

Using OneNote as an Electronic Laboratory Notebook (ELN)

Version 2019-07

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Laboratory Notebooks

Expectations and responsibilities

Before we start, a few words on the legal responsibilities about recording our research. We need to:

- Document what we are doing
- Be able to find results
- Our records need to be timely/traceable/retrievable
- Checked

Policies can be found on the intranet www.campus.babraham.ac.uk

Follow links to:

- >Quality Assurance of Research (QAR)
- >To read the Babraham Institute Guidelines for the use of laboratory notebooks [click here](#)

The purpose of a lab book is to document what we are doing and should include:

- date and initials,
- experiment number
- Comprehensive record
- clear and accurate records
- Data is retrievable
- Kept securely
- 10 years
- It should also be checked by your line manager every two weeks – this is much easier with an electronic notebook.

Lab books are changing. Old paper lab books are no longer fit for purpose – today's research produces too many documents, data is too big and is most often created as digital/electronic files.

We need a new way.

Why OneNote?

- Digital Notebook
- Gathers notes – handwritten or typed – drawings, screen clippings, images and audio content
- Notes can be shared

OneNote is the nearest equivalent to a paper notebook

- It's a note taking app, not a bespoke lab book but...it is flexible– it allows for different structures, different projects/groups/ways of working
- Allows us to include data from a range of sources
- Not prescriptive
- Microsoft – so it should be well supported and have future longevity (unlike other smaller, bespoke offerings)
- Safe, compliant storage (more on this later)

About OneNote

OneNote is not a single entity. There are different versions and different platforms with different features and functionality depending on the platform/version.

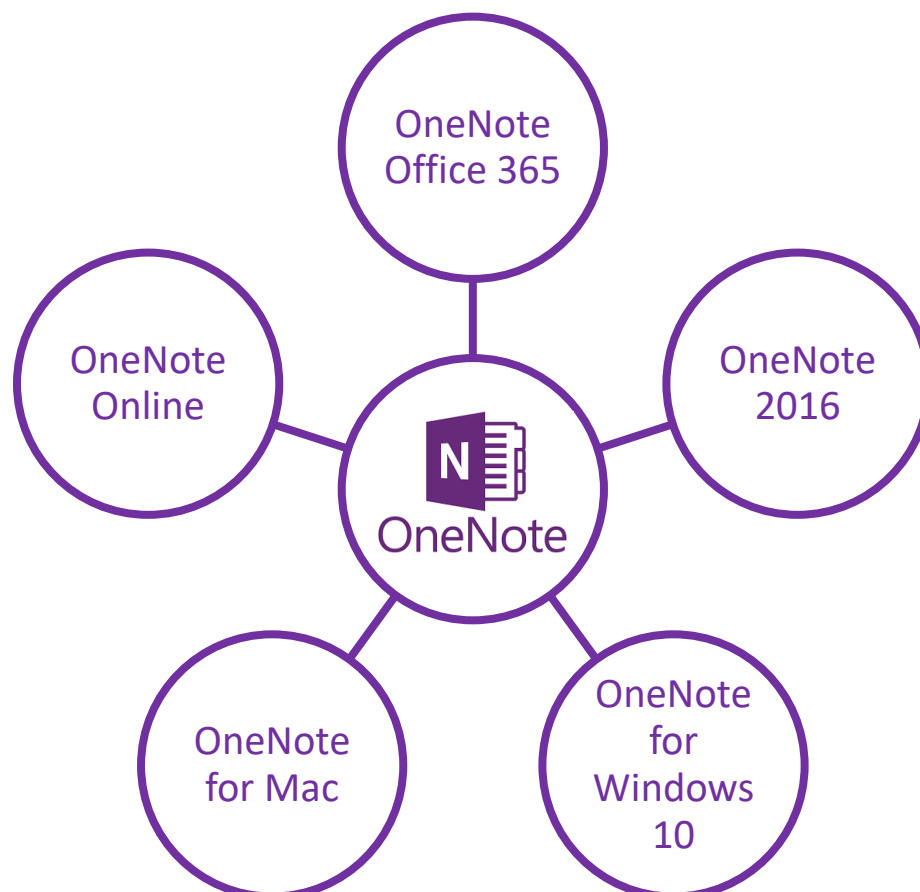
Currently, OneNote 2016 has the most features/functionality but is being 'sunsetting' – Microsoft are no longer developing and are tailing off support. It is a dead product.

OneNote for Windows 10 is now being developed and new features are being added all the time. At the moment it is a basic version similar to OneNote online and the mac version.

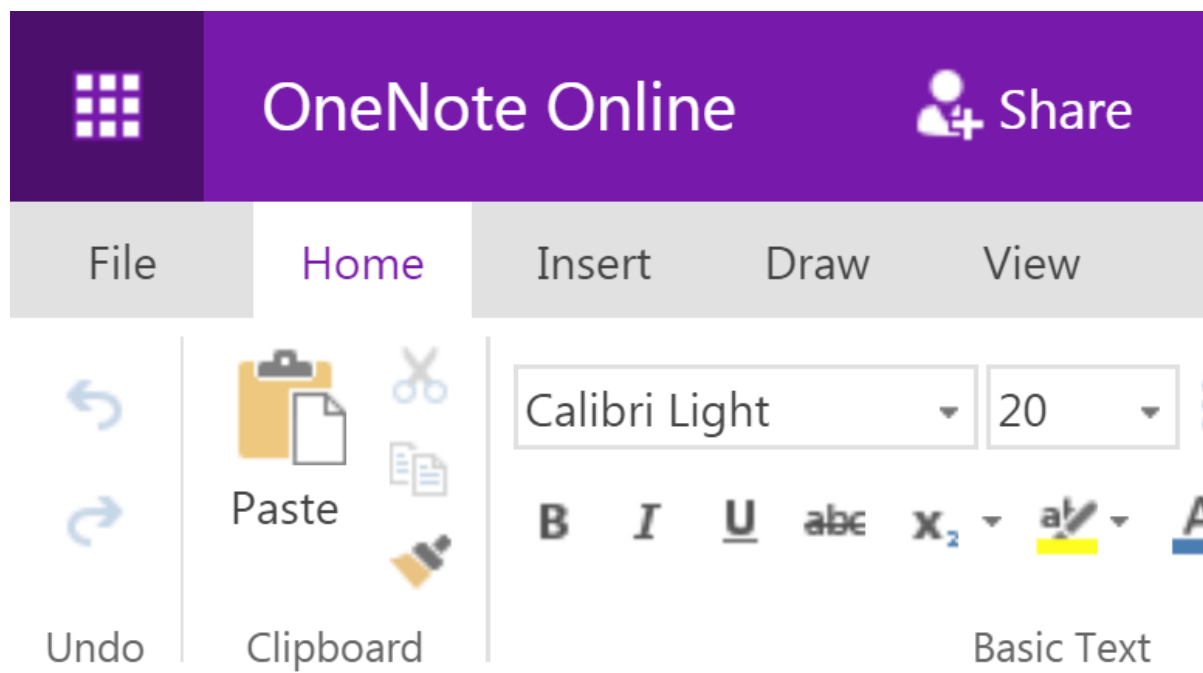
The thinking is that in the future, the functionality will be more similar across platforms. OneNote10 has the same appearance as the mac and online versions, which look different to OneNote 2016. OneNote 10 is likely to be a wrap-around app so other versions will be broadly similar.

Today we'll be looking at OneNote Online – it is completely cross platform and accessible from anywhere. It is our current universal framework.

You don't need the additional features in OneNote2016 but you can always open your OneNote Online notebooks in OneNote 2016 if you have it on your computer and you're used to working in that version.



OneNote online



If your computer has already been upgraded to Windows 10, you may also have the version of OneNote10 as well as OneNote 2016 (both versions remain on your machine), or you can request computing to install OneNote10.

If you're a mac user then the online version is very similar to OneNote for macs.

Although the online version is accessible anywhere and works across platform, it does have more limited functionality at the moment and can be slow.

Storing and saving notebooks

OneNote2016 offers the possibility of saving your notebooks to your local drives (computer or network). The online version and mac version cannot be stored to local drives; notebooks must be saved online or in cloud storage.

The BI computing-supported storage area is the **ELN – Electronic Laboratory Notebook** area on **SharePoint**.

This is BI controlled and data is stored within UK as legally required.
It is automatically synced, so you don't need to worry about saving.
It's also backed up locally onsite daily.

This is the **safest way** of keeping your data. We do not support storing it on local drives or using *drop box/googledrive* etc.

The Electronic laboratory Notebook (ELN) area on SharePoint

Let's start at the **ELN** as this is where data will reside.

Setting up the ELN

SharePoint

Browse Page Items List

Electronic Lab Notebooks JM

Search this site

Home

JM

Electronic Lab Notebooks

From this site you can navigate to the subsite for your group to access your area for OneNote-based Electronic Lab Notebooks.

If you are a Group Leader who requires that a new ELN site be set up for your group to store their Electronic Lab Notebooks, please email computing@babraham.ac.uk with the email subject: **New ELN site request** and a new site will be created for you and your group to use.

If a site has been set up for you, you will have been emailed the URL, or you can access it by clicking your initials on the left-hand side of this page.

The following guides have been configured to assist Group Leaders and Administrators in managing their ELN site.

Guides for Group Leaders and Administrators

Add Group Members

Setup a new notebook

Add other site administrators

Change Permissions for Notebooks

FAQ

Guides for Group Members

Move an existing Notebook to ELN

<https://babraham.sharepoint.com/sites/ELN/SitePages/Home.aspx>
or go to Office.com and search **Sharepoint/ELN**

If you wish to have a collaborative Electronic Laboratory Notebook (ELN), group leaders will need to request computing to set up a Group ELN on SharePoint. This Group ELN has a “document library”. Sub-folders can be put in here, owned by individual members of the group, and sharing preferences set up to allow collaboration, read only, read-write permissions as required. Individual members can have multiple notebooks in their folder.

You can copy an existing notebook into the ELN by making a new notebook and copying it in section by section – this is computing’s recommended safest way. Create a local backup before you start copying and moving.

You can link the desktop and ELN version and it will sync and keep up to date. Whenever changes are made, it will be saved to the OneNote version, or rather cached as an offline version ‘backup’ on the computer and then immediately saved/synced to OneDrive/Sharepoint.

If you don’t want to, you never have to look at Office 365/OneDrive/ELN site ever again once you’ve opened your notebook on the ELN for the first time and then clicked “Open with OneNote”. It will then be available to open through your desktop version of OneNote but will sync through to the ELN. Those group members with access to/collaborating with your notebook will still need to access it through the ELN.

ELN structure

Go to the ELN area of SharePoint.

<https://babraham.sharepoint.com/sites/ELN/SitePages/Home.aspx>
or go to Office.com and search **Sharepoint/ELN**

Click on Group leader's initials in the top left (eg JM).
This takes you to the Lab Notebooks repository.

Find your folder (your initials).

Your laboratory notebooks are stored in this folder.

You may only see your folder, or you may see the folders of your group members, depending on the sharing permissions you and your group have set up.

The screenshot shows the SharePoint interface for the 'Electronic Lab Notebooks' site. The top navigation bar includes the Babraham Bioinformatics logo, the site name 'SharePoint', and user initials 'JM'. The main content area features a 'Welcome to your Electronic Notebook Repository' message, explaining the site's purpose and permissions. A red box highlights the 'Lab Notebooks' section, which displays a list of folders: FK, JM notebooks folder, SA, and SW. Below this, the 'Group Documents' section is visible, showing a list of documents. The right sidebar contains a 'Group Leader - Full Control to Site' section with a list of group members: Jo Montgomery, Felix Krueger, Simon Andrews, and Steven Wingett.

SharePoint

Electronic Lab Notebooks JM

Search this site

Lab Notebooks

Group Documents

Site contents

Welcome to your Electronic Notebook Repository

Use this site to create, work on, and store notebooks. This site can become a collaborative repository for authoring documents and notebooks within your group, or just a central store for individual Electronic Lab Notebooks.

A **Group Documents** library is also included in this site. By default, all group members have read access to any documents placed in this area. Group Leaders and Administrators have read/write access.

For extra help and assistance with setting up and customising your site, click here to access the [Guides](#).

Group Leader - Full Control to Site

☐ Jo Montgomery

Administrators - Write and Permission Access to all

There are no people or groups to show in this view, or you do not have permissions to view the people or groups.

Group Members - Individual Notebook Access

☐ Felix Krueger

☐ Simon Andrews

☐ Steven Wingett

Lab Notebooks

New Upload Sync Share More

Current View Find a file

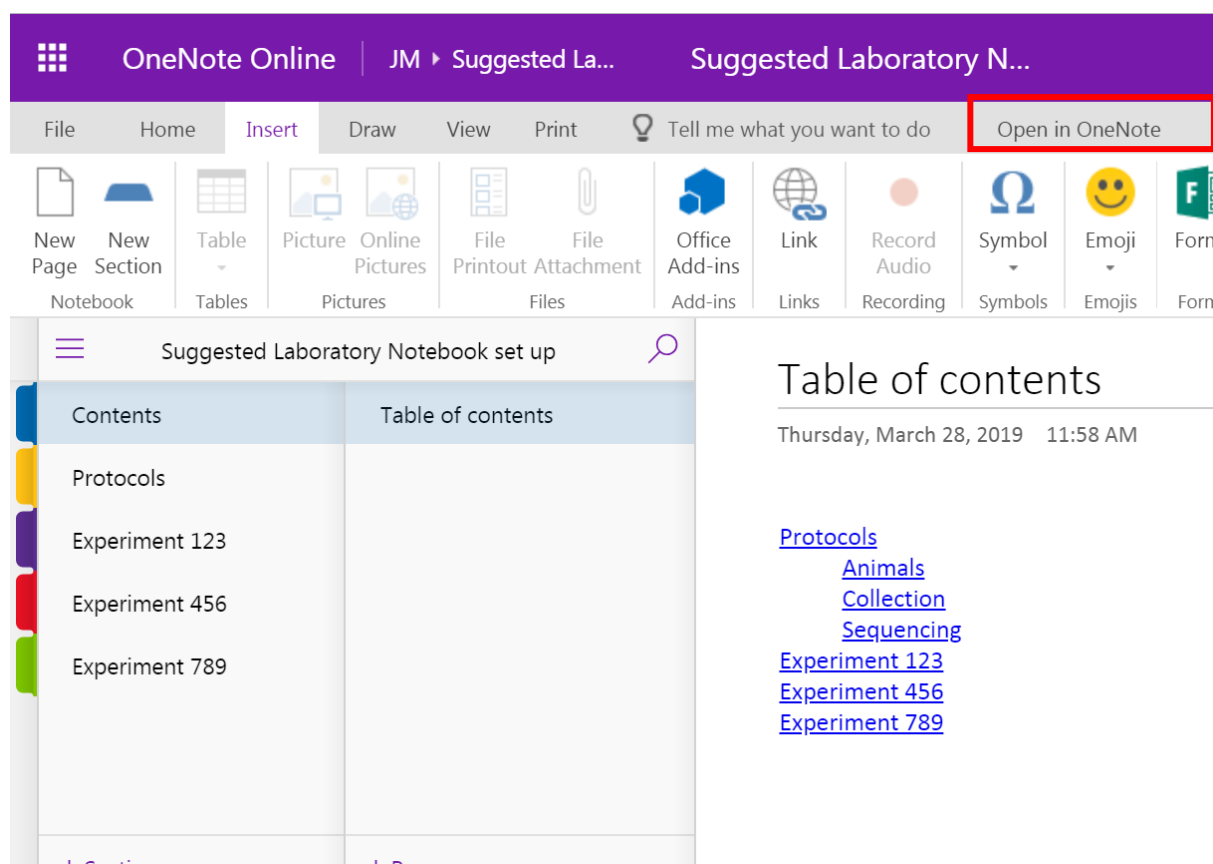
Name	Modified	Modified By
FK	March 20	Jo Montgomery
JM notebooks folder	January 24	Jo Montgomery
SA	March 20	Jo Montgomery
SW	March 20	Jo Montgomery

Drag files here to upload

Group Documents

New Upload Sync Share More

Opening a OneNote notebook



Once a notebook has launched in OneNote online, you can click on 'open in OneNote' at the top of the screen here – to open in either 2016 or the Windows 10 version if you have this installed, or you can stay online.

We will be using the online, or office 365, version here to maintain similarity and functionality across platforms.

Storage and organisational structure of OneNote

Let's take a step back from the software for a minute and think about storage and organisation.

There is a hierarchy to the structure of a OneNote notebook – different levels of organisation.

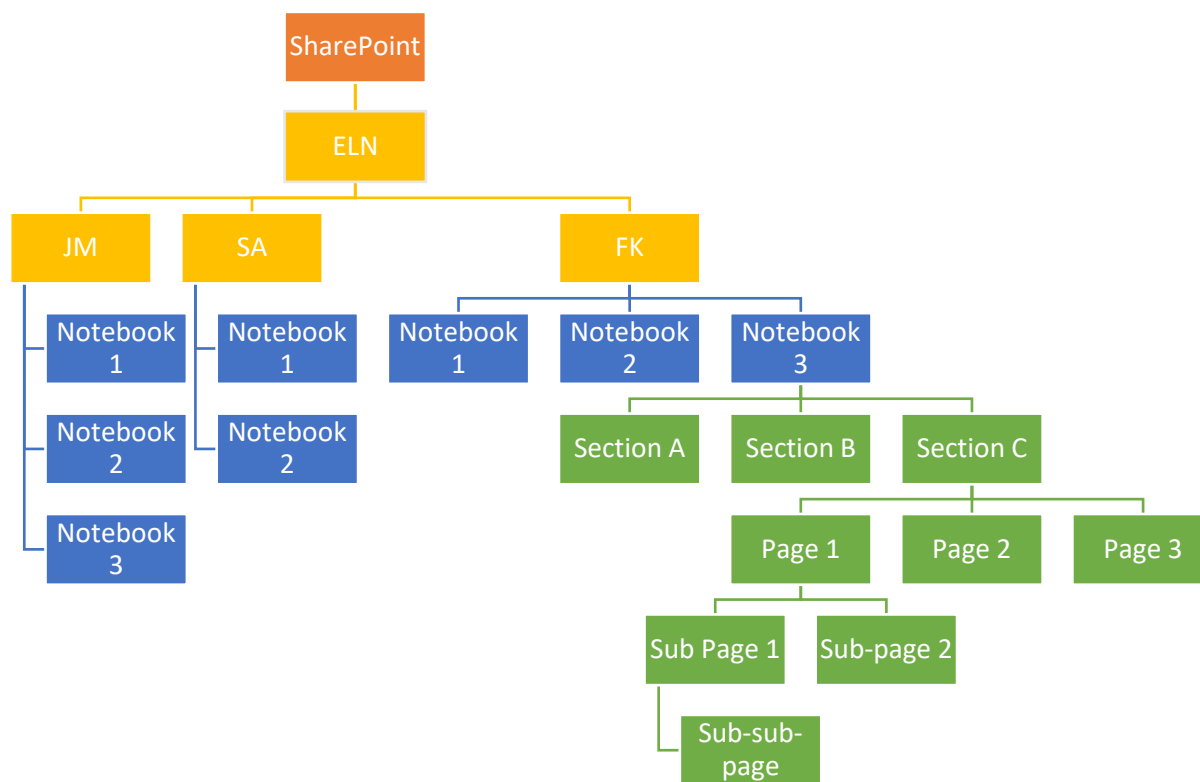
We'll look at the hierarchical structure, then we will look at the operational tools to use OneNote and then come back to suggest ways to use the structure specifically to make a laboratory notebook.

Notebooks are stored in **SharePoint** – in the **ELN** area.

Each group member can have multiple notebooks.

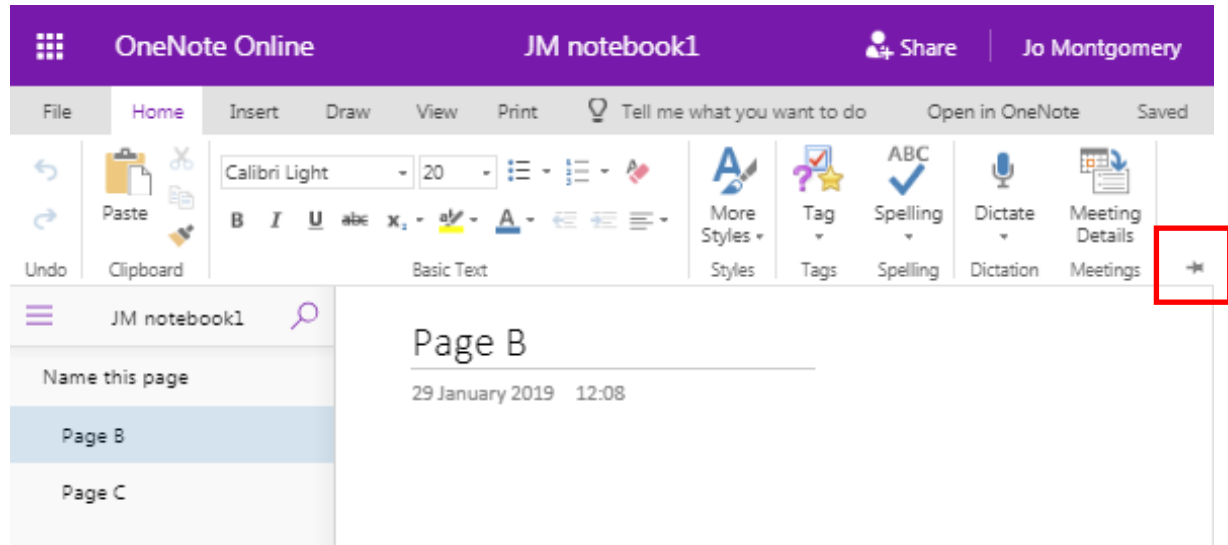
Each notebook can then be further divided into sections (tabs)

Each section can then have multiple pages.



Getting started

The first tip is to pin the drop down menu so it stays there.



What is a page?

A page in OneNote is not like a word document; it is just like a sheet of paper you can write, draw and scribble on – anywhere within that page.

You are not required to work top to bottom or left to right.

It is an (almost) infinitely sized piece of 'paper' in which you can have whatever structure you like.

A screenshot of a OneNote page titled 'Page B' with the date '29 January 2019' and time '12:08'. The page contains several elements: a table of contents on the left, a list of sections, a paragraph of placeholder text, a table of food preferences, a 'Protocol' section with instructions, and a small text box. The table of contents lists 'Section 1', 'New Section 1', and 'Test section'. The list of sections includes 'Name this page', 'Page B', and 'Page C'. The paragraph of placeholder text is followed by a table of food preferences. The 'Protocol' section includes instructions for making tea and coffee. The small text box says 'I can move text boxes about'.

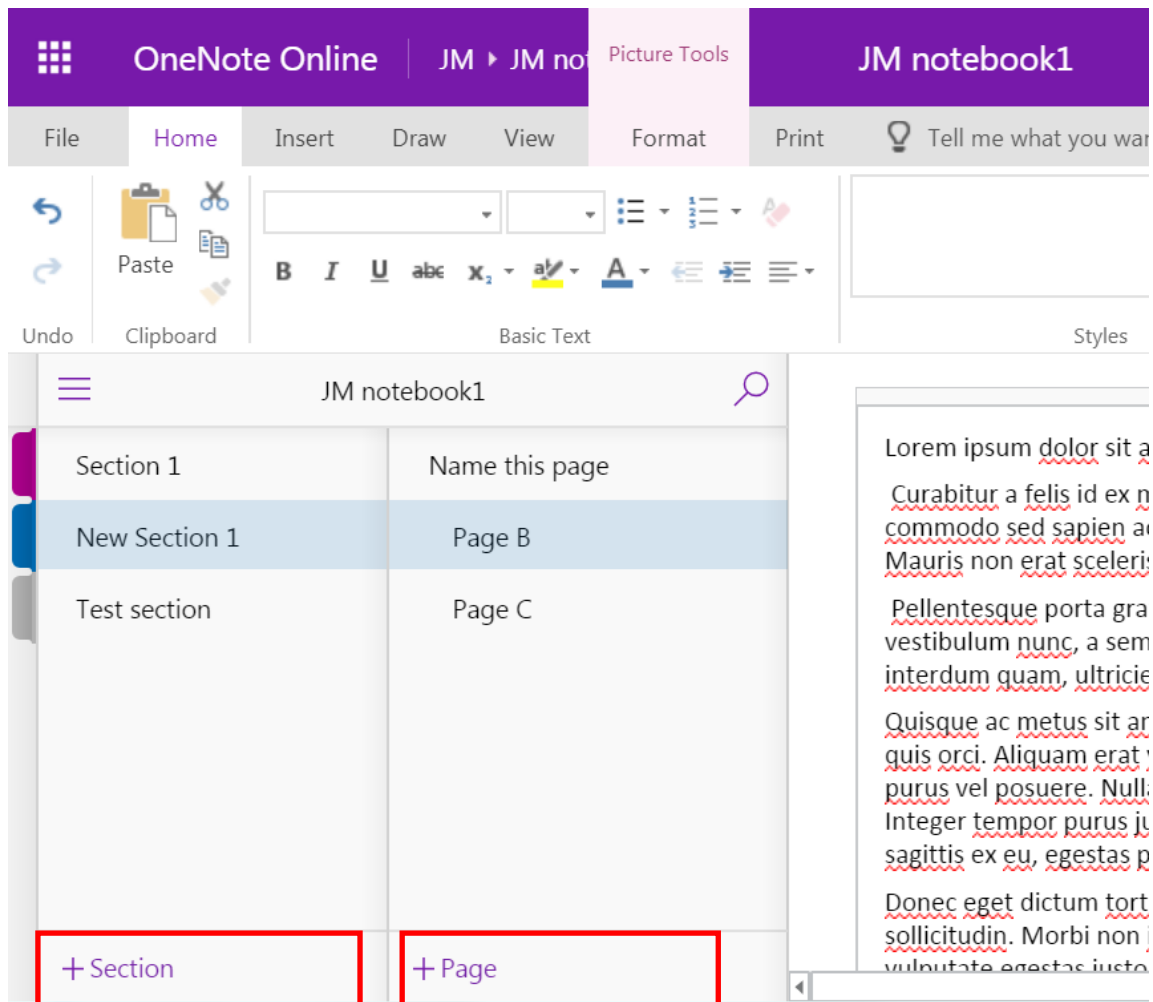
	Biscuit	Tea	Coffee
Simon	Jammie Dodger	Builders	occasionally
Anne		occasionally	Froth milk, 2 sugars
Felix	Lebkuchen	various	Caution: extremely fussy
Jo	any	Weak, black, no milk	
Laura	Millionaire's shortbread	milk	milk

Add sections and pages

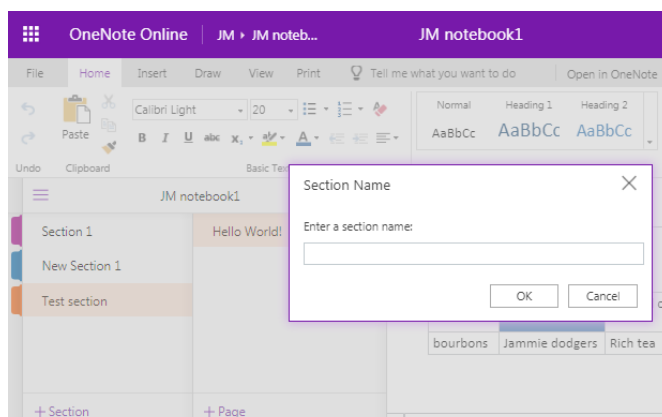
Sections or tabs

Add a New Section/Folder/tab by clicking on the + Section tab

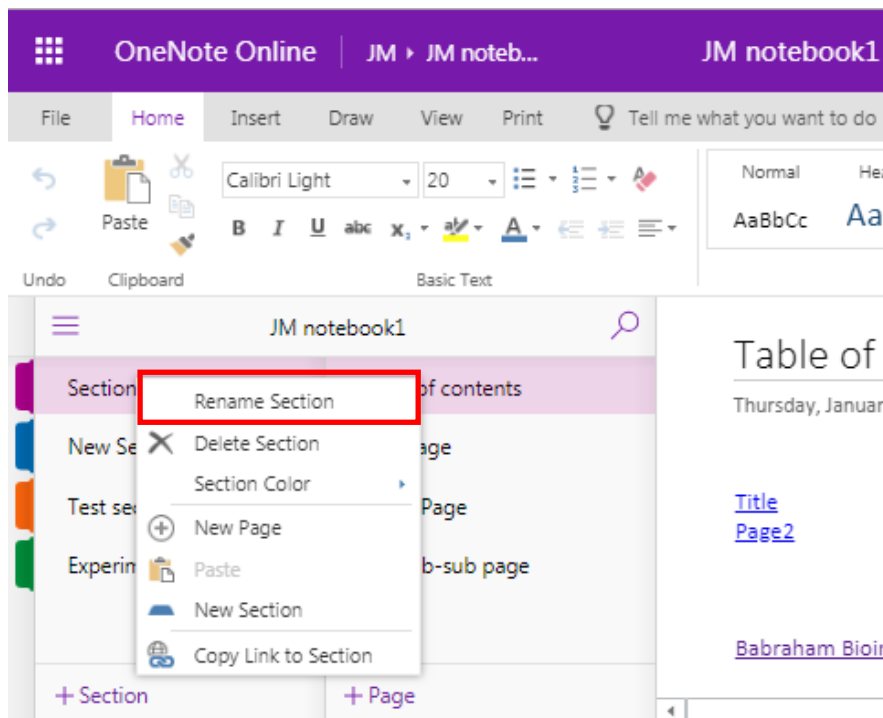
You can also add pages to a Notebook Section/Folder/tab by clicking on the +Add Page function at the left hand side of the window.



When you click on + Section, a Section name dialogue box pops up.

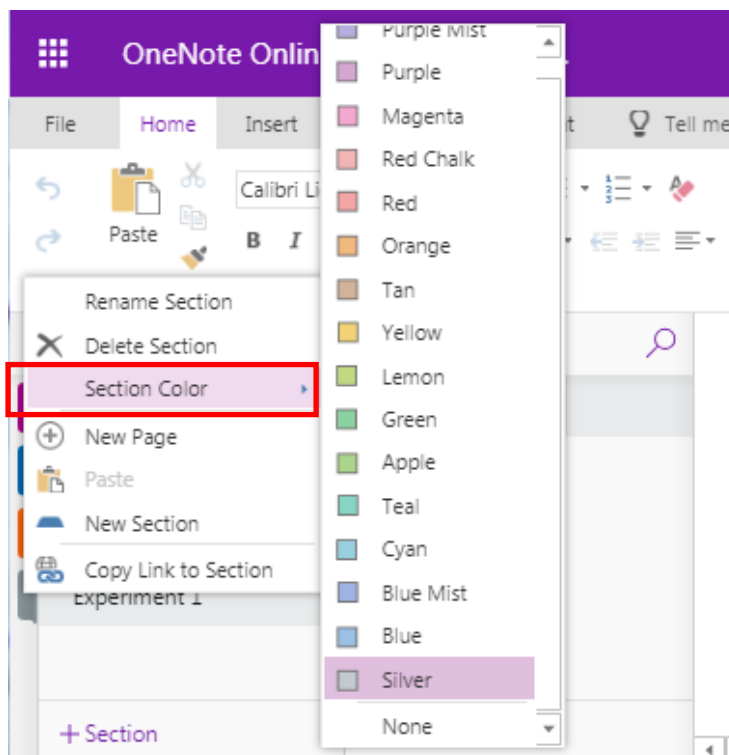


Or you can right-click to rename the section.



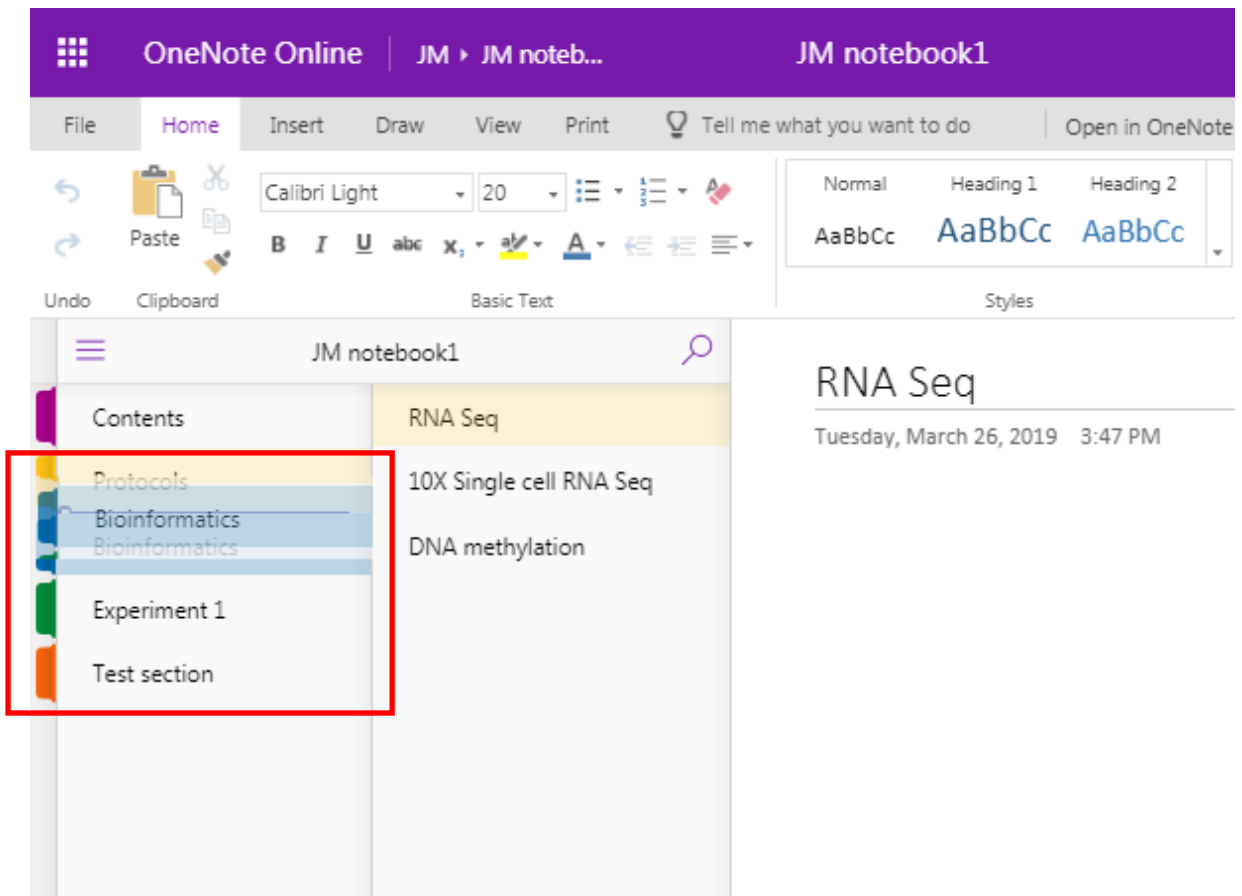
You can change the colour of the section/tab – which can be useful to colour code experiment types etc.

Right click on the section tab and select **Section Color**.



You can rearrange the order of sections/tabs.

Click and drag sections into the order you want.

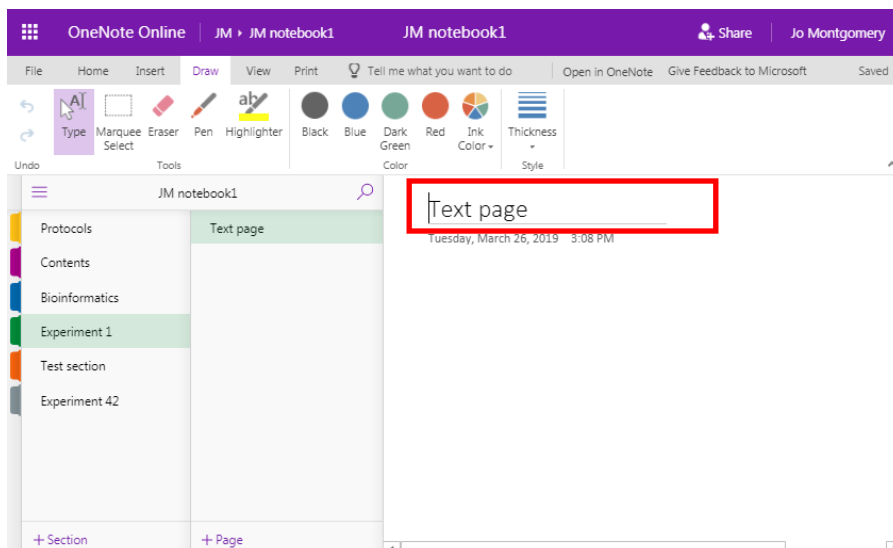


Pages

Page order can also be rearranged.

At the top of each page, there is space for a title or page name.

Add a title here and it automatically becomes the name of that page (you'll see it appear on the left hand side of the screen)

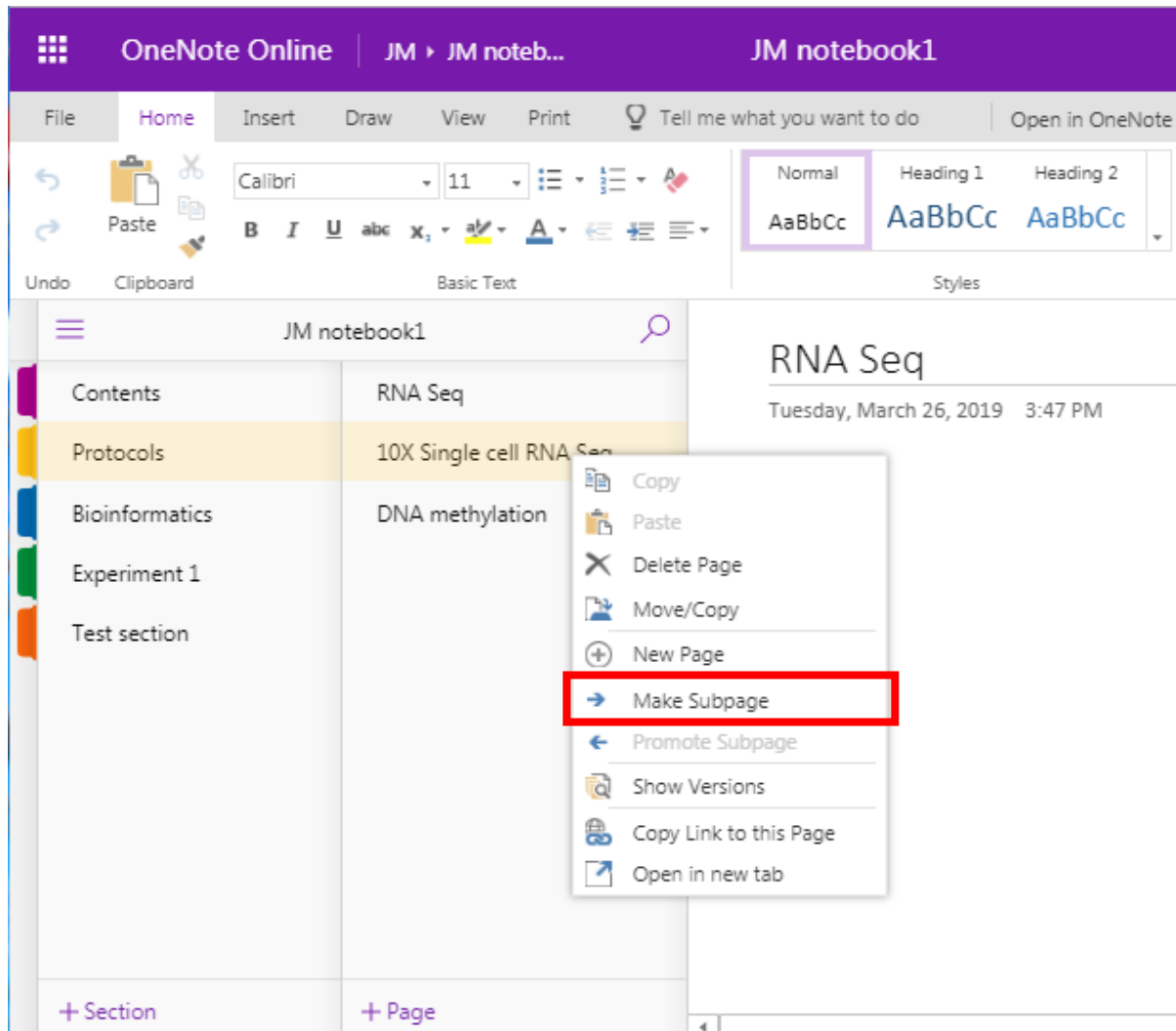


Sub-pages

There are additional levels of organisation or indentation – subpages.

Add subpages by right clicking on a page and selecting **make sub page**. You cannot make a sub page without there being another page above it.

You can even make sub-sub pages.



What can you do in OneNote?

We'll look at some of the functions of OneNote.

- Add text
- Make tables
- Insert images
- Insert/attach files
- Add links

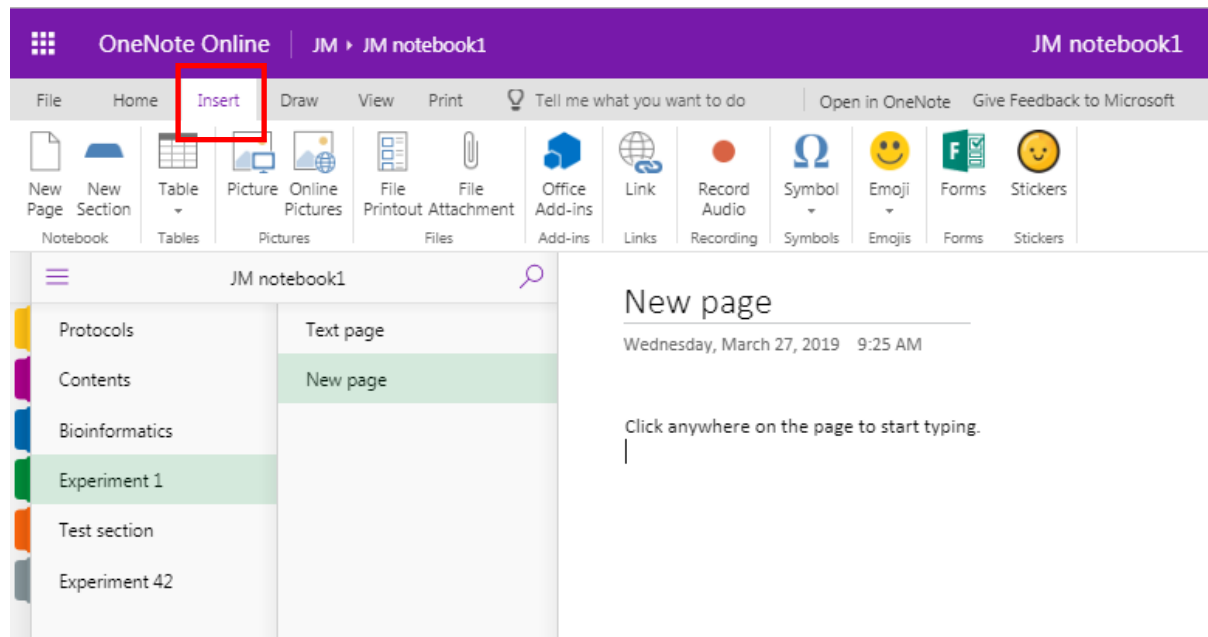
There are also other functions in OneNote that aren't relevant to a laboratory notebook, such as stickers and emojis! You don't need to use these.

How to add things in OneNote

You add things simply by clicking on an appropriate place in the notebook and using the relevant insert tool.

NB Things don't move out of the way/move down automatically, so make sure you add top to bottom (mostly) and that there's enough space.

You can pick up objects/text boxes etc. and move them around later in you need to.

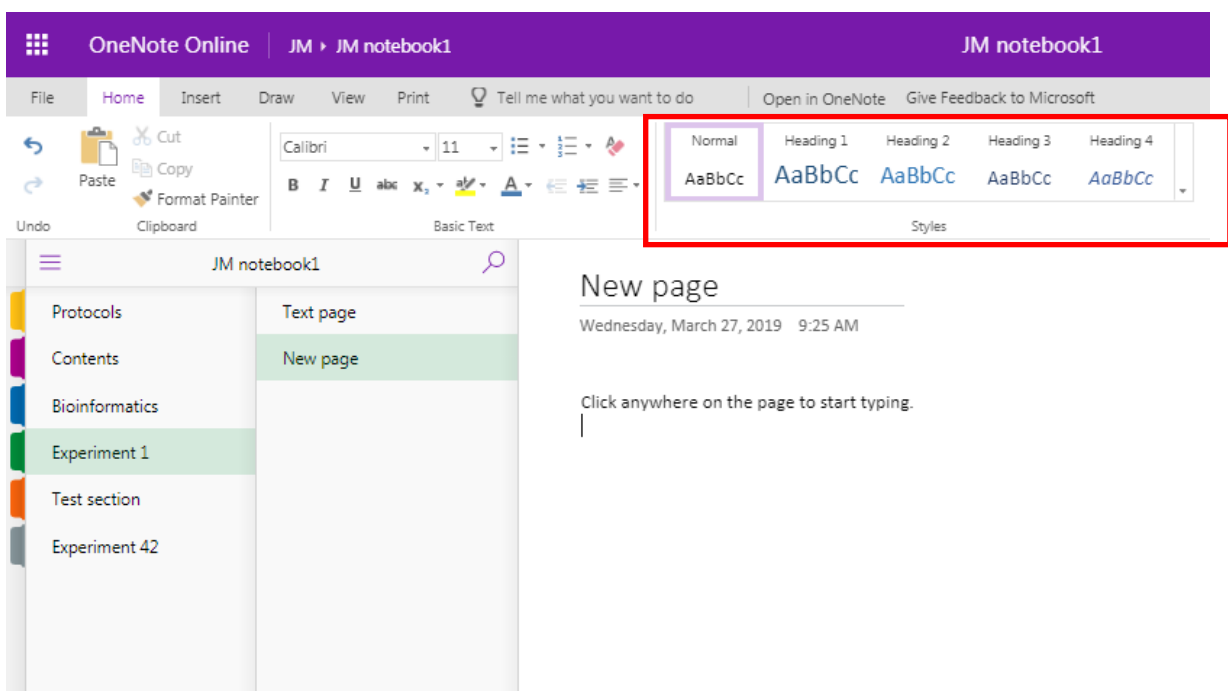


Text

Click anywhere on the page to begin typing.

Text appears in text boxes which you can move around.

You can format text and styles.

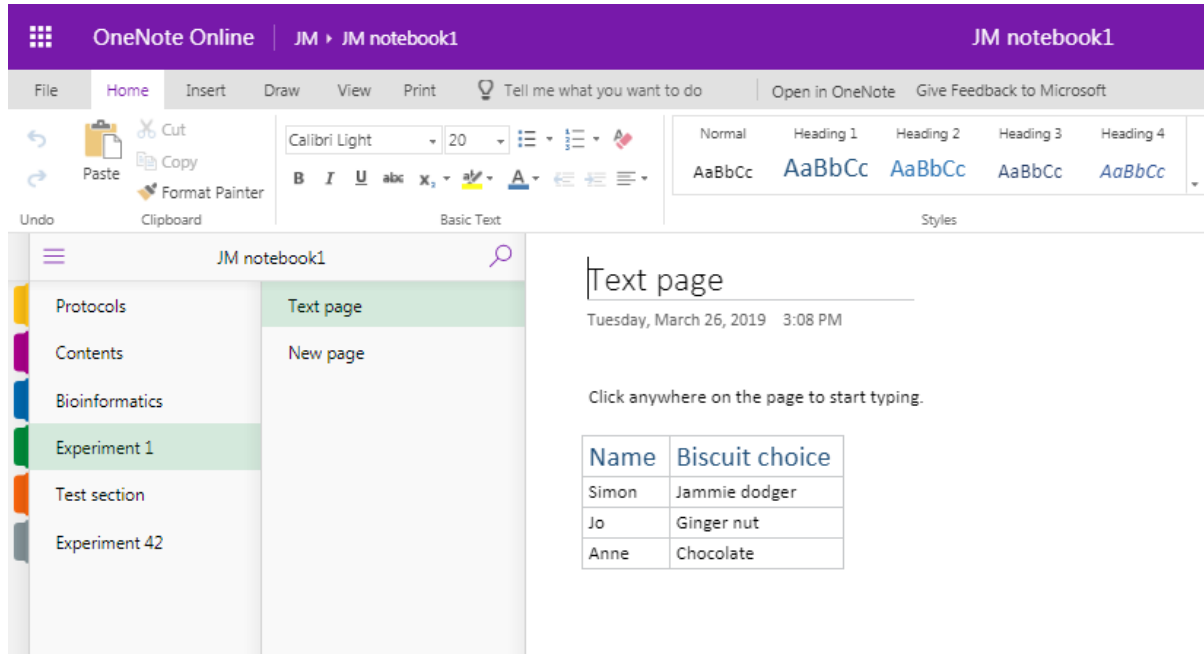


Tables

Make tables automatically.

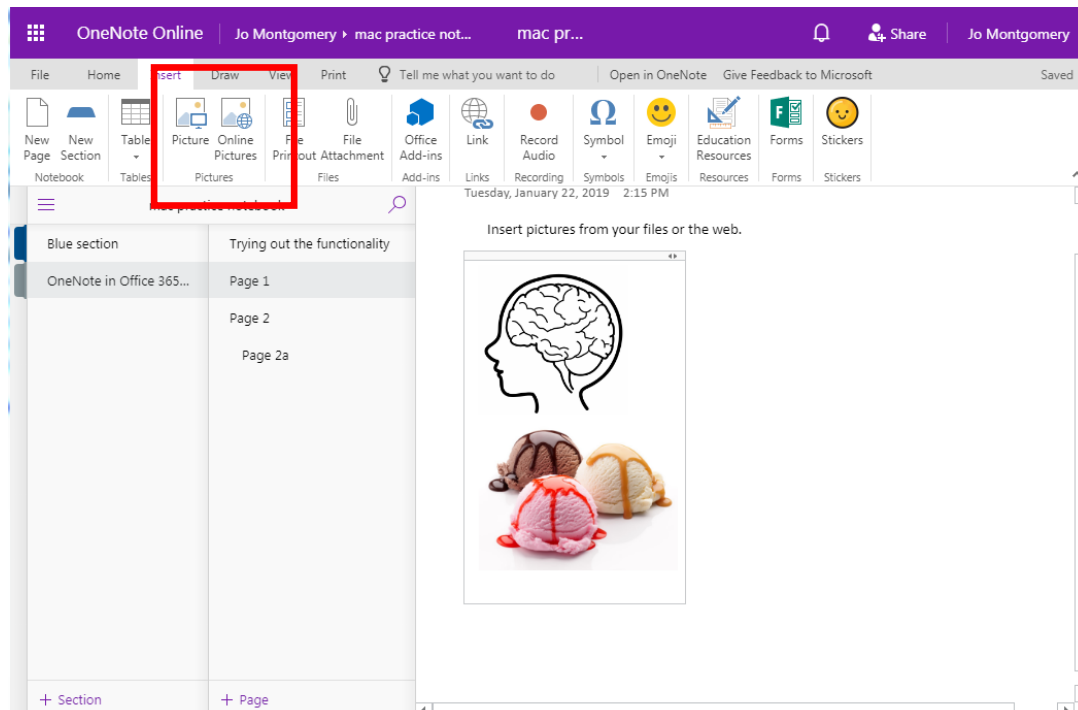
Just hit the Tab button to turn what you've just typed into the first cell of a table.

Delineate further columns with Tab, and just press Enter to start filling in the next line.



Images

You can insert pictures from files or the internet.

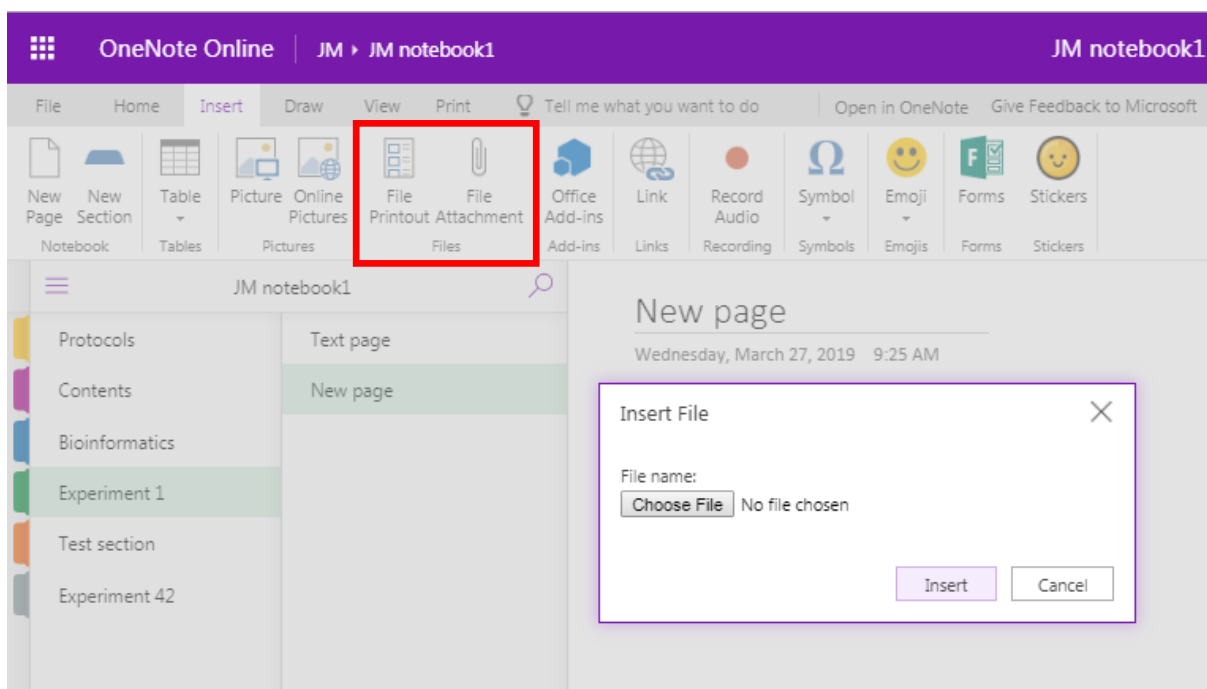


Or use snip or grab tools and then use **Control + V** to paste in (**Command + V** on a mac) – right click copy and paste doesn't work within OneNote.

Add files

You can add files in two ways:

1. As an attachment
 - a. it will add/embed all file types.
 - b. You just see the file icon, it will open elsewhere (eg. Excel)
 - c. You can also drag and drop files to embed
2. As a file printout
 - a. You can include a file in your one note notebook using **Insert > File Printout** and navigating to the file you wish to include
 - b. It gives you the file icon but also a **pdf**-like display/view of the file inside your notebook.
 - c. You can only add word or pdf files as a file printout (in the online version).
 - d. (in OneNote2016 you can add other file types eg. Excel)



Add links

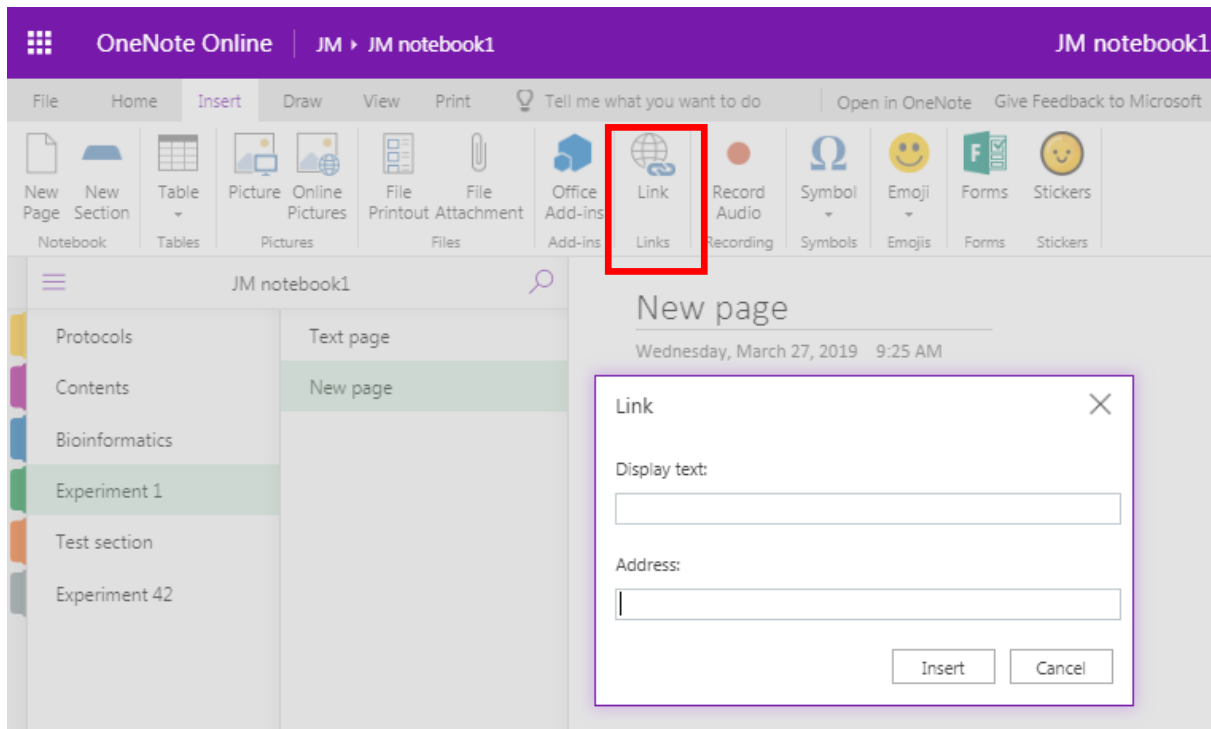
You can add hyperlinks to your notebook to link to **webpages** or to other **pages, sections or notebooks** (just copy the URL for the page/section/notebook).

Go to **Insert > Link** and then you can add the text you'd like to display along with the actual web address.

Just copy the URL for the page you want and type the text you would like to appear to create a hyperlink.

For data stored on websites, such as Sierra, you can create a **hyperlink**.

We need to think about what to do regarding large datasets which are too big to insert into OneNote, but be mindful of the legal requirements for data to be retrievable (more on specific data types later).

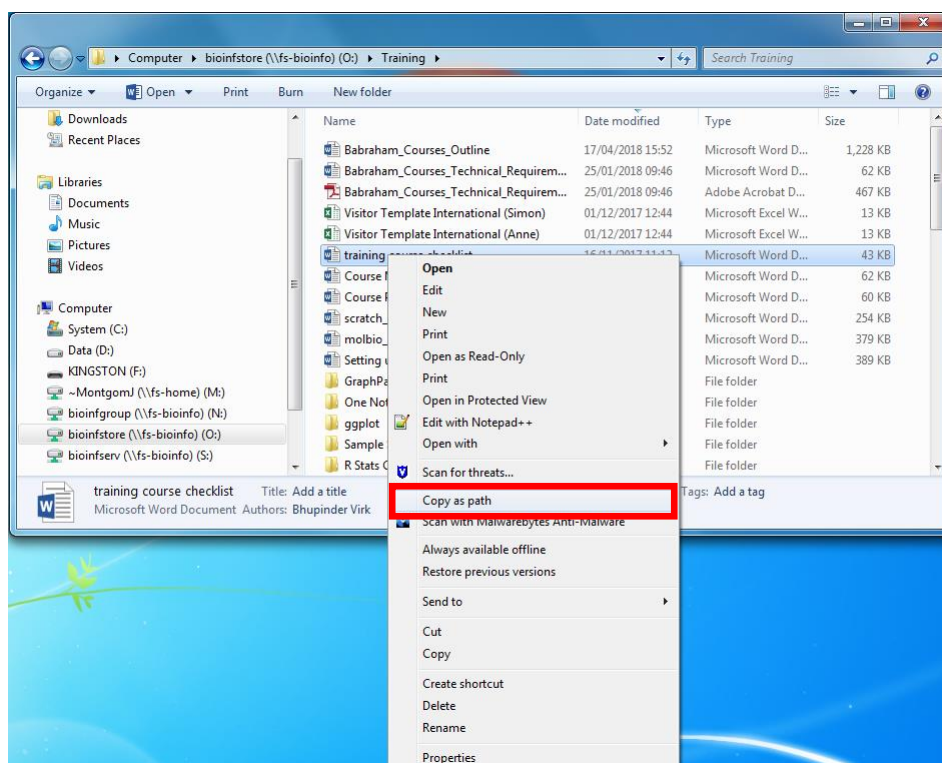


You cannot make a direct link to where files are stored elsewhere as it tries to make the file path into a URL. There are two ways to include information on file stored elsewhere:

1. You can simply report the location of where files/data is stored.

Give file location:

- Shift + Right Click on file in finder > **copy as path**
- Paste text into OneNote as a record of where the file is stored
- Make sure the file location doesn't change



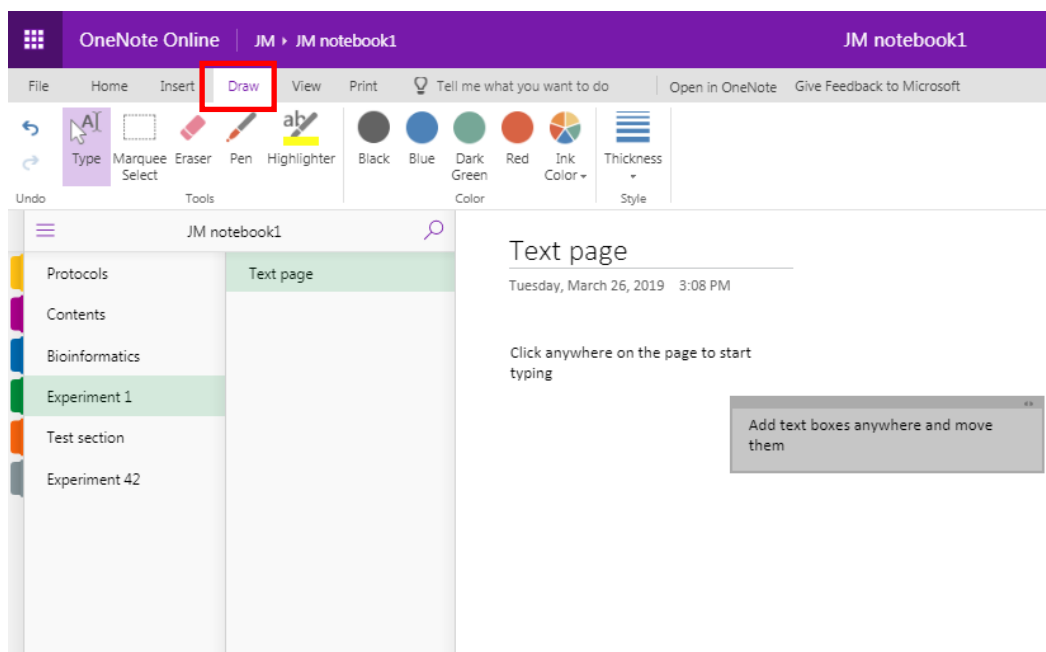
This inserts a copy of the file location – but not a link.
It is simply a record of where your data is stored.

2. You could turn this path into a URL (but not a dynamic link).
 - Remove 'http' and type 'file//' at the start, remove all backslashes (\) and replace with forward slashes (/)
 - Not a dynamic link
 - Copy this link into browser and it should go to the file location

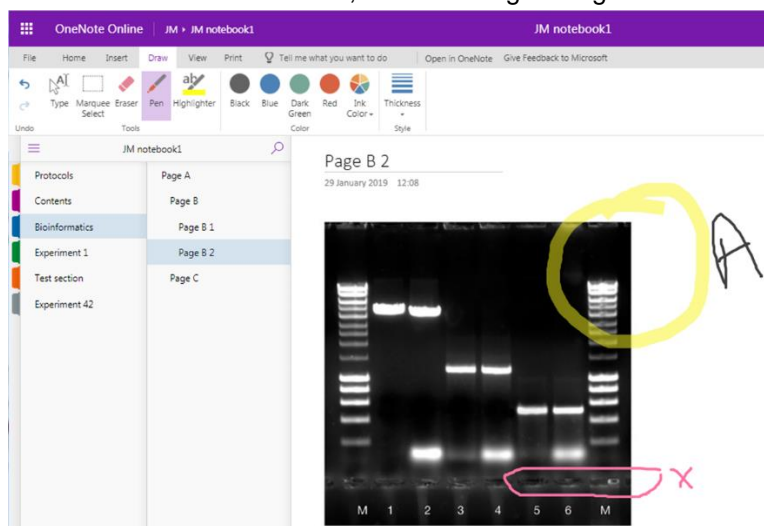
Other useful stuff

Draw

Go to the **Draw** menu to choose a pen and draw with your mouse, or finger/stylus on a touch screen.
You can use this to draw freehand on the screen.



Or annotate slides and notes, or annotate gel images etc.



However, be aware that the image and annotations or text are not 'grouped' so could become dissociated (especially if you move things around). Many find it easier - especially if you are labelling - to annotate in a different programme, e.g. Powerpoint, and then insert the compound image.

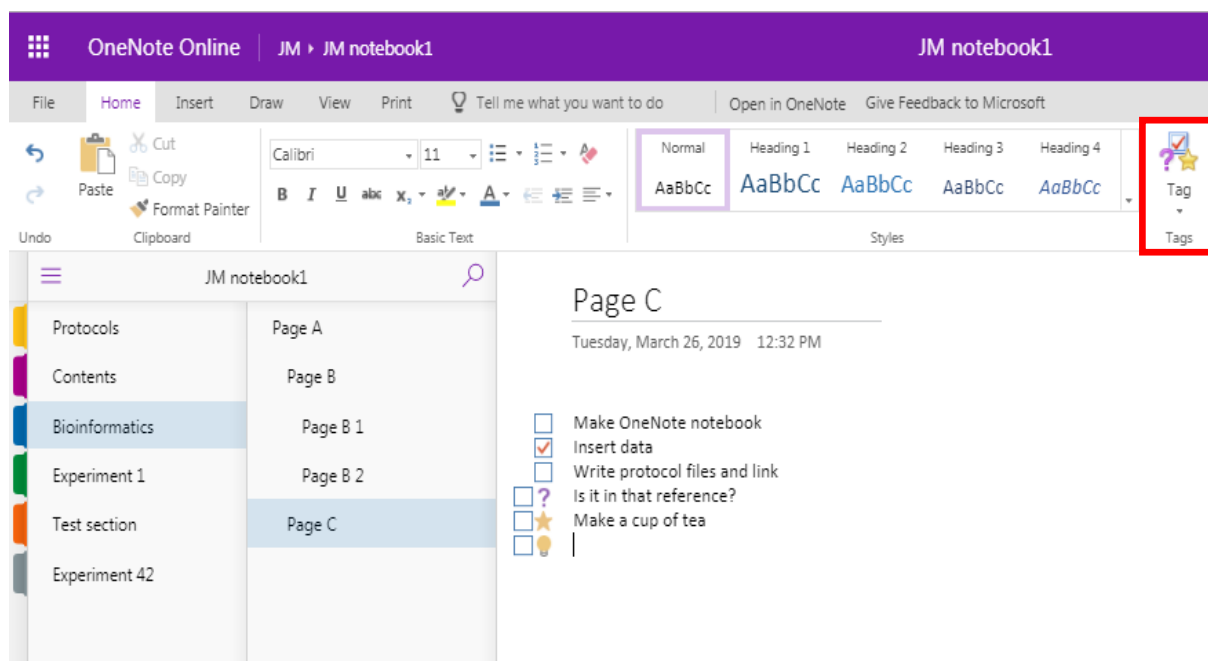
You *can* type in a text box and then move it over the image, change font colour/size etc as appropriate, but the same issues exist – the text and image are not 'grouped' so can move independently.

Remember that the high quality is not be preserved when you insert an image into OneNote so you'll need to store the original image somewhere and note how and where to find it as well. Images in OneNote should be for reference only.

To do lists and tags

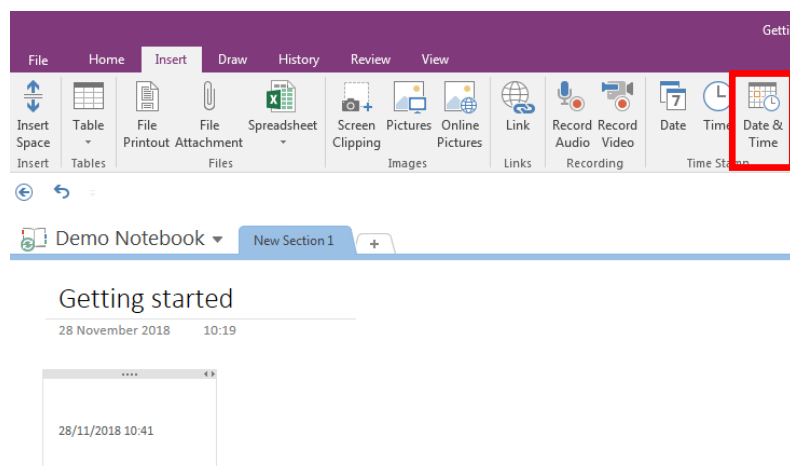
Add a to do list, mark as done, flag for follow up, mark as important, a question , an idea etc...

There are many tags to choose from.



Add a Time and date stamp

The date of when you start a page/ notebook is automatically added, but in OneNote 2016 you can also add a Time and Date stamp at any point (just as you might in a paper lab book). This tool doesn't exist in other versions, but you can obviously type in the date and time. A digital stamp of date and author is automatically recorded by OneNote (see 'versions' later).



Audio and video

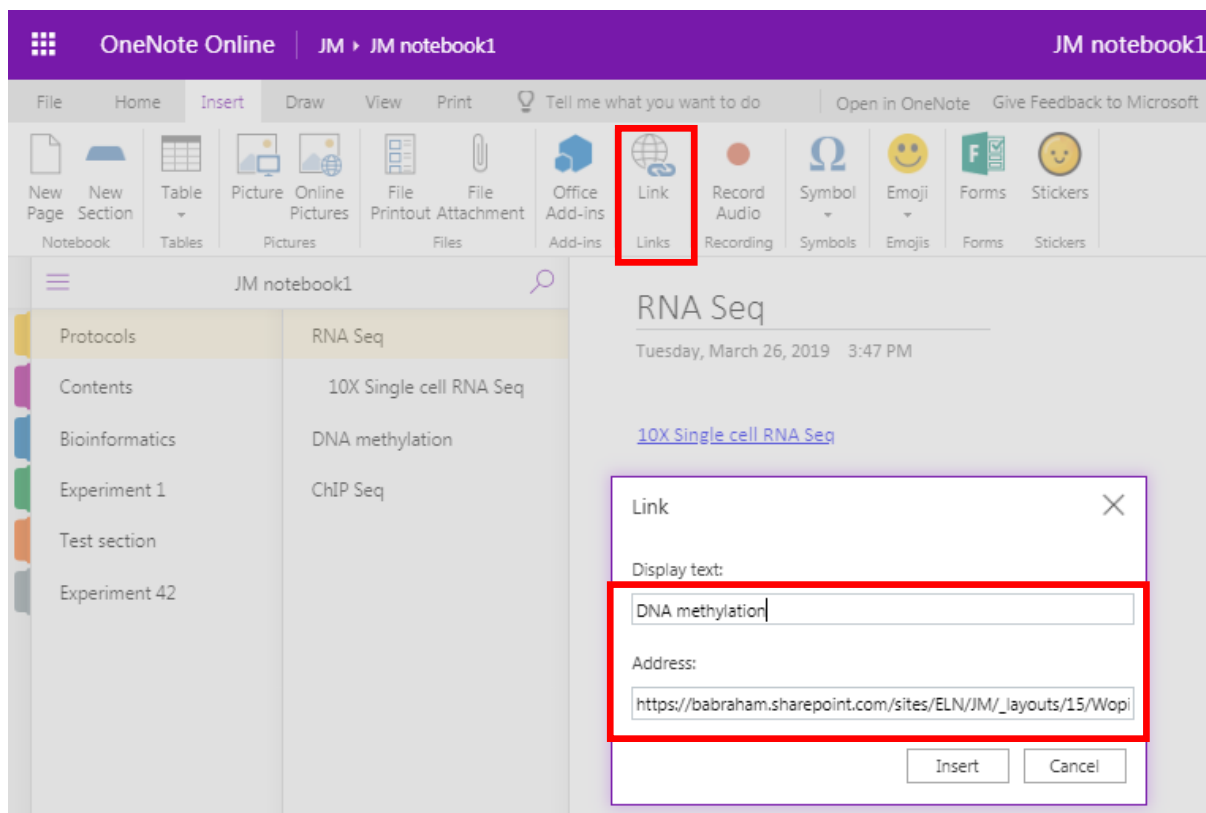
You can also add audio or video recordings, if you have the technology to capture it. This may be a more useful feature if using OneNote on your smart phone or tablet.

OneNote cannot transcribe audio recordings into text, but if you take the audio recording in OneNote (rather than importing it) it is able to search for terms within that recording and point to where it found them - but this does require the audio file to be indexed first, which can take a very long time (not recommended).

Table of contents

Create a Table of Contents with **Links**

- OneNote2016: **Insert > Link > My Notebook** and navigate through the Sections/pages to add
- OneNote 2016, 10 and mac – use double square brackets around page title to create a dynamic link eg. `[[pagetitleofexistingpage]]` (not in OneNote online)
- OneNote Online – copy URL for notebook/section/page and add this as a link



Copy the URL for the page/section/notebook you wish to link to, then paste into the address bar.

Page backgrounds, templates and gridlines

OneNote 2016 has a range of templates (including backgrounds but also different formatting, eg for lecture notes or meeting minutes, as well as the option to add lines or grids. However, typed text does not align to the lines or grids.

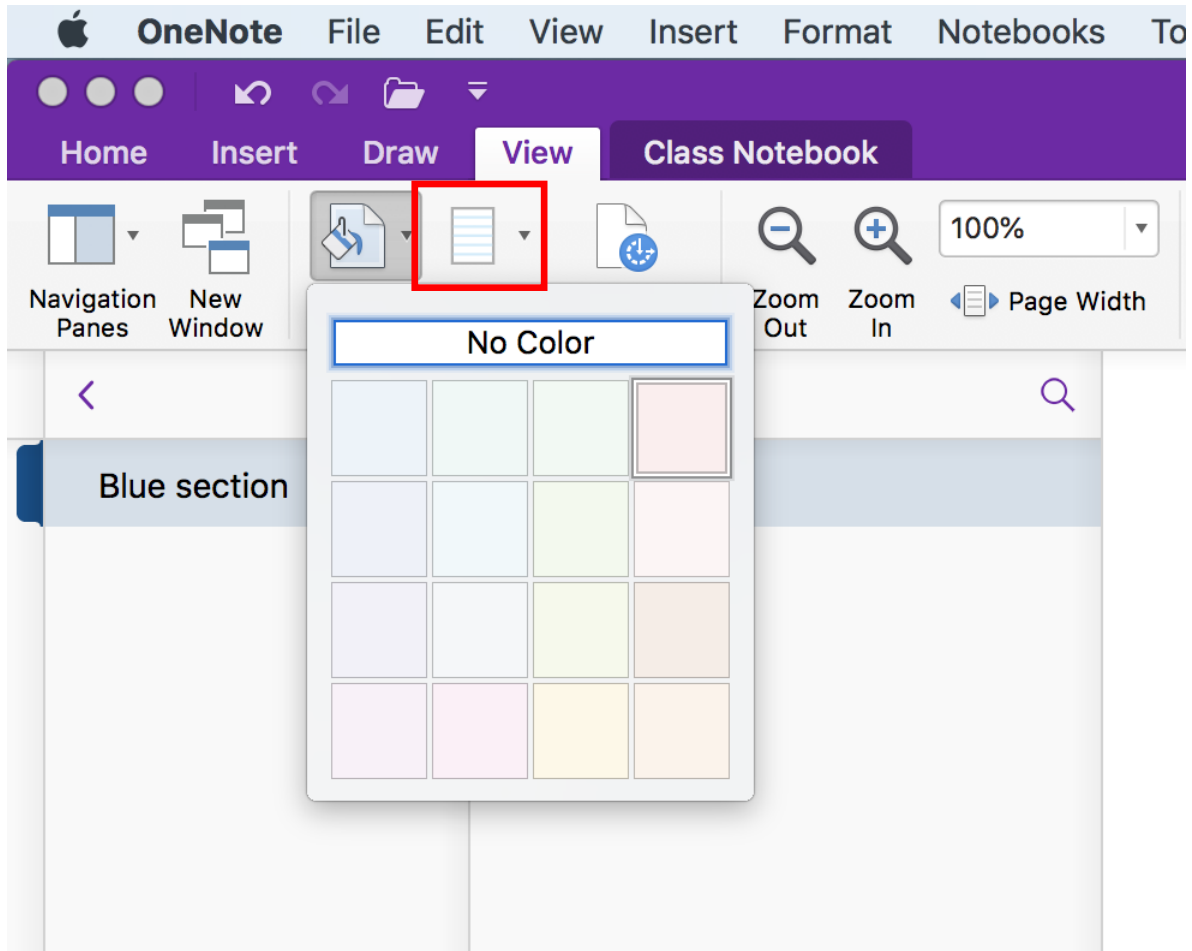
OneNote for mac:

Lines etc. can be found in **View > Paper Style**

You can change the page colour on a mac, but there are no page templates.

This is not a function in OneNote online!

As with other features, if you have added them in the OneNote 2016 or mac versions, they are hidden when viewing in the browser/online version, but are preserved.



Indents and outdents

You can quickly and easily indent and outdent text or rearrange the order in a list using

Alt + Shift + arrow keys.

(Option + command + arrow keys on a mac).

Translation

Don't bother with the translation tool! It simply sends text over the internet to a third party translation service (and isn't very effective!)

If you must use an auto-translator then I would suggest copying the text and running directly in a translation service of your choice - with the usual cautions!

Maths functions

These work best in OneNote 10.

You can also insert pre-made equations in OneNote 2016.

The Mac version will turn typed text into mathematical text eg. curly x .

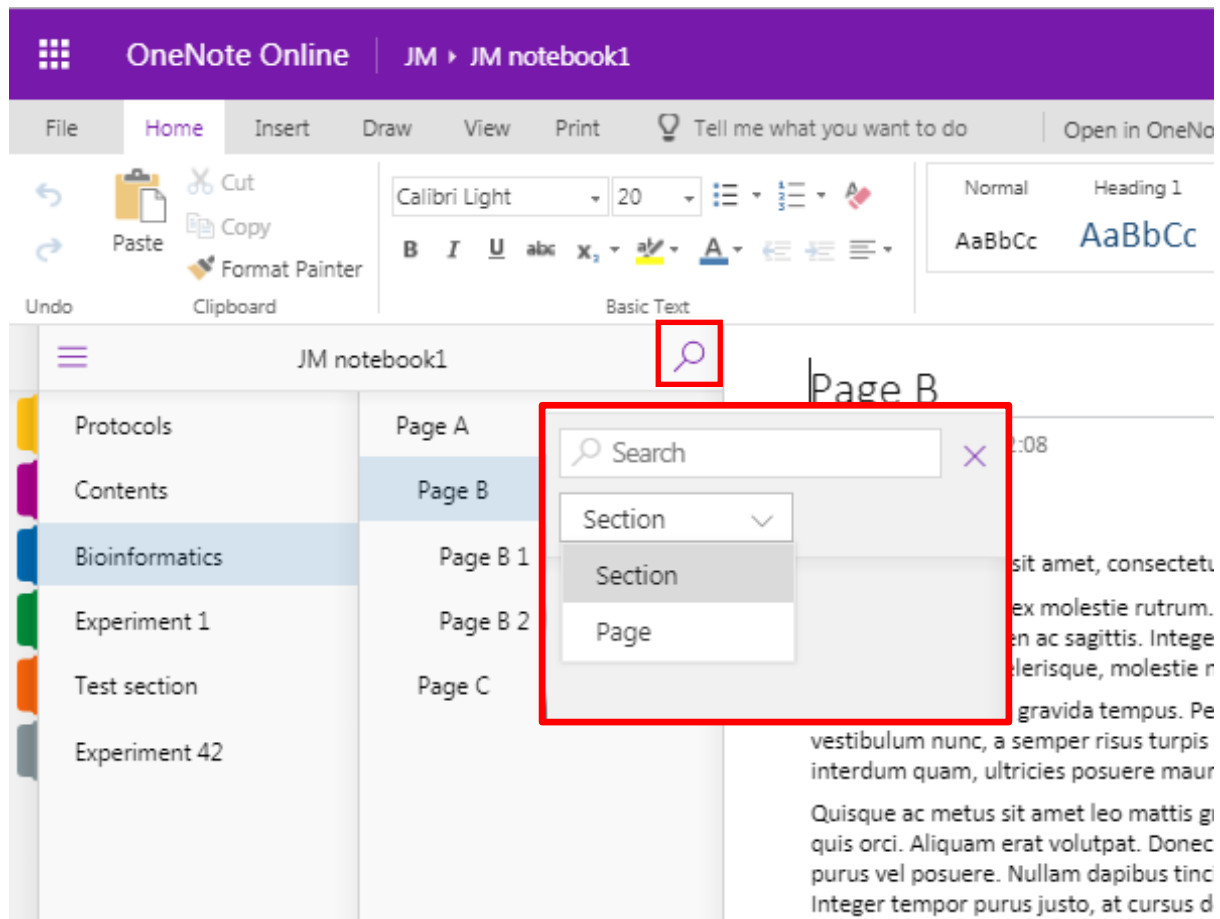
OneNote Online doesn't have these functions.

Search text

Type in the search box (magnifying glass icon at top of menu on left hand side)

This brings up a window and asks if you want to search a page or a section but there is no option to search an entire notebook.

(**Ctrl +F** also allows you to search current section or page but not the entire notebook)



Search text in an image

OneNote 2016:

Search anywhere—even in images. You can right click on any image and select “Make text in image searchable.” From then on, when you search for text, the image will show up in the results. This is great for methods sections of scanned papers from the 1940s, but probably has few other uses.

Not in OneNote online, OneNote 10 or mac!

References

OneNote is not a reference management system

You can link to a reference management system such as Reference Manager or EndNote if you must

You can also include hyperlinks to papers or files, or attach files.

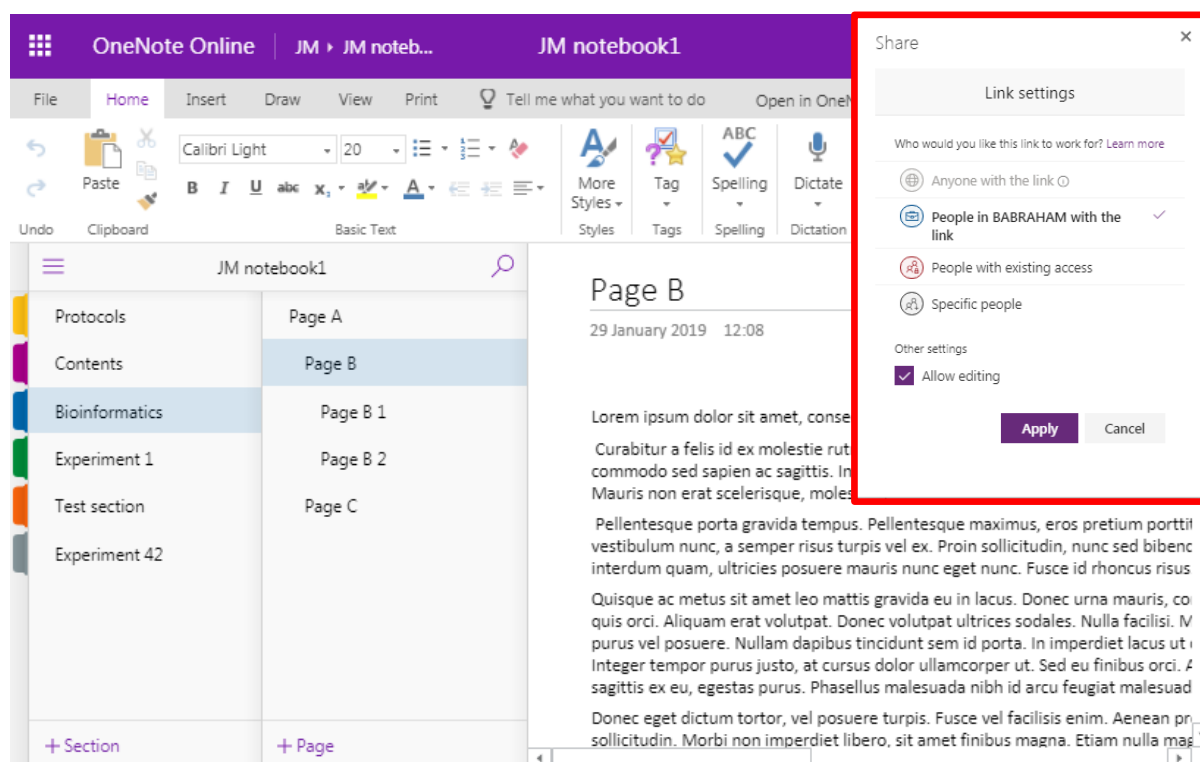
Sharing a OneNote notebook

Who can see your lab book?

Your group leader and group members may be able to see your notebooks on the ELN – depending on the permissions you have enabled: read or read-write access to your notebooks.

You can also share notebooks with people outside your group by *share*, *invite people* or sending a *link*. This sharing link only **works within BI** (from OneNote Online or OneNote 2016 shared on SharePoint) – check with computing if you need to configure external sharing.

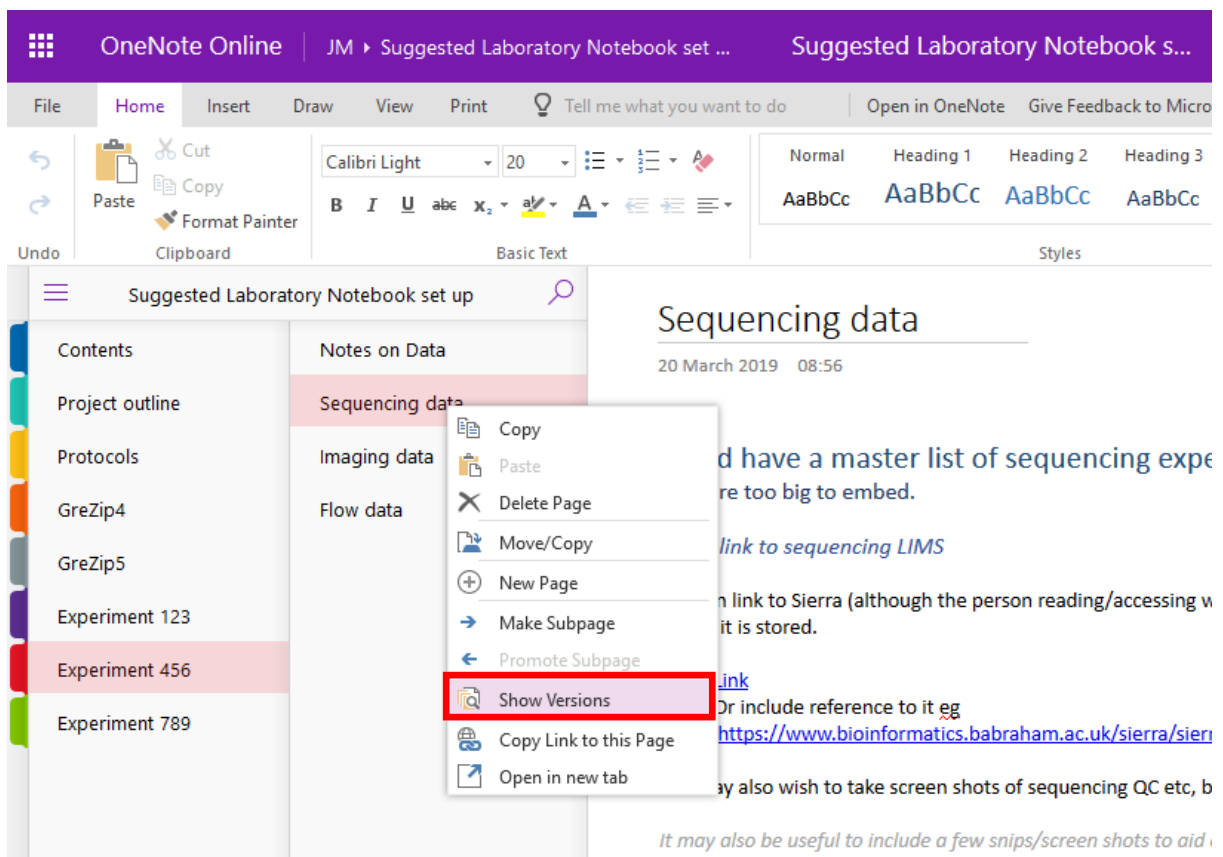
If it's stored on OneDrive (although storing on ELN on SharePoint is recommended by computing) you can share externally.



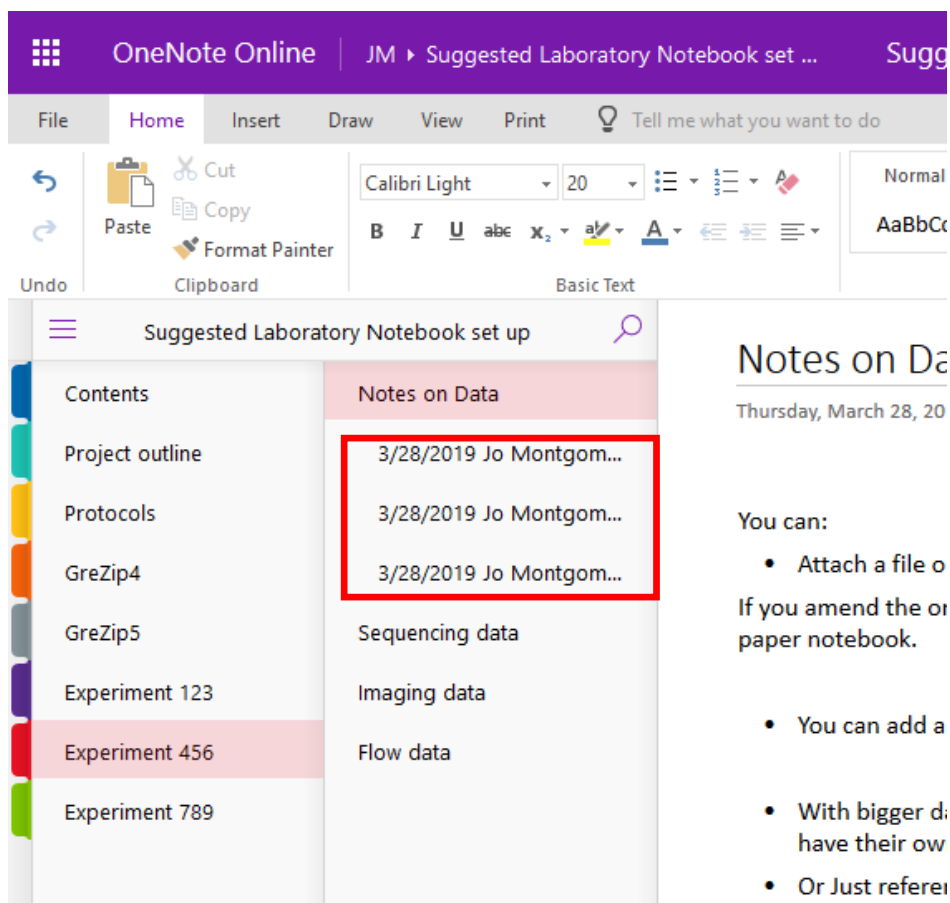
Versions

Right click on a page and select show versions.

This can tell you modifications/versions made with dates and authors. This can be really useful for collaborative notebooks and also for supervisors/PIs to add comments or check and sign-off.



It shows the date when entered and the author.



Suggestions for use as a laboratory notebook

Each main project is a notebook – you can span more than one year this way (although others set up a notebook for each year and have separate projects as tabs – you need to find what works for you and your group).

Each Section tab can be a technique, mouse strain or a sub-project, depending on the nature of your research.

Having a standard protocol Section tab can be a good idea – then you can link to it whenever you use that protocol and not have to write it out repeatedly. Or you could have a group protocols notebook and link to this.

OneNote Online | JM > Suggested Laboratory Notebook set up | Suggested Laboratory Notebook...

File Home Insert Draw View Print Tell me what you want to do Open in OneNote Give Feedback to Microsoft Saved

Calibri Light 20 Basic Text

Normal AaBbCc Heading 1 AaBbCc Heading 2 AaBbCc Heading 3 AaBbCc Heading 4 AaBbCc

Tags Spelling Dictate Meeting Details

Suggested Laboratory Notebook set up

- Protocols
- Experiment 123
- Experiment 456
- Experiment 789

Notes on Data

- Sequencing data
- Imaging data
- Flow data

+ Section + Page

Sequencing data

20 March 2019 08:56

You can link to Sierra (although the person reading/accessing would need log in access) or just reference where it is stored.

- [Link](#)
- Or include reference to it eg https://www.bioinformatics.babraham.ac.uk/sierra/sierra.pl?action=view_lane&lane_id=1970

It may also be useful to include a few snips/screen shots to aid explanation and understanding.

Take a look at this example laboratory notebook (link below), see how data is added and sections are organised etc. This is just an example. Your laboratory notebook needs to be flexible for you, your research and your group, so find the best set-up for you.

https://babraham.sharepoint.com/:o/s/ELN/JM/EukJeoh_7qFFlhWye9y5K6QBtxshmDPJTPzk7kNN0eXYQg?e=ZZIyMR

Features

Table of contents

You may wish to use hyperlinks to include a table of contents in your Notebook

The screenshot shows the OneNote Online interface. The top bar is purple with 'OneNote Online' and 'JM > Suggested Laboratory Notebook set up'. Below is a ribbon with 'File', 'Home', 'Insert', 'Draw', 'View', and 'Help'. The 'Home' ribbon is active, showing font settings (Calibri Light, size 20) and bold, italic, and underline options. The left sidebar shows a 'Contents' pane with a 'Table of contents' section. The main area displays the 'Table of contents' page, dated 'Thursday, March 28, 2019 11:58 AM'. It lists several hyperlinks: 'Project outline', 'Protocols', 'Animals', 'Collection', 'Sequencing', 'Experiment 123', 'Experiment 456', and 'Experiment 789'.

Project overview

You could include a project plan, timeline and to-do list, including thoughts and notes for manuscripts etc.

The screenshot shows the OneNote Online interface with a 'Project overview' page. The top bar is purple with 'OneNote Online' and 'JM > Suggested Laboratory Notebook set up'. Below is a ribbon with 'File', 'Home', 'Insert', 'Draw', 'View', and 'Help'. The 'Home' ribbon is active, showing font settings (Calibri Light, size 20) and bold, italic, and underline options. The left sidebar shows a 'Contents' pane with a 'Timeline - March 2018' section. The main area displays the 'Timeline - March 2018' page, dated 'Wednesday, April 3, 2019 11:55 AM'. It includes a 'Project' section with the text 'This project is about xyz using ABC...'. Below is an 'Experimental plan' table with columns 'To be done', 'Ongoing', and 'Done'. The table lists various tasks and their status across different experiments (HMAAT, GreZip4, GreZip5, PNBGrp, GKLM1). Below the table are sections for 'Possible paper 1 - Role for x y z', 'Possible paper 2 - Characterizing effect of abc in xyz', 'Priority', and 'Timeline'.

To be done	Ongoing	Done
HMAAT <ul style="list-style-type: none">ChIP-seq in HMAATChIP-seq in growing oocytes	ChIP optimization (E6.5)	If of xyz abc oocytes
GreZip4 <ul style="list-style-type: none">Phenotype E6.5 replicates (1x)If replicates (2x)PBAT E6.5IVF/in vitro developmentHistological sections ovariesEU incorporation GV oocytesRNA-seq GV oocytesRNA-seq OV oocytesIf chromosomes/spindle	PBAT E6.5 in mat KO	Decreased litter size in KO mice <ul style="list-style-type: none">Phenotype of offspring E6.5 (1x)If x1 abcIn vivo development at E6.5 (3x)
GreZip5 <ul style="list-style-type: none">IVF/in vitro developmentPhenotype embryos E6.5Histological sections ovariesIf abcChIP-seq in KO oocytesPBAT of oocytes E6.5EU incorporation GV oocytesRNA-seq GV oocytesIf chromosomes/spindle	Uterine in KO mice	In vivo development at E6.5 (1x)
PNBGrp <ul style="list-style-type: none">IVF/in vitro developmentHistological sections ovariesIf replicate (1x) -> countRNA/INChIP-seqPBATEU incorporation GV oocytesRNA-seq OV oocytesIf chromosomes/spindle		No litters in KO mice <ul style="list-style-type: none">In vivo development at E6.5 (5x)If x1 abc
GKLM1 <ul style="list-style-type: none">	PBAT of blastocysts (embryos collected)	No litters in KO mice

Possible paper 1 - Role for x y z
Possible paper 2 - Characterizing effect of abc in xyz

Priority

Timeline

March 2018

- Genotyping blastocysts
- PBAT blastocysts -> maternal effect
- E6.5 collection -> timed mating xyz mice for ChIP-seq optimization

August 2018

Protocols

You may find it useful to keep all protocols in one section/tab. You can have them written out in full or as file attachments or file printouts. If you share standard protocols across the group, then perhaps having a designated laboratory notebook just for protocols would be useful – you can then link to the relevant notebook/section/page.

OneNote Online | JM • Suggested Laboratory Notebook set up

File Home Insert Draw View Help Open in OneNote Tell me what you want to c

Calibri Light 20 B I U

Suggested Laboratory Notebook set up

Contents Animals
Project outline Different versions
Protocols Collection
GreZip4 Sequencing
GreZip5 Low input RNA Seq
Experiment 123 Paraffin embedding
Experiment 456 - Data Whole genome amplification
Experiment 789

Whole genome amplification

Wednesday, April 3, 2019 12:05 PM

GenomeFlex Single Cell Whole Genome Amplification Kit
Sigma-Aldrich, WGA4-10RXN

Reagents Provided

Product Description	Catalog Number	10 Rxn	50 Rxn	500 Rxn
10x Single Cell Lysis & Fragmentation Buffer	L1043	350 µL	1.8 mL	18 mL
Proteinase K Solution	P4850	25 µL	110 µL	1 mL
1x Single Cell Library Preparation Buffer	L0918	25 µL	110 µL	1.1 mL
Library Stabilization Solution	L7292	12 µL	55 µL	550 µL
Library Preparation Enzyme	E0531	12 µL	55 µL	550 µL
10x Amplification Master Mix	A5604	85 µL	410 µL	5 x 820 µL
WGA DNA polymerase	W3891	55 µL	275 µL	2 x 1375 µL
Control DNA (5 ng/µL)	D7192	10 µL	10 µL	10 µL
Water, Molecular Biology Reagent	W4502	1.5 mL	2 x 1.5 mL	2 x 20 mL

Storage/Stability

All components should be stored at -20 °C. When thawed for use, components should be kept on ice. The stability of the Library Preparation Enzyme will be affected if stored warmer than -20 °C or allowed to remain for long periods at temperatures over 4 °C.

Procedure

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna.

Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus.

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci.

Aenean nec lorem. In porttitor. Donec laoreet nonummy augue.

Suspendisse dui purus, scelerisque at, vulputate vitae, pretium mattis, nunc. Mauris eget neque at sem venenatis eleifend. Ut nonummy.

Library Preparation

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna.

Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus.

OneNote Online | JM • Suggested Laboratory Notebook set up

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Calibri Light 20 B I U

Suggested Laboratory Notebook set up

Contents Animals
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Experiment 456 - Data Whole genome amplification
Experiment 789

Animals

Thursday, March 28, 2019 9:27 AM

You can either type out here the different protocols giving information.
Blah Blah Blah.

Title

Quisque ac metus sit amet leo mattis gravida eu in lacus. Donec urna mauris, congue ac egestas ut, volutpat quis orci. Aliquam erat volutpat. Donec volutpat ultrices sodales. Nulla facilis. Maecenas fringilla facilisis purus vel posuere. Nullam dapibus tristique sem id porta. In imperdiet lacus ut dignissim pellentesque. Integer tempor purus justo, at cursus dolor ullamcorper ut. Sed eu finibus orci. Aenean sed sapien rutrum, sagittis ex eu, egestas purus. Phasellus malesuada nibh id arcu feugiat malesuada.

Donec eget dictum tortor, vel posuere turpis. Fusce vel facilisis enim. Aenean pretium est sed ultrices sollicitudin. Morbi non imperdiet libero, sit amet finibus magna. Etiam nulla magna, rhoncus at lacus vel, vulputate egestas justo. Duis vestibulum venenatis velit bibendum facilisis. Vestibulum id hendrerit risus. Pellentesque mi est, tristique at sem id, commodo venenatis magna. Nunc maximus accumsan rhoncus. Duis vitae lectus pretium, imperdiet dui lobortis, pulvinar mi. Proin vel velit vulputate, sollicitudin metus aliquet, aliquet felis. Sed bibendum quam arcu, in posuere felis vulputate vel. Curabitur cursus nec risus sed porttitor. Pellentesque sollicitudin mollis mauris ac lacus.

Or you could attach/insert a word document for example.

Example protocol

Or as a file printout, which includes a display of the file:

Advantages – you can see it at a glance	Keeps historic version at time it was used
Disadvantages – It may be large	

Example protocol document

Example protocol document

Quisque ac metus sit amet leo mattis gravida eu in lacus. Donec urna mauris, congue ac egestas ut, volutpat quis orci. Aliquam erat volutpat. Donec volutpat ultrices sodales. Nulla facilis. Maecenas fringilla facilisis purus vel posuere. Nullam dapibus tristique sem id porta. In imperdiet lacus ut dignissim pellentesque. Integer tempor purus justo, at cursus dolor ullamcorper ut. Sed eu finibus orci. Aenean sed sapien rutrum, sagittis ex eu, egestas purus. Phasellus malesuada nibh id arcu feugiat malesuada.

Donec eget dictum tortor, vel posuere turpis. Fusce vel facilisis enim. Aenean pretium est sed ultrices sollicitudin. Morbi non imperdiet libero, sit amet finibus magna. Etiam nulla magna, rhoncus at lacus vel, vulputate egestas justo. Duis vestibulum venenatis velit bibendum facilisis. Vestibulum id hendrerit risus. Pellentesque mi est, tristique at sem id, commodo venenatis magna. Nunc maximus accumsan rhoncus. Duis vitae lectus pretium, imperdiet dui lobortis, pulvinar mi. Proin vel velit vulputate, sollicitudin metus aliquet, aliquet felis. Sed bibendum quam arcu, in posuere felis vulputate vel. Curabitur cursus nec risus sed porttitor. Pellentesque sollicitudin mollis mauris ac lacus.

Experimental Results

You can include methods and results in 'experiment' sections/tabs and pages, including screen snips of some results, graphs and images (see [Data](#)).

OneNote Online | JM | Suggested Laboratory Notebook set up

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Suggested Laboratory Notebook set up

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Genotyping blastocysts

RNA Seq

Wednesday, April 3, 2019 11:50 AM

GreZp4-120.4 (KO&WT)

18-22 February 2019

5 females

Date	Time	ID	D.O.B.	Age	Genotype	# oocytes
18-02-2019	2.30pm	Pred.4d	27-01-2019	22 days	homo / GreZp4 - +ve	155
19-02-2019	9.30am	Flo.4c	27-01-2019	23 days	homo / GreZp4 - +ve	160
20-02-2019	9.30am	Pinm.4c	27-01-2019	24 days	homo / GreZp4 - +ve	162
21-02-2019	10.30am	Parine.4b	27-01-2019	25 days	homo / GreZp4 - +ve	127
21-02-2019	2.30pm	Pinm.4d	27-01-2019	25 days	homo / GreZp4 - +ve	137

collected in 5 RLT

Label

Top: #ABC / ID

Side: XYZW789 / Date / RLT

mRNA-purification

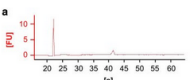
Aliquots were taken during each step of the washing to assess cleanup efficiency of protocol on bioanalyser:

- 0.1ul (1:10 dilution) of total RNA from Trizol RNA extraction
- 1ul of mRNA after first bead cleanup
- 1ul of mRNA after second bead cleanup

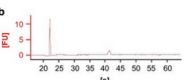
Bioanalyser - RNA pico Chip

CHROMA Plot, 2019-02-22 09:00:00, RNA Seq, test.pdf

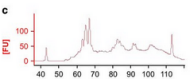
a



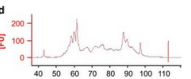
b



c



d



Genotyping blastocysts

Wednesday, April 3, 2019 11:49 AM

General information and commentary, narrative of thoughts in here

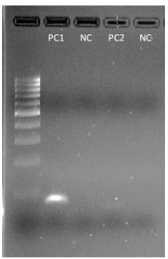
Include files

test PDF

Tables

2x Buffer	10 ul
Fwd primer (10uM)	1 ul
Rev primer (10uM)	1 ul
B5-DNA Sample	2ul
H2O	6ul
Total	20 ul

Gel images:



Primer testing with blastocyst PBAT libraries

06 April 2017 Date and
Name of scientist doing the work

Primer pairs WT and PC1 were tested on 3 different PBAT libraries:

- 1 blastocyst
- 2 blastocysts
- 4 blastocysts

Primers were tested individually and together in a multiplex PCR. PCR volume was reduced to increase input concentration

Data

Your data needs to be comprehensively recorded, timely and retrievable. Depending on the nature and size of data, there are a number of ways to input this in OneNote:

- Attach a file or file printout – OK for smaller files (<19MB)

If you amend the original file, it doesn't update. This is like sticking in a physical copy into a paper notebook

- You can add a link to a file - but if this file moves then the link will no longer work.
- With bigger datasets such as sequencing or imaging, you can link to the file store - these have their own storage and archiving systems and will be maintained
- Or just reference where in *Sierra* etc in the notebook
- Create a non-dynamic link referencing a storage location using *copy as path*

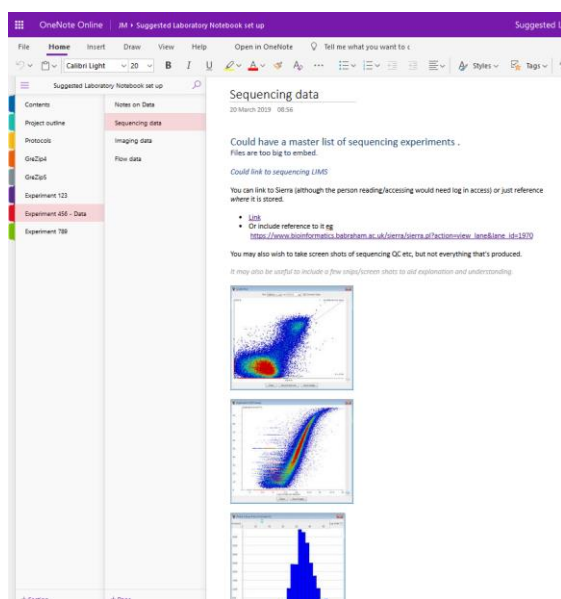
"O:\Training\One Note\test PDF.pdf"

- Use screen shots to document what you've done

Sequencing data

Sequencing files are too big to embed in OneNote.

- You could create a master list and standard storage location for sequencing experiments and note this location in your OneNote notebook
- You could create a link to sequencing LIMS
- You can link to Sierra, although the person reading would need Sierra log-in access, or you could just reference where it is stored – for example using copy as path to include the file location
- It may also be useful to include a few screenshots to aid explanation and understanding – but don't include every step of analysis



Imaging data

Imaging data can be very large, so don't include in OneNote – reference the storage location.

- A direct link may not be a good idea due to accessibility / retrievability issues
- The Babraham imaging facility keeps files in an easy access file storage for 1 year, in individual users' folders. After this, they are archived to a longer term storage area, using the same storage structure
- You may wish to include a screenshot for narrative purposes, but a high resolution version should be stored elsewhere and the location documented
- You may wish to annotate images in another program and then insert into OneNote to avoid text/annotations and the image becoming dissociated

OneNote Online | JM > Suggested Laboratory Notebook set up

File Home Insert Draw View Help Picture Open in OneNote Tell me what you want to do

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Notes on Data

- Sequencing data
- Imaging data
- Flow data

Imaging data

Thursday, March 28, 2019 9:44 AM

What do you do if images are too large?

Imaging data can be very large, so it is best to point at where it is stored.

A direct link might not be a good idea due to accessibility/retrievability issues:

- The Imaging facility keep files in an easy access file storage for one year, in individual users' folders.
- After this they are archived to a longer term storage area, still under the same structure of users' folders.

You may wish to include a screenshot/clip for narrative purposes but a high res version should be stored elsewhere (and location written down):

File path `gg O:\Training\One Note\OneNote course data`

You may wish to annotate images in another application and then insert to avoid text and image becoming dissociated:

Flow data

If files are small, they can be inserted into OneNote.

Data from cytometers (.fcs files) – you can link to or reference where this is stored

Sorts (PDF) of the sorting gates and sorting statistics are small and can be inserted or attached as a file printout in OneNote, or you can link to or reference where data is stored.

Screenshots may be useful for narrative purposes.

OneNote Online | JM ▶ Suggested Laboratory Notebook set up | Suggested Laboratory Note... - Saved

File Home Insert Draw View Help Open in OneNote Tell me what you want to do

Calibri Light 20 B I U [Drawing Tools] [Link] [Image] [Table] [List] [Page Setup] [Styles] [Tags]

Suggested Laboratory Notebook set up

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Notes on Data

Sequencing data

Imaging data

Flow data

Flow data

Thursday, March 28, 2019 9:44 AM

If files are small, could embed in OneNote.

Data from cytometers (.fcs file) - you can link to or reference where this is stored (your network/local drives) - an automatic copy is also stored on [FACSStore](#).

PDF files small enough to be included.

Sorts: PDFs of the sorting gates and the sorting statistics can be inserted/attached/attached as file printout in OneNote or a link or reference to where data is stored, and/or screen shots/snips included.

a

b

c

What's next?

Have a go at creating your own laboratory notebook with a layout that works for you and your research.

Further help

- <https://support.office.com> has lots of quick, short video tutorials
- Contact computing@babraham.ac.uk (ext 6222) for access or technical issues
- <http://www.bioinformatics.babraham.ac.uk/training.html>
- jo.montgomery@babraham.ac.uk or babraham.bioinformatics@babraham.ac.uk