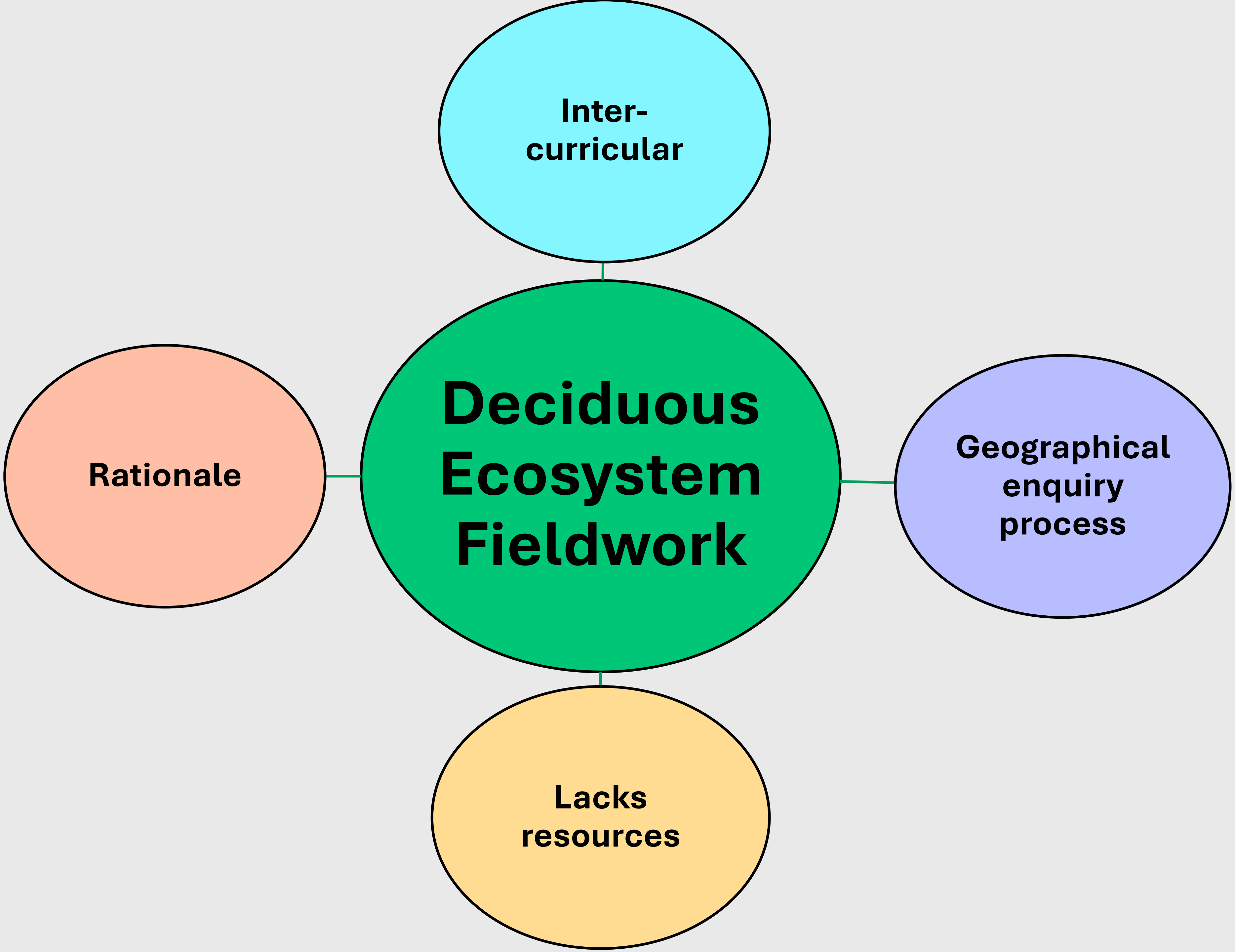
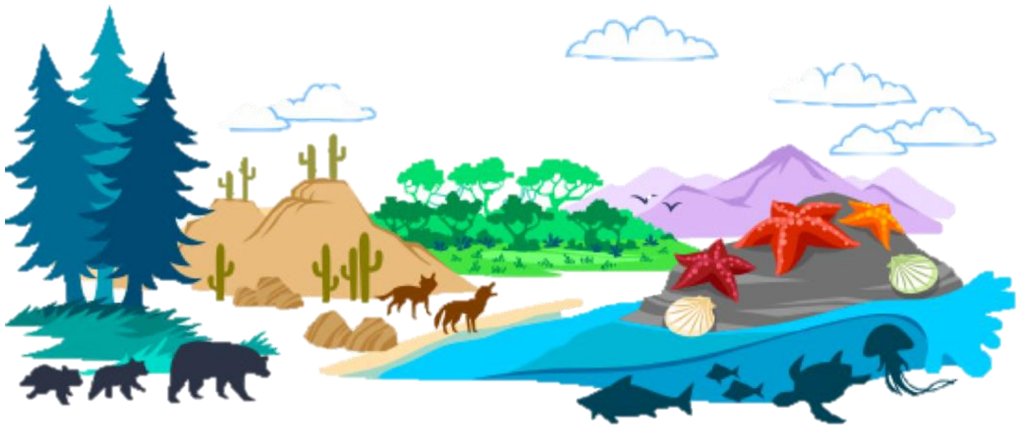
KS3 ECOSYSTEMS FIELDWORK

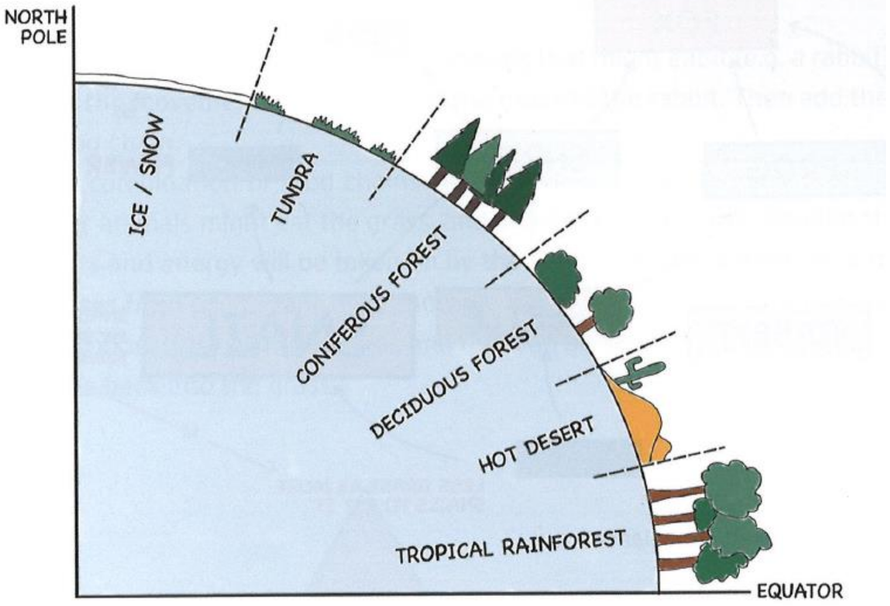
SARAH HUGHES - ROYAL SCHOOL ARMAGH


Inter-
curricular
Rationale
Deciduous Ecosystem Fieldwork
Geographical enquiry process
Lacks resources

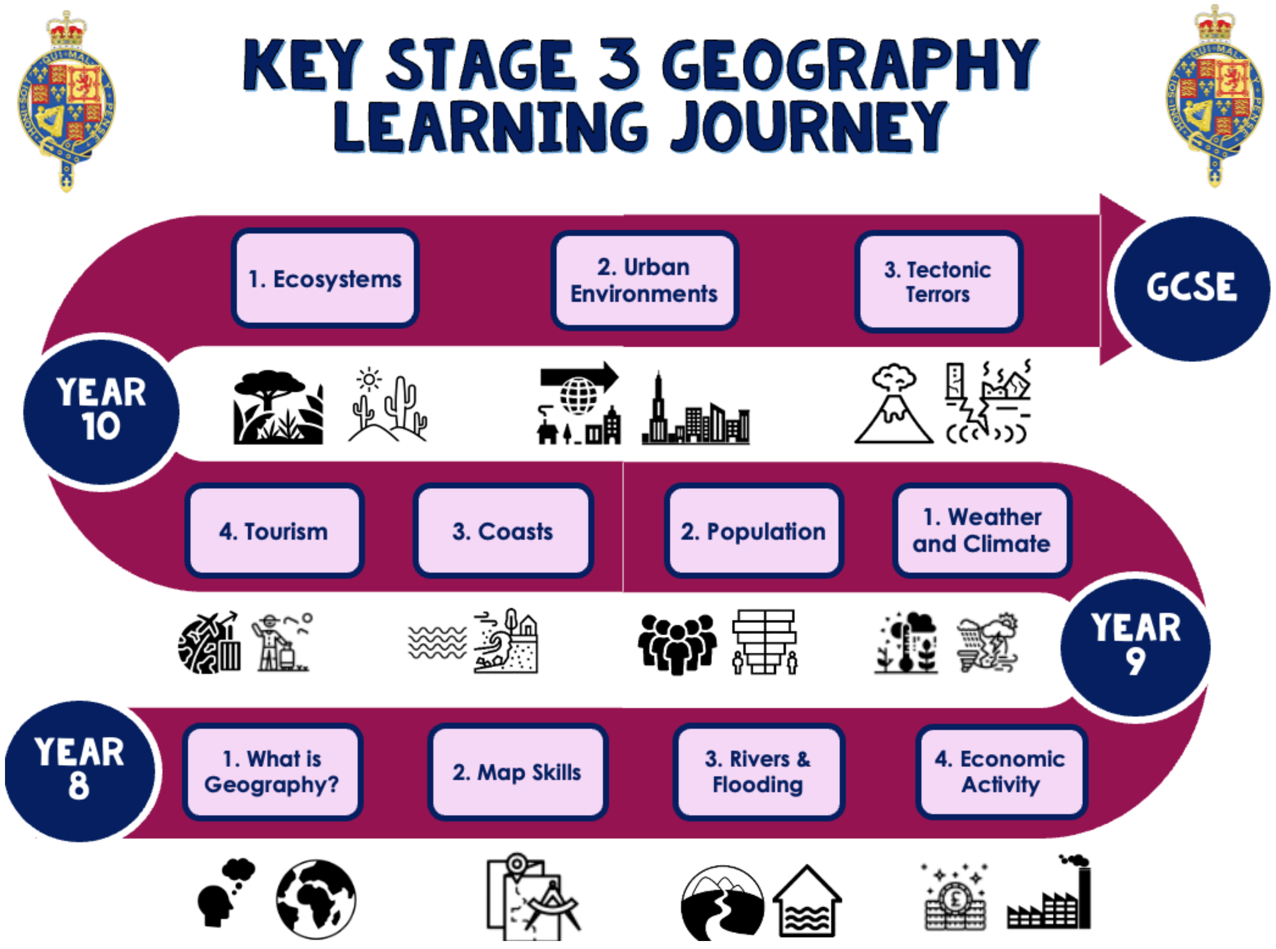
What you will study in this topic:

Subtopic	Content
1. What are ecosystems?	• Definition of an ecosystem • Non-living (abiotic) environments • Living (biotic) environments • Levels of ecosystems
2. Energy flows and nutrient cycling	• Energy flows, photosynthesis, food chains/web • Trophic levels • Recycling of nutrients - nutrient cycling
3. Case study: deciduous forest ecosystem in Britain	• Flora and fauna in Gosford Forest Park • Interactions between flora and fauna with abiotic environment • Human impact in the forest park
4. Global biomes	• Distribution of main global biomes • Characteristics of main features in main biomes
5. Tropical rainforest	• Location of TRFs • Climate • Flora and fauna (vegetation layers)
6. Hot and cold deserts	• Location of hot and cold deserts • Climate • Flora and fauna (vegetation layers)
7. Plant and animal adaptations	• Create a plant/animal adaptation for any biome studied.
8. Ecosystems in a box	• Create an ecosystem of your own choice in the shoebox.
9. How do humans affect ecosystems?	• Coral reefs • What are coral reefs? • Location • Coral reef facts • Benefits of coral reefs • Threats to coral reefs • Management of coral reefs
10. End of topic assessment	





Starter: link to Year 9 topic Weather and Climate



Link to seasonality

- ☐ Lush, green leaves on the trees creating shade on the forest floor.
- ☐ Birds continuing to feed new broods of young.
- ☐ Abundance of winged insects on sunny days.
- ☐ Wood ants on the ground in ancient woodland.
- ☐ Summer migrant birds singing (e.g. cuckoo and chiffchaff).
- ☐ Bracken, nettles and rosebay willowherb covering areas of the forest floor.

- ☐ Leaves changing colour and falling to the ground.
- ☐ Plants dying back.
- ☐ Fruit, e.g. blackberries on trees.
- ☐ Seeds, e.g. acorns, sycamore, beech mast, sweet chestnut on trees/floor.
- ☐ Squirrels collecting and burying nuts.
- ☐ Fungi.
- ☐ Spider webs visible on dewy mornings.
- ☐ Male deer rutting.

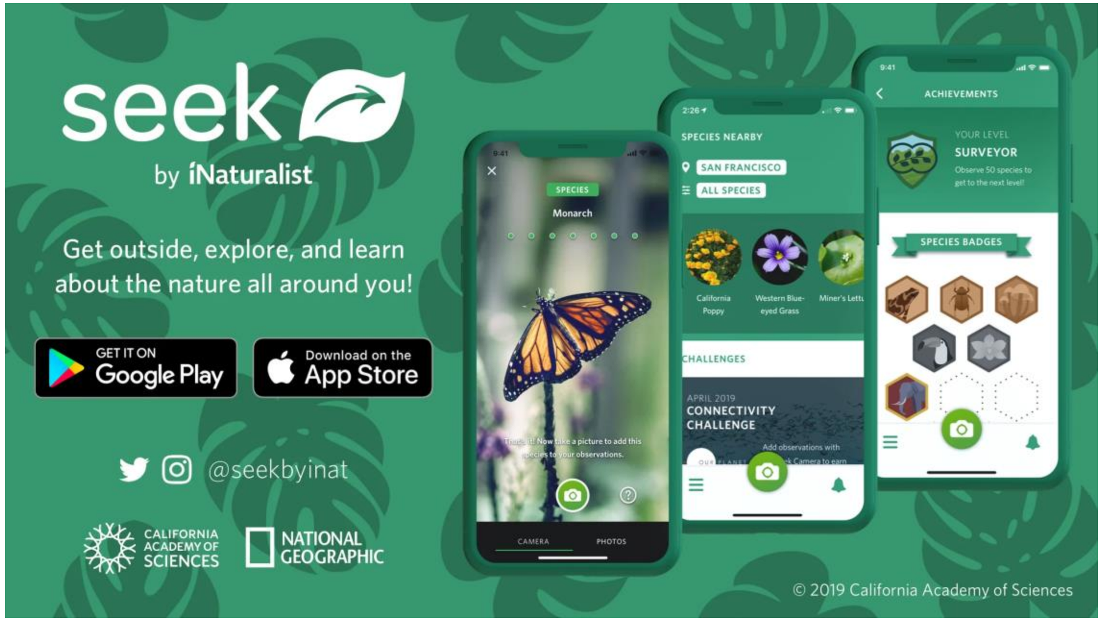
https://www.forestryengland.uk/sites/default/files/documents/Forestry%20England_Temperate%20Forest_Lesson%20Plan.pdf

Task: suggest reasons for the signs above (use your knowledge from Weather and Climate).

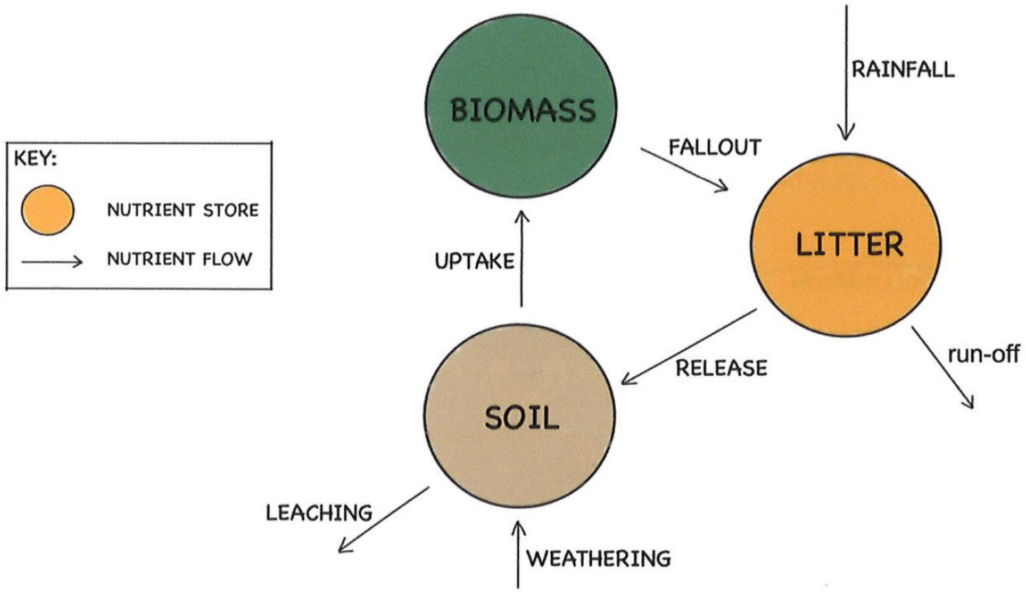
Fungi = temperature still warm, precipitation levels fall = perfect humid conditions

Leaves changing colour = less sunlight available for photosynthesis = die to preserve energy

Flora and fauna



Evidence of the nutrient cycle



Evidence	Name of store/flow	Justification
Prince mushroom / oyster mushroom	Release	Decomposer found on the forest floor. A type of fungi.
Dead leaves / pinecones / dead squirrel	Litter	Photosynthesis has slowed down due to the transition from summer to autumn. Less sunlight = less energy for plants. Shed leaves to conserve energy.
Puddles	Rainfall	Nutrients can be dissolved in precipitation which will enter the nutrient cycle.
Small rocks	Weathering	Biological weathering has occurred – roots of plants or fauna has broken up larger rocks into smaller rocks, releasing nutrients.
Soil	Soil	Dark brown in colour, relatively thick. The colour suggests the soil is rich in nutrients and thick to support the biomass.
Flora and fauna	Biomass	There was an abundance of flora and fauna in the park, especially flora e.g. coral berry, brambles and cherry laurel.

[redacted]

Gosford Forest Park

Arboretum Trail

This easy loop guides visitors along the riverside and through Gosford's impressive Arboretum, taking in Dean Swift's Chair along the way.

Start through the walk trailhead arch.

Grade: Easy
Distance: 1.8 km / 1.1 miles
Time: 30 minutes

KEY

- PARKING
- TOILETS
- YOU ARE HERE
- WALK TRAILS START
- MOUNTAIN BIKE TRAILS START
- HORSE RIDING TRAIL START
- ARBORETUM TRAIL

Human impact in the forest

Human impact in the forest:

Gosford Forest Park attracts over half a million visitors a year and is one of NI's most popular destinations for outdoor recreation. It has scooped two awards – 'Forest Park of the Year' and 'Children's Activity of the Year' – at the Holiday at Home Staycation Awards NI 2022. This will inevitably have an impact on the forest e.g. litter, noise & water pollution and footpath erosion.

There are several observations that can be made when surveying footpaths and erosion:

- The amount of erosion of the actual footpath
- The amount of trampling of the areas either side of the footpath
- The impact on species diversity around the footpath

Measuring footpath erosion

Measurements of width and depth can easily be taken on footpaths to assess the damage caused by trampling and other types of erosion.

Equipment needed:

- 30cm ruler
- Tape measure

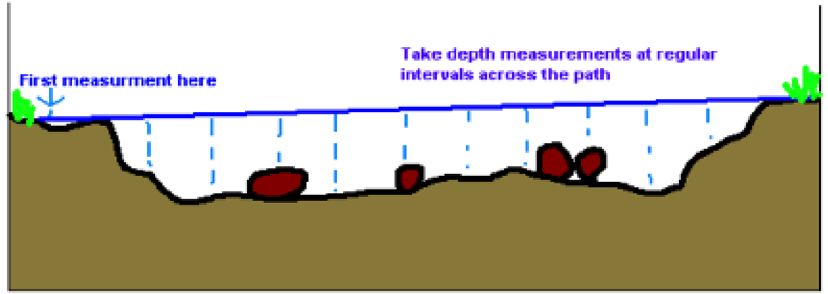
To measure the amount of erosion:

1) Stretch a measuring tape across the width of the path.

2) Record the width of the footpath

3) Record the depth of the footpath at regular intervals across the width (intervals will change depending on whether the path is narrow or wide- use smaller intervals for narrow path). See diagram below.

4) Repeat the depth measurements at regular intervals along the path, to build up an idea of the amount of erosion along the path.



Data collection for footpath erosion

Site 1: Entrance of Arboretum Trail Width of path: _______

Intervals (cm) (width/10)	0cm									
Depth (cm)										

Site 2: Pond Width of path: _______

Intervals (cm) (width/10)	0cm									
Depth (cm)										

Site 3: Walled garden Width of path: _______

Intervals (cm) (width/10)	0cm									
Depth (cm)										

Site 4: Play park Width of path: _______

Intervals (cm) (width/10)	0cm									
Depth (cm)										

Thank you for listening!

shughes872@royalschool.armagh.ni.sch.uk