Stats in the Wild

Activity 2

Wings and Things

Data moves

Grouping (using, creating or highlighting subsets)	**Filtering** (showing/ hiding subsets)	**Ordering** (sorting into an order)	**Summarising** (computing or calculating to describe a characteristic of a dataset)
Linking (identifying corresponding case(s) in one representation and another representation)	**Inspecting** (hovering, clicking on or locating an object to gain information)	**Expanding datasets** (adding data, merging or joining datasets)	**Creating new variables** (e.g. rates/ proportions from existing data)

Data forms

- **Choosing or creating** a representation for a purpose
- **Finding and using** relationships or patterns

Adapted from Hudson, R. A., Mojica, G. F., Lee, H. S., & Casey, S. (2024) *Data Moves as a Focusing Lens for Learning to Teach with CODAP*. Computers in the Schools, 1–26. https://doi.org/10.1080/07380569.2024.2411705

Overview

1. **Explore** a dataset
2. **Create** graphs of different variables
3. **Investigate** patterns in the data
4. **Communicate** your findings

You will need

- CODAP software **codap.concord.org**
- MWS Activity 2 BirdsData.csv
- Internet access/search engine
- Audio/video recording equipment **(optional)**
- Art materials **(optional)**

Activity

The British Trust for Ornithology collects data on sightings of birds in towns and cities. You are going to **explore sightings** of 18 common birds in two different locations: Glasgow and Scalloway.

1 **Explore** a dataset

Go to **https://codap.concord.org** and click the Launch CODAP button.

Select CREATE NEW DOCUMENT to open a blank CODAP workspace.

Click on the  icon in the top left corner and choose Import...

Drag the file BirdsData.csv from the folder on your computer into the popup window or click on the popup window and navigate to the folder containing BirdsData.csv and select it. The data should load into a table in the CODAP workspace.

Look at the data in the table:

- Go through each column and make sure you understand **what information is recorded**. Are there any words you don't understand?
- Look at the individual rows and discuss what each row represents
- Imagine you visited Glasgow in 2025 and saw a starling. **How might you record this** in the data table? Would you need any additional information?
- What **different types of data** can you identify? (for example, categorical, numerical, discrete, continuous)
- What **questions** do you have about the data?

2 **Create** graphs of different variables

To create a graph in CODAP, click on the  Graph icon in the toolbar.

To add data to the graph, click and drag a column heading in the table onto one of the graph axes.

Experiment with creating graphs in CODAP. You could try:

- Dragging different column headings **onto the x axis**
- Dragging different column headings **onto the y axis**
- Dragging different column headings **into the middle of the graph**
- Removing something from an axis by clicking on the axis title and choosing Remove X or Remove Y
- Putting different column headings **on the x and y axis at the same time**
- Experimenting with the **graph settings** by clicking on the  icons on the right of the graph

Try and create the following:

- Some "nonsense graphs" e.g. graphs that are misleading or confusing, or don't have any obvious use
- A dot plot
- A bar chart
- A chart with a title that you have edited
- A chart that shows percentages
- Two charts that are linked to each other (once you have one chart, try adding a second chart with a different column heading on the x axis)

Share one thing you have discovered about creating charts in CODAP with the rest of your class.

3 **Investigate** patterns in the data

The dataset shows information about 18 common bird species in Scotland recorded at 2 different locations: Glasgow and Scalloway. **Research each location** (e.g. using the internet or visiting your local library) and think about how each location is similar, and how it is different. For example, is it a town, a city, or a village? Is it near the sea? Is it near any rivers, lakes, or countryside?

Do you think there will be differences between the number and type of birds recorded at each location? What might these differences look like on a graph that shows counts of sightings of each bird species?

Create a new graph in CODAP.

Drag the common name heading onto the x axis.
Drag the location column into the middle of the graph.
Optional: click on the configuration icon and tick the box for ☑ Fuse Dots into Bars.

Look at the graph:

- Which column name is on the x axis?
- What does each individual dot or bar represent?
- What do you notice about the number of dots or the length of the bars for each species of bird at each location? Can you suggest reasons?

Think about the **similarities and differences** of each Scottish place; can you explain any of the features of the dot plots? You could consider:

- Are there any species you would expect to see more of at one location than the other?
- Are there bird species that are roughly equal in numbers sighted at each location?
- Are there are bird species that were only sighted at one of the locations?

Look up different species of birds on the internet and see if there is any information that backs up your claims.

4 **Communicate** your findings

Explain your findings to other students. You could create:

- A presentation to give to the class
- A poster
- A short video (e.g. for YouTube or TikTok)
- An audio podcast

In your explanation, use **at least one chart** that you made in CODAP.