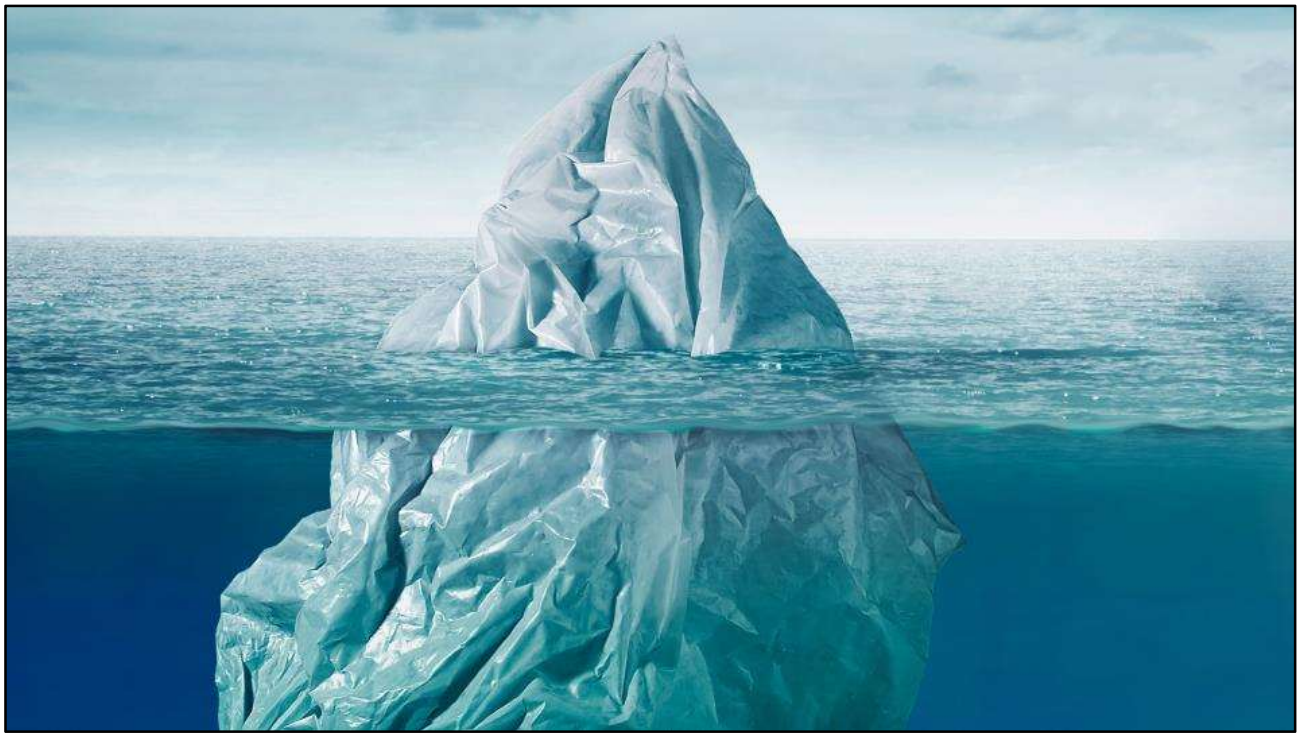
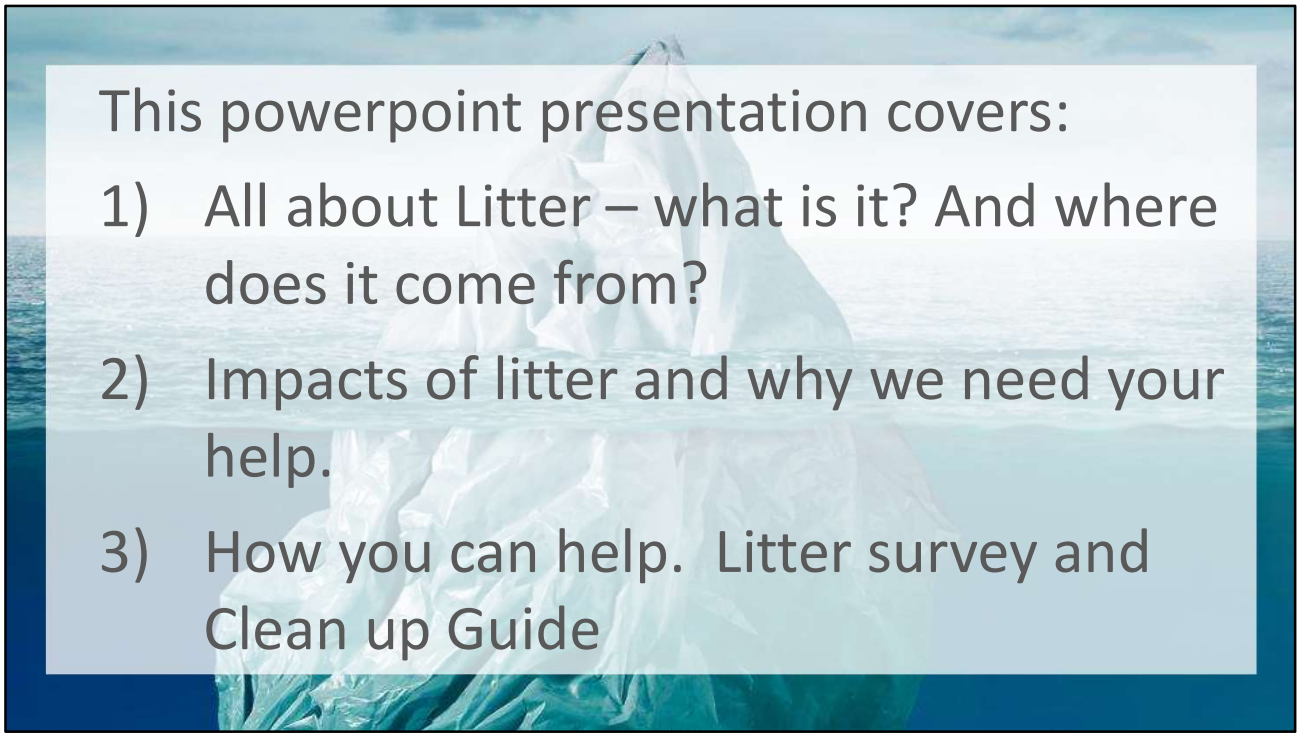
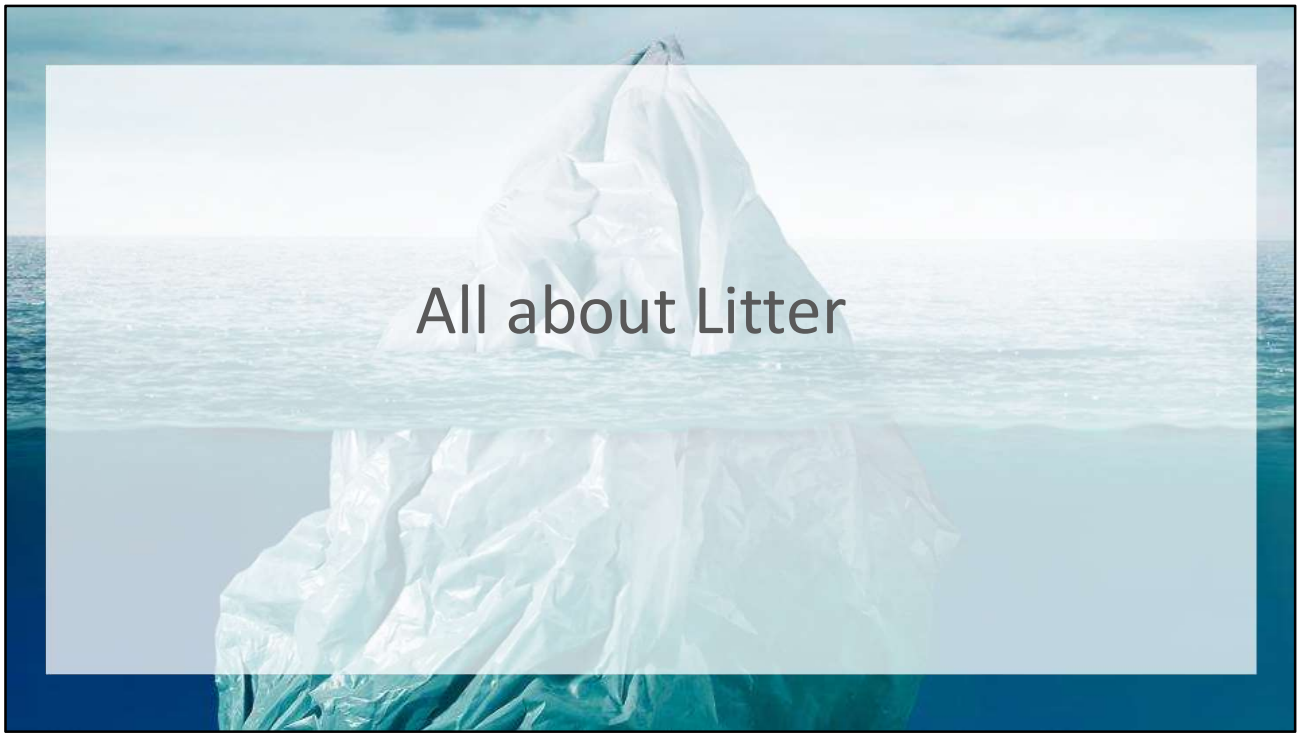

Upstream
Battle
Citizen Science
Tackling Source to Sea Litter
in the Clyde Valley
Keep Scotland Beautiful
Your charity for Scotland's environment
RECOUP
Eco-Schools

You've just seen an image on the previous slide. What was in the picture?

Here it is again on the next slide. What do you see? What could this picture be trying to show?



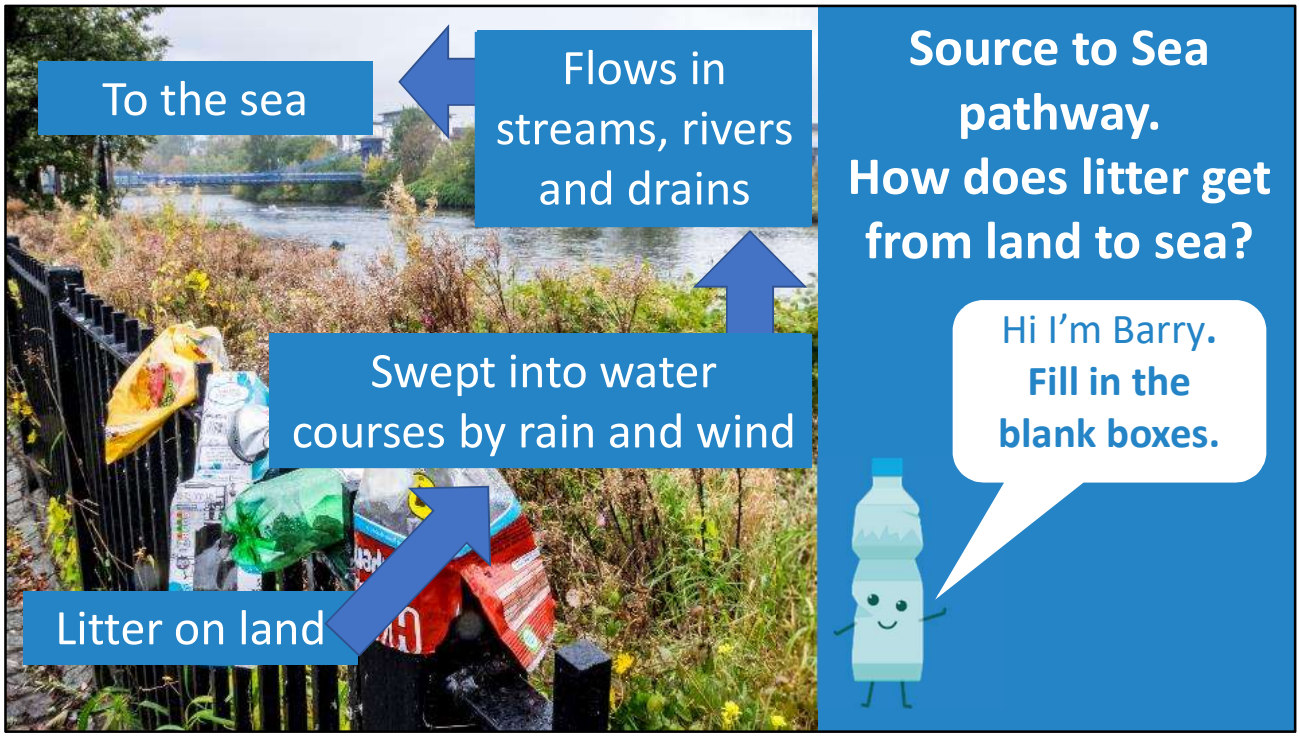

This powerpoint presentation covers:
1) All about Litter – what is it? And where does it come from?
2) Impacts of litter and why we need your help.
3) How you can help. Litter survey and Clean up Guide


All about Litter

What is litter?
How would you describe it?
Litter is rubbish that has not been disposed of properly.
This can include crisp packets, cans, bottles, sweet wrappers, paper and other items.
Has anyone seen these types of litter around the school? At home?

It’s estimated that up to **12.7 million tonnes** of plastic gets into the sea each and every year – that's a truck full of litter a minute.

Most of the litter in the oceans was dropped on land.


To the sea
Flows in streams, rivers and drains
Swept into water courses by rain and wind
Litter on land
Source to Sea pathway.
How does litter get from land to sea?
Hi I'm Barry.
Fill in the blank boxes.

Litter that enters the Clyde could end up flowing to sea and becoming marine litter.


Impacts of Litter.
Why we need your help.

What problems with litter can you think of?

- It is **harmful to wildlife**
- It makes rivers and beaches messy and **unclean**.
- It is **expensive** to clean up.
- It's **a BIG problem** - 12.7 million tonnes of plastic get into the sea each year. That is a truck full of litter every minute.

What is the impact of marine litter? These are some that you might think of:

Wildlife

- Animals like dolphins and seals - can become entangled in marine litter, stopping them from being able to swim.
- They can also mistake it for food and fill up their bellies with plastic instead of food. This can cause them to get very sick or die.

Messy beaches

- Who likes going to the beach? Do you like nice golden soft sand, or littered sand? Marine litter is unpleasant to visitors and can make our beaches dirty.

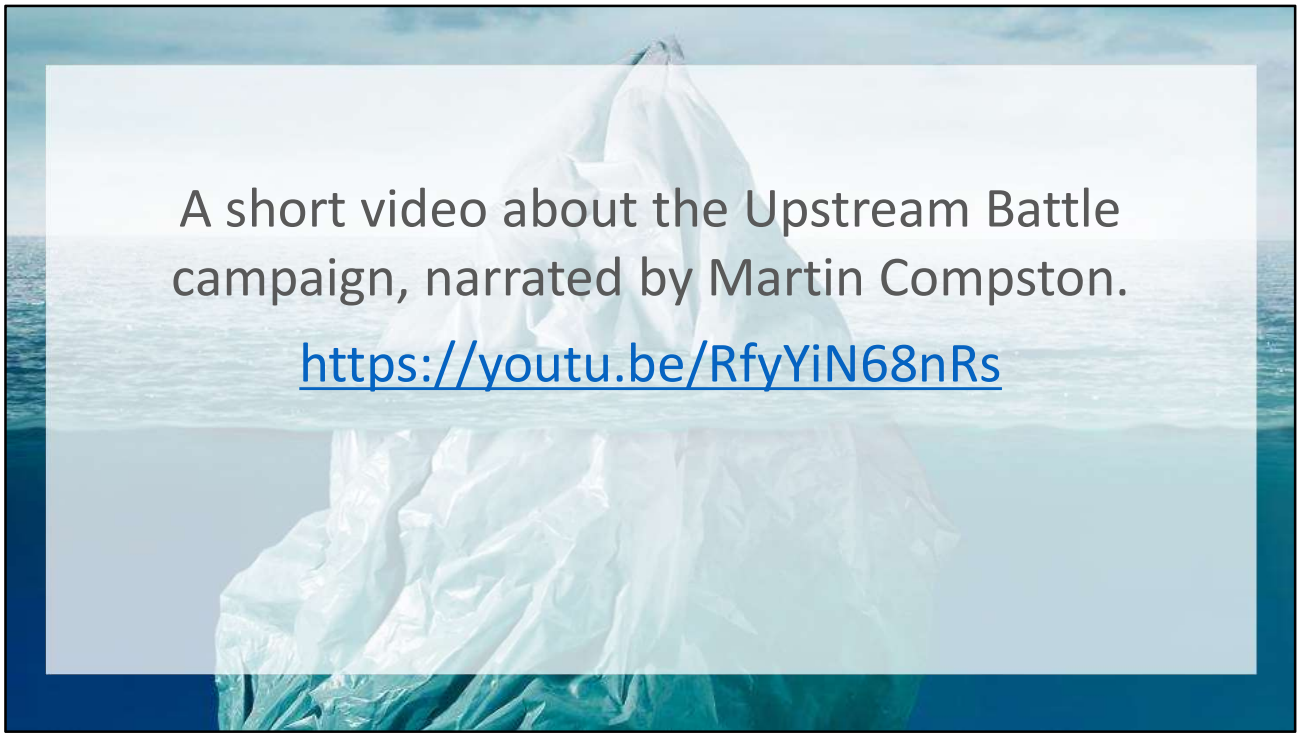
Expensive

- It costs a lot of money & takes a lot of time to clean up litter.
- Many hours spent on this, that could be spent on other things.

Image credit: downtoearth.org

Discuss pupils knowledge of the River Clyde. Where is it in relation to school? Who has been there?

We, as a school/class, have an opportunity to become citizen scientists by taking part in an Upstream Battle Campaign to survey litter in and around the River Clyde!



Transcript of the video available to download.

WHY do we want to learn about our litter?

1) We want to create a plan to stop the litter from happening.

2) We want law makers to make laws that keep litter out of rivers.

3) We want to know who is responsible for the litter.

If we know how, where and what types of litter are getting into the river, we then have a better idea of how to fix the problem by:

- Targeting people to clean up their act
- Helping create a Litter Prevention Action Plan to stop it happening again
- Informing future policy

The flow of litter from source to sea means that information we can gather about litter on land (and in rivers and streams) will help us understand it's likely impact on the ocean environment.

If we want to effectively tackle marine litter, we have to better understand where and what types of litter are getting into our watercourses.

The Upstream Battle campaign and following Litter Survey will help us to build a picture of how much litter, and what types of litter are entering the ocean from the River Clyde.

STAFF LEADS

https://www.keepscotlandbeautiful.org/media/1563262/upstream-battle-survey-guide-2019.pdf

Let's get started!

Here's your checklist for a successful Litter Survey & Clean Up

1) **Pick a site to survey along the River Clyde or a tributary**
2) **Plan when and how you will carry out your survey**
3) **Print out your survey sheets & study them beforehand**
4) **Carry out your Litter Survey**
5) **Clean up and collect litter from your site**
6) **Submit your results**
7) **Repeat your survey once every term (if possible)**

STAFF LEADS

https://www.keepscotlandbeautiful.org/media/1563262/upstream-battle-survey-guide-2019.pdf

Picking your survey site

Your survey site needs to be…

- **Next to a waterway**
- **Local**
- **Accessible**
- **Public land (private with permission)**
- **Litter hotspot (or not)**
- **SAFE!!**

Hi, I'm Coco. Does this look like a good place to survey?

The first step is picking your surveying site.
Focus on a local waterway (Clyde or a tributary) that is relatively local and convenient for your class/school to get to.
It should be accessible and safe – See pictures for examples of a few local watercourses that have good access and conditions for surveying.
If you haven't worked there before make sure it is public land or if private seek the permission of the land holder.

Finally your site doesn't have to be a total 'grot spot'. It would be good to capture data from an area that you know litter accumulates but all data good or bad helps paint a picture.

Plan your survey

Choose

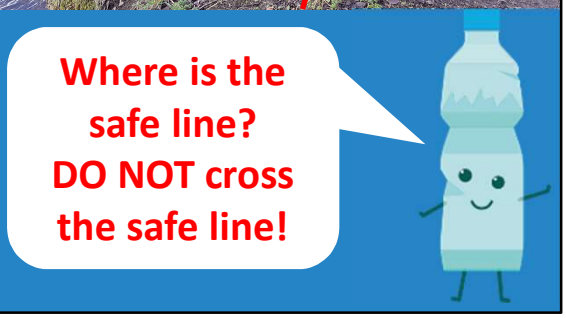
- When you will do it

Before you go

- Make sure everyone going knows how to do the survey
- Do a risk assessment together

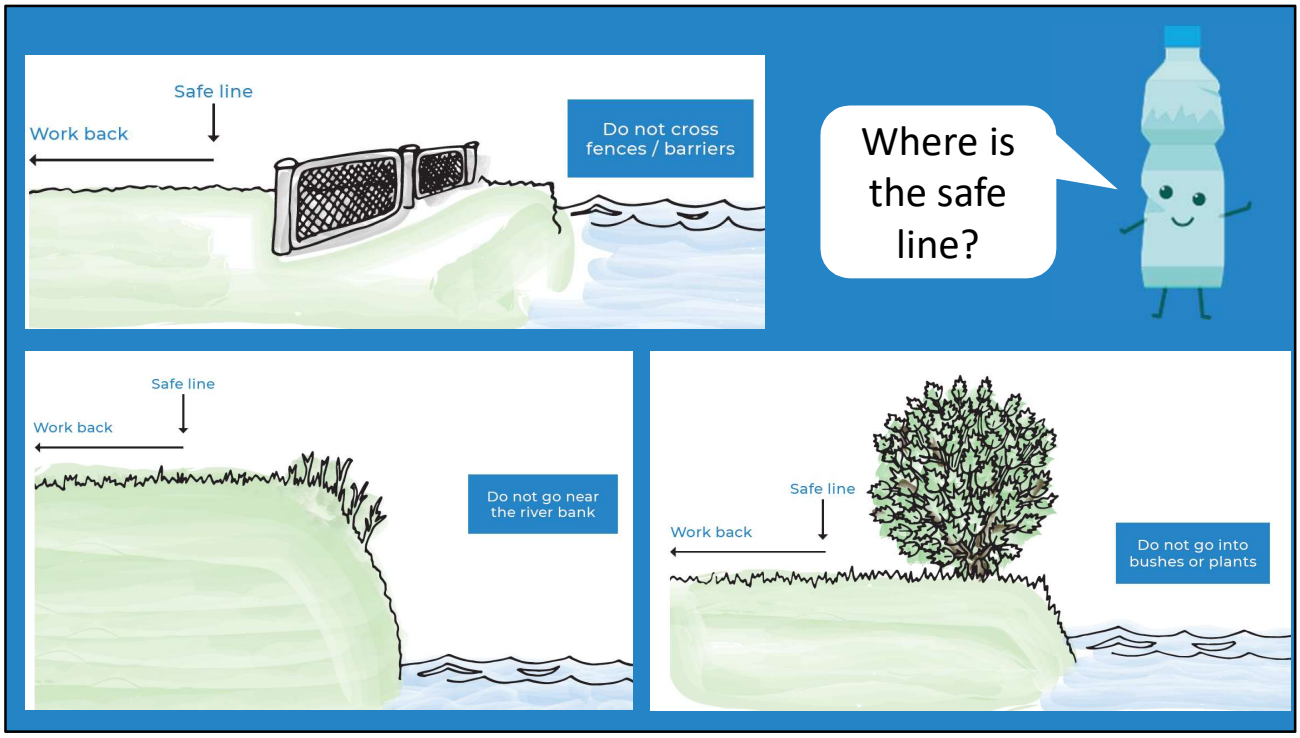
Getting ready to survey on site

- **Choose a safe line.**
- **The safe line marks the closest you will get to the water during your survey.**
- **Make sure everyone knows where the safe line is**



The first step is to choose a safe line which marks the closest you will get to the water at your site.
In some cases, this might be the water itself, but it's more likely it will start at a fence, at the crest of steep banking or vegetation growing alongside the river or stream.

When setting this line, you should also consider how fast, deep and wide the river or burn is, and choose your safe line accordingly.
See the photo above with a drawn in a safe line at the chosen site.



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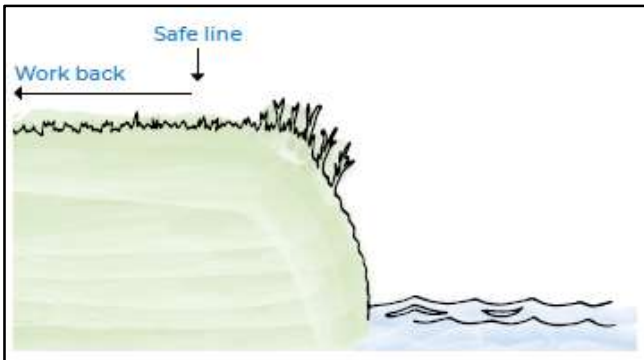


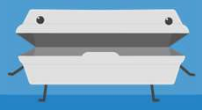
AVOID	NEVER
X Wet, boggy or uneven ground	X Climb over fences
X Steep slopes or drops	X Lean over or towards the water
X Riverbanks with lots of bushes, brambles and plants	X Go off by yourself

SAFETY FIRST

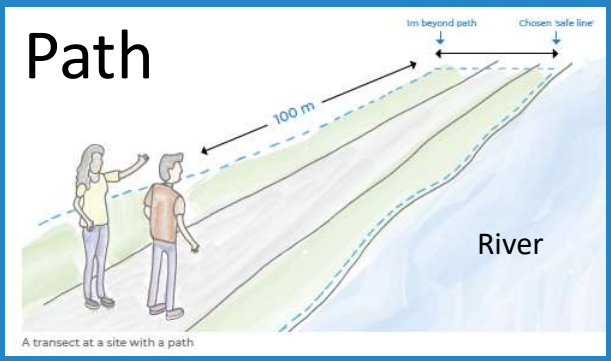
Your safety is the most important thing when you're out for your survey and Clean Up.

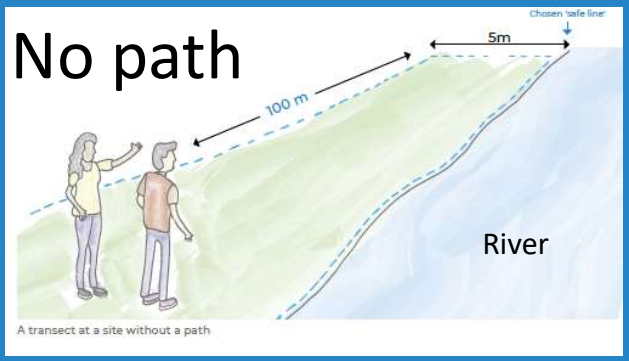
If you ever feel unsafe, find the nearest adult as soon as possible.

Getting ready to survey on site



- **Measure the <u>length</u> of your survey site. It needs to be 100 meters along the water's edge.**
- **The <u>width</u> of your survey site will be different whether there is a walking path or not.**





The site needs to be 100m long and will stretch along the waters edge.
The width of the site will be different for each site.
If there is a path at your site, your site should stretch from your chosen safe line to 1m beyond the path.
If there is no path at your site your site should be from your chosen safe line back to 5m away from the water.

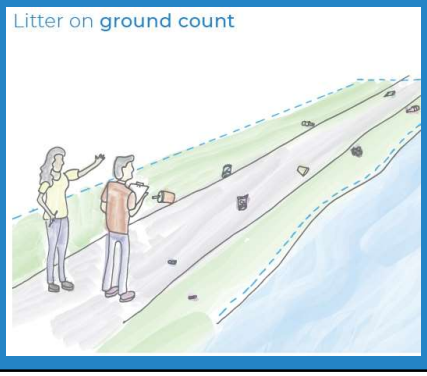
The width of the site should never extend further than 10m from the water.
If any part of your site is 10m away from the water you should choose a different site.

It might be fun to have the pupils measure the length of their stride and walk the distance to establish the boundaries of the survey site.

Carry out your litter survey

Count litter you can see in THREE different parts of your survey area

- **Floating in the water**
- **On the river bank**
- **On the ground**



There are three parts to the survey. Together, these different measures will build a picture of the amount of litter accumulating on the ground and how much is collecting on the banks and moving through to the sea.

To count floating litter

1. Stand in your survey site
2. Count litter floating past for one minute
3. Count litter only, not natural items like sticks or leaves
4. Record the total number

Write this total on the survey sheet in the floating litter section.

If the water isn't flowing fast enough for you to count anything, just record as N/A.

If the water is flowing but you see nothing, record the number 0

To count litter on the bank

1. **Stand on your survey site so you can see up and down the riverbank**
2. **Give the riverbank a grade from A-E based on the amount of litter you see**

Use the A-E grades here to help you

Grade	Description
A	No litter can be seen
B	A couple of small pieces
C	More small pieces or a couple of large pieces
D	Lots of small pieces and some large pieces
E	Most of the bank is covered in litter

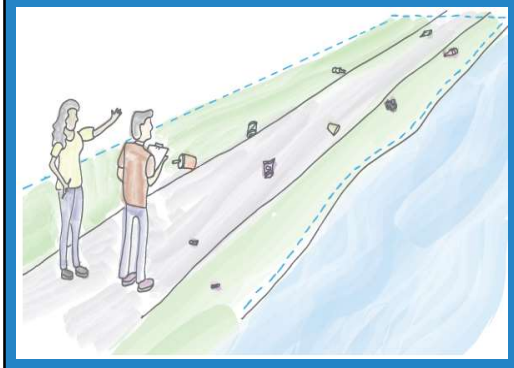
The second part of the survey is to grade the amount of litter that is accumulating on the riverbank.

Stand on the river bank at the middle point of your 100m transect. Take a good look up and down the riverbank, focusing on the water's edge, any items trapped in swirling parts of the river and on
the riverbank itself. This can be either side of the river, depending on where you get the best view. If you cannot get a good view from this point, move up or down the river until you can and try again.

This **can be either side** of the river, depending on where you get the best view.

Focusing on that area, give the area a grade using the table as a guide.

To count litter on the ground



1. **Walk slowly through your survey site**
2. **Identify each piece of litter by type and count each piece that you see**
3. **Record each piece on the survey sheet as you go, using tally marks e.g. IIII = 4**
4. **Total up the tally marks for each type of litter**

- **You can work in pairs to do the survey and do a litter pick at the same time. This will help avoid double counting.**
- **You can divide your area into smaller sections if you have a group of people. Each pair will need a survey sheet to record what they find.**

On the survey sheet, the second page shows all of the commonly found litter types. This is split into materials, with the different items listed alphabetically, to make them easier to find.

Top tip: Read over the survey sheet with your class before your event, so you can be sure everyone knows what the different litter types are and where they are located on the sheet.

****It may be worth splitting up your transect into sections and assigning each section to a pair of pupils. That way, you can be sure that none of the litter is double counted.****

Walk your entire transect area, identifying each piece of litter that you find. Each individual bit of litter should be tallied and totals provided by type. You may find it easiest to litter pick your transect as you count and record items. This can help avoid double counting, particularly in sites with a large number of litter items. You can do this in pairs – one person picking and identifying, the other marking them on the survey sheet.

If you have more than 2 people conducting the survey and wish to divide the transect into smaller sections you can print additional survey sheets for each section. Someone will need to consolidate the litter count tally at the end to record the litter total across the entire transect on one sheet.

There is an “other” section for each material type and a “miscellaneous” section to record items which aren’t listed on the sheet. Please try to be as specific as possible.

A word about nurdles

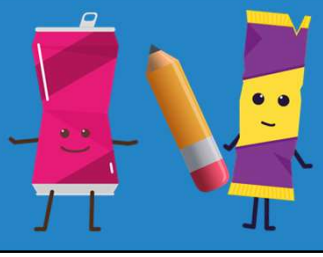
- If your survey area includes the mouth of the river, you might find nurdles.
- Nurdles are small, multi-coloured plastic beads that are melted down to make plastic objects. Sometimes nurdles spill into the sea from the cargo ships they are transported on.
- Nurdles absorb toxins from the ocean so they can be very harmful.
- Nurdles ARE NOT SAFE to touch. Please handle them only with gloves and/or tweezers.

Filling in the survey sheet

- **Print and look over the survey sheet before the day of the survey to make sure you know what everything is.**
- **Fill in the information at the top of the sheet. It is important to say where your survey is happening.**
- **Do the tally marks and give totals for each litter type.**

Plastic / polystyrene sheet 1

Litter group	Type of litter	Tally	Total
1. Plastic / polystyrene	4 or 6 pack drinks can connecting rings		
	Shopping Bags		
	Other Bags e.g. bin bags		
	Bottles / containers		
	Caps / lids		
	Cigarette butts / filters		
	Cigarette lighters or packaging		



You should complete one survey sheet for each transect that you survey.

Important things not to miss are recording coordinates (there is a description of how to do this in the guide)

There is space at the top of the sheet for you to put in important information like the nearest landmark, the type of watercourse, weather conditions of course the data you collect for each part of the survey.

Finally there is room on the sheet to record any factors affecting the survey and additional observations you make (next)

Filling in the survey sheet

There is a section called 'other'. This is where you can record things like:

- **Overflowing bins**
- **Wind blown litter**
- **Extreme weather events such as floods or storms**
- **Litter hotspots with a lot of litter**
- **Who is using this area**

It is important to keep in mind and record your observations and interpretation of what you are seeing on the day.

E.g. – has Weather affected litter (big flood or storm)

Wind blown litter (does the area have constant wind blowing from one direction)

Bins overflowing (if bins are overflowing)

Users (who is using the area and potentially who is littering)

Cleaning up litter at your site

When picking up the litter at your site, remember:

- **Wear protective gloves and/or use a litter picker**
- **Don't pick up sharp objects**
- **Don't pick up an object if you don't know what it is**
- **Don't pick up large or heavy objects**
- **Don't pick up any litter that is beyond your safe line**

You can pick up the litter as you do the survey or afterwards if you prefer. We would encourage you to undertake a clean up.

Your clean up can go beyond your transect area. You can extend the clean up area out to match the number of volunteers.

It is possible that you will see a large accumulation of litter on the riverbank. If this litter is beyond your safe line leave it where it is.

Bag up the litter and dispose of it correctly (even better if you can recycle it!). Take particular care if you find sharp or dangerous items (such as needles, or sanitary items) and don't try to dispose
of them yourself. The same goes for larger, fly tipped items – it's better to report all of these to your local authority than risk hurting yourself.

The Survey guide and Clean Up Scotland information pack has further guidance on planning, safety and conducting your Clean Up activity including how to contact and work with your local authority.

After your survey

When you have finished your survey and Clean Up, submit your results to our website:

www.keepscotlandbeautiful.org/upstreambattle/citizen-science

Repeat your survey and Clean Up again if you can!

If you feel that your group has the ability to do more surveys, please consider adopting additional sites in your area. For example you could adopt an additional site a little bit further down the river (perhaps where the river might change a bit) – if you have many pupils this could work quite well with a larger clean up.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