TEACH for ESD

TEACHING IN THE GREAT OUTDOORS

OVERVIEW

Personal experiences in natural spaces are vital for fostering a love and appreciation for the environment. If we want to solve the environmental crisis, we need to create as many opportunities as possible for our learners and ourselves to connect, understand and care for the natural world. So, let's teach outdoors!

During **outdoor lessons**, we as teachers can take on the role of an 'interpreter' and use teaching methodologies such as environmental enquiry and flow learning to facilitate meaningful experience-based learning. We can conduct **fieldwork** with our learners, which is an important skill and which we can use to contribute to citizen science. Outdoor teaching can take place within our schoolyard, or somewhere else during a **fieldtrip** or **enviro tour.** These need careful planning, but they can be an invaluable experience for our learners!

1. OUTDOOR LESSONS

Outdoor lessons can take place anywhere outside the classroom, including human-built environments. Regardless of what our schoolyard looks like, if it is built up and barren or has lots of natural vegetated spaces, there is always something to explore or investigate. We can take our learners out of the classroom and into their schoolyard and conduct an outdoor lesson.

Have you ever taught outside? Think about what is different when teaching in the classroom vs. teaching outside?

We can also create more outdoor classroom spaces by bringing in features like outdoor tables and seating, a rock library, traditional architecture area, etc. Refer back to ***Toolkit 3.4 – Bringing Biodiversity into the Schoolyard*** and ***Toolkit 3.5 – Celebrate the Environment*** for more content and ideas on outside activities and features. In this section we will focus less on *what* to teach, but rather explore *how* to teach outdoors.

Outdoor teaching does come with some challenges: there are usually more distractions outside, one's voice doesn't carry as well and the weather can pose a challenge – so it does require careful planning and well-structured lessons and activities. We also need to remember to design our outdoor lessons in a learner-centered way - our role is to be the facilitator!

RESOURCE CHECK

Read **pgs. 4 - 7** and **14 – 15** in ***A Beginner's Guide to Outdoor Teaching*** – a resource for Namibian teachers!

RESOURCE CHECK

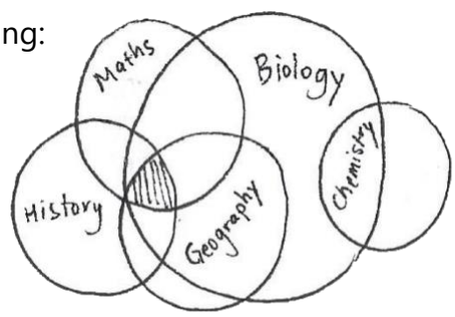
Read **Chapter 1** in ***Dirty Teaching*** - a resource for primary school teachers.

ENVIRONMENTAL INQUIRY & INTERPRETATION

A reoccurring theme in ESD is that not only do we have to teach about the environment, but we also have to change the *way* we teach - teachers are no longer the only source of knowledge, rather, we need to become the facilitators of the knowledge building process. One approach we can take as ESD practitioners is **environmental inquiry**.

Environmental inquiry entails four different styles of teaching & learning:

1. **Inquiry based learning**
2. **Integrated learning**
3. **Experiential learning**
4. **Stewardship**



Learning outside the classroom is ideal for all four ways of teaching in environmental inquiry.

RESOURCE CHECK

Teach in a new and meaningful way by using the teacher's resource ***Natural Curiosity - Building Children's Understanding of the World through Environmental Inquiry***.

In outdoor spaces, teachers need to take on the roles as interpreters - **environmental interpreters**.

"...the word 'interpreter' is increasingly being used to describe what many people do ... translating the hidden meanings, stories and messages that surround us into a language that everyone can understand."

JOHN ROFF, 2003

RESOURCE CHECK

Read **pgs. 3 - 8** in the booklet ***Bridging the Gap*** to learn the role and skills of an environmental interpreter.

FLOW LEARNING

Flow Learning is a method of outdoor teaching that makes use of different types of nature awareness activities and organises them into four stages:

Stage 1 – Awaken **ENTHUSIASM**

Stage 2 – Focus **ATTENTION**

Stage 3 – Direct **EXPERIENCE**

Stage 4 – Share **INSPIRATION**

We can use the Flow Learning method in our outdoor lessons (or during fieldtrips and enviro tours) and be creative in adapting these games into a Namibian context.

RESOURCE CHECK

Get familiar with flow learning by reading the article ***Bringing Children Back to Nature*** and the summary **Notes on Flow Learning**.

RESOURCE CHECK

Choose from 42 different nature awareness activities in ***Sharing Nature with Children - The Classic Parents' and Teachers' Nature Awareness Guidebook***. For even more outdoor environmental activities read the ***Play, Learn & Have Fun*** booklet.

2. FIELDWORK

FIELD WORK

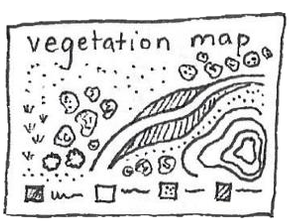
First-hand observations and data collection done in a real, natural environment as opposed to a controlled environment (such as a classroom or laboratory).

We can do field work as part of one of our outdoor lessons, or it can form part of our enviro tour programme. There are a variety of that we can investigate with our learners in the outdoors, e.g. information about deforestation in an area, people's opinions about a certain environmental topic, soil erosion studies, car surveys, temperature variations, etc.

Our research question will determine the kind of **sampling methods** that we will use. These sampling methods provide great practical experience for a variety of subjects. Fieldwork can therefore integrate all four styles of teaching and learning of environmental enquiry.

RESOURCE CHECK

Make sure that you and your students know how to collect information during field work – read the chapter on **Collecting Information** in ***Tools of the Trade***.



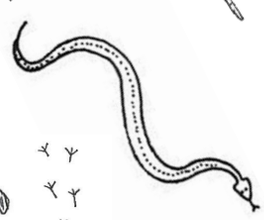
Investigations such as biodiversity inventories, vegetation surveys and animal observations will require our students and us to do identification and classification of organisms – this is introduced in ***Toolkit 3.4***. Here are several more identification resources:

RESOURCE CHECK

Use the ***Dragonflies and Damselflies of Namibia*** to identify these interesting insects, often found close to waterbodies.

RESOURCE CHECK

Identify snakes using the pictures in the **Snakes of Namibia** folder.



RESOURCE CHECK

Use the ***Field Guide to Animal Tracks of Southern Africa*** to help identify the tracks of animals.

RESOURCE CHECK

Identify grasses with the ***Identification Guide to southern African Grasses***. Use the ***Endemic Plants of the Sperrgebiet*** guide to identify endemic plants in this biodiversity hotspot.

RESOURCE CHECK

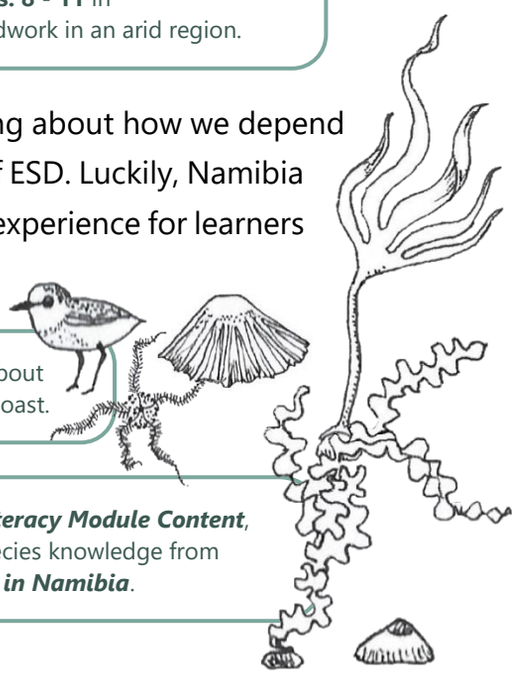
Study the trees around the Zambezi and Kavango regions using the ***A Beginner's Guide: Some Common Trees of the Okavango***. Also use the ***Tree Atlas*** from ***Toolkit 1.1 – Know Namibia's Environment***.

Namibia is often referred to a geologist's paradise – our country has many beautiful geological features where we can investigate the physical geography with our learners. So, choose an interesting geological site!

RESOURCE CHECK

Use the activity 'Land, Rock and Erosion' on **pgs. 8 - 11** in ***Teaching Resource Kit for Dryland Countries***, to plan fieldwork in an arid region.

Many Namibian learners are not familiar with the ocean, but learning about how we depend on the ocean and why we need to conserve it is an important part of ESD. Luckily, Namibia has a coastline and a school trip to the coast can be a life-changing experience for learners who have never been there.

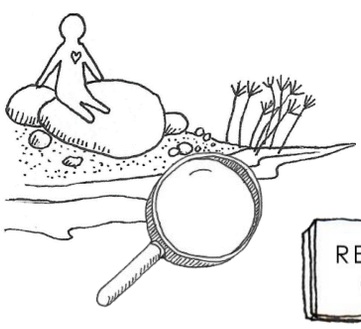


RESOURCE CHECK

Read the ***Coastodian Resource Booklet*** to get some ideas about possible fieldwork you can conduct with your learners at the coast.

RESOURCE CHECK

Read about intertidal zones on **pgs. 28 – 44** in the ***Ocean Literacy Module Content***, then explore the rocky shores with your learners using species knowledge from the ***Field Guide to the Living Marine Resources in Namibia***.

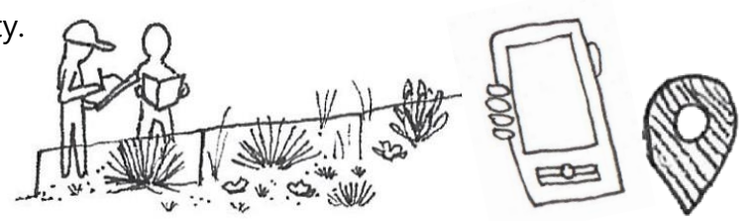


If we are going to be close to a river or a wetland, we can consider doing a water quality assessment by studying the animals that live in these freshwater bodies. Specific animals are indicators of freshwater ecosystem health.

RESOURCE CHECK

Use the ***MiniSASS Water Quality Test Kit*** for a water quality assessment.

Another goal of fieldwork, especially with senior primary and secondary learners, can be to contribute to **citizen science**. We can upload the species information that we collect, together with our location onto the **Atlasing in Namibia App**, Namibia's very own database for collecting information on our country's biodiversity.



RESOURCE CHECK

The **Atlasing in Namibia** app is web-based or can be downloaded onto smartphones (see EIS website in ***Toolkit 1.1***).

CITIZEN SCIENCE

is scientific research (e.g. data collection), conducted with the help of citizens to increase the capacity for scientific research, and to increase the public's awareness of science.

3. FIELDTRIPS AND ENVIRO TOURS

Can you remember any fieldtrips that you went on during your school time? What made them special?

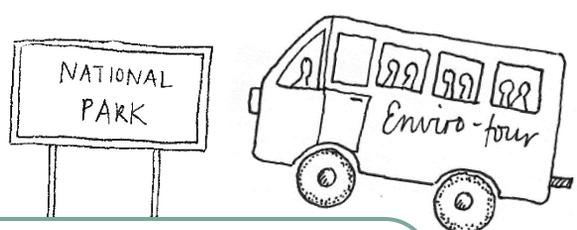
Fieldtrips and enviro tours both take students outside of their everyday school environment, in order to experience and study something first hand.

A **fieldtrip** can simply entail walking around, exploring and doing fieldwork in our immediate neighbourhood, shops or local park. Fieldtrips can be an hour to several hours in length, but usually don't extend over a day. We can also choose to visit to an environmental education centre, a museum, a nature reserve or a farm - which will entail some more logistics, like organising transport.

RESOURCE CHECK

Read **pgs. 1 - 2** in the ***Walking Field Trip and Outdoor Instruction Guide***.

Enviro tours can stretch over a few hours, days or weeks, where several different places can be visited. They usually include travelling longer distances and overnight stays. Some of the benefits of an enviro-tour is that it exposes learners to ecological and social environments that are different to their own context. This broadens their perspectives and they gain an appreciation for their country. It also creates a space for learners to interact with one another and their teachers in a more personal way, forging new friendships and understandings of each other. Tourists from all over the world come to see Namibia's beautiful and diverse landscape and its unique flora and fauna – and so should Namibian learners and teachers.



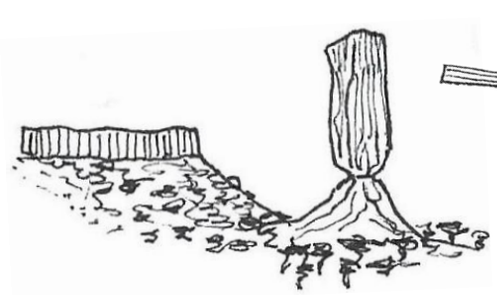
RESOURCE CHECK

For more fieldtrip and enviro tour destination ideas, create the **Let's Go See Namibia Map!** yourself or with your students, from the back pages of the ***Free Rangers*** comic book. Also look at **Namibia's National Parks Brochures** in ***Toolkit 1.1***.

As with any outdoor activity, for our fieldtrips or enviro tours to be successful, they need to be planned *well* in advance!

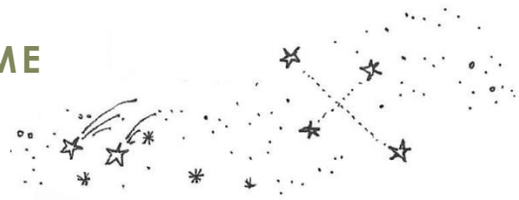
RESOURCE CHECK

A very good resource with tips on planning fieldtrips and tours, is the chapter on **Getting Started** in the ***Tools of the Trade*** - a resource for Namibian teachers.



Our outings do not have to be far away and expensive in order to be successful and meaningful.

TAKE PART IN AN ESTABLISHED EE PROGRAMME



There are several environmental education centres in Namibia, that offer environmental programmes for school groups. Some cater for day visits, while others offer week-long programmes. This has the benefit that we don't have to plan everything ourselves!

RESOURCE CHECK

Look at the list of **Environmental Education Centres in Namibia**.

Explore and sleep under Africa's 1st International Dark Sky Reserve at NaDEET Centre on NamibRand.

DEVELOP YOUR OWN PROGRAMME

If we are the ones planning leading the programme for our fieldtrip or enviro tour, then we need to make sure that we have a good balance between work and play by including field work, flow learning and free time. Also refer back to the creative activities described in ***Toolkit 3.5***.

RESOURCE CHECK

Find more nature-inspired games in ***Environmental Activities for Youth Clubs and Camps.*** Look at the ***Guidelines for Excellence: Nonformal EE Programme*** document, which gives advice on planning EE-specific programmes.

BE SAFE & SUSTAINABLE

Being outdoors is wonderful and important, but it does come with risks and responsibilities. Accidents do happen – so we need to be prepared! We must not forget to pack a first-aid kit - we need to make sure that we know how to use it and that we have an emergency plan of action!

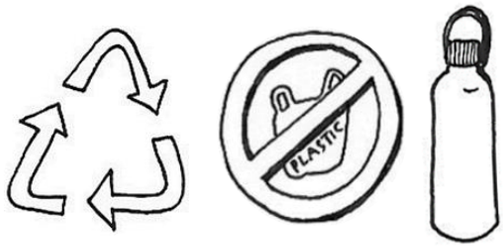
RESOURCE CHECK

Read the chapters: "Planning a School Visit" and "Outdoor and Adventurous Activities" in ***Planning and Leading Visits and Adventurous Activities*** guide, and see the ***Medical Management of the Snakebite Victim***, a booklet specific to Namibian snakes.

Lastly, as ESD practicioners we must try to make our trip or tour as eco-friendly as possible by considering what we eat and drink, what we buy for and during the trip and how we travel etc. Refer to ***Toolkit 3.3 – Reduce Resource Use*** and ***Toolkit 3.7 – Greening School Activities and Events*** for tips on how to continue reducing your resource use while travelling!

RESOURCE CHECK

Read *CREST*'s ***Responsible Travel Tips*** on travelling more sustainably.



RESOURCES

SOURCE KEY Hardcopy Softcopy Online

1. OUTDOOR LESSONS

A Beginner's Guide to Outdoor Teaching

MANUAL: This teacher's guide on outdoor education outlines how-to of teaching outdoors, what to teach and why, it's cross-cutting nature, and its benefits. It includes objectives, activity ideas and useful resources.
AUTHOR: Enviro Teach (1995)

Dirty Teaching: A Beginner's Guide to Learning Outdoors

MANUAL: This guide advises on initiating the process of teaching outdoors for the primary school age group. It gives simple lesson and activity ideas and explains how to approach outdoor learning related issues.
AUTHOR: J. Robertson (2014)
Link: https://www.crownhouse.co.uk/assets/look-inside/9781781351079.pdf

Natural Curiosity: A Resource for Teachers

BOOK: This book presents the concept of environmental inquiry and explores the four aspects that form it. Part 2 documents teachers' experiences of integrating this method into their practice.
AUTHOR: The Laboratory School at The Dr. Eric Jackman Institute of Child Study (2011)
Link: https://www.naturalcuriosity.ca/englishbook

Bridging the Gap: A Handbook for Environmental Interpreters and Educators

BOOKLET: This guide equips environmental educators and interpreters with knowledge and skills to most effectively teach about nature. It includes capacity building guidance, principals, activities and information.
AUTHOR: J. Roff (2003)

Bringing Children Back to Nature

ARTICLE AND LESSON PLAN: Giving a brief introduction to the importance of nature-based education and child-nature connection, this article explains the process of flow learning and includes activities aligned with the concept.
AUTHOR: J. Barlow (2016)
Link: http://www.earthrangers.org/wp-content/uploads/2016/08/bringing_children_back_to_nature.pdf

Notes on Flow Learning

MANUAL: Exploring the concept of the flow learning model, this booklet explains each stage and how the model works to optomise a child's learning potential. It also gives activity examples that illustrate the model.
AUTHOR: J. Cornell (1998)
Link: http://www.csun.edu/~vcrec004/rtm351/Flow%20Learning%20Summary.pdf

RESOURCES

SOURCE KEY Hardcopy Softcopy Online

Sharing Nature with Children – The Classic Parents' and Teachers' Nature Awareness Guidebook

BOOK: Including basic teaching guidance, this book directed at parents and teachers for application with children, lists nature awareness activities that aim to encourage all ages to experience natural environments.
AUTHOR: J. Cornell (1979)
Link: https://files.eric.ed.gov/fulltext/ED374994.pdf

Play, Learn and Have Fun

MANUAL: A collection of environmentally-themed games and activities for all ages, including related educational material. Explanation of the activity follows information on preparatory details and knowledge.
AUTHOR: Sheffield City Council, South Yorkshire Forest (n.d)
Link: https://www.wg.aegee.org/enwg/Environmental%20games%20and%20activities%20booklet.pdf

2. FIELDWORK

Tools of the Trade

CHAPTER: This chapter on *Collecting Information,* informs on the collection and extraction of information. It explains methods of data collection, types of information and what kind of information to collect per context.
AUTHOR: D. du Toit, T. Sguazzin (1995)

Dragonflies and Damselflies of Namibia

BOOK: This is a compilation of information on the various species of dragonflies and damselflies found in Namibia, from identification (including photographs) to biology and ecology, habitat and the key families.
AUTHOR: F. Suhling, A. Martens (2007)
Link: https://www.researchgate.net/publication/327051371_Dragonflies_and_Damselflies_of_Namibia

Snakes of Namibia

GUIDE: These posters of 23 snakes of Namibia give key information on each species including both common and scientific names, behaviour, habitat, venom, identification guidance, and pictures of the snake.
AUTHOR: F. Theart, C. Buys (2019)
Link: https://www.facebook.com/media/set?set=oa.1086271701565073&type=3

A Field Guide to Animal Tracks of Southern Africa

BOOK: This guide comprehensively informs on the tracks of Southern African animals and birds. It includes pictures and information on effective identification and tracking in the field, as well as, spoor interpretation.
AUTHOR: L. Liebenberg (2008)
Link: https://www.cybertracker.org/downloads/tracking/Liebenberg-1990-Field-Guide-Animal-Tracks.pdf

RESOURCES

SOURCE KEY Hardcopy Softcopy Online

Identification Guide to southern African Grasses

BOOK: A graphic, informative guide on the identification of grasses found across southern Africa. It contains identification methodology, species identification, key, distribution, illustrations and description.
AUTHOR: L. Fish, A.C. Mashau, M.J. Moeaha, M.T. Nembudani (2015)
Link:https://www.researchgate.net/publication/315808949_Identification_guide_to_southern_African_grasses_an_identification_manual_with_keys_descriptions_and_distributions

Endemic Plants of the Sperrgebiet – A Photographic Guide

GUIDE: A guide to the endemic plant species of Namibia, this booklet gives general information on this category of species, their state in Namibia and distribution, followed by a list of endemics in the area.
AUTHOR: A. Burke (2020)
Link: https://n-c-e.org/sites/default/files/2020-10/e-%20book.pdf

A Beginner's Guide: Some Common Trees of the Okavango

GUIDE: This guide gives some commonly occurring trees of the Okavango. It includes tree names (common, local and scientific), description, location, uses, and an illustration of the tree and the seed.
AUTHOR: L. Taylor (2000)
Link: http://learningthroughnature.co.za/resoursedownloads/bg-trees-of-the-okavango/

Teaching Resource Kit for Dryland Countries

MANUAL: Designed for teaching environmental education specifically in dryland countries, this guidebook contains lesson plans and activities based on a creative and artistic educational approach for ages 6-15.
AUTHOR: UNESCO (2007)
Link: https://unesdoc.unesco.org/ark:/48223/pf0000163264_eng

Coastodians: Caring for our Coast, Caring for our Future

MANUAL: A Namibian resource on coastal conservation for upper-primary learners and teachers, this booklet aims to aid environmental educators. It includes education material and subject specific activity suggestions.
AUTHOR: Namibian Coast Conservation and Management Project (2009)
Link: https://studylib.net/doc/8223115/coastodians--caring-for-our-coast--caring-for-our-future

Ocean Literacy Module Content: A Teacher's Resource Book

MANUAL: This comprehensive guide for teachers outlines the principles of ocean literacy and goes on to provide educational information and material on ocean related topics and issues.
AUTHOR: EduLink (2020)

RESOURCES

SOURCE KEY Hardcopy Softcopy Online

Field Guide to the Living Marine Resources of Namibia

GUIDE: This is a comprehensive guide on the "living marine resources" of Namibia's ocean. Following a contextualising introduction, it includes a pictorial index and serves as a species guide with specifications.
AUTHOR: G. Bianchi, K.E. Carpenter, J. P. Roux, F.J. Molloy, D. Boyer, H.J. Boyer (1999)
Link: http://www.fao.org/3/x3478e/x3478e00.htm

MiniSASS Water Quality Testing Kit

HOW-TO: This river health analysis kit includes information on this water quality testing method, the reference materials needed for the test and analysis, and an informative guide to conducting a miniSASS test.
AUTHOR: P. M. Graham, C. W. S Dickens, R. J. Taylor (2004)
Link: http://www.minisass.org/en/downloads/

Atlasing in Namibia

APP: Used as citizen science tool, this app allows users, including researchers, to monitor the country's biodiversity levels by recording species findings data.
AUTHOR: Environmental Information Service Namibia
Link: http://www.the-eis.com/atlas/

3. FIELDTRIPS AND ENVIRO TOURS

Walking Field Trip and Outdoor Instruction Guide

MANUAL: Motivating for time outdoors as part of the academic programme, this guide explains what constitutes these field trips, their role in environmental education, best practices and benefits to field trips.
AUTHOR: A. Cochran (2018)
Link: https://cdn.naaee.org/system/files/harmony/files/guide_text_final.pdf

Free Rangers

COMIC: The six-part Free Rangers comic series has a portion of a Namibia map on the back page. To get this informative, illustrated map, *Let's Go See Namibia*, put the pages together correctly. It produces a fun overview of points of interest in the country, each with a blurb of related activity suggestions.
AUTHOR: EduVentures

Tools of the Trade

CHAPTER: This chapter, *Getting Started,* educates on preparatory steps to learning experiences and investigations. It gives ideas for experiences, then informs on aspects to be considered such as planning methodology and tips.
AUTHOR: D. du Toit, T. Sguazzin (1995)

RESOURCES

SOURCE KEY Hardcopy Softcopy Online

Environmental Education Centres in Namibia

DATABASE: This contact list of the environmental education centres in Namibia gives locality and contact details of each one. It also includes a link to their Facebook page and website for reference.
AUTHOR: NaDEET (2021)

Environmental Activities for Youth Clubs and Camps

LESSON PLAN: This guide, divided into topic-related categories, is a collection of outdoor-based youth activities encouraging environmental engagement.
AUTHOR: The Peace Corps (2017)
Link: https://files.peacecorps.gov/documents/PC_Environmental_Activities_508_mNd3UVx.pdf

Guidelines for Excellence: Non-formal EE Programmes

BOOKLET: This is a best practice guide for development and administration of non-formal environmental education programmes. The guide identifies 6 elements of quality programmes, giving guidelines per aspect.
AUTHOR: North American Association for Environmental Education (2009)
Link: https://cdn.naaee.org/sites/default/files/gl_nonformal_complete.pdf

Planning and Leading Visits and Adventurous Activities

MANUAL: Produced as a teacher's guide for "adventurous" activities, this booklet focusses on planning and organizing trips and includes advice on carrying out safe activities.
AUTHOR: Royal Society for the Prevention of Accidents (2013)
Link: https://www.rospa.com/rospaweb/docs/advice-services/school-college-safety/school-visits-guide.pdf

Medical Management of the Snakebite Victim (Namibia)

BOOKLET: This booklet gives general information on snake bites, followed by first aid management guidance and hospital management. Written for Namibian citizens as an educational guide to snakes and snake bites.
AUTHOR: P.J.C. Buys, E. L. Saaiman (2020)

Responsible Travel Tips

HOW TO: To maximise tourism benefits whilst minimising the negative environmental impacts of it, this document gives practical guidance on responsible tourism practice, including carbon offsetting information.
AUTHOR: CREST Centre for Responsible Travel (2021)
Link: https://www.responsibletravel.org/wp-content/uploads/sites/213/2021/03/responsible-travel-tips.pdf