

WCED MOBILE SCIENCE CENTRE

Science on the move at your school. Request a visit from our WCED Mobile Science Centre and we will bring science to your school. Visits can include interactive exhibits, an inflatable planetarium and a science show. See the relevant programme below:



PRIMARY SCHOOLS

Choose from option A or option B

OPTION A – Interactive Exhibits & Science Show

OPTION B – Planetarium Show (See show options on next flap)

HIGH SCHOOLS

There is a great selection of CAPS Grade 10 to Grade 12 practical experiments that we can run at your school as well as Grade 8 and 9 experiments. Choose from the following:

GRADE 8: Electromagnets

GRADE 9: Electric Circuits

GRADE 10: Motion in One Direction

Heating and Cooling Curve of Water

Cation Tests (Flame Tests)

Electric Circuits - Resistance in Series & Parallel

Reaction types

GRADE 11: Ohm's Law

Intermolecular Forces

Newton's 2nd Law of Motion

Snell's Law

Exothermic & Endothermic Reactions

Reaction Rate

GRADE 12: Titrations

Esters

Reaction Rates

Conservation of Linear Momentum

Internal Resistance of a Battery

Value of "g"

Boyle's Law

Equivalent Resistance of series/parallel network of known resistors

However, if you prefer to select option A or B from the Primary Schools options then please feel free to do so.

PLANETARIUM

The WCED Inflatable Planetarium is an immersive environment that promotes learning about our universe – planets, eclipses and inventions that helped shape the way we see the universe today.

SHOWS ON OFFER:

EARTH'S WILD RIDE

Duration 20mins | Ages 5+

Learn about solar eclipses, the ice age, volcanoes, extinction of the dinosaurs, the water cycle and food chains in this exciting show as seen from the perspective of a family living on the Moon.

THE SECRET OF THE CARDBOARD ROCKET

Duration 40mins | Ages 5+

Discover the planets in our Solar System in this imaginative journey through space in a cardboard rocket.

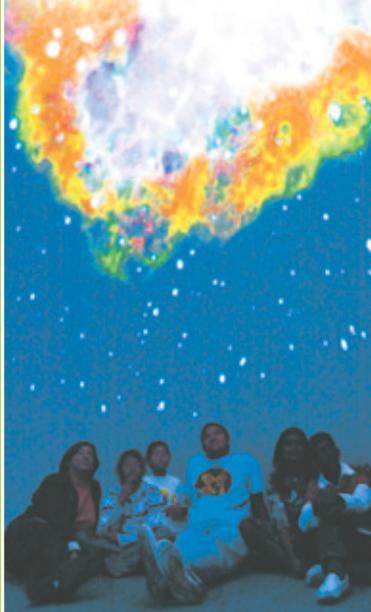
TWO SMALL PIECES OF GLASS

Duration 20mins | Ages 5+

Discover the history of the telescope and learn about the Hubble telescope, the radio telescope and huge land based telescopes in this informative show.

SIGN UP FOR CTSC E-NEWS!

Keep up to date with all programmes, events and special activities planned for teachers and learners at the CTSC. Visit www.ctsc.org.za to sign up today!



SCHOOL GROUP VISITS

Visits to the CTSC are suitable for all grades. Each visit should last at least two hours and booking is essential!

- A **General Visit** includes a science show, use of interactive displays, a visit to the current exhibitions and a tour of the Camera Obscura.
- A **Workshop Visit** includes a pre-booked workshop (workshop details inside) and a general visit.

Teacher pre-visits are strongly recommended to ensure your visit is structured to meet the needs of your group.

DOUBLE DEALS

One visit, but two exciting educational experiences. A double deal includes a condensed CTSC programme (Science Show, time to explore interactive exhibits & Camera Obscura tour) as well as a workshop presented by one of our educational partners.

LIVING MATHS

Cost on application

All workshops are tailored to individual groups based on their needs. Visit www.livingmaths.com for details

- Maths Workshops
- Teachers Workshops
- Problem Solving and Creative Workshops

ORT SA CAPE

Cost on application

- Build and program a WeDo Robot in teams of 2. Group size max 28 children (Grade 1 - 4)
- Programme a Mindstorms Robot in teams of 4. Group size max 28 children (Grade 5 - 11)

Please note that all bookings must be made through the CTSC. Additional costs apply to certain workshops.

For workshop details and costs, contact Portia:

021 300 3200 or portia@ctsc.org.za

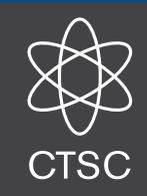
CAPE TOWN SCIENCE CENTRE

370B Main Road, Observatory | www.ctsc.org.za

t: 021 300 3200 | f: 086 519 7227

All information is correct at the time of print and is subject to change without notice. See www.ctsc.org.za for the most recent programme.

CAPE TOWN SCIENCE CENTRE EDUCATION PROGRAMME 2017



Mind boggling interactive displays, world-class exhibitions and many exciting activities and events - the Cape Town Science Centre is a world of discovery under one roof!



A strategic objective of the Cape Town Science Centre is to support both learners and educators by aligning our programmes with the National Curriculum and Assessment Policy Statements (CAPS)

WORKSHOPS FOR LEARNERS

FOUNDATION PHASE	GRADE R	SUMMER Summer time is fun but we need to learn to be safe in the Sun. Discover easy ways to protect your body from the Sun.	SHAPES & COLOURS We all have favourite colours and shapes. Let's have some fun playing with shapes and colours.	VEGETABLES Vegetables are a very important part of our diet. Discover why some grow above the ground and others below the ground.	SPORT There are many sports that we can play. They help us grow and develop as well as get rid of some of our energy. Let's play!
	GRADE 1	ME I am special and unique. I have talents and traits that make me an individual. Discover what makes you unique.	MY BODY Your body is made up of so many different parts. Some you can see and some you can't. Let's take a look at what is on the inside that helps us survive.	PETS Owning a pet is a dream for every kid. Pets are a big responsibility. Let's learn to take care of our pets.	THE SKY AT NIGHT A constellation is a group of stars that make a shape in the night sky. They are usually named after mythological characters, people, animals and objects.
	GRADE 2	WHAT WE NEED TO LIVE We all need some sun exposure – it's the best source of vitamin D but we need to be careful in the Sun. Discover easy ways to protect your body from the Sun.	H₂O ANIMALS & CREATURES Fish is still the most common source of protein. Check out facts about ocean animals you may be familiar with and others you may have never even heard of!	ROAD SAFETY Know the rules of the road. Stop, Look, Listen and Think before you cross the road.	OUR COUNTRY Sounds the call to come together, And united we shall stand, Let us live and strive for freedom, In South Africa our land.
	GRADE 3	RIGHTS & RESPONSIBILITIES We all have rights but with rights come responsibility. These rights are contained in the Bill of Rights in the Constitution. Let's unpack them.	RECYCLING The five R's: Re-use, Reduce, Recycle, Re-think and Re-invent	SPACE: EARTH & BEYOND Outer space begins about 100 km above the Earth, where the shell of air around our planet disappears. With no air to scatter sunlight, space appears as a black blanket dotted with stars.	ANIMALS & CREATURES THAT HELP US Calling all budding - or should we say buzz-ing - young naturalists! Join us as we get the lowdown on one of our planet's most fascinating insects - the bee!
INTERMEDIATE PHASE	GRADE 4	STRUCTURE OF ANIMALS Every kind of animal has its own structure which is suited to their environment.	PROPERTIES OF MATERIALS Discover the interesting characteristics of materials; are they flexible, waterproof, strong or transparent?	INPUT & OUTPUT OF ENERGY Energy is transferred from one form to another providing us with a system that can do work for us. In every system, there is an input energy and output energy.	OUR CLOSEST STAR The Sun is a common middle-sized yellow star which scientists have named Sol (ancient Roman for Sun). This is why our system of planets is called the Solar System.
	GRADE 5	FOOD CHAINS A food chain shows how each living thing gets food, and how nutrients and energy are passed from creature to creature. Food chains begin with plant-life, and end with animal-life.	PROPERTIES OF METALS Metals have many properties, such as strength, toughness, and stiffness. When heated, metals can be shaped into anything from a tiny paperclip to a huge aircraft.	ELASTIC & SPRINGS Elastic potential energy is stored when materials stretch or compress. Examples of elastic potential energy include springs, rubber bands, and slingshots.	SOIL TYPES Soils are complex mixtures of minerals, water, air, organic matter, and countless organisms that are the decaying remains of once-living things. It forms at the surface of land. – it is the "skin of the earth."
	GRADE 6	DIFFERENT ECOSYSTEMS Ecosystems are all the living and non-living things in a given area and the way they interact with each other. Each has a specific job that it completes in order to make the ecosystem work.	CLEAN WATER Water is the most common substance found on earth. The only water we will ever have is what we have now. Clean water, clear choice.	CONDUCTORS & INSULATORS A good electrical conductor is a material or substance that allows an electrical current to pass through it easily eg. Metals. Insulators are non-conducting materials that do not easily allow current to pass through them eg. Plastic.	TELESCOPES A telescope is a tubular optical instrument for viewing distant objects by means of the refraction of light rays through a lens or the reflection of light rays by a concave mirror.
SENIOR PHASE	GRADE 7	SEXUAL REPRODUCTION Angiosperms (flowering plants) are the largest group of plants on Earth. There are approximately 270,000 known species alive today and account for approximately 80% of all known living plants.	PERIODIC TABLE A table illustrating the periodic system, in which the chemical elements, formerly arranged in the order of their atomic weights and now according to their atomic numbers, are shown in related groups.	INSULATION & ENERGY SAVING Insulation acts as a barrier to heat loss and heat gain, particularly in roofs and ceilings, walls and floors. It's the most practical and cost effective way to make a house more energy efficient.	INDIGENOUS KNOWLEDGE Ancient civilizations around the world watched the night skies, noting the patterns they saw in the sky and gave them names. These patterns are called constellations.
	GRADE 8	ANIMAL ADAPTATIONS Adaptations help organisms survive in their ecological habitat; adaptations can be anatomical, behavioral or physiological.	CHEMICAL REACTIONS A process in which one or more substances, the reactants, are converted to one or more different substances, the products.	STATIC ELECTRICITY Static electricity involves positive and negative charges. All matter is composed of atoms, and all atoms are composed of subatomic particles among which are the charged particles known as electrons (-) and protons (+).	THE SOLAR SYSTEM Ancient astronomers believed that the Earth was the centre of the universe, and that the sun and all the other stars revolved around the Earth. Copernicus proved that Earth and the other planets in our solar system orbit our sun.
	GRADE 9	THE HUMAN BODY The skin – It is the largest organ of the body, with a total area of about 2m ² . The skin protects us from microbes and the elements, helps regulate body temperature and permits the sensations of touch, heat and cold.	COMPOUNDS A compound is a molecule made of atoms from different elements. All compounds are molecules, but not all molecules are compounds. Hydrogen gas (H ₂) is a molecule, but not a compound because it is made of only one element.	SAFETY WITH ELECTRICITY Electricity can be dangerous and so we need safety devices such as fuses, circuit breakers and earth leakages to reduce risk.	LITHOSPHERE – THE ROCK CYCLE The rock cycle is a general model that describes how various geological processes create, modify, and influence rocks. All rock types can be physically and chemically decomposed by weathering.

FURTHER EDUCATION & TRAINING	FET FORMAL / INFORMAL EXPERIMENT	
	GRADE 10	<p>MOTION IN ONE DIMENSION: Let's get moving and explore the science of motion in one direction.</p> <p>HEATING & COOLING CURVE OF WATER: Observe the change of state of water graphically.</p> <p>CATION AND ANION TESTS: Identify cations and anions using flame and precipitation tests.</p> <p>ELECTRIC CIRCUITS: Resistance in series and parallel - Construct circuits and use ammeters and voltmeters to measure resistance in series and parallel circuits.</p> <p>REACTION TYPES: Gas forming, precipitation and neutralization - Observe the phase state of chemical results of various reactions.</p>
	GRADE 11	<p>OHM'S LAW: Investigate the relationship between voltage, current and resistance.</p> <p>INTERMOLECULAR FORCES: Boiling points, melting points, surface tension, solubility, capillarity.</p> <p>NEWTON'S 2ND LAW OF MOTION: Investigate the relationship between force and acceleration.</p> <p>SNELL'S LAW: Learn about the refraction of light and how to calculate the refractive index.</p> <p>EXOTHERMIC & ENDOTHERMIC REACTIONS: Is it an exothermic or an endothermic reaction? Experiment to find out.</p> <p>REACTION RATE: An experiment demonstrating factors that can speed up a chemical reaction.</p>
GRADE 12	<p>TITRATIONS: How to determine the concentration of sodium hydroxide using oxalic acid.</p> <p>ESTERS: What are they? How do we make them? Discover the sweet smell of esterification.</p> <p>EQUIVALENT RESISTANCE OF SERIES/PARALLEL NETWORK OF KNOWN RESISTORS: Using Ohm's law, determine the combined resistance of a series/parallel network of known resistances.</p> <p>VALUE OF "G": Make your own pendulum to determine the value of "g".</p> <p>DETERMINE THE INTERNAL RESISTANCE OF A BATTERY: Build an electric circuit and use a known resistor to determine the internal resistance of the battery.</p> <p>CONSERVATION OF LINEAR MOMENTUM: Use a dynamics trolley and ticker tape to demonstrate conservation of linear momentum.</p> <p>BOYLE'S LAW: Investigate the effects that temperature and pressure have on volume.</p>	