| | EYFS → KS1 → Secure | | | LKS2 → Secure | | UKS2 → Secure → | | |
|---|---|---|---|---|---|---|---|---|
| | **EYFS** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** | **Year 6+** |
| **Patterns** | I recognise, create & describe simple patterns (e.g. size) | I recognise, create & describe simple number patterns | I **describe** simple features & **patterns** in data & charts | I describe simple patterns in data, charts & graphs | I **describe** simple patterns, **trends** & relationships in data | I describe patterns, trends & relationships in data | I **describe changing patterns**, trends & relationships | I compare changing patterns, trends & relationships |
| | I begin to use 'more or less' to compare observations | I use 'more or less' to compare numbers | I see obvious **differences in sets of numbers** | I see subtle differences in sets of numbers | I see differences (error) in **repeated data** | I spot anomalous data that doesn't fit the pattern | I **spot anomalous data** & explain from the method | I deal with anomalous data to increase reliability |
| **Conclusions** | I talk about changes through my senses during activities | I describe the changes that are happening | I **describe the changes** that have happened | I describe my results by linking cause & effect | I **describe trends** & begin to use science models to **explain** | I use data in my conclusions & science models to explain | I use **primary & secondary data** in my conclusions | I use a range of data in conclusions to support validity |
| | I explore 'what if ..' questions through talk & play | I explore different ways to do things through play | I suggest a **different way** to do things with help | I suggest improvements to my method | I suggest **sensible improvements** to my method | I identify strengths & weaknesses & improvements | I suggest **limitations (data) & practical improvements** | I suggest limitations (use data) & justify improvements |

# Making Conclusions

### Working Scientifically – word lists

**KS1**

**Axis** = reference line drawn on a graph to show the range of data for each variable (shows values)
**Block chart** = visual toll to show data/counts as bars built up by adding component blocks. Used to compare data visually
**Cause** = the variable we chose to change in an investigation
**Data** = a measured or counted outcome for a variable (numbers)
**Effect** = the variable that changes when we change the cause
**Experiment** = investigation that looks for a link between variables (fair or comparative test)
**Observation** = sensed outcome for a variable (described in words)
**Pictogram** = chart that uses pictures to represent data
**Prediction** = suggests what might happen based upon prior knowledge or experience (not a guess)
**Results table** = way of presenting data from an investigation
**Risk** = dangers when doing an investigation, using equipment or working in an area
**Standard units** = a quantity of a variable that is used as a standard measure (e.g. litre, meter, gram, etc)
**Variable** = a factor that can change

**LKS2 (plus KS1)**

**Bar chart/graph** = visual tool that uses bars to compare discrete data
**Comparative test** = fair test comparing discrete differences
**Conclusion** = the answer you give to a question (based upon data)
**Continuous data** = values are numbers (result from counting/measuring)
**Coordinate** = used to plot data (x/y) on a graph
**Data interval** =numerical gap between data points for a variable
**Data point** = a coordinate for a variable
**Data range** = maximum & minimum values for a variable
**Discrete data** = values are distinct/separate (e.g. male/female; counts)
**Fair test** = an investigation where only one variable is changed (cause); all others are kept the same and at their best value
**Line graph** = visual tool that shows a relationship trend between two continuous variables (it is essentially a scatter graph)
**Method** = ordered sequence of steps taken during an investigation. It can be written or in diagram form
**Prediction (correlation/relationship)** = describes the expected trend for two variables (cause & effect) that are linked
**Prediction (scientific/causal)** = suggestion as to what might happen based upon prior knowledge, experience or observation. Links the cause with the predicted effect. Does not have to describe the trend
**Spider key** = branching classification key where each branch has a yes/no choice (dichotomous key) leading to further choices
**Trend** = the outcome when two variables (cause & effect) are linked

**UKS2 (plus KS1/LKS2)**

**Anomalous data** = data that does not fit a pattern
**Controlled variable** = variables kept at the same value so they do not influence the dependent variable in a fair test
**Data set** = vales for repeated data
**Data spread** = variation of the data away from a mean (often due to imprecise measuring or when the controlled variable have not been kept the same)
**Dependent variable** = changed (effect) as a result of changing another. This is observed or measured and demonstrates a relationship in a fair test
**Hypothesis** = a reasoned prediction based upon theory, experience or direct observation
**Independent variable** = chosen variable (cause) changed in a fair test.
**Mean** = 'average' value from a data set
**Number key** = classification key that is a written, condensed version of a spider key
**Precision** = how similar your repeated data is (good technique & equipment choice)
**Primary data** = your experimental data or observations from an investigation
**Reliability** = if your data can be repeated (i.e. no error). Can be improved through collecting repeated values and calculating a mean
**Results table (complex)** = Table that contains multiple columns to show repeated data, calculations or a variety of features of a variable
**Risk assessment** = formal assessment of risk leading to improved safety recommendations or change in practice
**Secondary data** = researched data or observations. It can also be data gathered from others doing a similar experiment. Used to compare/support
**Trend line** = line drawn roughly between coordinates to show the trend (does not have to go through all data points)
**Valid data** = reliable, accurate & no bias or error (we are measuring what is expected)

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