

Geoheritage and GeoTeach

at the University of Cape Town

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EDUCATION CHALLENGES:

“World-wide about 750 million children are not in school, 55% are girls and almost half of this number is in Sub-Saharan Africa.”

“Girls believe that they have a fixed amount of intelligence that is below what is required to understand science.”

GENDER MYTHS:

- “Boys are smarter than girls.”
- “Scientists are nerds.”
- “Science is so hard that girls can’t cope with it.”

Some of these misconceptions are that:

- Boys are smarter than girls
- Science is hard and therefore girls will not cope
- Science is for boys or “tom-boys”
- Science is not rewarding
- Scientists are mad
- Scientists are nerdy
- Girls believe they have a fixed amount of intelligence (which is below what is required to do science)



MDG 2: Achieve universal primary education

Target: Ensure that all boys and girls complete a full course of primary schooling.

MDG 3: Promote gender equality and empower women

Target: Eliminate gender disparity in primary and secondary education preferably by 2005 and at all levels by 2015.

MILLENNIUM DEVELOPMENT GOALS ON EDUCATION AND WOMEN

"Developing countries that have made remarkable social progress, have done so primarily through the empowerment of women, which has had enormous impact in terms of literacy, health and economic well-being of families."

Atal Behari Vajpayee, Indian Prime Minister, 2001

(<http://dbtindia.nic.in/women/message-secretary.htm>)

CHALLENGES IN SOUTH AFRICA:

- 2,959 NRF rated researchers in SA, only 30% are female
- Of that 30%, only 510 are in the natural sciences, engineering and technology
- Of women with post-school qualifications only 11.3% are in the natural sciences (SA census 2010 data)

TARGETING GEOSCIENCE LITERACY:

1. GEOteach Program

- Program started at University of Cape Town (UCT) in 1990's
- Restarting with a new multifaceted mission

2. Cape Geoheritage

- Geoheritage project through Council for Geoscience (Bellville) & Geological Society of South Africa
- Utilize exciting new digital eLearning resources (VFTs)

Youth Programs

Industry Partnerships

Teacher Professional Development

Teaching Resources

UCT
GEOteach



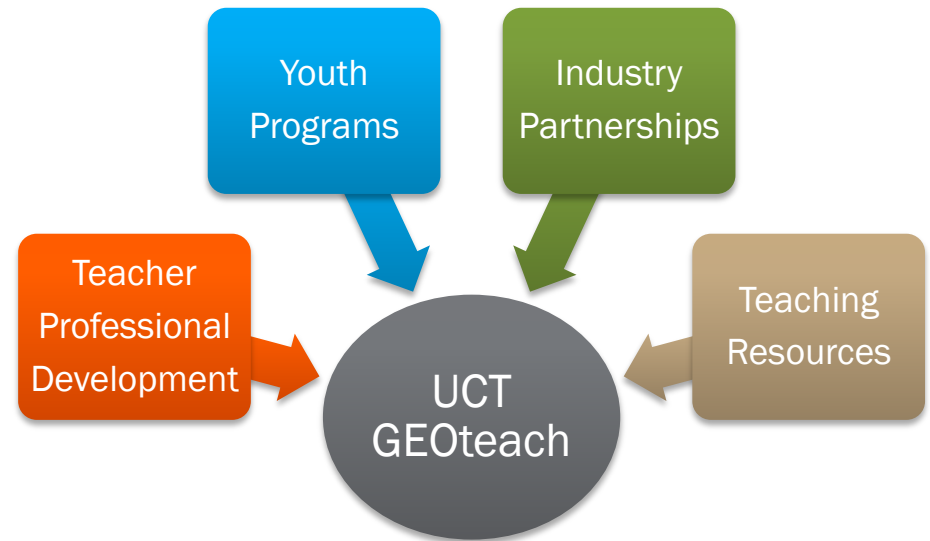
TEACHER PD:

Aim: To support and enhance geoscience teaching on an ongoing basis

➔ Ongoing partnership with UCT Schools Development Unit (SDU)

New Projects:

- CPD Accredited, CAPs aligned short courses
- Informal workshops & field trips



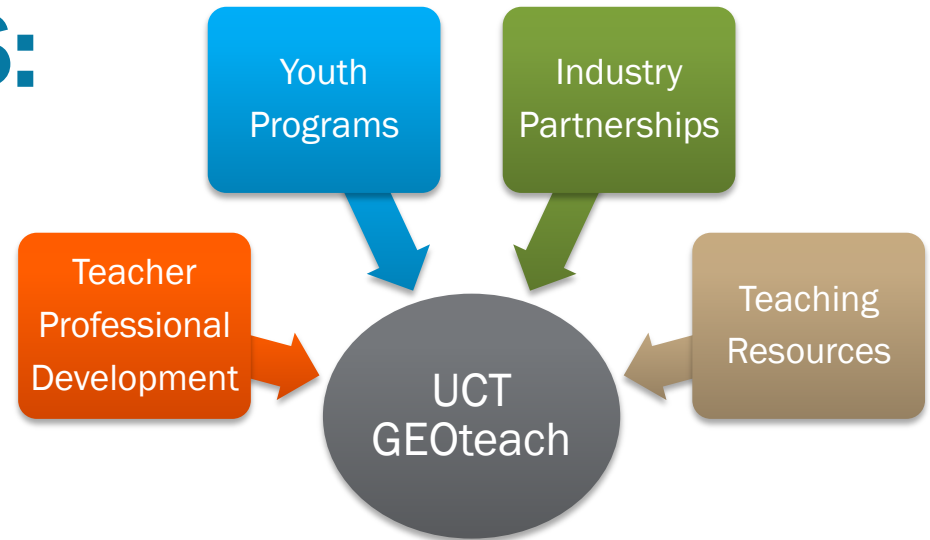
YOUTH PROGRAMS:

Aim: To excite and engage young learners in the geosciences (targeting females)

New Projects:

- Undergraduate involvement and mentoring
- Partnering with schools through SDU
- Partnering with Iziko South African Museum youth programs

International partners?

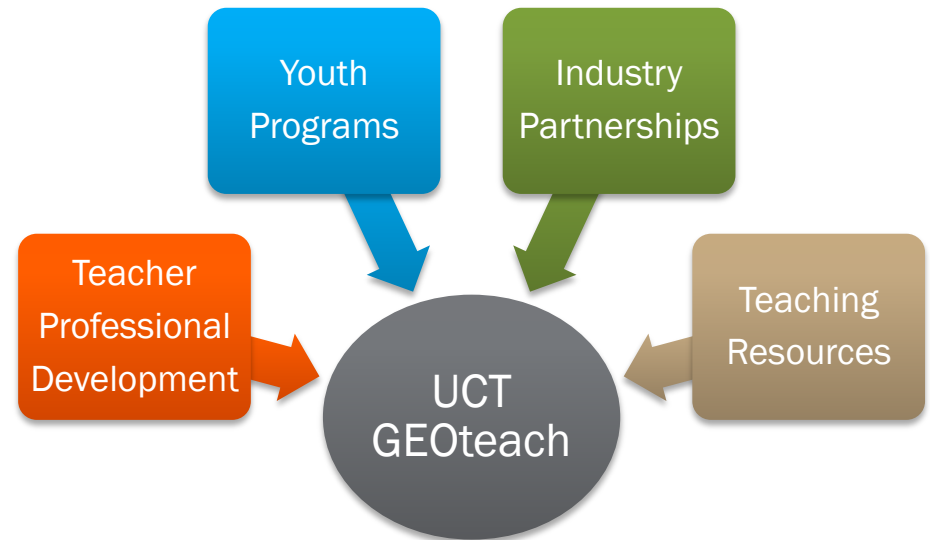


INDUSTRY PARTNERSHIPS:

Aim: To connect UCT students with industry to address their changing needs

New Projects:

- “Vacation short courses” facilitated by industry professionals (Remote sensing, exploration, GIS)
- Social events - mixers, dinners
- Student symposium

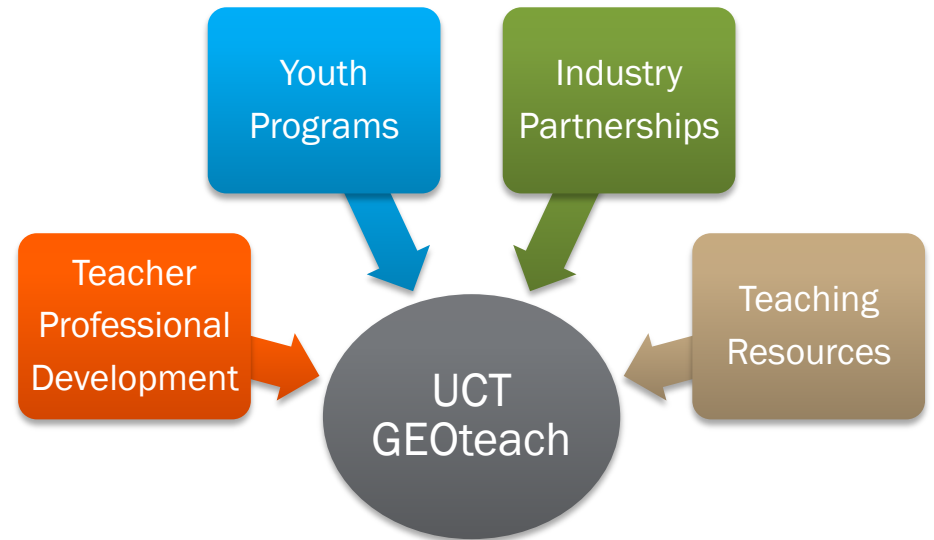


TEACHING RESOURCES:

Aim: To create exciting geoscience digital and object-based resources

New Projects

- Interactive digital tools - Geoheritage Virtual Field Trips (VFTs)
- Online labs and lessons
- MOOCs - Massively Open Online Courses
- Classroom kits - “Geokits”
- Inquiry-based Map kits



USING GEOSITES TO TEACH GEOSCIENCE:

Cape Geoheritage

- Geoheritage project through Council for Geoscience (Bellville) & Geological Society of South Africa
- New interactive Web portal for Western Cape Geosites
- Virtual Field Trips - VFTs
- Place-based approach to teach geoscience
- Inquiry-based science tools



IMMERSIVE CYBERLEARNING:

Virtual Field Trips - VFTs:

- Topic-based digital experiences
- Focus on unique field sites
- Filmed during real expeditions
- Highlights how scientists “do science”
- Ideal for geoheritage and geoeducation
- Diverse audience appeal
- Inquiry-based teaching tools

Developed by **ASU ARIZONA STATE UNIVERSITY**

VIRTUAL FIELD TRIPS

Seeking answers through exploration

ABOUT CONTACT PARTNERS

ivFT's in Progress

Each of the immersive Virtual Field Trips below are in different stages of development. Content and features are continually being updated and added.

Welcome

Watch the Trailer

To get started select one of the Virtual Field Trips below.

VFT's are topic based educationally rich experiences that are captured during real expeditions with scientists doing current research in the field. *Note: All features are best explored using the Google Chrome browser.*

This icon represents which Field Trips are Interactive Lab Enabled

Select a Virtual Field Trip Below

- Oldest multicellular organisms (Australia)
- EARLY CIVILIZATIONS (Mexico)
- RAINFOREST (Panama)
- Biological Anthropology (Earth)
- Living Micro (Shar...)

np1vid7Ripples.mov



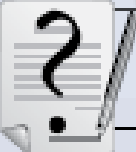





Dr. Jim Gehling
Paleontologist

0:02 / 1:22

YouTube

INQUIRY-BASED SCIENCE EDUCATION (IBSE):

According to Beerer and Bodzin (2004), IBSE incorporates the following key elements, which are often used by scientists in their scientific research:

	It is based on observation
	It is based on experimentation
	Asking questions
	Making hypotheses
	Designing investigations
	Grappling with data
	Drawing inferences
	Redesigning investigations
	Building and revising theories

NASA - ARIZONA STATE UNIVERSITY:

Developed by: **ASU** ARIZONA STATE UNIVERSITY

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Click here to [Explore this VFT](#)

Oldest Multicellular Organisms *Nilpena - Australia*



Deep in the hills of the Flinders Ranges in South Australia we can trace the end of an almost global glaciation through to the base of the Cambrian from 575 million years ago to 542 million. Something

Nilpena Australia

Living Microorganisms



Shark Bay, Australia

Grand Canyon



USA

Marble Bar



Australia

UPHEAVAL DOME



USA

The first r...
building an...



CAPE GEOHERITAGE WEB PORTAL:

Cape Geoheritage Amazing stuff in the western cape

Welcome

The Cape Geoheritage Web Portal gives you access to major geoheritage sites located in the Western Cape, South Africa. Choose site using the Featured Geosites tab below or the Map Tool (click on icon).

Geosite Map
Tool:



Featured Geosites:



ACKNOWLEDGEMENTS:

- **AAWG - thank you!**
- **Council for Geoscience (Bellville Office)**
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- **John Gurney, Mineral Services**
- **Emese Bordy, Sed-Palaeo Group, UCT**

