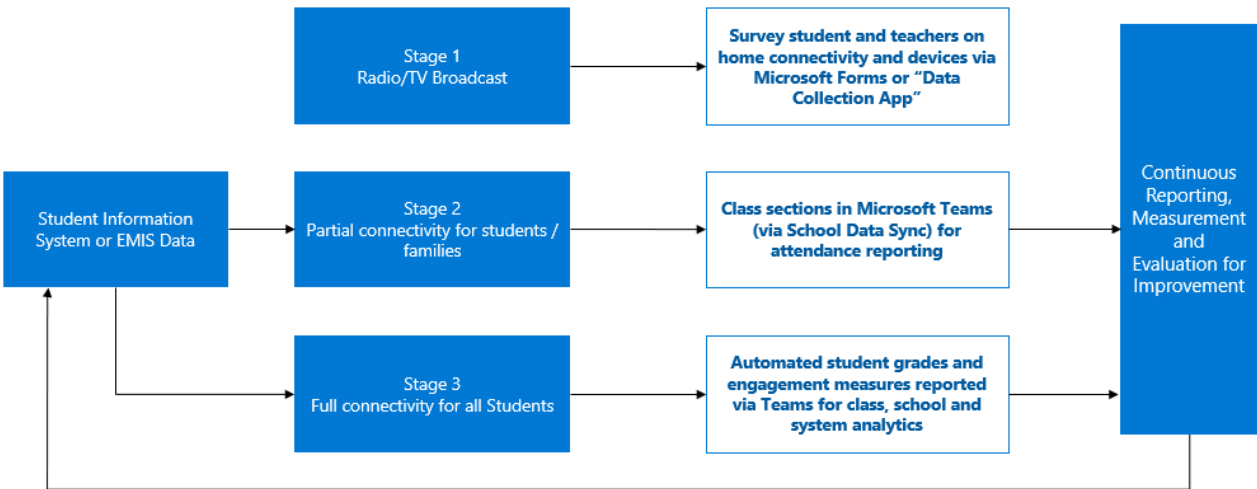


Step 3: Identifying learning applications for use within Microsoft Teams.

Microsoft has an ecosystem of education partners who have made their learning applications and content available within Microsoft Teams. The list of partners is [here](#) and includes applications for social and emotional wellness, assessment applications, student engagement, and other categories of learning applications.

Reporting

Continuous Reporting, Measurement and Evaluation



For education systems deploying remote learning, a critical element is understanding which students and teachers are actively participating in the learning. Microsoft Education is developing education analytics solutions for teachers and system leaders that provide continuous reporting of student and teacher digital learning activity within Microsoft apps like Teams, Word, Power Point, OneNote etc. The solution tracks data for activities as part of the teaching and learning that can be translated to “attendance” and “instruction time” data during synchronous and asynchronous remote learning.

This service is available in private preview now in some regions and will be a standard O365 product by the end of 2020. Report access will be at the school and system (e.g. tenant-wide) levels, reports data will be from system level to single student and teacher level. The current prerequisite for this pilot is **School Data Sync deployment with CSV file format** (the system will support OneRoster API deployment in the coming months), as it is tied to the organizational data that School Data Sync establishes. See how other education systems are using these reports to inform remote learning strategies in [Digital Engagement in Remote Learning: Patterns and Practices from Learning Analytics](#).

To help teachers track their the digital activities of their students, especially during remote learning, Class Insights in Teams has a “Digital Activity” report that brings communication, file and assignment activities together in one place, letting teachers know what their students are doing when they learn from home, seeing at a glance when each student was active throughout the day, and giving them feedback tailored to the actual learning process. To learn how teachers can use these reports, [see this document](#).

