ACTiViTY WORKBOOK

Peatlands and Water

Q1: What is pH measuring?

1	2	3	4	5	6	7	8	9	10	11	12	13	14

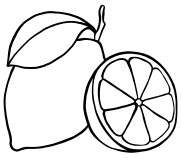
ACIDIC NEUTRAL ALKALINE

Colour in this pH chart, matching the correct colours to a standard pH chart.

Q2: Why do we need to measure the pH of water?

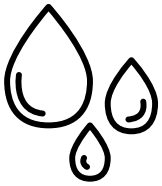
Match the foods and liquids to their pH!

Tea



Lemon

Hand soap



Tapwater

Acidic | Neutral | Alkaline

These foods and liquids have different acids and alkalines in them. See if you can match them.

Baking soda
Lemon
Tea

Tannin **Acid**
Citrus **Acid**
Sodium Bicarbonate

Hint: What type of fruit are lemons oranges, limes, and grapefruits?

Did you know

Freshwater in our rivers can sometimes become acidic - but many young fish and insects cannot survive this.

Q3. List three things that cause our rivers to become acidic

PEATLANDS

Q1: What is a peatland?

Q2: List two things that happen to our rivers when peatlands are damaged.

Tick what else we can measure to understand water quality in the list below.

- Temperature ☐
- Water Colour ☐
- Depth ☐
- Carbon Content ☐
- Weather ☐

Q3: List two reasons why too much carbon content in water is bad for water quality.

Now it's time to make graphs. This data was all taken from streams within the catchment of the river Dee in Galloway, Scotland

Water Samples	pH Results
1	5.00
2	500
3	5.40
4	4.60
5	6.00
6	5.70
7	5.80
8	4.70
9	6.10
10	5.90

10 water samples were taken along the river.
Column 2 shows the pH result of each water sample.

From the results in the above table can you finish filling in the bar chart on the next page?

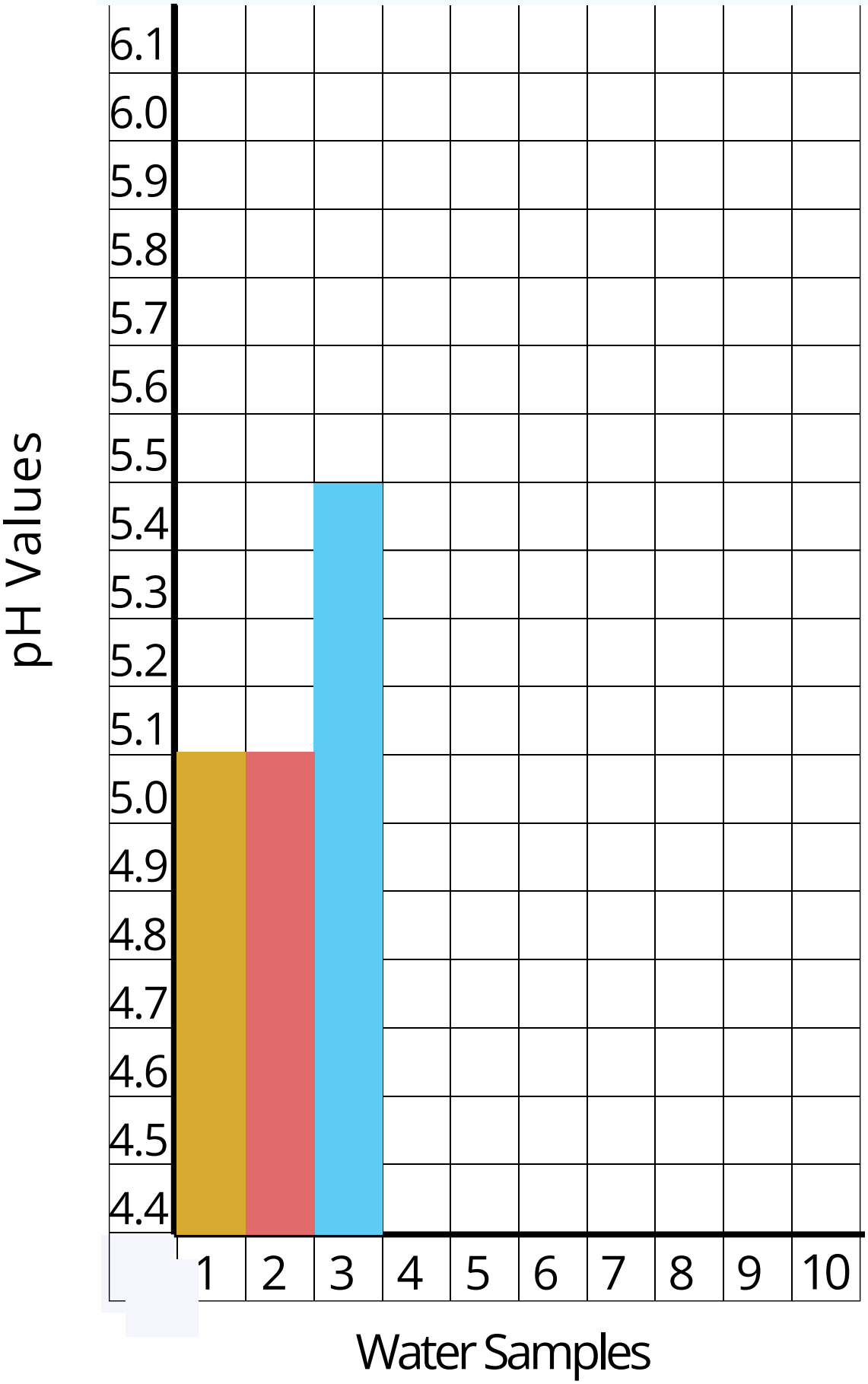
The pH of the water samples ranges from 4.5 to 6.1, so our Y-axis will start at 4.5 and go up to 6.1 in steps of 0.1.
There are 10 watercourses, so we'll put numbers 1 to 10 on the X-axis.

For example:

- Watercourse 1 has a pH of 5, so its bar goes up to 5 on the Y-axis

- Watercourse 3 has a pH of 5.4, so its bar goes up to 4.6.

Now, use the rest of the pH numbers in the table above to complete the bar chart!



Along the x axis we have the 10 water samples. Along the Y axis we have the pH values that were recorded

Q4) Which water sample has the lowest pH?

Q5) Which water sample has the highest pH?

Q6) Which water sample is the most acidic?

The table below shows the carbon content in the water. The higher the number, the more carbon molecules are found in the water.

Water Samples	Carbon Content
1	13
2	16
3	14
4	19
5	5
6	5
7	5
8	13
9	5
10	9

Let's use this table to create our own bar chart.

Think about:
What the Y-axis should look like (what numbers do we need to include?).
How we can match the numbers in the table to each watercourse on the X-axis.
Use the space below to create your bar chart.

Q7) Which water sample has the highest amount of carbon content?

Q8) Which water sample has the lowest amount of carbon content?

For the next questions, take a look at both bar charts together. Since the samples were taken from the same locations, we can use the data from both charts to compare and make conclusions.

Q9) Which water sample has both the highest carbon content and lowest pH?

Q10) Compare both graphs. List the four water samples with the lowest pH, and include their carbon content.

Q11) These four water samples have some of the highest carbon content. What might the water look like? Look at Q3 if you're not sure.