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| **Choosing the right graph in Excel** |
| **Guide?** | **Presentation Level?** | **Graph type** | **Example** | **Application** | **Variants** | **Notes** |
| (Y) |  | Column | Column chart | * Shows data *change over time*
* Illustrates *comparisons*
 | * **Clustered**Compares values across categories
* **Stacked**Shows relationship of individual items to the whole across categories
* **100% stacked**Compares percentage a data contributes to a total across categories
* **3D**Compares data along two-axes
 | * Good for showing discharge, hydraulic radius – any set of values that change downstream
 |
| (Y) |  | Bar | Bar chart | * Illustrates *comparisons* between individual items
 | * **Clustered**Compares values across categories. Categories are organised vertically, value horizontally - this places focus on comparing values.
* **Stacked**Shows relationship of individual items to the whole across categories
* **100% stacked**Compares percentage a data contributes to a total across categories
 | * Good for showing how values change if *comparison* is the focus.
 |
| (Y) |  | Line | Line chart | * Shows trends in data *at equal intervals*.
 | * **Stacked**Shows relationship of individual items to the whole across categories
* **100% stacked**Compares percentage a data contributes to a total across categories
* **3D**3D effect!
 | * If sample sites are equally spaced, could be used to show how variables change between sites.
 |
| (Y) |  | Pie | Pie chart | * Shows the size of items that make up a data series
* Only shows *one* data series
* Can be 2D or 3D
 | * **Exploded Pie**Emphasises individual values by separating sections of the chart (2D or 3D).
 | * Useful for emphasising something significant
* Use a doughnut chart if you have multiple-series of data to graph
 |
| (Y) |  | Pie of pie & Bar of pie | Pie chart containing smaller pie chart | * Useful for showing sub-sets of data or values too small to be clear on a pie chart
 | * **Pie of pie**Specific values are extracted and shown in a second pie chart. Makes small slices of the main pie chart easier to see or shows subset of data
* **Bar of Pie**As above by extracted data is used to draw a bar graph
 | * Chose to illustrate a specific point using a subset of data OR if values are too small to be clear on a normal pie chart
 |
| (Y) |  | Area | Area chart | * Emphasises magnitude of change over time
* Shows relationship of parts to whole
 | * **Stacked**Shows relationship of individual items to the whole across categories
* **100% stacked**Compares percentage a data contributes to a total across categories
 | * Use to show how the value of a variable changes downstream.
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|  |  | Cylinder / cone / pyramid | 3-D column chart with pyramid data markers | * A variation of a column or bar chart
 | * **Cylinder**Uses cylinders
* **Cone**Uses cones
* **Pyramid**Uses pyramids
 | * May be appropriate to reflect value being graphed, e.g. sharp things 🡪 pyramids
* Probably unnecessary as doesn’t add anything beyond normal variant.
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| (Y) |  | Histogram | The Histogram tool can automatically create a column chart like this one. | * Plots data within specific intervals as a bar graph
 |  | * May be useful to illustrate bedload size/shape/angularity
* Sorts data into bins
* May look like a bar chart but isn’t!
* A little complicated to set up, then easy to use.
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|  |  | Gantt | Example of a Gantt chart in Excel | * Illustrates a planning timeline
 |  | * Shows timeline of project
* Useful to illustrate structure of work in detail
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|  |  | Surface | Picture of a formatted surface chart | * Creates topographic map using colour to show similar values.
 | * **3D Surface**Shows data across two dimensions in a continuous curve.
* **Contour**A surface chart viewed from above. Colours represent specific ranges of values.
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| (Y) |  | Stock | Volume-High-Low_Close Stock chart | * Plots average and range as bars from a point.
 | * **High-Low-Close (HLC)**Needs three series of data, e.g. average/max./min., and will plot these as a point with a bar up to the max. and down to the min..
* **Open-High-Low-Close**N/A
* **Volume-High-Low-Close (VHLC)**Needs four series of data, e.g. discharge/average/min./max. bedload size. Will plot discharge as a bar graph in addition to HLC point and bars.
* **Volume-Open-High-Low-Close**N/A
 | * Useful to show variation in data at a specific site (VLC)
* Can show two variables, including variation of one
 |
| (Y) |  | Bubble | Picture of a Bubble chart | * A variation of a scatter chart
* Use if you have three data series all containing values (no gaps)
* Plots data against two axes and by varying size of bubble.
 |  | * Can do multiple series.
* Can show proportionally-sized pies & error bars.
 |
| (Y) |  | Scatter | Picture of a scatter chart | * Similarities between sets of paired or grouped data
 | * **Scatter with data points connected by lines**Smoothed or straight lines connect data points
 | * Don’t confuse with a line chart in which the data are evenly spaced.
* Can be used to show relationships/pattern/trends
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|  |  | Radar | Radar chart | * Compares aggregate values from several series of data
* Plots data relative to centre point
 | * **Filled Radar**The area covered by a data series is filed with colour (may make illustration easier or differences more apparent).
 | * Discursive tool
* Data must already be processed.
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|  |  | Doughnut | Doughnut chart | * Shows the relationship for parts of whole by displaying data in rings.
* Able to show multiple data series on one graph
 | * **Exploded doughnut**Like an exploded pie chart, can draw attention to size of each variable but can show more than one data series
 | * A doughnut chart shows several series a data; a pie-chart shows ONE series of data
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