

Cairngorms National Park
Muir of Dinnet National Nature Reserve (NNR)
Education Pack



Scotland's
National Nature
Reserves
Magical places, amazing wildlife.



Pàirc Nàiseanta a' Mhonaidh Ruaidh

Photography: Lorne Gill/SNH, Angus Findlay/CNPA, Stewart Grant/CNPA,
Wee Epics/CNPA, T Clark, CNPA, SNH

Published by Cairngorms National Park Authority/Scottish Natural Heritage
© CNPA/SNH 2012. All rights reserved.

ISBN 978-1-906071-70-7

www.cairngorms.co.uk
www.snh.gov.uk

Introduction

This education pack provides guidance and support on visiting National Nature Reserves (NNRs) in the Cairngorms National Park, for everyone from teachers to group leaders. They provide examples of approaches and activities that can help deliver Curriculum for Excellence through outdoor learning.

From background information and how to plan your visit, to useful contacts and age related activities, everything is here to make your learning experience at Muir of Dinnet one to remember. Using these resources to effectively plan your trip will also help make learning back in the classroom both rewarding and stimulating for those taking part as well being as relevant as possible to the Curriculum for Excellence.

This pack is intended to provide a starting place for group leaders to develop their own approaches and activities, led by pupils own needs and curiosity, as they become more familiar with outdoor learning and the NNRs.

Muir of Dinnet is one of nine NNRs in and around the Cairngorms National Park. It blends woodland, heath, open water and the 'Vat' – a giant pothole carved by a huge meltwater stream during the last Ice Age.

You can wander through birch woodlands, watch for a glimpse of a dragonfly or savour the peace of the lochs.

Four trails, of different lengths are clearly waymarked and will help you explore the Reserve.

National Nature Reserves (NNRs)

NNRs are magical places where you can experience the incredible sights and sounds of Scotland's natural world.

These Reserves help protect an amazing range of wildlife and landscapes, including many rare species and habitats of international importance.

Located throughout Scotland, NNRs are open to everyone to visit and enjoy.

About the Cairngorms National Park

The Cairngorms National Park is Britain's largest National Park (4,582 km²) and contains a unique range of landscapes, wildlife, habitats and people.

Nearly 40% of the Park is designated as important for its nature and landscapes and one quarter is of European importance.

It has five of Scotland's six highest mountains and impressive landscapes and landforms sculpted by Ice Age glaciers. The central mountain area supports a unique collection of plants and animals including golden eagle and dotterel. The interaction between people and nature has produced the rich diversity found in the heather moorlands.

Capercaillie, Scottish wildcat and twinflower are all found in the pinewoods, while the clean waters of the rivers Spey, Dee and Don support a variety of wildlife including salmon, rare lampreys and endangered freshwater pearl mussels. These river valleys also provide livelihoods for local communities.

The Cairngorms National Park is home to around 17,000 people and tourism is an important part of the economy with at least 1.5m people visiting the Park each year.

National Parks

In Scotland, National Parks are extensive areas of the very highest value to the nation for their scenery, wildlife, and cultural heritage.

They provide an integrated approach to management and sustainable development to safeguard the special qualities of these areas for the long-term.

They also provide opportunities for the public to enjoy the special natural and cultural heritage.

There are two National Parks – Cairngorms and Loch Lomond & The Trossachs. For more information visit their websites:

www.cairngorms.co.uk

www.lochlomond-trossachs.org

Visiting Muir of Dinnet NNR

The Reserve is owned by Dinnet Estate and managed by Scottish Natural Heritage (SNH).

Who can help you arrange your visit?

- **Scottish Natural Heritage (SNH)**

For information about managing the NNR and for educational visits

Contact: Reserve manager, Burn o' Vat Visitor Centre, Dinnet, Aboyne, AB34 5NB

Tel: 013398 81667 **Email:** nnr@snh.gov.uk

www.nnr-scotland.org.uk/muir-of-dinnet

- **Aberdeenshire Ranger Service**

For educational activities and group visits

Contact: South Marr Ranger, Burn o' Vat Visitor Centre, Dinnet, Aboyne, AB34 5NB

Tel: 013398 80868

Email: marr.ranger@aberdeenshire.gov.uk

- **Cairngorms National Park Authority**

For educational resources and CPD opportunities about the National Park

Contact: Outdoor Learning officer or Education and Inclusion officer, 14 The Square, Grantown-on-Spey, PH26 3HG

Tel: 01479 873535 **Email:** enquiries@cairngorms.co.uk

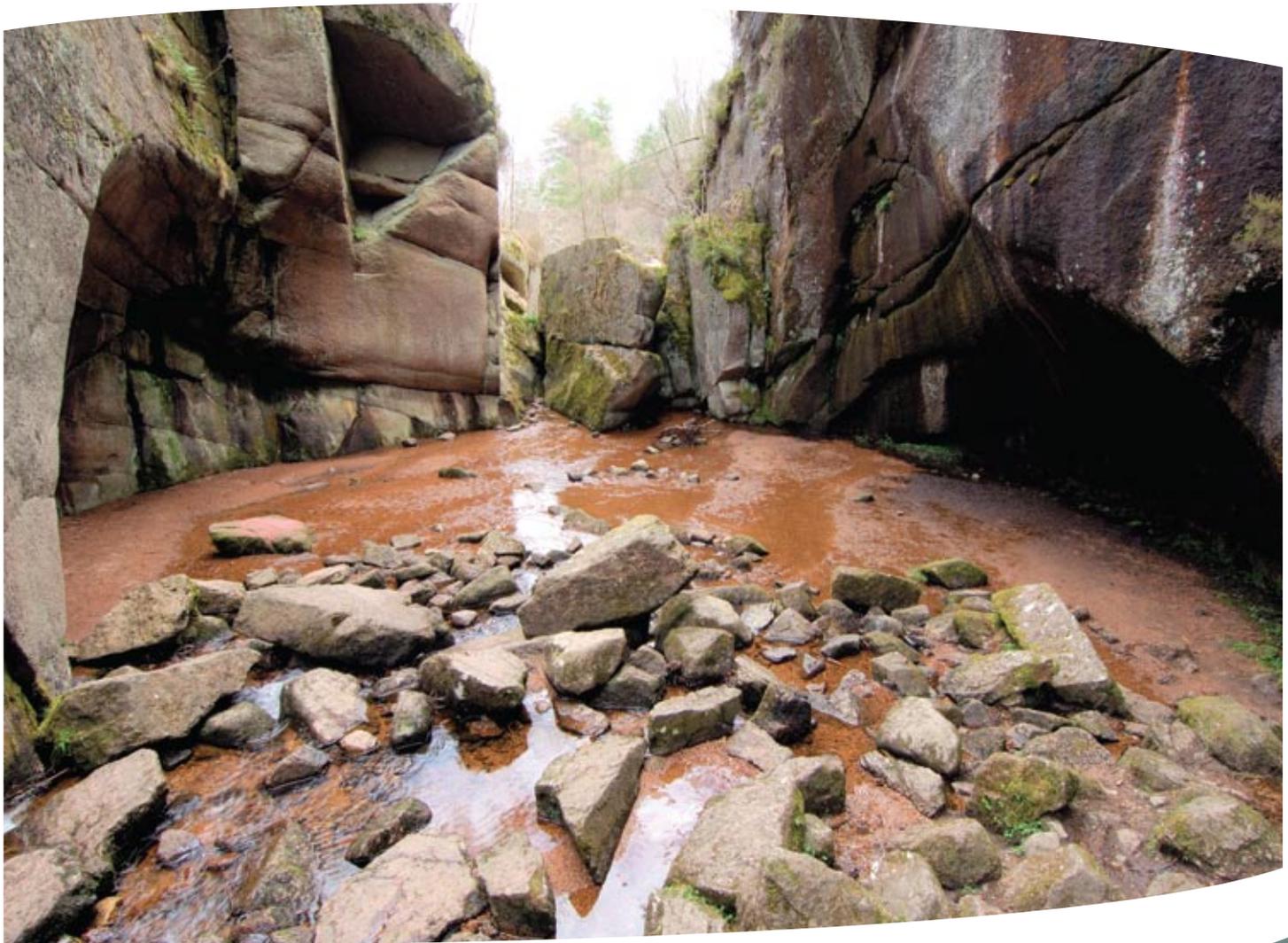
www.cairngorms.co.uk

www.cairngormslearningzone.co.uk

These organisations may suggest other relevant contacts to you to help make the most out of your visit.

When to visit

- In winter and spring for birds
- In summer for dragonflies and damselflies and the purple heath in bloom
- In autumn for woodlands changing colour and fruiting fungi
- All year round for visiting the 'Vat'



Getting there

Refer to OS Landranger Map 1:50,000 No 37 or OS Explorer Map 1:25,000 No 405.

By road: Muir of Dinnet is 6 miles east of Ballater on the A93. Turn north onto the B9119, signposted for Tarland and Strathdon, and the Burn o' Vat Visitor Centre is 1½ miles from the junction. If travelling from the east, the Reserve is about 40 miles west of Aberdeen, 7 miles beyond Aboyne on the A93.

Sat-nav setting: AB34 5NB

Grid Reference for the Burn o' Vat Visitor Centre:
NO 429997

By bus and on foot: Stagecoach Bluebird service 201 stops in Dinnet village. From here, the Reserve can be accessed via the footpath from the village car park.

Facilities

- The Visitor Centre at Burn o' Vat Visitor Centre is open daily (staff permitting, please phone to check):
 - 9am-5pm, Easter to October
 - 10am-4pm, October to Easter.
- Toilets at the visitor centre are open all year.
- The main car park is located at the Burn o' Vat Visitor Centre.
- There is a network of paths to explore the Reserve:
 - The Vat Trail is 0.8 miles, wide, well-surfaced and level. There is a steep climb to the optional viewpoint;

- Parkin's Moss Trail is 1.9 miles, gravel and grass paths through woodland with gentle slopes. A boardwalk takes you directly across the bog;
- Little Ord Trail is 2.5 miles on gravel and grass paths which are level or with gentle slopes; and
- Loch Kinord Trail is 3.7 miles on gravel and grass slopes with some uneven sections and tree roots, either on the level or with gentle slopes.

For timings, assume you will take about 30 minutes to walk one mile, 20 minutes to walk one kilometre, without any stops.

Need to know

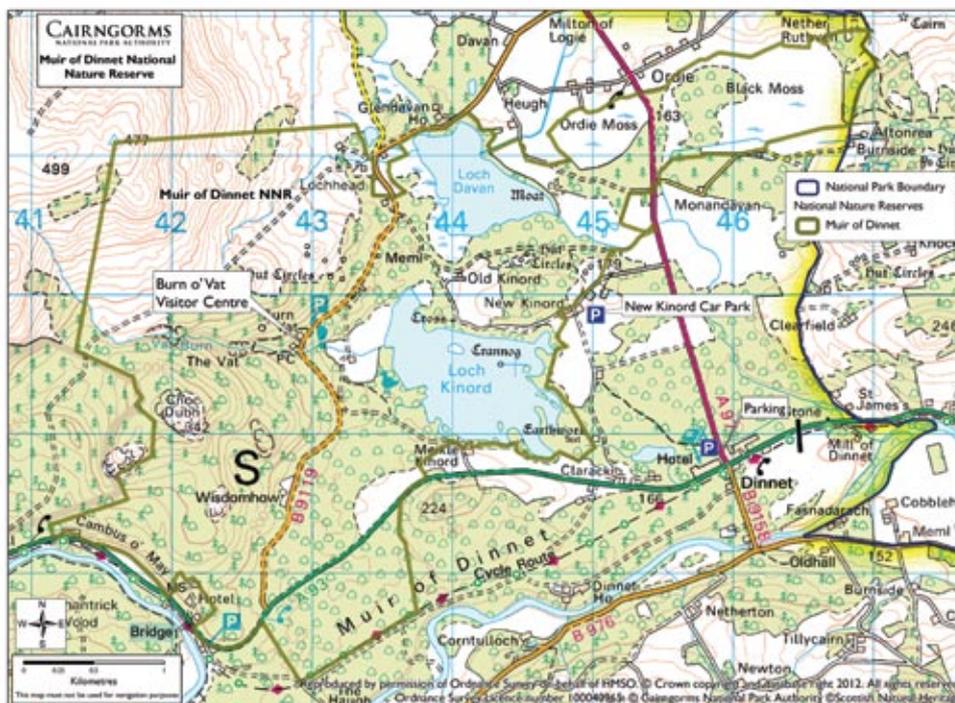
Many birds breed and raise their young on the lochs during the spring and early summer, so please stay on the paths to keep disturbance to a minimum. If you bring a dog between April and July, please keep it on a short lead or at heel.

Publications

There is a free Reserve leaflet showing the facilities, paths and names of the main features.

The Story of Muir of Dinnet National Nature Reserve includes a more detailed account of the Reserve, including a timeline of events dating from 3000 BC.

Both are available at www.nnr-scotland.org.uk/muir-of-dinnet or the leaflet can be picked up at the Burn o' Vat Visitor Centre.



General guidelines for educational visits

With its mountains, ancient forests, rivers and wild moorland, the Cairngorms National Park offers an exceptional array of things to do and see, making a trip to this Park an experience that will be of great value to any pupil.

Organising the visit

General advice on outdoor learning is available from Aberdeenshire Council www.aberdeenshire.gov.uk/outdoorlearning or your local authority.

We recommend you look at *Getting Into Scotland's National Parks and National Nature Reserves*, produced by the Cairngorms National Park Authority in conjunction with others. It has practical information to help plan and organise your trip, as well as allowing pupils to get the most from their outdoor learning experience.

Your school or local council will have its own procedures for visits, such as:

- general on-line policy, guidance, checklists and forms; and
- local authority staff and other teachers who are familiar with the procedures and can help.

Many sites have site specific guidance, advice and risk assessments.

Planning your visit

Effective, safe and enjoyable outdoor activities usually have the following:

- well defined objectives
- planning and preparation
- risk assessment – see page 6
- emergency and contingency planning
- clearly defined roles and responsibilities
- good communication
- adequate supervision
- evaluation – see page 10

Think about the reason for your visit, educational aims and learning objectives. How will you use the site? What's the best time of year to visit?

If you are not sure what you want to do in the National Park or NNR, ask the Park Authority or the site managers/rangers for information on packaged experiences/activities.

Cost and travel

There are many activities on offer in the National Park with varying cost implications. Many are free but some sites have entry fees, so it is worth checking.

There are sources of funding to support outdoor learning including transport. Your local authority or other National Park partners may have small grants available, so it is worthwhile contacting them.

Community transport schemes can help with transport and *The Cairngorms Explorer* leaflet will give you information about travelling to and around the Park by public transport (see contacts).

Contacts

Cairngorms National Park Authority
14 The Square, Grantown-on-Spey,
Morayshire, PH26 3HG
Tel: 01479 873535
Email: enquiries@cairngorms.co.uk
www.cairngorms.co.uk

Aberdeenshire Council
www.aberdeenshire.gov.uk/outdoorlearning

Education Scotland
www.educationscotland.gov.uk
www.ltscotland.org.uk

National Nature Reserves
www.nnr-scotland.org.uk



Booking

Agree a provisional date to visit as early as possible with the site manager or ranger and complete a booking form or confirm the booking by phone. Procedures for parental consent will be outlined by your local authority or school.

Preparatory visit

Visiting the National Park or NNR before your trip is useful for risk assessments, checking activities and facilities. If this is not possible, phone the site manager, ranger or someone in the Park Authority to talk through your visit (see contacts on page 3).

Health and safety

Learning to deal with risk is part of growing up. Promoting a common-sense approach to real risks allows young people to develop the skills they need.

Outdoor learning provides teachers and pupils with an opportunity to look at the dangers and difficulties that may arise on a visit and make plans to avoid, reduce or manage them.

There is a legal requirement for a process of risk assessment to take place in most outdoor learning situations. The basic approach is outlined by the Health and Safety Executive (HSE) in their guidance 'Five steps to risk assessment'. Local authority requirements should also be checked.

Pupil to adult ratios

Your local authority or school will have guidelines.

Adult helpers

Briefing adult helpers is important to support learning and health and safety. Clearly identify the teacher in overall charge of the visit. Should the helpers encounter any difficulties with pupil behaviour, or other problems, these should be referred to the teacher in charge.

Travel

Pupils travelling by coach should remain seated at all times and wear seatbelts where these are fitted. If you are using your own car please check that your existing insurance policy covers the transport of pupils on school excursions.

Behaviour

Remind pupils of standards of behaviour and advise them of any additional rules linked to the visit or the site. Discuss with pupils possible hazards associated with the visit and how these might be avoided or reduced.

First aid

It is sensible for at least one of the group's leaders to hold a current first aid certificate. All adults in the group should know how to contact the emergency services. The minimum first aid provision for an excursion is:

- a suitably stocked first aid kit (HSE recommends minimum contents);
- a person appointed to be in charge of first aid arrangements; and
- first aid kit should be available and accessible at all times.

All minibuses are required by law to carry a first aid kit. Travel sickness bags are also a sensible precaution for pupils.

Emergency contact

Your local authority or school will have standard emergency procedures, and these should be followed.

Further information

Education Scotland has produced guidance on health and safety for outdoor learning
www.educationscotland.gov.uk
www.ltsotland.org.uk

The Scottish Government has produced *Health and Safety on Educational Excursions – a good practice guide* (2004)
www.scotland.gov.uk

The Health and Safety Executive (HSE) provides guidance on risk management in the education sector, and in their *Five steps to risk assessment*
www.hse.gov.uk

Further guidance can be obtained from your local authority.



Hazard information

It is the responsibility of teachers and group leaders to complete a risk benefit analysis before any outdoor learning site visit with a group. Most education authorities give specific guidance on how this should be carried out.

The potential hazards listed here are generic and should be viewed as a starting point for carrying out risk benefit analysis of specific activity sites. Ideally, this should be carried out on site by teachers and group leaders.

Photographs of specific sites linked to the activity cards can be used as an additional support tool for teachers and group leaders and as a learning resource to engage pupils in assessing risk prior to a visit. The information opposite does not replace a teacher's or group leader's own risk assessment.

Remember though, that the benefits of the visit to children's learning and wellbeing will far outweigh well managed potential hazards. Through experience, children learn how best to deal with hazards.

Potential hazards at Muir of Dinnet NNR

- Car parking – risk of other traffic coming in and out of car parks; coaches should park in designated areas.
- Burn o' Vat Visitor Centre – no specific hazards.
- New Kinord – no staff on-site, no toilets, access not signed off A97.
- Uneven surfaces on all paths.
- Standing water and slippery surfaces after heavy rain.
- Check for ticks after a visit – low risk of Lymes disease. For Aberdeenshire Council advice www.aberdeenshire.gov.uk/outdoorlearning click on 'Safe learning in an outdoor environment'.
- Be aware of fire risk in dry weather.
- Weather – bring suitable clothing and footwear eg waterproofs, hats, sunscreen.
- Refreshments – ensure children bring a packed lunch as there is no shop on-site.

This information is based on Risk Assessments produced by the site managers, experiences of previous groups and recorded incidents.



Scottish Outdoor Access Code (SOAC)

The Scottish Outdoor Access Code reminds us of the needs and wishes of other countryside users and wildlife. The main messages are:

- Take responsibility for your own actions.
- Respect the interests of other people.
- Care for the environment.

There are two Code activity guides available for teachers and group leaders to help young people explore and understand their rights and responsibilities in the outdoors. One is for primary (8-12 year olds) and one for secondary (12-14 year olds).

Find the guides at
www.outdooraccess-scotland.com



Curriculum for Excellence and Outdoor Learning

Education Scotland emphasise the importance of outdoor learning on their website. The activities in this Pack have been developed for Curriculum for Excellence and offer learning experiences at a wide range of levels, allowing progression.

In order to get the best learning experience out of your visit consider these questions:

- which experiences will have more impact on learning if undertaken outdoors?
- how can learning outdoors enhance learning within curriculum areas?
- which experiences are best suited to a combination of indoor and outdoor learning?
- how can learning indoors best be consolidated, progressed or enhanced using the outdoors?
- what opportunities exist for linking learning across the curriculum?

Planning for outdoor learning

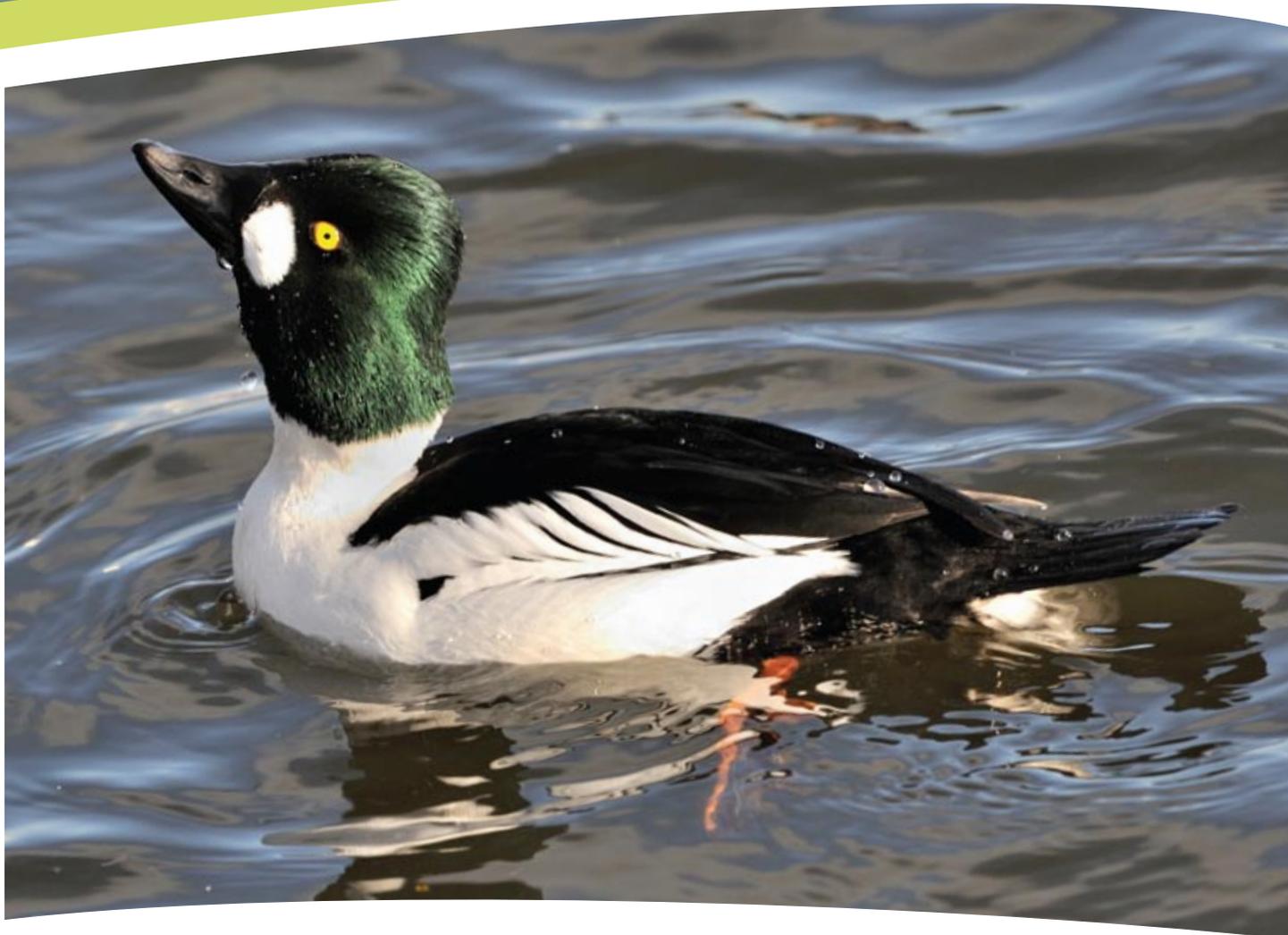
Planning for progressive learning experiences is helped when teachers and educators take full account of children and young people's previous experience of outdoor learning. The outdoor learning opportunities are tiered from school grounds to local area, to day visits, to residential and then abroad. The Park is particularly relevant for day visits and residential stays.

Interdisciplinary learning, cross cutting themes, and skills for learning, life and work

- Although the activities are primarily focused around Science and Social Studies experiences and outcomes, they have been planned to enable pupils to engage with the topics and explore NNRs through meaningful interdisciplinary contexts.

- Health and wellbeing outcomes are addressed through engaging pupils in risk benefit analysis and outdoor access code activities help them to take responsibility for their own and others safety. In considering how their behaviour might impact the environment and other Nature Reserve users, they develop attitudes and skills which support them in becoming responsible citizens.
- All of the 'During Visit' activities require effective communication and co-operation with other pupils in large and small groups and also with adult leaders. Through working together in the outdoors, pupils have opportunities to become effective contributors.
- The outdoor environment offers enjoyment in learning and pupils are challenged through practical exploration, asking questions and applying their knowledge in a novel context, supporting them in their journey to become successful learners and confident individuals.
- Through hands on experience and personal connection with a special place such as an NNR, pupils are given the opportunity to engage with and develop informed attitudes towards issues of sustainability, community, conflict, conservation and development.
- The suggested pre-visit and follow up activities make links with a wide range of curricular areas including: Numeracy, Literacy, Health and Wellbeing, Expressive Arts, Technologies, Science and Social Studies.





Challenge and assessment

The novel context of the outdoors encourages pupils to engage in practical challenging tasks. When planning activities, an increased element of challenge can be included by:

- challenging pupils to create/do something in the most imaginative way they can;
- limiting resources available so that increased co-operation is required;
- framing activities in the style of a question that requires elements of problem solving and higher order thinking skills;
- having a set time for the task; and
- introducing an element of award achievement or competition.

Activities in the outdoors can also be used for assessment. Skills and knowledge learned in the classroom can be applied in new ways outdoors and evidence can be collected in film, photos, observation notes, or active self assessment techniques. Pupils can also show their understanding of concepts by designing activities for other pupils at their own or a lower level.

Evaluation

At its simplest, asking the group and writing down:

- what went well?
- what didn't go well?
- what did the group find most useful?
- what did the group find most enjoyable?
- what could be improved or changed next time?

This will provide a useful guide to how the visit has gone and how it could be improved next time.

Education Scotland's outdoor learning web pages have an evaluation resource that can help you evaluate your work in more detail.

Further information

Education Scotland
www.educationscotland.gov.uk
www.ltscotland.org.uk





About Muir of Dinnet NNR

Muir of Dinnet has some of Deeside's prettiest **woodland** and two beautiful **lochs**.

The woods have grown on **land shaped by glaciers**. Birds like willow warblers can be seen in the spring and foraging flocks of tits in the winter. Around the edges of the Reserve there is rare **bearberry heath**, while **bogs** are home to colourful dragonflies and insect-eating plants like sundew.

The **lochs** were formed at the end of the last Ice Age. As the glaciers melted, two huge lumps of ice got stranded here and the lochs formed in their indentations (called 'kettle holes'). The lochs are rich in plant life, with over 50 species of plants growing around the water's edge. The reeds, rushes and willow trees also make great shelter for nesting birds. In winter, these lochs are also great places for birdwatching. Teal, tufted duck and greylag geese all visit the Reserve, and it's one of the best places in Britain to see goldeneye.

If you want to do some pond-dipping or water studies there is no pond as such but it is possible to do 'stream dipping' at the first bridge on the Vat Trail – it's shallow and relatively safe.

How about a 'bog dip' at Parkin's Moss? It's a slightly longer walk in and it will be very muddy, but you do get interesting features like dragonfly larvae.

The Reserve's most spectacular feature is **the Vat**. It's a vast bowl of pink granite, scooped out by a river flowing underneath the glaciers that covered the land about 20,000 years ago.

People have lived at Dinnet for thousands of years and one of Scotland's most beautiful Pictish crosses, carved over 1,000 years ago, overlooks Loch Kinord. Iron Age people lived in a thriving village near New Kinord, and on Loch Kinord, one of the islands is a crannog (the remains of a hut built on a platform over the water). There was also once a castle on the other island, visited by several Scottish kings.

Further information

www.nnr-scotland.org.uk/muir-of-dinnet
www.snh.org.uk
www.cairngormslearningzone.co.uk
www.royal-deeside.org.uk
www.discoverroyaldeeside.com



Educational activities for Muir of Dinnet NNR

Activity cards have been provided that will help meet the experiences and outcomes across all levels of the Curriculum for Excellence. An outline of these activities are summarised below according to approximate age

range of pupils, although please note these may be earlier or later for some.

Please also note that these are intended to give illustrative starting points for activities rather than being prescriptive.

Reference to specific experiences and outcomes are found on individual activity cards.

	Title	Location (suggested waymarked trail)	Recommended time (including travel to/from site)	Suggested Curricular Areas
Early Level Pre-school to P1 page 13	Sensational senses – nature’s magic!	Burn o’ Vat and Visitor Centre (The Vat Trail – red)	Half day	Health and wellbeing: Choices, sharing Social studies: Developing awareness of the world around me Science: Observation and interdependence
Level One To P4 page 15	Minibeasts – just where are they?	Burn o’ Vat and Visitor Centre, Parkin’s Moss (The Vat Trail and Parkin’s Moss Trail)	Half day	Social studies: Observation, comparisons, inter-dependency Technologies: Impact on the environment Science: Sorting into groups, food chains
Level Two To end P7 page 17	What’s the story? Sharing stories about Muir of Dinnet	New Kinord (Loch Kinord Trail)	Half day	Social studies: Researching the past, impact of human activity Expressive arts: Creating and presenting a drama Science: Benefit of plants, plant uses
Level Three S1 to S3 page 20	What’s in a grid square? Be a landscape detective	Viewpoint above the Vat and at Meikle Kinord (The Vat Trail and viewpoint, Loch Kinord Trail)	Half day	Social Studies: Using maps Science: Characteristics of basic types of rocks Technologies: Presentation inspired by natural forms
Level Four S4 to S6 page 24	Dinnet’s landscape – it’s all in the detail	Burn o’ Vat and New Kinord (The Vat Trail and viewpoint, Loch Kinord Trail)	Full day – split between two sites	Social studies: Balance of evidence, impact of physical processes, human impacts on the landscape Science: Interdependence of animal and plant species
Senior Level S4 to S6	John Muir Award Cairngorms National Park Junior Rangers Programme Information about land based careers – possible opportunities to shadow staff at work or have careers visits to school	Throughout the National Park Throughout the National Park See contacts on page 3	Various	As part of the new National 4 and National 5 exams and Advanced Higher, Muir of Dinnet can provide excellent opportunities for individual investigations and towards the units on land user conflicts (Rural Land Resources) and elements of Physical Environments.



Activity Card: Early Level Sensational senses – nature’s magic!

Learning intentions of this activity

- To discover the variety of colours, textures and sounds of nature through using the five senses.
- To find out more about where minibeasts live and the conditions they like and dislike. Are they the same as ours?
- To develop language skills through sharing their experiences with others.

Early Level Experiences and Outcomes

- In everyday activity and play, I explore and make choices to develop my learning and interests. I am encouraged to use and share my experiences. **HWB 0-19a**
- I explore and discover the interesting features of my local environment to develop an awareness of the world around me. **SOC 0-07a**
- I have observed living things in the environment over time and am becoming aware of how they depend on each other. **SCN 0-01a**



Recommended group size: Whole class
(3 groups of 10)

Time required: Half day (3 x 20 minute activities)



Before you go

- Build a simple indoor observation hide in the classroom looking out into the playground or nearby wood, and practice observing things quietly (and sitting still!).
- Talk about smells – what they might tell us about things that are safe for us to eat.
- Compare the colours of some well-known insects – why are they sometimes colourful and sometimes not (camouflage)?

Activities to do: Sensational senses – nature’s magic!

Base your visit at the Burn o’ Vat Visitor Centre and along the Vat Trail.

- Using any natural objects they can find, ask the children to make their very own picture on the ground or on a picnic table.
- As your group walks along the path, look, listen and feel for signs of animals and insects.
- Children can make their own ‘rainbow’ of colours matching the colours on paint colour strips and sharing them with others.

Resources needed

- Magnifiers
- String
- Blind folds
- Sheet or tarpaulin
- Paint colour strips from DIY shops

After your visit

- Use your hide to look again into your school grounds and continue to record birds seen in and around the school.
- Create some insect homes, eg a wormery, build a log pile, bug rug, or a ladybird nest.
- Find a shoe box and make your very own ‘Wee Green Fingers Box’ and fill with things that help you explore your nearest natural space time and time again.

More information

- Wee Green Fingers Fun Pack – environmental activities for pre-school children www.snh.org.uk
- Images of animals and invertebrates www.ltscotland.org.uk/resources www.educationscotland.gov.uk
- Ideas for making insect and animal homes www.bbc.co.uk/breathingplaces click on ‘nature activities’
- Wide range of attractive, easy-to-use activities from the Woodland Trust www.naturedetectives.org.uk





Activity Card: Level One Minibeasts – just where are they?

Learning intentions of this activity

- To look closely at similarities, patterns (shapes and numbers) and needs of minibeasts in their natural habitats.
- To find out more about where minibeasts live and the conditions they like and dislike. How do they differ from our requirements for life?
- To discover how important insects are in woodland food chains and webs.

Level One Experiences and Outcomes

- I have observed living things in the environment over time and am becoming aware of how they depend on each other. **SCN 0-01a**
- Throughout all my learning, I take appropriate action to ensure conservation of materials and resources, considering the impact of my actions on the environment. **TCH 1-02a**
- I can explore examples of food chains and show an appreciation of how animals and plants depend on each other for food. **SCN 1-02a**
- I can distinguish between living and non living things. I can sort living things into groups and explain my decisions. **SCN 1-01a**

Recommended group size: Whole class
(3 groups of 10)

Time required: Half day (3 x 20 minute activities)



Before you go

- Using images of the Reserve, record the benefits and the risks there might be of your visit.
- Look at minibeasts in one part of your school grounds and start recording what you find where.
- Discuss how you will care for the minibeasts during your visit.

Activities to do:

Minibeasts – just where are they?

Base your visit at the Burn o' Vat Visitor Centre and along The Vat and Parkin's Moss trails.

- **Woodland layers** – stop regularly and have a close look at the different 'layers' of the woodland to discover which insects live in which layer (branches, trunks, shrubs, grass, soil). Focus on a circle or square defined by string.
- **Get up close to a tree trunk** – carefully feel a tree trunk and using a magnifier follow the path of an insect. What's it doing? Why? Where is it going/coming from? Try exploring the trunk with eyes shut (or blindfolded).
- **Sketch a creature** – ask children to draw or create a minibeast based on what they have observed/learned so far.

Resources needed

- Magnifiers
- Clipboards
- Paper and pencils
- String to mark out area for close examination
- Blindfolds
- Insect ID sheets/keys

After your visit

- Using recycled or natural materials, create a food chain/food web poster.
- Using various sources of information, including ID keys, try to identify some of the creatures found.
- Look again in your school grounds and continue to record which insects were found where. Were there some that were found in both places? What does this tell you? Share your records.
- Make some insect homes – build a log pile, bug rug or ladybird nest.



More information

- Images of Muir of Dinnet NNR – in publications about Muir of Dinnet www.nnr-scotland.org.uk/muir-of-dinnet click on 'publications'
- Identification key for woodland invertebrates, £2.75 from Field Studies Council www.field-studies-council.org search for 'Woodland name trail'
- Minibeast activities – in School's Out Activities Pack www.highlandenvironment.org.uk click on 'Projects' then 'School's Out'
- Images of insects www.ltscotland.org.uk/resources www.educationscotland.gov.uk
- North East Scotland Biological Records Centre – for biodiversity information www.nesbrec.org.uk





Activity Card: Level Two

What's the story?

Sharing stories of Muir of Dinnet

Learning intentions of this activity

- To discover the human side of Muir of Dinnet National Nature Reserve, including the value and use of its plants in the past.
- To share stories with others in the local community.
- To tell a personal story of the last 500 years of Muir of Dinnet through a creative presentation.

Level Two Experiences and Outcomes

- I can use primary and secondary sources selectively to research events in the past. **SOC 2-01a**
- I can discuss the environmental impact of human activity and suggest ways in which we can live in a more environmentally responsible way. **SOC 2-08a**
- I have created and presented scripted or improvised drama, beginning to take account of audience and atmosphere. **EXA 2-14a**
- Through carrying out practical activities and investigations, I can show how plants have benefited society. **SCN 2-02b**

Recommended group size:

Whole class (3 groups of 10)

Time required: Half day



Before you go

- Using images of the Reserve, record the benefits and the risks there might be of your visit.
- Find out some stories about Muir of Dinnet (see supporting material).
- 'Know the Code before you go' activity – who and what will you need to consider during your visit?
- Research some plants that people have used in the past (or present).

Activities to do:

What's the story?

Sharing stories of Muir of Dinnet

Start your visit at the New Kinord Car Park (GR NO 449999) off the A97

- Visit or view up to three sites connected with different historical periods – Old Kinord, crannog, celtic cross.
- Record or observe features from that period, looking for signs of settlement, social hierarchy, food production and means of transport.
- Invite an actor or story-teller along with you who can add another dimension to your visit.

Resources needed

- Camera
- Clipboards/paper
- Reserve leaflet/map
- Supporting material – stories about Muir of Dinnet
- Storyteller, costumed artist
- Script for drama
- Costumes/hats

After your visit

- Present a dramatised story of one aspect of life at Old Kinord during the last 500 years.
- Create a display of your findings to one community group.
- Produce your very own 'Sharing the Stories of Muir of Dinnet National Nature Reserve'.
- Discuss the diversity of lifestyles of people in the past and their impacts on the local area.



More information

- Images of Muir of Dinnet NNR – in publications about Muir of Dinnet, including Reserve leaflet www.nnr-scotland.org.uk/muir-of-dinnet click on 'publications'
- Scottish Outdoor Access Code activity guides, eg 'Know the Code before you go' activity www.outdooraccess-scotland.com www.snh.gov.uk, search in 'publications'
- Storytellers, actors www.grampianstorytellers.org.uk
- The Story of Muir of Dinnet National Nature Reserve www.nnr-scotland.org.uk/muir-of-dinnet click on 'publications'
- *Sharing the stories of the Cairngorms National Park* – a guide to interpreting the character and identity of the Park www.cairngorms.co.uk
- Comprehensive history of the Dinnet/Deeside area www.royal-deeside.org.uk
- Scotland's stories and songs www.ltscotland.org.uk



Level Two Activity

Supporting material:

Stories about Muir of Dinnet

First ever maps of Lochs Davan and Kinord?

On the earliest map of Scotland, prepared by the Roman astronomer Ptolameaeus in 146AD, a settlement called Devana is shown. Devana translates to 'the town of the two lakes' and has been placed, by some, very near Lochs Davan and Kinord. Although all the remains in this area are known to be from the original Iron Age settlement, it is not inconceivable that it was sacked and taken over by the Roman invaders.

Battle of Culblean 1335

On 30 November 1335, the forces of Sir Andrew de Moray, Regent for the infant King David II (son of Robert the Bruce) defeated Earl David of Strathbogie after the Earl attempted to capture the royal family at Kildrummy Castle. The castle (NO 4397 9964) is first mentioned when used as a refuge for the Earl of Atholl after the battle of Culblean 1335.

Farming records from 1622

'Mekle chandmoris – payis yerilie. Sett for four yeris, entree 1622. Aucht four markis maill, tua wadders, tua leitt of peitts'.

This is roughly translated as – the farm at 'Meikle Chandmoris' (Meikle Kinord) paid as part of their rent, 84 marks of meal, two weathers (sheep) and two loads of peats. Meikle Kinord is fairly close to Parkin's Moss, so it is likely that the peat was cut from here.

Cattle rustling 1648

In 1648, the notorious outlaw Gilderoy Macgregor uses the Vat and gorge as his hide-out, from which to mount cattle rustling and sheep stealing raids. He was eventually caught and hanged in 1658.

Diatomite mining 1867

Lochs contain many billions of microscopic algae, which have an outer casing made largely of silica. As they die and decay, the durable silica cases accumulate into layers, called diatomite, at the bottom of lochs. In 1867, Alfred Nobel discovered that this diatomite could be used to create dynamite.

Black Moss at Muir of Dinnet was particularly rich in diatomite and between 1867 and 1910, it was dug from the moss and sent all over the world to make dynamite, or be mixed into paint. As a result a small industry sprung up at Muir of Dinnet in 1867.

Diatomite mining ceased at Muir of Dinnet in 1919.

How Parkin's Moss got it's name 1999

In 1999 former Reserve Warden, Jim Parkin, was celebrated by naming an area of raised bog after him! The damming of ditches has led to a rise in the water table. Trees, which were previously able to grow on the dried-out bog, are now dying off due to the increased wetness of the site. Some may find it hard to understand trees are encouraged in some places, but removed in others. A newly created bog, will take a very, very long time to achieve the biodiversity of a naturally evolved bog, but with peatlands across the world being under threat every new bog must be cherished!





Activity Card: Level Three

What's in a grid square?

Be a landscape detective

Learning intentions of this activity

Through investigation of the detail of one grid square on an OS map, you will:

- improve observation skills;
- improve knowledge and understanding of the natural environment of the Cairngorms National Park;
- describe and explore environmental change and land use conflicts; and
- carry out field sketching of landscape within Muir of Dinnet NNR.

Level Three Experiences and Outcomes

- I can use a range of maps and geographical information systems to gather, interpret and present conclusions and can locate a range of features within Scotland, UK, Europe and the wider world. **SOC 3-14a**
- I gain inspiration from natural forms, the built environment or imagination to develop a creative idea which could be realised using computer aided manufacture. **TCH 3-15b**
- By comparing settlement and economic activity in two contrasting landscapes, I can reach conclusions about how landscapes influence human activity. I can explain my findings clearly to others. **SOC 3-13a**

Recommended group size:

Whole class, individual or small group exercise

Time required: Half day visit



Before you go

- Discuss risk benefit analysis and any considerations about access restrictions on the National Nature Reserve.
- Investigate the regional landscapes of Scotland at Exploring Scotland www.macaulay.ac.uk/explorescotland
- Practice field sketching a familiar view from your school grounds (see supporting sheet).
- Each student should identify a 1km grid square (in which to base their sketching activity) using
 - OS map of Muir of Dinnet (Landranger Map 1:50,000 No. 37 or Explorer Map 1:25,000 No. 405)
 - Digimap for schools – OS maps online <http://digimapforschools.edina.ac.uk>
- Print or copy chosen grid square – enlarge it if possible.

Activities to do:

What's in a grid square?

Be a landscape detective

Base your visit at the viewpoint on The Vat Trail or Meikle Kinord on the Loch Kinord Trail

- Students choose a sketching site within their chosen grid square (see supporting material).
- Find a good place to sit.
- Complete Part A of the Landscape Detective worksheet.
- Ask the pupils to decide on what they want to include in the sketch and ignore unnecessary detail (cars, people).
- Label the main elements of the sketch.
- Put a number beside each key feature. These numbers can be used later when you are writing about the landscape.
- Give your sketch a title.
- Complete Part B of the Landscape Detective worksheet.
- If time available repeat in a contrasting location.

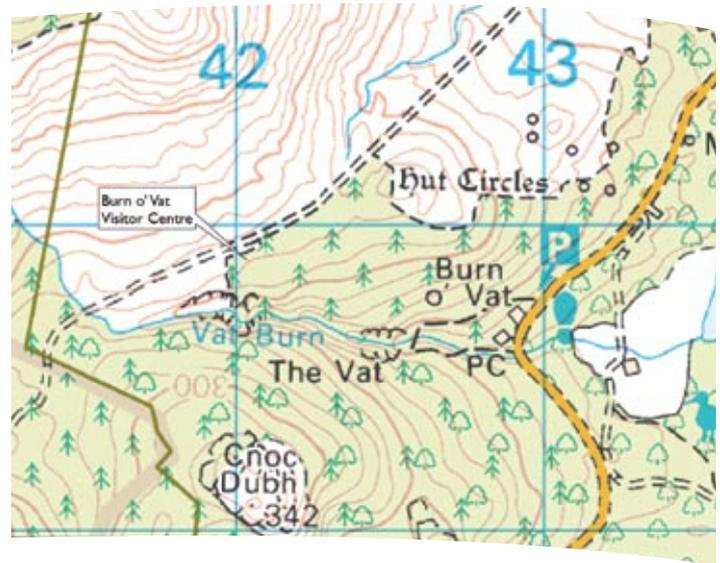
Resources needed

- Photocopy of chosen grid square (enlarged) and Ordnance Survey Key
- Compass
- Sketching sheet, clipboard, pencil and eraser
- Possibly a digital camera
- Sheet of supporting material
- Landscape Detective worksheet

After your visit

Depending on time available ask the pupils to discuss their sketch and reflect on their visit.

- Why do field sketching? What do you consider was the most important feature in your landscape and why?
- Looking at Part A of your worksheet, what did you not include when you first looked at the landscape and why?
- If you could change your landscape to make it more productive what would you remove and why?
- Discuss with someone what they consider 'productive'.
- Compare and present your perceptions of Muir of Dinnet NNR before and after your visit.



More information

- Measuring change in our countryside <http://countrysidesurvey.org.uk> search for Work Package on Landscape features, habitats and vegetation
- Field sketching www.oup.com/uk/geog.world click on 'Skills kit', 'Geography skills', then 'How to draw a field sketch'
- Map activities – know your grid square www.face-online.org.uk/geography/blog
- Dr Miller's Countryside Change Toolkit www.macaulay.ac.uk/toolkit/index.html
- Ordnance Survey maps on-line <http://digimapforschools.edina.ac.uk/about.html> www.ordnancesurvey.co.uk

Level Three Activity Supporting Material

Choosing a sketching site

Students choose a sketching site within their chosen grid square.

Suggested sites include:

- viewpoint on Burn o' Vat trail, Grid Ref: NO 429998;
- shoreline at Meikle Kinord, Grid Ref: NO 441990;
- shoreline at New Kinord on Little Ord Trail, Grid Ref: NJ 4425000.

Things to consider when choosing the site:

- height in relation to surrounding land;
- presence of fences, barriers etc which mar the view;
- numbers of items in the background, foreground and middle distance.

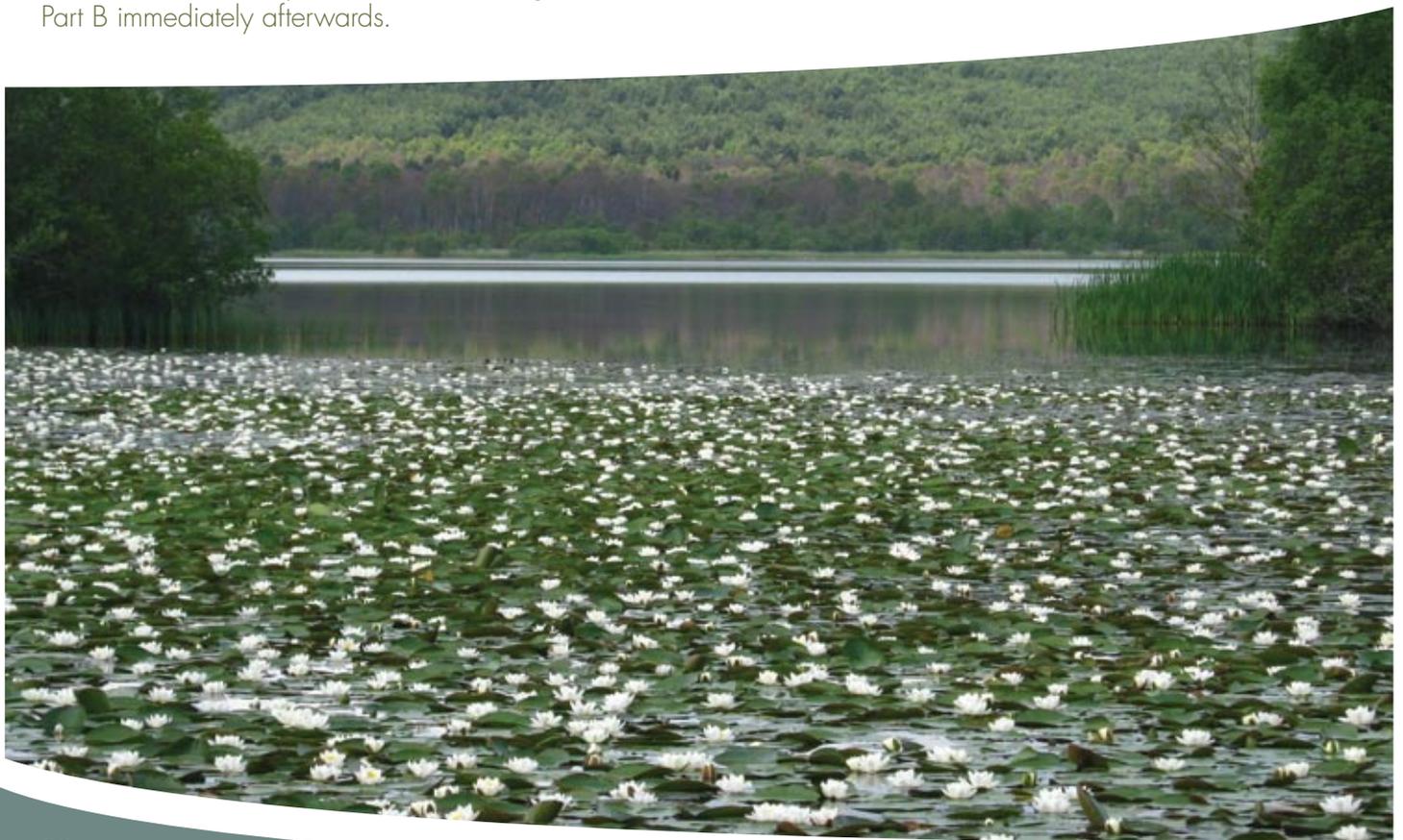
Try to pick a landscape where there are certain defining items that can be drawn.

Alternatively, digital images of the preferred landscape can be taken and from it an outline landscape provided for the students to complete.

Before they begin sketching ask students to complete Part A of the Landscape Detective Sketching Sheet and Part B immediately afterwards.

Sketching tips for pupils

- Write down the grid reference of your position.
- Write on the sketch the compass direction of the view.
- Draw a border or frame to give shape to your landscape.
- Use a soft pencil and have a rubber handy.
- Decide on what you want to show and ignore unnecessary detail such as cars and people.
- Try to include the natural features that give Muir of Dinnet its shape – hillsides, water features, outcrops of rock, woodland, remains of settlements, lochside, heather, moss.
- Be careful not to make slopes too steep.
- Try to give sense of scale – trees and buildings can help you do this.
- Start with the things that are furthest away from you, working towards the foreground.
- Label the main elements of the sketch, remembering you are a landscape detective.
- Put a number beside each key feature (annotations). These numbers can be used later when you are writing about the landscape.
- Give your sketch a title.



Level Three Activity Landscape Detective Worksheet

Part A – Before

Write down up to 4 items you can see in each area of the landscape

Part B – After

Using your sketch write down 4 ADDITIONAL items that you have observed while doing your sketch

Background	
1	1
2	2
3	3
4	4
Middle ground	
1	1
2	2
3	3
4	4
Foreground	
1	1
2	2
3	3
4	4

Based on an activity on Farming and Countryside Education (FACE) website.
www.face-online.org.uk/geography/blog



Activity Card: Level Four Dinnet's landscape – it's all in the detail

Learning intentions of this activity

- To gain an understanding of the value of Landscape Character Assessment in the context of a designated area (National Nature Reserve/ National Park).
- To gain skills which will help in the process of managing change in my local area.
- To devise an assessment process that helps to ensure that such changes make a 'positive' contribution to the local economy.

Level Four Experiences and Outcomes

- I can evaluate conflicting sources of evidence to sustain a line of argument. **SOC 4-01a**
- I can explain how the interaction of physical systems shaped and continue to shape the Earth's surface by assessing their impact on contrasting landscape types. **SOC 4-07a**
- I can develop my understanding of the interaction between humans and the environment by describing and assessing the impact of human activity on an area. **SOC 4-10a**

Recommended group size: Individual/pairs

Time required: Full day



Before you go

- Risk benefit analysis – what are the benefits of this field visit? What are the access considerations?
- Compile a landscape character checklist for Muir of Dinnet, and discuss and record the different elements (see supporting material and resources below).
- On a 1:25,000 map of Muir of Dinnet, identify two or three landscape types.
- Research the roles of different landscape professionals (see supporting material).

Activities to do: Dinnet's landscape – it's all in the detail

Base your visit on The Vat, Loch Kinord or Little Ord Trails

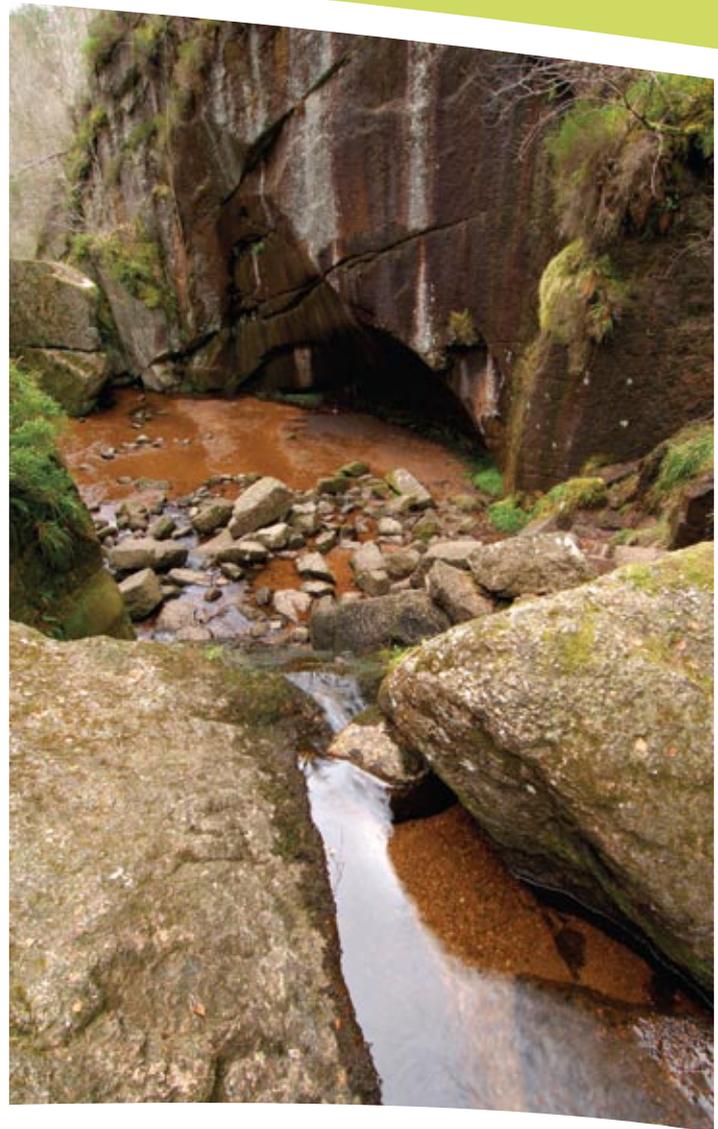
- Decide on a route that takes in two or three landscape types (see supporting material).
- In groups of two or three, suggest pupils take on roles of landscape professionals such as an ecologist, archaeologist/historian, countryside manager, landscape architect, planner, geologist and ask them to record their impressions of the landscape character from their professional perspectives.
- Spend about one hour at each location discussing the points of view of each 'role'.
- Use the checklist to record the characteristics of at least two different landscape types (see supporting material).

Resources needed

- OS Map 1:25,000 No. 405
- Landscape character checklist (on supporting material)
- Clip boards
- Pencils
- Camera
- Sheet of supporting material

After your visit

- Discuss what are the unique features of Muir of Dinnet National Nature Reserve.
- Compare, and present your thoughts on the landscape of Muir of Dinnet BEFORE and AFTER your visit.
- Prepare a field trip on a topic of choice for an S1 group on a visit to Muir of Dinnet.
- Debate any issues that came up linked to land use (and user) conflicts, eg farming, conservation, recreation.



More information

- Cairngorms National Park Landscape Character Assessment
www.cairngorms.co.uk
(see page 251 for Muir of Dinnet)
- The Special Landscape Qualities of the Cairngorms National Park
www.snh.gov.uk
click on 'publications', 'search the catalogue' then search for title under commissioned reports.
- Looking after our landscapes
www.snh.org.uk
- The James Hutton Institute (Formally The Macaulay Institute) 'Virtual Landscape Theatre' highlights the planning process and how future developments can change the local landscapes.
www.macaulay.ac.uk/landscapes
- Aberdeenshire Council's outline advice on landscape character
www.aberdeenshire.gov.uk

Level Four Activity Supporting Material

Landscape character checklist

The character of the landscape is made up of different elements:

- topography and geomorphology
- land use
- history
- settlement and development pattern
- how the landscape is experienced

Examples of landscape types

Birch woodland, open farmland, conifer plantation, lochs and wetlands, moorland, open hill and mountain.

Suggested roles for pupils

Ecologist/freshwater biologist – my aim is to work in conjunction with others to discuss how changes to landscapes will affect existing and future natural/aquatic populations.

Archaeologist/historian – my aim is to learn about the past from material remains, which could be anything from fragments of bone to buried settlements, castles, bridges and old routes.

Countryside manager – my aim is to help to maintain and manage the environment for the benefit of people and wildlife. This can involve the management of field staff and/or volunteers working on a variety of different habitats, including woodland, grassland, wetland and heathland. Work also involves the maintenance of facilities for public access and recreation.

Landscape architect – my aim is to conserve and enhance landscapes for the benefit of the environment and the different communities of interest including local residents and visitors.

Planner – my aim is to balance the conflicting demands of housing, industrial development, agriculture, recreation, transport and the environment, in order to allow appropriate development to take place.

Geologist – my aim is to study rocks, minerals and the strata of the earth's crust to figure out what happened to make the Earth the way it is, and what will happen if these processes continue.

Find more career descriptions on www.lantra.co.uk Search for 'career finder'.

Terminology

Landscape character area – consistency of character and identity formed by topography, land use, history, settlement and development pattern and the way the landscape is experienced.

Distinctiveness – what makes the character area distinctive from elsewhere (in the Park).

Landscape experience – the way the landscape is experienced.

Landscape quality – the intactness of the landscape and the condition of features and elements.

Scenic quality – used to describe landscapes which appeal primarily to the visual senses.

Rarity – the presence of rare features and elements in the landscape, or the presence of a rare landscape character type.

Representativeness – whether the landscape contains a particular character, and/or features and elements, which is felt by stakeholders to be worthy of representing.

Conservation interests – the presence of features of particular wildlife, earth science, archaeological, historical or cultural interest can add to the value of a landscape as well as having value in their own right.

Wildness – generally experienced in landscapes where there is a high degree of naturalness, ruggedness, remoteness and lack of human artefacts.

Associations – with particular people, artists, writers, or other media or events in history.



Level Four Activity Supporting Material

Landscapes at Muir of Dinnet

Example route 1

Start at Burn o' Vat Visitor Centre, cross the road, take in Bogingore, Meikle Kinord and Parkin's Moss (2 hours minimum). It will take a group about 30 minutes to walk to Meikle Kinord from the Burn o' Vat car park. There is a layby on the A93 where it is possible to access Meikle Kinord, however this does involve crossing and walking for a short way along the A93.

Landscapes that can be seen along this route include: lochs and wetlands, open farmland, birch woodland, open hill and mountain.



View to the North across Loch Kinord from A93 above Meikle Kinord

Example route 2

Take the Burn o' Vat Trail (1.3km). This includes a superb viewpoint across the loch and several glacial features (1 hour minimum). The Vat can be reached within 15 minutes of the Visitor Centre.



View to the south east from the Vat Trail

Further information

Outdoor Learning resources

Andy Goldsworthy online catalogue – ephemeral, natural art
www.goldsworthy.cc.gla.ac.uk

Farming and Countryside Education – Geography
www.face-online.org.uk/geography/blog

Forest Education Initiative (FEI) – resources for investigating woods (numeracy, literacy, geography, science)
www.foresteducation.org

Field Studies Council – laminated identification keys for use in the field
www.field-studies-council.org

Hamish Fulton – art exploring how walking alters perceptions of a space
www.hamish-fulton.com

Mission Explore – geography activities with a difference that can be done anywhere
www.missionexplore.net

Primary Earth Science Outdoors – Geological information & activities for primary pupils
www.sesef.org.uk/resources click on 'primary'

Scottish Natural Heritage – Resources for teaching
www.snh.gov.uk/about-scotlands-nature

SCRAN – historical images and media
www.scran.ac.uk

Woodland Trust – Nature Detectives activities
www.naturedetectives.org.uk

Outdoor Learning and the Curriculum

Outdoor learning on-line resource

- 'Building your Curriculum: Outside and In' – whole school planning around outdoor learning.
- 'Outdoor learning – practical guidance, ideas and support for teachers and practitioners in Scotland'.
- 'Curriculum for Excellence through outdoor learning' – guidance for teachers.

www.educationscotland.gov.uk
www.ltscotland.org.uk

Outdoor Journeys – A framework for questioning, researching and sharing about a place
www.outdoorjourneys.org.uk

Cairngorms National Park

Educational resources and projects
www.cairngorms.co.uk/learn

Educational web resource aimed at Higher / Advanced Higher students
www.cairngormslearningzone.co.uk

Loch Lomond and The Trossachs National Park

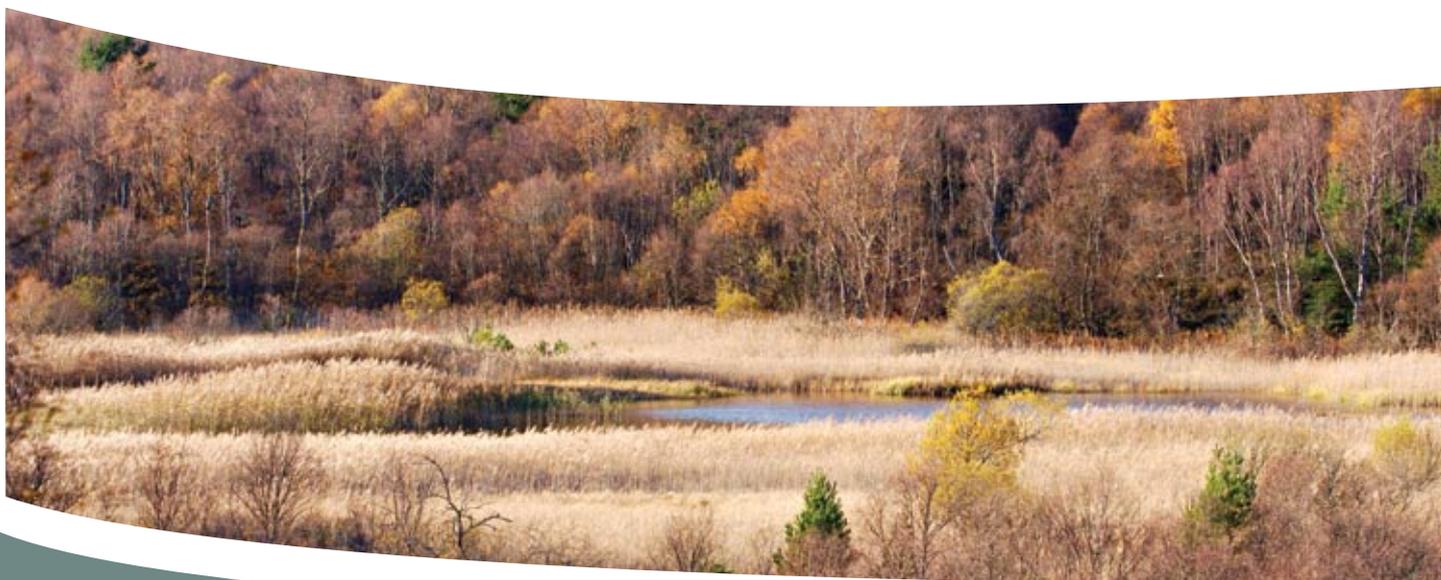
www.lochlomond-trossachs.org

Scotland's National Nature Reserves

www.nnr-scotland.org.uk

Muir of Dinnet NNR

www.snh.org.uk
www.royal-deeside.org.uk
www.discoverroyaldeeside.com



Cairngorms National Park Authority
14 The Square
Grantown-on-Spey
Moray, PH26 3HG
Email: enquiries@cairngorms.co.uk
www.cairngorms.co.uk

Scottish Natural Heritage
Burn o' Vat Visitor Centre
Dinnet
Aboyne
Aberdeenshire, AB34 5NB
Email: nnr@snh.gov.uk
www.snh.gov.uk

For a large print version of this publication, please contact the Cairngorms National Park Authority at the above address or telephone 01479 873535.