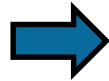
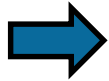




TRAINING CARD: WATER QUALITY



Temperature



Temperature

What & why

We want to know how warm or cold the water is. Temperature controls a number of factors e.g. the amount of oxygen that can dissolve in the water and timing and development of aquatic reproduction. It is necessary to **capture temperature changes** so that it can be used for assessing changes to living organisms, especially if the temperature changes rapidly. Water temperature is affected by many factors itself such as depth, flow rate, time of day and season.

Category

Physical observation

Equipment

Small plastic sample bottle • Thermometer • Pen • Paper • Watch

Method

1. Find a safe place on the river bank where you can reach the water easily at arms length.
2. Kneel down and fill up the sample bottle – rinse it out a few times.
3. Point the top of the bottle upstream at (if possible) 0.6 of the depth (i.e. just a bit more than half way down) and fill it to the top.
4. Hold the thermometer in the water sample for 1-2 minutes.
5. Read the temperature while the thermometer bulb is still sat in the water sample.
6. Record your observation (°C) and note the date / time.
7. Once complete, put your water sample back in the stream.

Other info

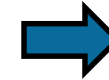
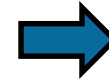
Wash your hands as soon as you return home / before eating. Be consistent with your monitoring approach and use the same location. Carry out temperature observations as soon you take a sample of water.



TRAINING CARD: WATER QUALITY



Algae



Algal cover

What & why

Algae represents photosynthetic plants which live suspended in the water column. Most cause odour and taste problems and because they contain **chlorophyll**, they are **green** (therefore it is easy to spot them visually). If widespread, algal blooms can cause waterbodies to clog up, reduce light penetration, lower dissolved oxygen levels and consequently affect aquatic life, especially fish. This problem is often known as eutrophication. In rural environments, eutrophication is often associated with **intensive farming** and nutrient enrichment (high levels of fertiliser).

Category

Biological observation

Equipment

Visual assessment: •Pen • Paper • Watch • Camera (optional)

Method

1. Stand at the side of the river at your monitoring location in a safe place on the bank or footpath (you don't need to enter the water)
2. Visually look for any algae within the waterbody – can you see any green clusters?
3. Choose your answer out of the 3 categories:

1) None



2) Some



3) Abundant



(click on images for larger copy)

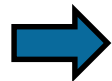
4. Record your algae observation number (1, 2, or 3), date and time.

Other info

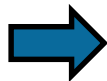
Be consistent with your monitoring approach and use the same location.



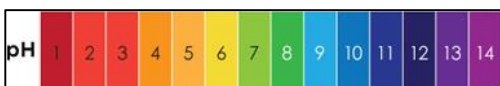
TRAINING CARD: WATER QUALITY



pH



pH	
What & why	We measure pH to determine relative acidity or alkalinity of the waterbody. The universal pH scale ranges from 1 (acid) to 14 (alkaline). Pure water has a pH value of 7 (neutral) but streams, rivers and lakes are greatly affected by (for instance) the surrounding geology, soil type and flood related runoff. If pH lies outside the normal UK range of 6.5 to 8 it will start to affect aquatic diversity. Extremely high or low values will cause aquatic species to die.
Category	Chemical observation
Equipment	Small plastic sample bottle • pH test strip (universal indicator paper) • Pen • Paper • Watch • Camera (optional)
Method	<ol style="list-style-type: none"> Find a safe place on the river bank where you can reach the water easily at arms length. Kneel down and fill up the sample bottle – rinse it out a few times. Point the top of the bottle upstream at (if possible) 0.6 of the depth (i.e. just a bit more than half way down) and fill it to the top. Take one pH strip out of the packet, hold it at one end and dip it in the water sample, then pull it out Wait 10 seconds then match the colour of the pH strip with the colour chart below. (tip: rest your sample over the top of the colour chart) Record your pH observation (1-14) and note the date / time. Once complete, put your water sample back in the stream.
Other info	Wash your hands as soon as you return home / before eating. Be consistent with your monitoring approach and use the same location.



(click on colour chart for larger copy)



TRAINING CARD: WATER QUALITY

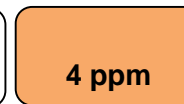
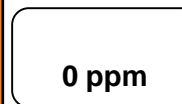


Dissolved Oxygen



Dissolved Oxygen (DO)	
What & why	Dissolved oxygen (DO) is a measure of how much oxygen is dissolved in the water. Fast flowing / turbulent water dissolves more oxygen because it is constantly mixing. DO also varies depending on water temperature - cold water holds more oxygen. If DO levels fall below 3ppm, it becomes stressful to most aquatic organisms as they depend on oxygen to live.
Category	Chemical observation
Equipment	Small plastic sample bottle • LaMotte DO test kit (test tube and x2 DO 'TesTab' tablets (3976)) • Pen • Paper • Watch • Camera (optional)
Method	<ol style="list-style-type: none"> Find a safe place on the river bank where you can reach the water easily at arms length. Kneel down and fill up the sample bottle – rinse it out a few times. Point the top of the bottle upstream at (if possible) 0.6 of the depth (i.e. just a bit more than half way down) and fill it to the top. Fill the small test tube with the sample water so that it overflows (no air space or bubbles), add two LaMotte dissolved Oxygen TestTab tablets to the test tube and put the lid on. Mix the test tube by inverting until the tablets have dissolved for about 4 minutes, then wait 5 minutes. Match the colour of the test tube water with the colour chart below:
Other info	Wash your hands as soon as you return home / before eating. Store the LaMotte TestTab tablets in a safe place at home. When carrying out other water quality observations on the same sample, always observe DO first .

(click on colour chart for larger copy)



(tip: rest your sample over the top of the colour chart)

- Record your observation (ppm) and note the date / time.
- Once complete, put your water sample back in the stream.



TRAINING CARD: WATER QUALITY



Phosphates



TRAINING CARD: WATER QUALITY




Nitrates & Nitrites



Phosphates (PO₄)

What & why	Phosphorus is a nutrient which acts as a fertiliser for aquatic plants. Excessive plant and algae growth occurs at high levels (see algae sheet for impacts). Phosphorus occurs in natural waters in the form of phosphates (PO ₄) and excess levels found in rural UK streams, rivers and lakes is often attributed to agricultural practices (use of fertiliser). Phosphate levels higher than 0.03ppm support plant growth.
Category	Chemical observation
Equipment	Small plastic sample bottle • LaMotte Phosphate test kit (test tube and x1 Phosphate 'TesTab' tablet (5422)) • Pen • Paper • Watch
Method	<ol style="list-style-type: none"> Find a safe place on the river bank where you can reach the water easily at arms length. Kneel down and fill up the sample bottle – rinse it out a few times. Point the top of the bottle upstream at (if possible) 0.6 of the depth (i.e. just a bit more than half way down) and fill it to the top. Fill the small test tube to the 5 ml line, add one LaMotte Phosphate TestTab tablet and put the lid on. Mix the test tube by inverting until the tablet has dissolved and wait 5 minutes. Match the colour of the test tube water with the colour chart below: <div style="display: flex; align-items: center; gap: 10px;"> <div style="border: 1px solid black; padding: 5px; background-color: white;">0 ppm</div> <div style="border: 1px solid black; padding: 5px; background-color: lightblue;">1 ppm</div> <div style="border: 1px solid black; padding: 5px; background-color: blue;">2 ppm</div> <div style="border: 1px solid black; padding: 5px; background-color: darkblue;">4 ppm</div> </div> <p style="font-size: small; margin-left: 20px;">(tip: rest your sample over the top of the colour chart)</p> Record your observation (ppm) and note the date / time. Once complete, put your water sample back in the stream.
Other info	Wash your hands as soon as you return home / before eating. Store the LaMotte TestTab tablets in a safe place at home. Be consistent with your monitoring approach and use the same location.

Nitrates (NO₃-N) & Nitrites (NO₂-N)

What & why	Nitrates (NO ₃) and nitrites (NO ₂) are a form of nitrogen - a nutrient which acts as a fertiliser for aquatic plants. Excessive plant and algae growth occurs at high levels (see algae sheet for water quality impacts). Sources include agricultural fertilisers and animal manure which can easily make their way into waterbodies, e.g. when surface water flooding occurs.
Category	Chemical observation
Equipment	Small plastic sample bottle • x1 LaMotte Nitrate & Nitrite Insta-test strip (2996) • Pen • Paper • Watch • Camera (optional)
Method	<ol style="list-style-type: none"> Find a safe place on the river bank where you can reach the water easily at arms length. Kneel down and fill up the sample bottle – rinse it out a few times. Point the top of the bottle upstream at (if possible) 0.6 of the depth (i.e. just a bit more than half way down) and fill it to the top. Take one nitrate/nitrite test strip out of the packet, hold it at one end and dip it in the water sample for 2 seconds, then pull it out. Wait 60 seconds then immediately match the colour of the strip with the colour chart below. There are two test pads on each strip. <div style="display: flex; align-items: center; gap: 10px;">  <div style="border: 1px solid black; padding: 5px;"> <p>Nitrite as NO₂-N ppm</p> <p style="text-align: center;">0 0.5 1 5 10</p> <hr/> <p>Nitrate as NO₃-N ppm</p> <p style="text-align: center;">0 5 10 25 50</p> </div> </div> Record your nitrate (0-50ppm) nitrite (0-10ppm) observations and note the date / time. Put your water sample back in the stream and bin your test strip.
Other info	Wash your hands as soon as you return home / before eating. Be consistent with your monitoring approach and use the same location. Keep wet fingers out of the test strip bottle & store in a cool / dry place.