



# ChemStart

Unleashing the Scientist in you

# GRADE 10

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## FIRST THINGS FIRST: SAFETY

This section of the manual is the most important of all. Please take care to follow the rules carefully.

### GENERAL RULES

1. Conduct yourself in a responsible manner always with the kit.
2. Follow all written and verbal instructions carefully. If you do not understand a direction or part of a procedure, rather wait to ask your teacher at school or send us a message on [info@nkazisciences.co.za](mailto:info@nkazisciences.co.za).
3. Never work alone, always have someone older than you around.
4. Perform only those experiments in the kit. Unauthorized experiments are not allowed.
5. Do not eat food, drink beverages, or chew gum while conducting experiments.
6. Horseplay, practical jokes and pranks are dangerous and prohibited.
7. Be prepared for your work. Read all procedures thoroughly before starting with any experiment.
8. Always work in a well-ventilated area.
9. Observe good housekeeping practices. Work areas should be kept clean and tidy at all times.
10. Dispose of all chemical waste properly as indicated in the manual.
11. Keep hands away from face, eyes, mouth, and body while using chemicals or lab equipment. Wash your hands with soap and water after performing all experiments.
12. Experiments must be personally monitored at all times. Do not wander around the room.

### CLOTHING

1. Protective gear has to be comfortable.
2. Any time chemicals, heat, or glassware are used, wear safety goggles. **NO EXCEPTIONS TO THIS RULE!**
3. Contact lenses may not be worn in the laboratory.
4. Dress properly during an experiment. Long hair, dangling jewellery, and loose or baggy clothing are a hazard. Shoes must completely cover the foot. No sandals to be worn when conducting experiments.

### ACCIDENTS AND INJURIES

1. If there is a spillage, wash with water.
2. If a chemical should splash in your eye(s) or on your skin, immediately flush with running water for at least 20 minutes.

### HANDLING CHEMICALS

1. All chemicals in the kit are to be considered dangerous. Avoid handling chemicals with fingers. When making an observation, keep at least 1 meter away from the reaction. Do not taste, or smell any chemicals.
2. Check the label on all chemical bottles twice before removing any of the contents. Take only as much chemical as you need.

3. Never return unused chemicals to their original container.
4. Never remove chemicals or other materials from the kit.

#### HANDLING GLASSWARE AND EQUIPMENT

1. Never handle broken glass with your bare hands. Use a brush and dustpan to clean up broken glass.
2. Do not immerse hot glassware in cold water. The glassware may shatter.

#### HEATING SUBSTANCES

1. Do not operate a hot plate by yourself. Take care that hair, clothing, and hands are a safe distance from the hot plate at all times. Use of hot plate is only allowed in the presence of an adult.
2. Never look directly into a container that is being heated.

## CONTENTS

CHEMICALS		APPARATUS
Acetic acid	50ml	Aluminium foil
Ammonium chloride	10g	Beaker-glass 1
Barium chloride	10g	Beakers-100ml 3
Calcium chloride	10g	Balloons 2
Copper chloride	10g	Burner and stand 1
Copper sulphate	10g	Calci-vita tablet 2
Ethanol	50ml	Chalk 2
Hydrochloric acid diluted	100ml	Chromatographic paper 3
Hydrogen peroxide	20ml	Clay dough and tooth picks 1
Iodine crystals	2g	Conical flask with stopper-100ml 1
Isopropanol	20ml	Cotton cloth 1
Lead nitrate	10g	Copper wire - 5metres 1
Lithium chloride	10g	Glass rod 1
Methylated spirit	100ml	Graph paper 5
Phenolphthalein	20ml	Lighter/match 1
Potassium chloride	10g	Measuring cylinder-50ml 1
Potassium iodide	5g	Pasteur pipette 2
Potassium nitrate	10g	Paper cup 2
Potassium permanganate	10g	Polystyrene cup with lid 1
Silver nitrate 0.1m	20ml	Silk cloth 1
Sodium bicarbonate	20g	Slinky spring 1
Sodium chloride	20g	Spatula 1
Sodium chloride 0.1m	25ml	Test tube 4
Sodium hydroxide	15g	Test tube rack 1
Sodium hydroxide diluted	100ml	Test tube holder 1
Sugar	20g	Thermometer 1
Zinc granules	5g	Watch glass 4
		Wooden splint 2
		Safety goggles 1
		Gloves 2