

environment

society

science

sustainability

GREEN TEACHING



South African Environmental Education Teacher Development Network

The problem

- Many fragmented initiatives
- A new, content referenced curriculum
- No systemic impact
- National HCD studies showing the need for substantive interventions to strengthen teachers' knowledge



Environmental Sector Skills Plan for South Africa
A SYSTEMS APPROACH TO HUMAN CAPACITY DEVELOPMENT AND SECTOR SKILLS PLANNING
SUMMARY DOCUMENT BASED ON A MORE COMPREHENSIVE SERIES OF WORKING DOCUMENTS



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

The Initiative

- Consortium of environmental education partners involved in teacher education ...
Expanding to a network

Environmental Education Partners

Higher Education Partners

Education Sector Partners



Time line and process so far



Review of
Old Practice

Oct 2010



Development
of
Conceptual
Framework

August 2011



Development
and Piloting
of Materials

July 2012



Expanding
scope of
Materials

Dec 2012

Development of Conceptual Framework

- 3 Pilots (PGCE / B.Ed Hons)
- Subject specific knowledge, pedagogy and assessment requirements (specialised)
- Foundational knowledge vs issues or topic knowledge
- Issues or solutions and alternatives?





Key Decision

Work *with* CAPS, but adopt a CAPS ++ approach

Subjects	Foundation Phase	Intermediate Phase	Senior Phase	FET (Grade 10-12)
Life Skills Life Orientation	Healthy Living Diversity of Life	Env & Social Conflicts	Health, Social and Environmental Responsibility	Responsible Citizenship
Life Sciences / Natural Sciences	Diversity and Change	Life and Living; Earth Systems and Ecosystems	ESS and Climate Change Materials & Sust. Ecosystems and Diversity	Biodiversity Life Processes Ecosystems
Geography	Adaptation and Change	Water NR Mgt SD and Human Settlements	Mining, minerals and Sustainability Interdependence Settlements and Sustainability	Climate Change Earth Systems Water Resources Mgt Sustainable Development
Technology		IK & sustainable technology	Green Economies and Technologies	

Materials Development

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GREEN TEACHING

CURRICULUM KNOWLEDGE AND TEACHING PRACTICE FOR SOUTH AFRICAN TEACHERS

African Teachers' Development Network



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TEACHING CLIMATE CHANGE: INTRODUCTION

By Colleen Vogel and Shanu Misser



INTRODUCING CLIMATE CHANGE

Climate change is a very broad, complex, and contested issue. The field is full of facts, information, reactions and attitudes that all make up a set of disciplines, knowledge fields, beliefs and assumptions that may be called 'climate change'.

You could study, for example, a great deal about climate change from a science perspective (eg. the basic physics of the climate system). You could also approach climate change from a social science perspective (eg. examining how various structures, political views, ideologies, norms and behaviour contribute to climate change) and/or you may only be interested in how we understand and make sense of climate change from a personal perspective (eg. psychological perspective).

Climate change therefore opens up a number of exciting and fascinating areas of interest that are not just about the 'greenhouse effect' although this is key to understand. The Geography Units on Climate Change in the TEACHING GREEN programme are particularly useful for orienting Grade 10-12 teachers to some of the ways of engaging with the topic of climate change. The Units provide enough background for teaching the climate change content, skills and values required in the CAPS curriculum, but they also provide teachers with ways of working with climate change knowledge, in ways that reach beyond CAPS 'compliance'. They support excellent teaching.

One way that some try and understand the story of climate change is through grappling with the Climate and Earth System as parts of a complex system. In this case, one is interested in the whole story of climate change stretching back millions of years into the past, including the present and years and decades into the future. The system is also not just about the interactions we can easily understand (eg. humans making an impact). We also need to understand additional, complex feedbacks and interactions (eg. the role of clouds and gases) and how they add to the climate story.

1

GEOGRAPHY

Materials Development and Pilot Testing


- Pilot 1: Teaching Climate Change in Geography Grade 10-12

How to approach teaching of climate change?

Teachers experiences of pilot?

Materials and their use

Interesting insights / important processes



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© South African GREEN TEACHING Network 1 GEOGRAPHY GRADE 10-12

Materials Development and Pilot Testing

- Pilot 1: Teaching Biodiversity in Life Sciences Grade 10-12

How to approach teaching of biodiversity?

Teachers experiences of pilot?

Materials and their use

Interesting insights / important processes



Materials (so far): Core Texts X 3

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KNOW
YOUR SUBJECT



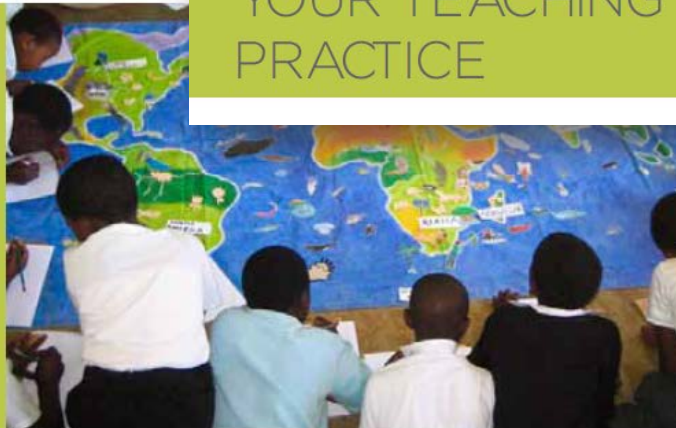
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IMPROVE
YOUR TEACHING
PRACTICE



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IMPROVE YOUR
ASSESSMENT
PRACTICE



3 'Units' / Exemplars on Teaching Climate Change

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By Colleen Vogel and Shanu Misser



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GEOGRAPHY GRADE 10-12

Wits University / Colleen Vogel;
Delta Environmental Centre,
SANBI, SANParks

TEACHING CLIMATE CHANGE: ENERGY EXCHANGE

By Colleen Vogel and Shanu Misser



2. RESOURCE USE
3. RESPONSES TO CHANGE

**Murray
& Roberts**

3 'Units' on Teaching Biodiversity



University of South Africa &
EWT, Eco-Schools & Rhodes
University

LIFE SCIENCES Grade 10 - 12

3 Units on 'Teaching Water'

environment

society

sustainability

science

TEACHING
WATER



GEOGRAPHY Grade 10 - 12

University of KwaZulu Natal &
Eco-Schools

**Murray
& Roberts**

2/3 Units on Life and Living

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science

TEACHING
LIFE & LIVING



University of Stellenbosch

LIFE SCIENCE Grade 4 - 6

**Murray
& Roberts**

Evaluation

- Evaluation instruments design [Green Matter]
- Use of evaluation instruments
- **Emerging findings:**
 - Teachers knowledge and confidence to teach
 - Assessment support NB; Higher order questions
 - Assessment and Accreditation of the Teacher Education Programme
 - Integration with district DBE processes
 - Worthwhile initiative, changing the way we do TE & EE with schools
- Review of evaluation instruments



Systemic Elements

- Integration with DBE priorities and processes (Business Plan)
- Integration with TE accreditation and professional development systems (SACE / ETDP SETA)
- Integration with national systems of funding (DBE Business Plan)
- New HEQF and TEQF qualifications and knowledge mix framework (knowledge practice standards)





Theoretical Analysis, Research and Development

- Critical realist analysis of piloting, teaching practices and knowledge issues (Biodiversity pilot)
- A social realist conceptual analysis of the knowledge production framework for CAPS (is the knowledge the latest, best available knowledge or are we teaching children old, outdated and incoherent 'bits' of knowledge?) Issues of progression, relevance etc.
- Review and analysis of assessment and accreditation systems being used in ETDP SETA from a quality education and learning perspective & best available knowledge of professional development and assessment of professional learning
- Knowledge / Pedagogy / Contextuality / Complexity / ...

Next Steps

- Develop more of the 'units' / exemplars
- Expand partnerships (university-environment partner combinations)
- Training of Trainers
- Further sites for piloting
- Formalise and capacitate the co-ordination 'hub'
- Open Source Materials System

