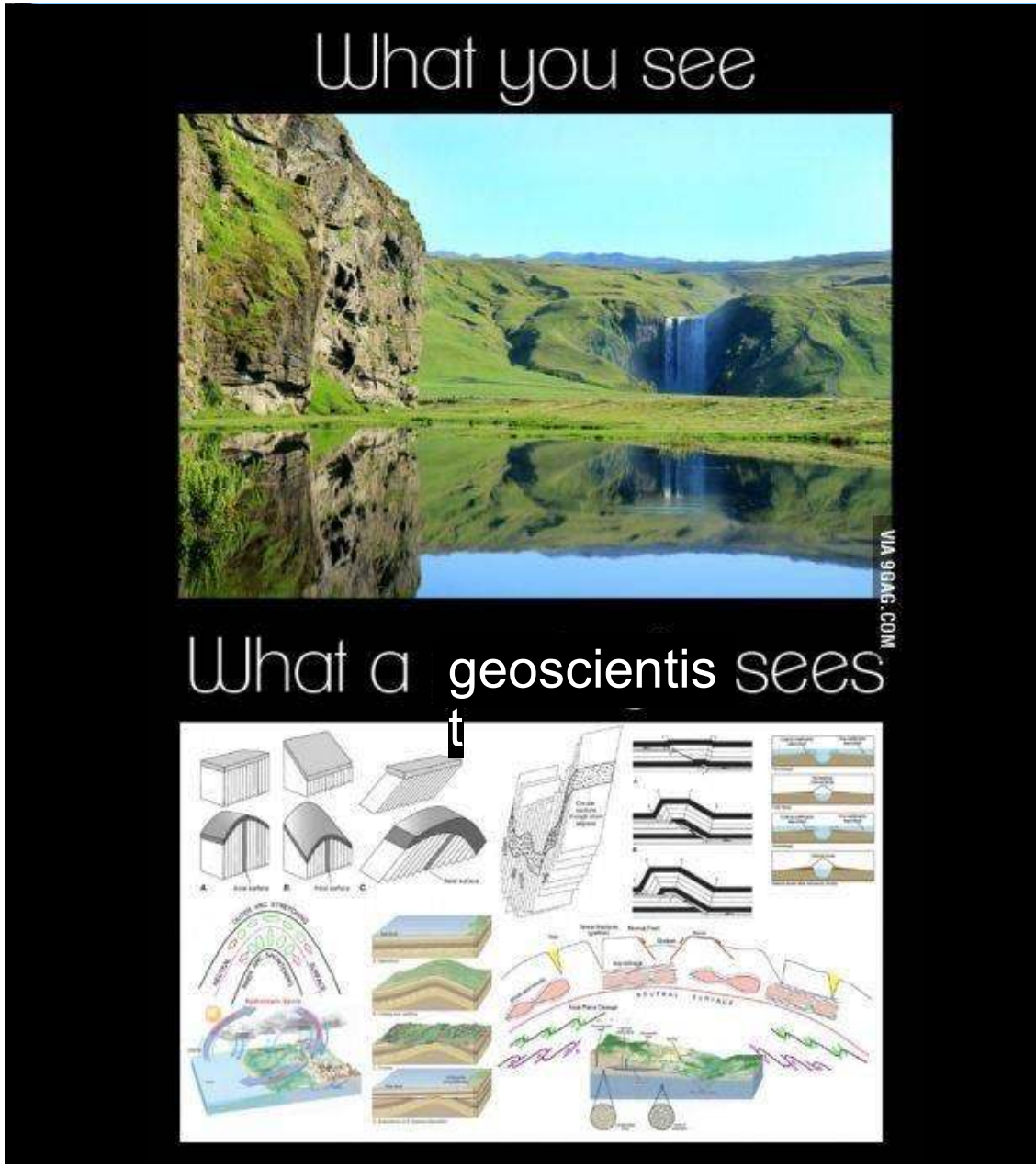
Faculty of Science

Geoscience Major

Dr Anne-Marie Tosolini

science.unimelb.edu.au



Geoscience Major

Study the solid Earth, its structure, evolution, and history. Study areas include: geology, landscape evolution, paleoclimates, palaeontology and fossils, critical minerals, resources, hazards, seismology, etc.

Geoscience Major

study.unimelb.edu.au/find/courses/major/geoscience

Year 3 Subjects: Core Elective

Semester 1	Tectonics and Geophysics	Sedimentary Geology and Hydrogeology	Geochemistry
Semester 2	Applied Geoscience	Field Geology (Winter)	Geobiology

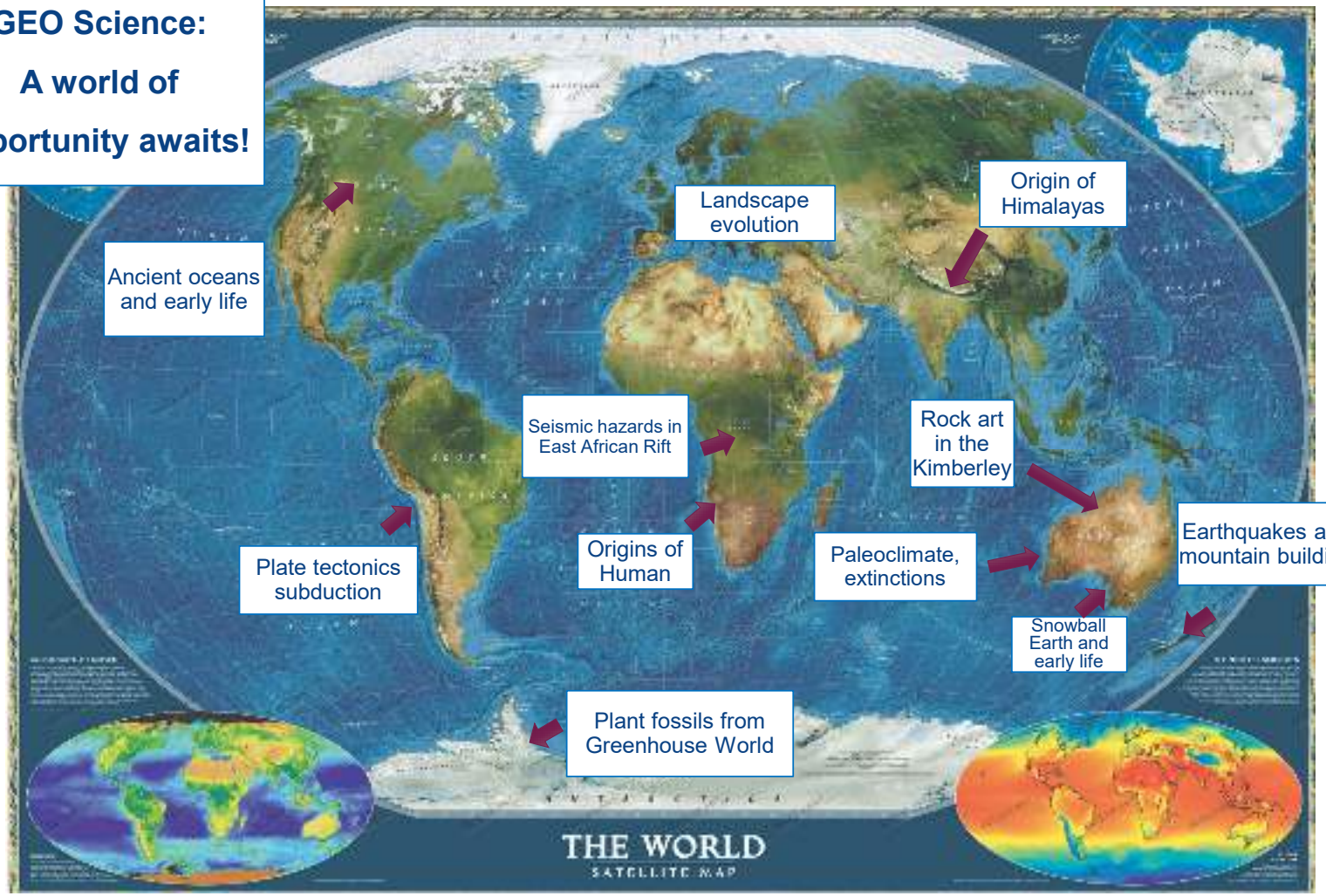
How do I do HANDS ON GEOSCIENCE?






GEO Science:

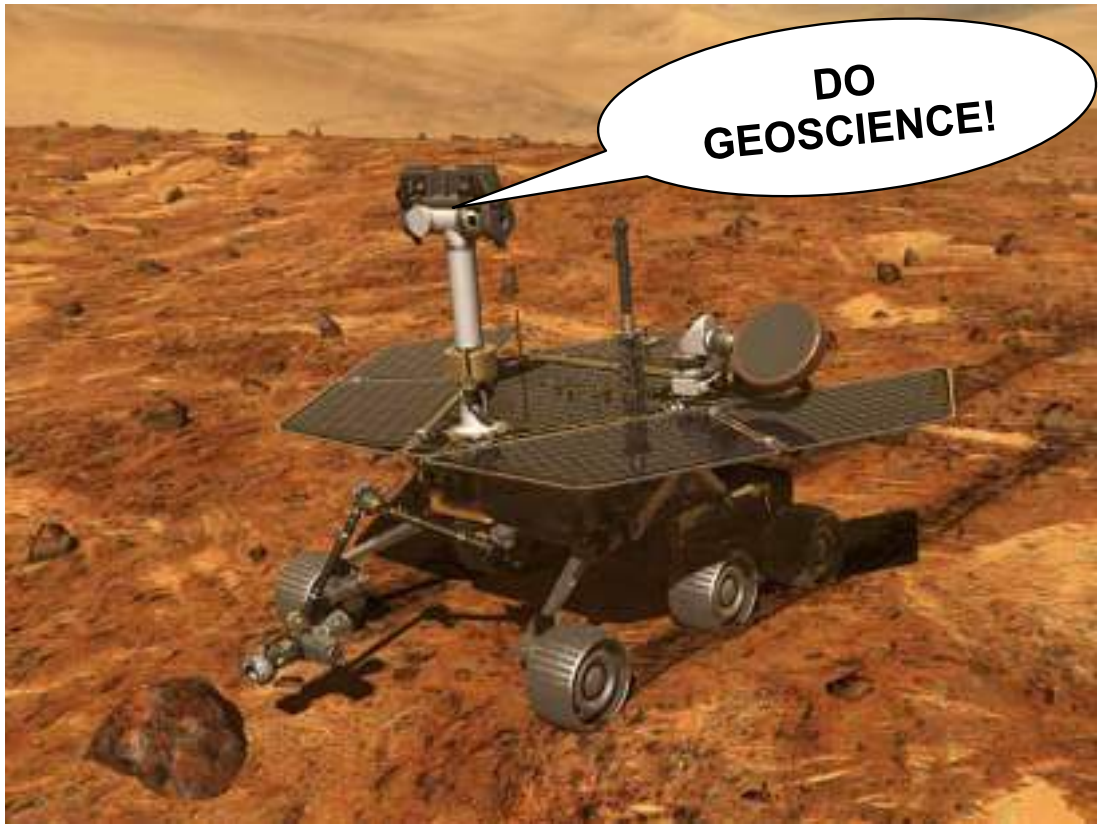
A world of opportunity awaits!



Our lecturers and students are conducting research in more than 100 countries all around the world

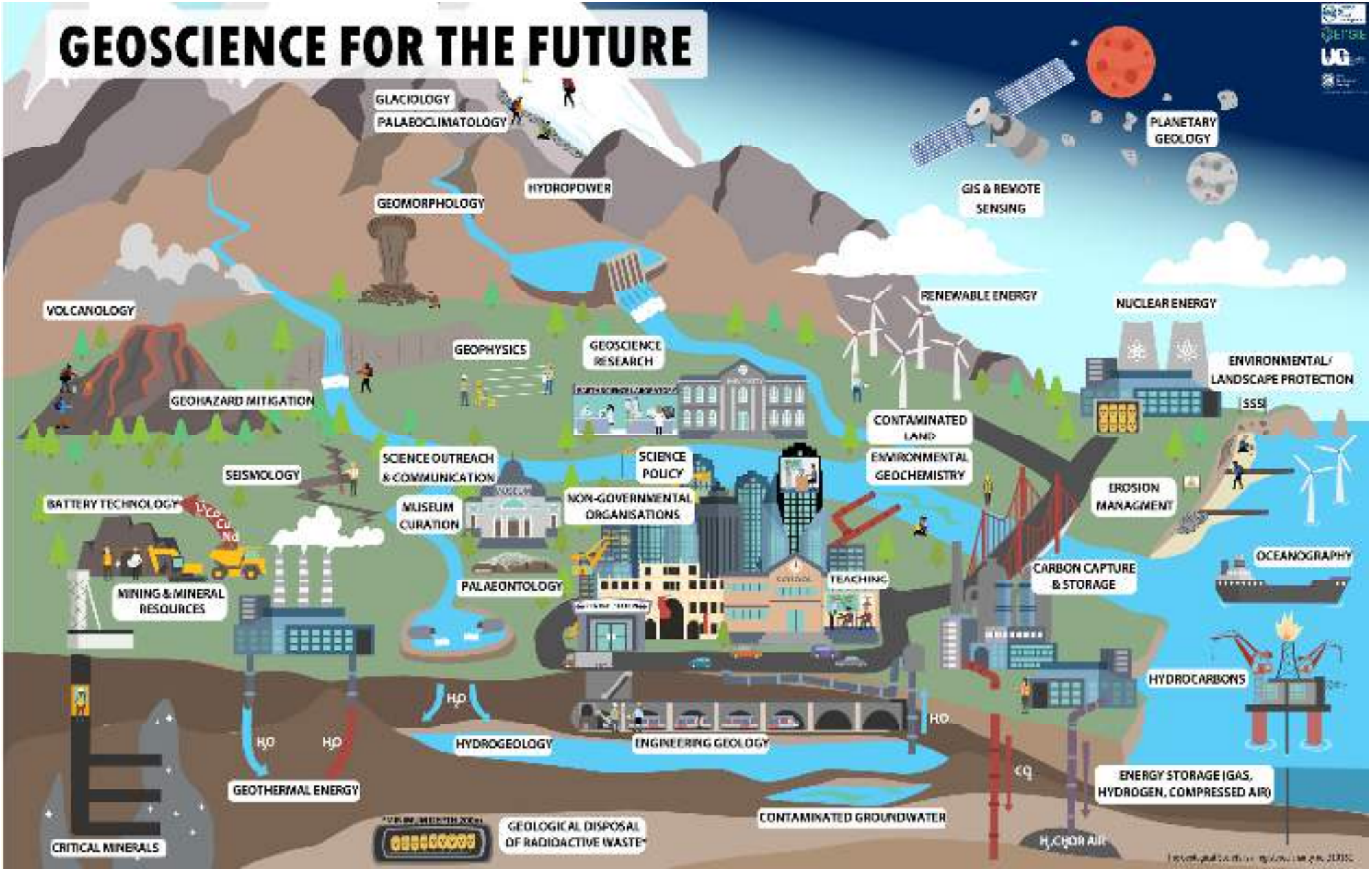
Future Earth: Geoscience

CHALLENGES:



Solutions

THE UNIVERSITY OF MELBOURNE


GEOSCIENCE FOR THE FUTURE
GLACIOLOGY
PALAEOCLIMATOLOGY
HYDROPOWER
GEOMORPHOLOGY
PLANETARY GEOLOGY
GIS & REMOTE SENSING
VOLCANOLOGY
RENEWABLE ENERGY
NUCLEAR ENERGY
GEOPHYSICS
GEOSCIENCE RESEARCH
ENVIRONMENTAL/ LANDSCAPE PROTECTION
SSSI
GEOHAZARD MITIGATION
CONTAMINATED LAND
ENVIRONMENTAL GEOCHEMISTRY
SCIENCE OUTREACH & COMMUNICATION
SCIENCE POLICY
SEISMOLOGY
EROSION MANAGMENT
BATTERY TECHNOLOGY
MUSEUM CURATION
NON-GOVERNMENTAL ORGANISATIONS
OCEANOGRAPHY
TEACHING
CARBON CAPTURE & STORAGE
PALAEONTOLOGY
MINING & MINERAL RESOURCES
HYDROCARBONS
HYDROGEOLOGY
ENGINEERING GEOLOGY
ENERGY STORAGE (GAS, HYDROGEN, COMPRESSED AIR)
GEOTHERMAL ENERGY
CONTAMINATED GROUNDWATER
GEOLOGICAL DISPOSAL OF RADIOACTIVE WASTE
CRITICAL MINERALS

Environmental Geoscientist / Hydrogeologist

Hydrogeologists study:

- Quantity & distribution
- Chemical quality
- Circulation
- Physical properties of water
- Specialise in ground water/surface water

Biogeochemistry:

- used for remediation
- removal of contaminants
- polluted sites

Engineering Geoscientist

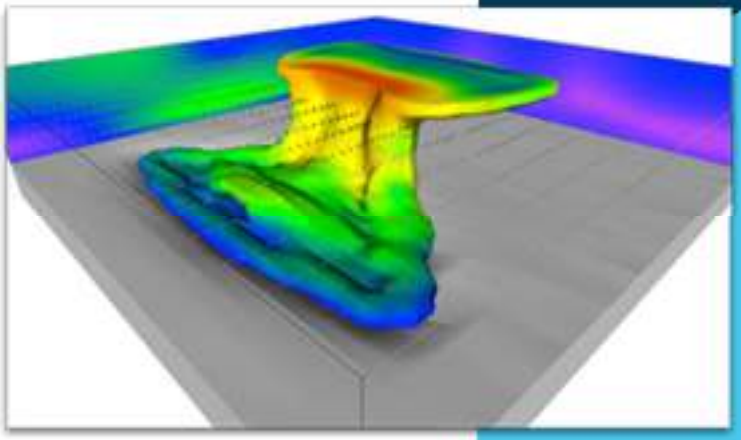
Engineering Geos use physics & maths:

- Study internal composition, magnetic, electrical, and gravitational forces
- Relied on by engineers
- Construction large infrastructure projects

e.g., tunnels, roads, skyscrapers or mining

Study:

- Earthquakes
- Earth's size & shape
- gravitational field & tides
- polar motion, rotation
- space physics



Palaeoclimatologist

Palaeoclimatologists study:

- Palaeontology
- Geochemistry
- Sedimentology
- Changes in Earth's climate in deep time

Palaeoclimatologists reconstruct past climates using records from:

- ice cores
- fossil leaves
- pollen & spores
- cave speleothems
- ocean floor sediment cores
- chemical isotopes in fossils /rocks

Sustainable Resources Geoscientist: Water, Critical Minerals & Energy

Geoscientists study Earth:

- Composition
  Processes
- History
- Rock formation
- Processes of change
- Evolution of life using fossils

Geoscientists use principles of physics & chemistry to study:

- Earth's surface
- Interior layers
- Ground/surface waters & oceans

Emily Zee
Bachelor of Science
Geologist, Mineral Resources

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https://www.youtube.com/watch?v=pt12rG1sQqM

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Thank-you!