

COMPOSITION OF MICROSCALE KITS FOR THE IYC GLOBAL EXPERIMENT – MAY 2011

1. COMPONENTS FOR THE IYC GLOBAL WATER KIT (GWK) FOR LEARNERS

All the components are packed in a plastic container (approximate dimensions: 170mm x 120mm x 65mm). This container is also used for the solar still.

COMPONENTS OF THE IYC GLOBAL WATER KIT FOR LEARNERS		GLOBAL WATER EXPERIMENT ACTIVITIES THAT CAN BE DONE WITH THE GWK (also using selected resources from the School Resource Kit)	
No.	Equipment	WATER QUALITY	
1	Petri dish with lid	<p>1. pH of the Planet - Using coloured indicator solutions, learners are able to measure and compare the pH of different water samples. Average results per class or per sample can be submitted to the IYC Global Database.</p> <p>2. Salty Waters - A saline solution (the "salty water" sample) is prepared and a known volume is placed in a Petri dish. The water is allowed to evaporate. The Petri dish is weighed before and after evaporation to find the mass of salt that was dissolved in the water. A natural water sample can also be used, such as sea water. Older learners can find the density and salinity of the sample. These results can be reported to the IYC Global Database.</p>	
2	2 ml plastic syringe		
5	propettes		
1	comboplate		
1	set microspatula + forceps		
1	plastic teaspoon		
1	piece of cling wrap		
2	elastic bands		
1	microstand + cross arm		
2	large sample vials with lids (plastic)		
1	small piece of prestik		<p style="text-align: center;">WATER PURIFICATION</p> <p>3. Water Treatment - A dirty water sample is first aerated and then alum is added to coagulate solid matter (using large plastic vials). The water is filtered and the filtrate is treated with a hypochlorite solution to chlorinate it and kill any micro-organisms. This final chlorination step uses chlorine test strips to determine free available chlorine in the water. The minimum number of drops of hypochlorite that leads to 1 – 3 ppm chlorine after ten minutes is reported to the Global Database.</p> <p>4. Solar Still -A coloured saline sample is placed in the lunch box of the kit in the sun. Evaporation of the water occurs. The clear, colourless condensate is collected in a Petri dish to show that desalination using a solar still is one method of purifying water. A Solar Still yield can be reported to the Global Database.</p>
2	pieces of paper towel		
1	small piece of cotton wool		
Qty	Chemicals		
10	chlorine test strips (0 – 10 ppm) with colour chart		
1	table salt (in Ziploc bag)		
1	alum crystals (in Ziploc bag)		
Cost = ZAR 71.94 (local sales, VAT inclusive)			

***Note:** Learners work in groups of 4 to 6 using one Global Water Kit per group.

2. COMPONENTS FOR THE SCHOOL RESOURCE KIT (SRK).

COMPONENTS OF THE IYC SCHOOL RESOURCE KIT	
No.	Equipment
1	Digital Pocket Scale (DPS) - including 2 x AAA cells
2	AAA cells for DPS
1	thermometer (0-50°C)
1	100 ml plastic bottle with screw cap
Qty	Chemicals
30	chlorine test strips (0 – 10 ppm) with colour chart
1	small vial calcium hypochlorite granules
1	small vial copper sulfate crystals
1	bromothymol blue indicator (solid) – in plastic 50 ml bottle with screw cap
1	<i>m</i> -Cresol purple indicator (solid) - in plastic 50 ml bottle with screw cap
1	colour indicator chart for bromothymol blue indicator
1	colour indicator chart for <i>m</i> -Cresol purple indicator
COST = ZAR 424.81 (local sales, VAT inclusive)	

3. THE SCHOOL PACK

The kits are being used primarily by schools, training colleges, community centres and science centres. A “school pack” comprises 10 GWKs + 1 SRK packed in a container. The learner kits have been designed so that one GWK is used per 4 to 6 learners. This means that one school pack caters for 40 to 60 learners working in groups.

Number	Components	COST/ZAR
10	Global Water Kits (GWK)	719.40
1	School Resource Kit (SRK)	424.81
1	*Set of printed materials	56.42
TOTAL COST PER SCHOOL PACK		ZAR 1 200.63 (local sales, VAT inclusive)

***Note:** The printed materials consist of one A4 booklet for the teacher and 10 x A5 booklets for learners.

NOTES:

1. Schools should initially be supplied with a School Pack as described above. Schools can thereafter choose to purchase more GWKs and/or SRKs in numbers that they require.
2. For the purposes of promoting the IYC microscale kits, RADMASTE will make available a set of one GWK and one SRK to selected persons or institutions wanting to trial activities and /or solicit funding for schools. Please note, however, that schools must be provided with School Packs. The cost of the individual set is (ZAR 71.94 + ZAR 424.81) = **ZAR 496.75 (local sales, VAT incl.)**
3. The cost of the School Pack shown above includes the cost of printed materials to ensure that schools which do not have access to a computer and/or the internet, will receive hard copies of the activities required for teachers and learners. The cost of printing these materials can be removed for schools and institutions that do not need hard copies. The School Pack is ZAR 1144. 21 excluding printed materials. Printed materials can be purchased separately at ZAR 56.42 per set.
4. Once the IYC has come to an end, schools will still be able to use the kits to complete selected chemistry, biology and integrated (primary) science activities. The publications in which these selected activities can be found are freely accessible on the UNESCO website. Although chemicals will be required for most of these, the fact remains that the Microscale Kits will constitute a legacy of the IYC that can be very valuable for many years after. (Titles of the selected activities are available.)

ORDERING OF THE GWK, SRK AND SCHOOL PACK

- The kits and the School Pack can be ordered directly through the RADMASTE Centre:
Tel: +27 11 717 3451 (switchboard)
Fax: +27 11 717 3459 (switchboard)
Fax: 086 568 9654 (sales direct)
Email: anny.kalingwishi@wits.ac.za
- Our price list and order form can also be downloaded from two websites:
 1. the UNESCO-Associated Centre site for Microscience Experiments (www.microsci.org.za)
Direct link for price list: <http://www.microsci.org.za/RADMASTEPRICELIST.pdf>
Direct link for order form: <http://www.microsci.org.za/RADMASTEorderform.pdf>
 2. the RADMASTE website (www.radmaste.org.za)
Direct link for price list: <http://www.radmaste.org.za/docs/RADMASTEPRICELIST.pdf>
Direct link for order form: <http://www.radmaste.org.za/docs/RADMASTEorderform.pdf>

Section H of the price list and order form is specifically devoted to the Global Water Kits.

COMPONENTS OF THE IYC GLOBAL WATER KIT



forceps



propette



microspatula

CHEMICALS



chlorine test strips



large vial with lid



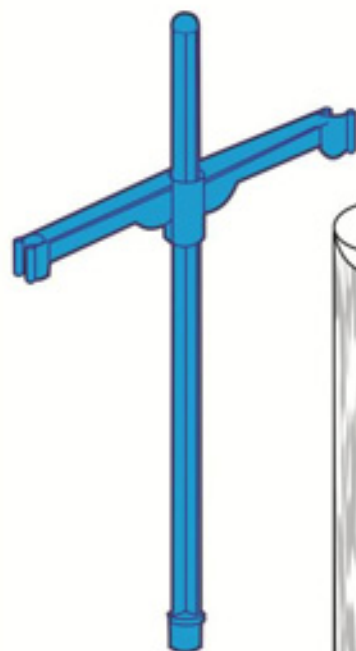
table salt



petri dish with lid



alum crystals



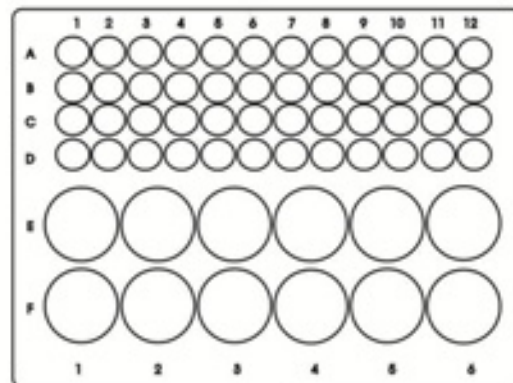
microstand & cross arm



cling wrap



syringe



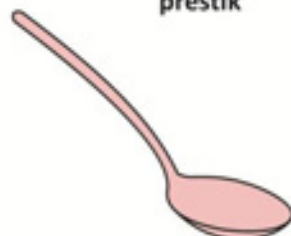
comboplate



prestik



cotton wool



plastic teaspoon



elastic bands



paper towel

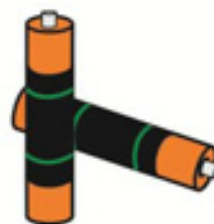
COMPONENTS OF THE IYC SCHOOL RESOURCE KIT



thermometer
0 - 50 °C



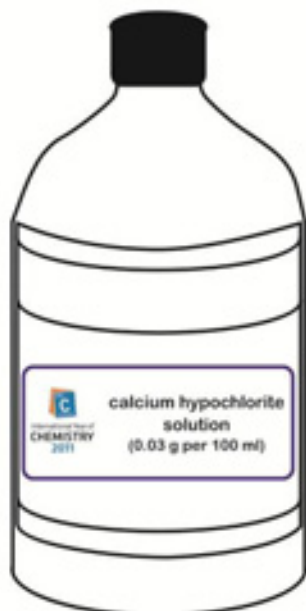
chlorine test
strips



AAA cells



digital pocket scale



100 ml plastic bottle
with screw cap



calcium hypochlorite
granules



copper sulfate
crystals



bromothymol
blue indicator



m-Cresol purple
indicator

THE SCHOOL PACK

