


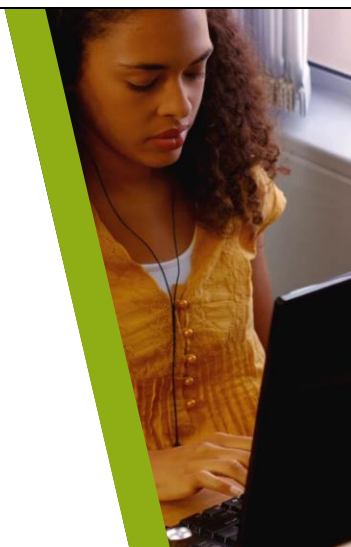
Western Cape  
Government  
Education

Western Cape Education Department  
Directorate eLearning

# ***Visualising Data using VLOOKUP and Pivot Tables***



Register while you wait  
<https://bit.ly/Registration-HO>



Slide 2

## House Rules

1. Please turn off your camera.
2. Please mute your microphone.
3. Please post all your questions in the chat.

1. 2. 3.

27:30

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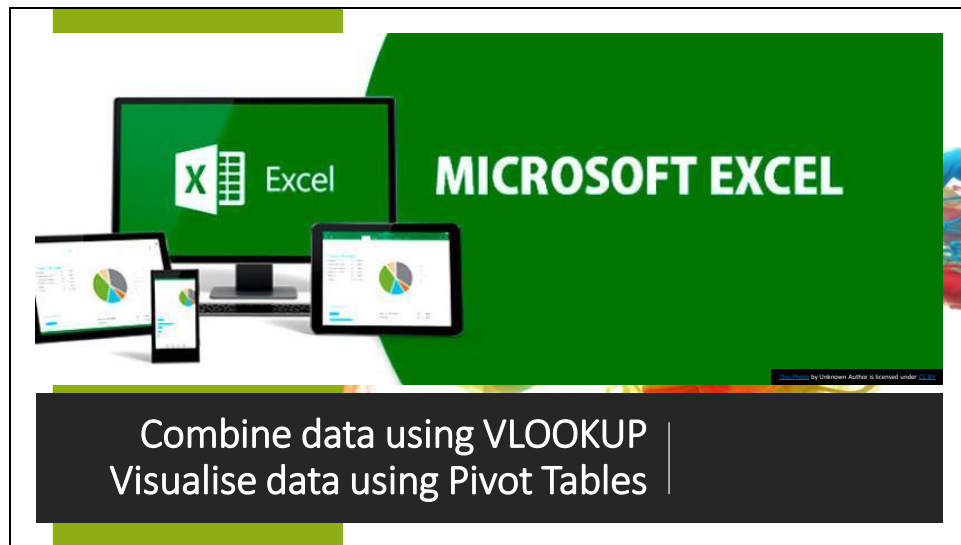
Note to presenter should the question arise: If more than 350 attends, interactivity is limited. Also, those outside of WCED might have challenges with interactivity.

## Jenna Swano

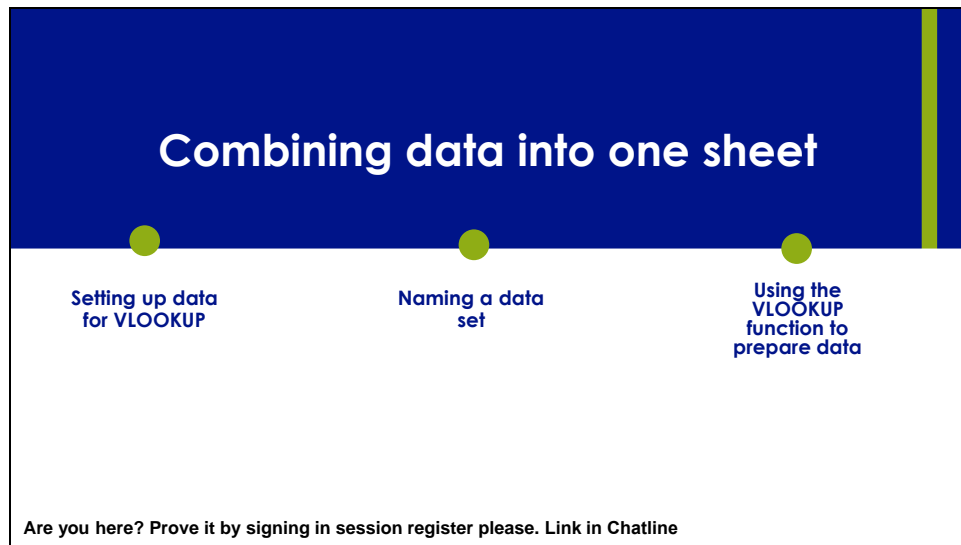
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Speaker introduction

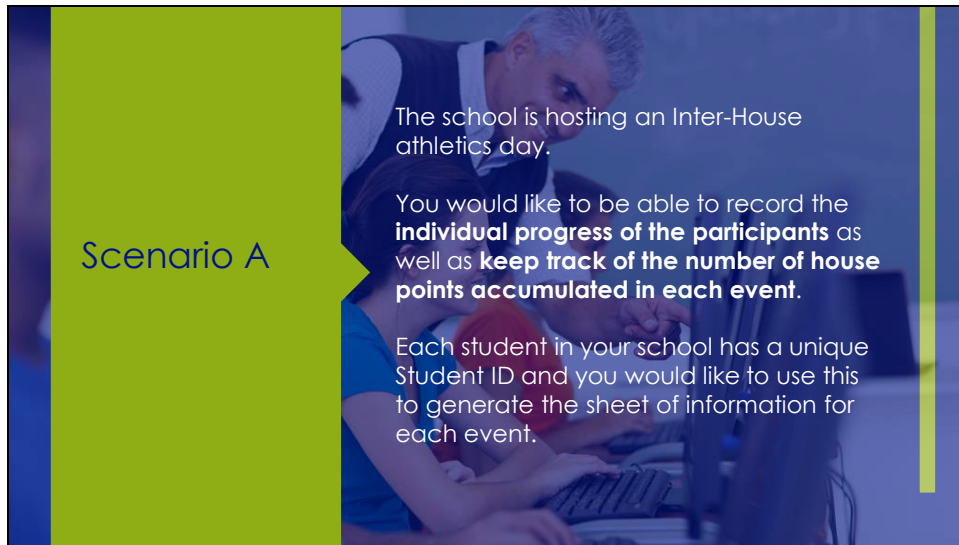


It is software developed to organize numbers and data with formulas and functions in a spreadsheet format. Microsoft's Excel is a wonderful application that can be used to achieve student learning outcomes and to look at learning and performance trends. Yet, many educators seem to be intimidated by the level of understanding and competence required to effectively use applications like Excel in their teaching. As with anything newly learned, it takes time to develop a new skill.



Talk through what will be covered.

Orientate participants towards the practice data set. They should download it as an Excel file.



Scenario A

The school is hosting an Inter-House athletics day.

You would like to be able to record the **individual progress of the participants** as well as **keep track of the number of house points accumulated in each event**.

Each student in your school has a unique Student ID and you would like to use this to generate the sheet of information for each event.

Read the scenario, emphasizing the bold words.

## **Let's get started**

1. Open the practice file in Microsoft Excel so that you can follow along.

Point out the 'Whole School' and 'Reference sheets' with their data.  
Note that all columns have headers.

## Let's get started

1. Open the practice file in Microsoft Excel so that you can follow along.
2. Name a data set

Point out that the “Reference” sheet has been formatted into tables. You can see this by clicking on one of the tables of data. You will see that the specialized table ribbon appears on the top and if you click on it, you’re able to see the table name.

The reason that we format tables this way is to make it easier to reference in other formulas.

Activity 1: Format the Whole School data as a table and name it “Whole\_School\_list”. Point out that table names cannot have spaces, so they should either have underscores or be one word.

## Let's get started

1. Open the practice file in Microsoft Excel so that you can follow along.
2. Name a data set
3. Use VLOOKUP function to add student data based on their Student ID

In the 'Incomplete 100m Sprint' sheet, notice that student numbers have been pre-recorded. In the real-world, students would give you their student number at each event or teachers would provide them.

Activity 2: In cell **B2**, type "`=VLOOKUP($A2,Whole_school_list,2,FALSE)`" There are a few things to note:

**\$A2:** References the Student ID in this sheet. This is what Excel will look for in the other table. **Excel will include the sheet name automatically if you click on the cell. Delete this or type "A2" manually, it messes with sorting later.)** The \$ means that when you drag the formula across, it will continue to reference the "A" column.

**'Whole\_school\_list':** Because this is the name of the table, you can start typing the name and Excel will give you the suggestion to auto-complete.

**2:** This is the column number that it should pull the data from in the 'Whole\_school\_list' table

**False:** By default, VLOOKUP looks for approximate values. If you type "FALSE" here, it will look for an exact value.

With B2 highlighted, double click the bottom right-hand corner to populate the column. Now drag the formula across the next 3 columns, changing the column reference value to 3, 4 and 5 respectively.

Notice that the birth date is not formatted correctly. Highlight the column → right click → "Format cells" → "Date" → "y/m/d"

### Let's get started

1. Open the practice file in Microsoft Excel so that you can follow along.
2. Name a data set
3. Use VLOOKUP function to add student data based on their Student ID
4. Use a formula to calculate the student's age

Now we want to use the student's birth date to calculate how old they will be on the 31st of December this year.

Activity 3: Calculate how old each of the students are

To the right of "Date of birth", insert a new column called "Cutoff date" and populate with the date "2021/12/31".

In **G2** type "`=DATEDIF(E2,F2,"y")`"

In **H2**, use VLOOKUP to insert the student's age group by typing

`"=VLOOKUP(G2,Age_groups,2,FALSE)"` (referencing the "Age\_groups" table on the reference sheet)

### Let's get started

1. Open the practice file in Microsoft Excel so that you can follow along.
2. Name a data set
3. Use VLOOKUP function to add student data based on their Student ID
4. Use a formula to calculate the student's age
5. Use VLOOKUP to allocate House Points based on race position

Now we want to include house points depending on where students came in the race, so again, we'll use VLOOKUP:

Activity 4: In cell J2: =VLOOKUP(I2,house\_points,2,FALSE)

## How else could we use this?

Description	Score
Outstanding achievement	80-100
Meritorious achievement	70-79
Substantial achievement	60-69
Adequate achievement	50-59
Moderate achievement	40-49
Elementary achievement	30-39
Not achieved	0-29

Look up National  
Rating codes when  
given a percentage.



Looking up student  
data or email  
addresses from a  
database.



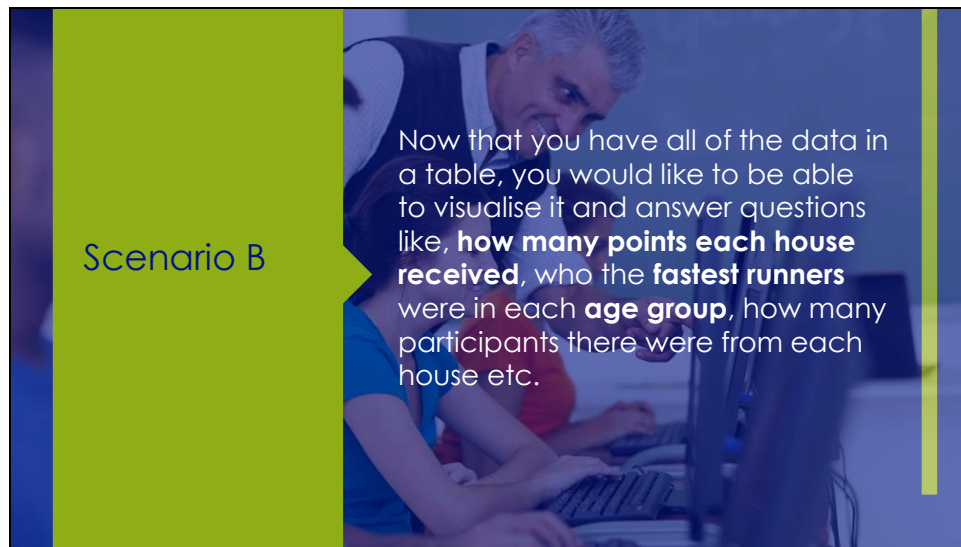
Keep a database of school  
resources or look up  
information on a book using  
an ISBN number.

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Talk through what will be covered.

Orientate participants towards the practice data set. They should download it as an Excel file.  
(This is the same as the VLOOKUP practice sheet)



Scenario B

Now that you have all of the data in a table, you would like to be able to visualise it and answer questions like, **how many points each house received**, who the **fastest runners** were in each **age group**, how many participants there were from each house etc.

Read the scenario, emphasizing the bold words.

## Let's get started

1. Let's look at the "Complete 100m" spreadsheet

The "Complete 100m Sprint" is ready for this section.

It's important to check that all of your columns have headings and that there aren't any blank spaces in the table.

This table has also been formatted as one and labeled "ohm\_Sprint" for easy reference later.

"OHM" stands for 100m. Numbers are not allowed in table names.

## Let's get started

1. Let's look at the "Complete 100m" spreadsheet
2. Create a pivot table

Activity 5: Select a cell in your table. → Go to the "Table" ribbon → select "Summarize with pivot table" → "Ok"

## Let's get started

1. Let's look at the "Complete 100m" spreadsheet
2. Create a pivot table
3. Explore the Pivot Table fields

Activity 6: See what happens when you drag different headers around.

E.g.: Row: House; Column: Age Group and Value: Age group will tell you the number of participants from each

You can drag multiple headers under each section as well, for example if you'd like to see the age group breakdown of house points or the names of the students who scored the most house points.

Try Columns: Position; Rows: House; Values: Position. Notice that by default it's "Sum of position". That's not helpful. Use the settings to change it to "Count of position".

## Let's get started

1. Let's look at the "Complete 100m" spreadsheet
2. Create a pivot table
3. Explore the Pivot Table fields
4. Display data using a Pivot Chart

Activity 7: Click within the chart → Pivot table analysis → Pivot chart

You can go to "Design" to make changes to the chart..

Try clicking "Switch Row/ Column" and see how that affects the chart.

You can also change the chart type. We won't spend a lot of time on this. It's the same as other Excel charts.

## Let's get started

1. Let's look at the "Complete 100m" spreadsheet
2. Create a pivot table
3. Explore the Pivot Table fields
4. Display data using a Pivot Chart
5. Filter data by inserting slicers

Activity 8: To filter data using a slicer, we first need to make space for them. Right click on column A and insert a column to the left. Make it nice and wide.  
Select your pivot table, go to "Pivot table analyse" → "Insert slicer" → select the slicer (e.g. house) → Ok  
Now you can use your slicer to filter out the information from different houses.

## Let's get started

1. Let's look at the "Complete 100m" spreadsheet
2. Create a pivot table
3. Explore the Pivot Table fields
4. Display data using a Pivot Chart
5. Filter data by inserting slicers
6. Refresh your data

Pivot tables don't automatically update, although you can set them to auto update in the settings when you close and open the document.

Activity TIP: If you update the information on the other sheets, be sure to go to "Pivot table analyse" → "Refresh"

## How else could we use this?



Mark analysis at the end of a term or after an assessment



Visualize a school resource or asset list



Record and visualize match fixtures for a particular sport across age groups


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Mr. Snipes #

## Spreadsheet series

### Track 1



#### Working with Spreadsheets

The purpose of the workshop (1h30min) is to guide teachers, management and administrative officials to effectively use spreadsheets to do calculations.


#### Data visualisation using graphs: Spreadsheets

The purpose of the workshop (1h30min) is to guide teachers, management and administrative officials to effectively use spreadsheets to visualise data using graphs.

#### Data visualisation using pivot tables in Excel

The purpose of the workshop (1h30min) is to guide teachers, management and administrative officials to effectively use spreadsheets to combine data and to visualise data using pivot tables.

This session forms part of a series. Should you have missed the first two please do keep an eye out for invitations for future training.

<p><b>Spreadsheet series</b></p> <p><b>Track 2</b></p> 	<p><b>Masterclass 1: Google form and sheet integration overview</b></p> <p>The purpose of the workshop (1h30min) is to guide teachers, management and administrative officials to effectively use spreadsheets when integrating Google forms and Google sheets.</p> <p><b>Masterclass 2: Data manipulation, automation and data protection using Google sheets</b></p> <p>The purpose of the workshop (1h30min) is to guide teachers, management and administrative officials to effectively manipulate, automate and protect datasheets.</p> <p><b>Masterclass 3: In-time data visualisation using Google Data Studio</b></p> <p>The purpose of the workshop (2h) is to guide teachers, management and admin officials to effectively prepare and visualise spreadsheet data in data studio.</p>
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The second track is more advance and makes use of google sheets. You can contact your district eAdvisor for more detail.

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For more information on the DELIPD programmes visit [WCEC eLearning Technology Adoption and Transformation Hub](#)





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Keep safe and healthy!

