# SCIENCE
## YEAR 5-6
## Cycle B – Unit 11

# *Comparing habitats: mountains & estuaries*

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**RANGE**

***Independence of organisms***

4. through fieldwork the plants and animals found in two contrasting local environments
6. the environmental factors that affect what grows and lives in the environment, e.g. sunlight, water availability, temperature.
7. how humans affect the local environment

**KEY VOCABULARY**

Habitat
Food chain
Adaptation
Producer
Consumer
Environment
Prey
Predator
Mammal
Insect
Reptile
Fluctuation
Maximum
Minimum
**Data**
**Bar chart**
**Line graph**
**Axes**

**Developing thinking**
(Plan-Develop-Reflect integrated into activities)

**LNF - Main Numeracy Strands covered***

**Strand:**
***Developing numerical reasoning***
**Element:**
***Represent and communicate***
***Review***

**Strand:**
***Using measuring Skills***
**Element:**
***Temperature***

**Strand:**
***Using data skills***
**Element:**
***Collect and record data, Present and analyse data, Interpret results***

**Refer to LNF Numeracy framework for details of specific skills within each element.*

**LNF – Literacy (writing) opportunities**

**Element**: Organising information and ideas
Writing accurately

Writing to explain, inform and discuss

**Developing ICT**

*School to identify and provide opportunities for developing this skill within the scope of the unit.*

**Curriculum Cymreig**

*School to identify and provide opportunities for developing this skill within the scope of the unit.*

**Personal and social education**

*School to identify and provide opportunities for developing this skill within the scope of the unit.*

# Science – Medium Term Planning (half term)

| Year Group | **5-6** | Term | **Cycle B – Unit 11** | Unit Title | ***Comparing habitats – mountains & estuaries*** |
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**Range:** ***Independence of organisms***
4. through fieldwork the plants and animals found in two contrasting local environments
5. the interdependence of living organisms in the environments and their representation as food chains
6. the environmental factors that affect what grows and lives in the environment, e.g. sunlight, water availability, temperature.
7. how humans affect the local environment

**Cross Curricular Links:**

| **Skills** (Principal skills in bold italics) | **Suggested activities** | **Resources and web links** | **Assessment Opportunities** |
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| **PLAN**<br>Identify gaps in prior knowledge<br><br>***Find relevant information and ideas*** | **1. Big Question: What do we aim to find out during our field trip?**<br><br>Review the field visit to the RSPB Conwy site. Show pupils video clips of geography and habitats. Remind them of habitats and wildlife. Discuss and record key vocabulary.<br><br>Introduce pupils to next field visit – Talacre Dunes reserve.<br><br>**Introduce the skill – Finding information**<br>• Pupils to work in groups identifying questions that may be answered during course of field study visit.<br>• Consider placemat activity as strategy to identify key questions.<br>• How can we answer our questions? What and how to record findings? Questionnaires?<br>• Pupils to draft simple plan.<br><br>**Practise the skill – Finding information and considering safety**<br>• Pupils to consider health and safety aspects of field visits.<br>• Model a simple risk assessment report, including key features (numbering, bullet points etc.)<br>• Pupils to construct their own risk assessment.<br>• Swap versions and self assess. | http://maps.google.co.uk/<br><br>http://www.photolibrarywales.com/<br><br>http://www.bbc.co.uk/news/uk-wales-10883774<br><br>http://hwb.wales.gov.uk/Resources/resource/52fc8e34-6337-4dbe-afa0-b20186b67a36/en | |

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| **PLAN**<br>Identify gaps in prior knowledge.<br><br>Ask relevant questions<br><br>**DEVELOP**<br>***Make comparisons and identify patterns and trends in data***<br><br>**REFLECT**<br>Describe how they have learned, and identify the ways that worked the best. | **2. Big Question: What did you find out in Talacre dunes? How do animals cope with different habitats?**<br><br>Review plants and animals found during field visit.<br><br>**Introduce the skill – Making comparisons in findings**<br>• Gather pupils' findings together and list on board. With pupils' help, sort animals/plants into groups according to their habitat.<br>• *Were there any plants, animals or birds that you found in both environments?* Create Venn or Carroll diagrams.<br>• Pupils transfer findings to Venn or Carroll diagrams and describe any patterns in their findings/possible reasons *e.g. were there fewer types of plants/animals/birds in Talacre compared to Conwy*?<br>• Is plant growth/diversity affected by rainfall/temperature?<br>• How does temperature and rainfall vary along the North Wales coast? How can we find out?<br>• Pupils search Museum Wales SCAN website and/or others to gather findings. Tabulate results.<br>• Identify patterns/trends and draw conclusions.<br><br>**Practise the skill – Making comparisons in findings. Kites – NGfL KS2 science**<br>• Select video from http://www.arkive.org/ . How is it suited to its environment?<br>• Select activities from OAM Unit 5 'Fantasy Animals' to gauge pupils' understanding of animals and adaptations to different habitats.<br>• Relate knowledge to animals/plants observed during the recent field visit.<br>• Consider constructing a graphic organiser of animals' adaptations.<br><br>**To write to explain**<br>**Text type: non-chronological report** | OAM unit 5<br><br>http://www.museumwales.ac.uk/en/scan/bulbs/<br><br>http://www.arkive.org/<br><br>http://resources.hwb.wales.gov.uk/VTC/2010-11/science/red-kites/index.html<br><br>http://resources.hwb.wales.gov.uk/VTC/2009-10/science/swans/index.html | Use preferred diagnostic strategy/tool<br><br>***Can pupils identify patterns and trends? (Level 4)***<br><br>***Can pupils use scientific ideas to explain? (Level 4)*** |
| **COMMUNICATION**<br>***Use tables, bar charts and line graphs***<br><br>**PLAN**<br>Search for relevant information<br><br>**DEVELOP**<br>***Make comparisons and identify patterns and trends in data***<br><br>**REFLECT**<br>Decide whether the method was successful | **3. Big Question: How do bird populations compare along the coast?**<br><br>Review pupils' bird spotting data from RSPB Conwy visit (or request seasonal data from the RSPB visitor centre staff).<br><br>Discuss main findings from the Talacre bird count. How does it compare with Conwy?<br><br>**Introduce the skill – Constructing bar graphs and making comparisons in findings**<br>• Model how bar charts are constructed.<br>• Use interactive planning boards to demonstrate how categoric data give bar charts and gaps are required between bars.<br><br>**Practise the skill – Constructing bar graphs and making comparisons in findings**<br>• Pupils to work in groups to construct a bar chart of the most common species recorded from both localities.<br>• What makes a 'good' bar chart? Pupils set this as their success criteria.<br>• Can pupils identify patterns and trends in the data? | Variety of books, websites etc<br><br>http://www.rspb.org.uk/birdwatch/results.aspx<br><br>http://www.rspb.org.uk/wildlife/biridentifier/ | Can pupils use scientific ideas to explain? (Level 4)<br><br>***Can pupils select the appropriate type of graph to use? (Level 5)***<br><br>***Can pupils identify patterns and trends? (Level 4)***<br><br>***Can pupils use line graphs to describe the relationship between two continuous variables? (Level 5)*** |

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| **COMMUNICATE**<br>***Communicate clearly by writing, charts and diagrams, using relevant scientific vocabulary***<br><br>**DEVELOP**<br>***Use science ideas to explain findings*** | **4. Big Question: How do scientists classify birds?**<br><br>Review pupils' knowledge on classification, including increasingly more complex methods of sorting, e.g. Venn and Carroll diagrams, and simple classification keys.<br><br>**Introduce the skill – Communicate using charts and drawings, using ICT packages**<br>• Model how classification keys are constructed. Use ICT if available.<br>• What makes an effective classification key? Pupils to identify success criteria.<br><br>**Practise the skill – Communicate using charts and drawings, using ICT packages**<br>• Pupils to work in groups to construct a range of classification keys using a choice of animals/birds of their choice. | http://resources.hwb.wales.gov.uk/VTC/ngfl/ict/85a/index.html<br><br>http://www.bbc.co.uk/nature/animals/<br><br>http://www.rspb.org.uk/wildlife/birdidentifier/<br><br>http://www.oum.ox.ac.uk/thezone/animals/animalid/tree.htm | ***Can pupils organise and present their findings using relevant scientific language? (Level 4)***<br><br>***Can pupils organise and present their findings integrating text, images, tables and data? (Level 5)*** |
| **COMMUNICATE**<br>***Communicate clearly by writing, charts and diagrams, using relevant scientific vocabulary***<br><br>**DEVELOP**<br>***Use science ideas to explain findings*** | **5. Big Question: What are food chains?**<br><br>**Introduce the skill – Using science knowledge to explain**<br>• Discuss feeding relationships between plants/animals/birds in Conwy. How do these compare with animals found on the Denbighshire coast? Discuss in relation to birds of prey and/or seabirds.<br>• Model food chains as a method of representing feeding relationships.<br><br>**Practise the skill – Using science knowledge to explain. Interdependence – NGfL KS2 science**<br>• Pupils create their own food chains from a habitat of their choice.<br>• Challenge pupils to find and use relevant information, e.g. specific websites, books etc. to develop more extended/interesting food chains.<br><br>Groups to swap food chains and discuss.<br><br>**To write to explain**<br>**Text type: non-chronological report** | http://resources.hwb.wales.gov.uk/VTC/16022007/food_chains/lesson.html | ***Can pupils organise and present their findings using relevant scientific language? (Level 4)***<br><br>***Can pupils organise and present their findings integrating text, images, tables and data? (Level 5)*** |
| **COMMUNICATE**<br>Communicate clearly by writing using relevant scientific vocabulary<br><br>**PLAN**<br>Search for relevant information<br><br>**DEVELOP**<br>***Distinguish between fact, belief and opinion*** | **6. Big Question: How do wind farms affect the North Wales coast?**<br><br>Elicit pupils' ideas and opinions on wind farms, both on- and offshore.<br><br>**Introduce the skill – Distinguish fact, belief and opinion. Form considered opinions. SEM Unit 5, p.22 – Wind farms**<br>• Use secondary sources eg video, CD-ROM, reference books to find out relevant information about wind farms.<br>• Show pupils videos. Discuss opinions.<br>• What makes something 'scientific'. What are beliefs and facts?<br><br>**Practise the skill – Distinguish fact, belief and opinion. Form considered opinions. Science in the news - NGfL KS2 science**<br>• Pupils to search for and access examples of facts, beliefs and opinions.<br>• Use NGfL website resource and/or BBC news site for wind farm stories.<br>• Consider creating a wind farm questionnaire for adults/parents.<br>• What makes a good questionnaire? What questions are required?<br>• Pupils to consider evidence and form considered opinions.<br>**To write to question or find out**<br>**Text type: Questionnaire** | OAM unit 4<br><br>SEM unit 5<br><br>Library loan books.<br><br>http://www.bbc.co.uk/newsround/ | Can pupils find and use a variety of information and ideas? (Level 4)<br><br>Can pupils find and use relevant information and ideas? (Level 5)<br><br>***Can pupils distinguish between fact, belief and opinion? (Level 4)*** |

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| **PLAN**<br>Find relevant information and ideas<br><br>**DEVELOP**<br>***Make comparisons and identify trends or patterns***<br><br>**COMMUNICATION**<br>***Use tables, bar and line graphs***<br><br>**REFLECT**<br>Suggest how the method could have been improved | **7. Big Question: Does rainfall and temperature vary along the North Wales coast?**<br><br>Review pupils' current findings and knowledge.<br><br>**7a. Introduce the skill – Making comparisons in findings. Museum Wales Spring Bulbs data**<br><br>• What is the temperature and rainfall data like in Conwy compared to Talacre? How can we find out?<br>• Does extreme rainfall/temperature affect habitats? In particular, does it affect the germination and/or diversity of plants/trees?<br>• Pupils to seek relevant information from the SCAN site.<br>• Demonstrate site. Model searching for information.<br><br>**Practise the skill – Making comparisons in findings. Museum Wales Spring Bulbs data**<br>• Pupils research and record relevant environmental data in order to answer their chosen question(s).<br>• Tabulate findings.<br>• Pupils to identify patterns/trends.<br><br>**7b. Introduce the skill – Using bar charts and line graphs**<br>• Review knowledge of graph types – explain nature of categoric and continuous data.<br>• Words plotted against numbers produces a bar chart.<br>• Numbers plotted against numbers produces a line graph.<br>• Model examples.<br><br>**Practise the skill – Using bar charts and line graphs**<br>• Produce bar and/or line graph of the selected findings that pupils wish to communicate.<br>• What patterns can pupils describe from their findings? | http://www.museumwales.ac.uk/en/scan/bulbs/<br><br>'Which graph?' template<br><br>http://www.mrnussbaum.com/coolgraphing.htm<br><br>http://www.amblesideprimary.com/ambleweb//mentalmaths/grapher.html | Can pupils find and use a variety of information and ideas? (Level 4)<br><br>Can pupils find and use relevant information and ideas? (Level 5)<br><br>***Can pupils identify patterns and trends? (Level 4)***<br><br>***Can pupils select the appropriate type of graph to use? (Level 5)***<br><br>***Can pupils use line graphs to describe the relationship between two continuous variables? (Level 5)*** |
| **COMMUNICATION**<br>***Communicate using scientific vocabulary, inc. tables, bar and line graphs***<br><br>**PLAN**<br>Find relevant information and ideas | **8. Big Question: How do Conwy and Talacre habitats compare?**<br><br>Review findings from habitat and weather comparisons between Talacre and Conwy. Challenge pupils to produce a simple science report comparing these two localities.<br><br>**Introduce the skill – Communicate using scientific vocabulary**<br>• What methods can pupils use to communicate findings? Leaflet, fact file, letter, report?<br>• What data will they include?<br>• Design and create a science report for the two habitats.<br>• Ask pupils to find examples of science fact files and/or info sheets in books and/or internet.<br>• Can pupils list what makes a 'good' fact file? This will form their success criteria for their design.<br><br>**Practise the skill – Communicate using scientific vocabulary**<br>• Challenge groups to utilise the data/findings they have accumulated from earlier field studies in order to re-communicate information.<br>• Who will be the audience for the fact file? How much information will be required? How will it be organised? Will pupils need electronic data? What graphs/tables will they need?<br>• Complete tasks and present report to class.<br>•<br>**To write to explain and inform**<br>**Text type: non-chronological report/fact file** | http://www.bbc.co.uk/nature/habitats<br><br>http://resources.hwb.wales.gov.uk/VTC/ngfl/science/cynnal/english/index.html | ***Can pupils organise and present their findings integrating text, images, tables and data? (Level 5)***<br><br>Can pupils find and use a variety of information and ideas? (Level 4)<br><br>Can pupils find and use relevant information and ideas? (Level 5) |

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| **COMMUNICATION**<br>***Communicate using scientific vocabulary, inc. tables, bar and line graphs***<br><br>**PLAN**<br>Find relevant information and ideas<br><br>**REFLECT**<br>Suggest how the method/process could have been improved | **9. Big Question: How do Conwy and Talacre habitats compare? …cont.**<br><br>**Practise the skill – Communicate using scientific vocabulary**<br>• Challenge groups to utilise the data/findings they have accumulated from earlier field studies in order to re-communicate the information.<br>• Who will be the audience for the fact file? How much information will be required? How will it be organised? Will pupils need electronic data? What graphs/tables will they need?<br>• Complete tasks and present report to class.<br><br>**To write to explain and inform**<br>**Text type: non-chronological report/fact file** | A selection of current news stories with science content | ***Can pupils organise and present their findings integrating text, images, tables and data? (Level 5)***<br><br>Can pupils find and use a variety of information and ideas? (Level 4)<br><br>Can pupils find and use relevant information and ideas? (Level 5) |

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| **REFLECT**<br>***Describe how they have learned, and identify the ways that worked the best.***<br><br>Link the learning to similar situations, within and outside school. | Revisit initial diagnostic assessment. Can pupils demonstrate understanding at end of topic and discuss new skills learned and/or practised? | Use preferred AfL strategy | ***Can pupils describe how they have learned and identify the ways that worked the best? (Level 4)***<br><br>***Can pupils identify the thinking/learning strategy they used? (Level 5)*** |
| Evaluation | | | |