Student RiskAssess

www.riskassess.com.au

Software for Student Risk Assessments in Science

Student RiskAssess allows students to easily carry out risk assessments as required for the new Australian Curriculum for Science, for the International Baccalaureate, and for extended investigations (student-initiated experiments). More than 400 schools have subscribed to Student RiskAssess since its release in 2013.

The Safety Requirements in the new Australian Curriculum for Science are shown overleaf.

Student RiskAssess has been optimised for student use:

- students must agree to conduct each experiment safely in accordance with school rules and teacher instructions
- student name(s) are recorded for individual or group work
- security PIN option to allow use for student assessment purposes
- student(s) assess risks on the basis of likelihood and consequences
- student(s) assess inherent risk and record control measures
- teachers sign that they have checked students' risk assessments and appropriate control measures are in place
- separate lab scheduling page for student experiments to help lab technicians
- on-line help screens, electronic documents and User Guide for Student RiskAssess are provided.

2 WEEK FREE TRIAL: send your school name to info@riskassess.com.au

Student RiskAssess continues to have all the facilities of RiskAssess:

- database information on chemicals, equipment and living things
- GHS data on 1200 chemicals and their solutions
- electronic templates that follow the Australian ISO Standard on Risk Management
- electronic signing by teacher and laboratory technician, and archiving of risk assessments for legal purposes
- GHS labelling system for pure chemicals and solutions.

Student RiskAssess can be used in the classroom on laptops, iPads (and other tablets) and on smart phones (iPhones, Android, etc). Students can access Student RiskAssess from home or from any location with an internet connection. Unlimited numbers of students can use Student RiskAssess at the same time.

The cost of a year's subscription to Student RiskAssess is $250.00 + GST per school campus. This is in addition to the cost of a subscription to staff RiskAssess. A subscription lasts 365 days from the date that payment is received and includes all upgrades during that period. More than 200,000 risk assessments have been performed by students using Student RiskAssess.

You can subscribe on-line at **www.riskassess.com.au/subscribe/student** and a tax invoice will be emailed to you. Please see our website for more details or contact Phillip Crisp on 02 9415 8677 if you wish to discuss Student RiskAssess further.

EcoSolve Australia Pty Ltd ABN 48 145 464 204 3 Valley View Close, Roseville NSW 2069
Ph: 02 9415 8677 Email: phillip@ecosolve.com.au Website: www.riskassess.com.au

Safety Requirements in the Australian Curriculum for Science

The Australian Curriculum for Science has been released[1] for Years F to 12 and for each of the Senior Secondary Science subjects[2]. The curriculum requires students to take an increasingly active role in considering safety and risk in investigations as they progress from Year 5 to Year 12. Identification of risks is mentioned from Year 5, assessment of risk from Year 9 and conducting risk assessments is an inquiry skill for Years 11 and 12:

Year 5	"Use equipment and materials safely, identifying potential risks" (Content description) "explaining rules for safe processes and use of equipment" (Elaboration 1)
Year 6	"Use equipment and materials safely, identifying potential risks" (Content description) "discussing possible hazards involved in conducting investigations, and how these risks can be reduced" (Elaboration 1)
Year 7	". . . ensuring safety and ethical guidelines are followed" (Content description) "learning and applying specific skills and rules relating to the safe use of scientific equipment" (Elaboration 2)
Year 8	". . . ensuring safety and ethical guidelines are followed" (Content description) ". . . safe investigation when planning investigations" (Elaboration 3)
Year 9	"assess risk" (Content description) "identifying the potential hazards of chemicals and biological materials used in experimental investigations" (Elaboration 2)
Year 10	"assess risk" (Content description) "identifying the potential hazards of chemicals and biological materials used in experimental investigations" (Elaboration 3) "identifying safety risks and impacts on animal welfare and ensuring these are effectively managed within the investigation" (Elaboration 6)
Year 11 Year 12	"Conduct risk assessments" is one of the Science inquiry skills, and is mentioned in the content descriptions[3] in Biology Units 1-4, Chemistry Units 1-4, Earth and Environmental Sciences Units 1-4 and Physics Units 1-4. "It is the responsibility of the school to ensure that duty of care is exercised in relation to the health and safety of all students and that school practices meet the requirements of the *Workplace Health and Safety Act 2011*, in addition to relevant state or territory health and safety guidelines"[4].

1. http://www.australiancurriculum.edu.au/Science/Curriculum/F-10
2. http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Biology/Senior-secondary-Science-subjects
3. http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Biology/Curriculum/SeniorSecondary
   http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Chemistry/Curriculum/SeniorSecondary
   http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Earth-and-Environmental-Science/Curriculum/SeniorSecondary
   http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Physics/Curriculum/SeniorSecondary
4. http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Biology/Safety
   http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Chemistry/Safety
   http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Earth-and-Environmental-Science/Safety
   http://www.australiancurriculum.edu.au/SeniorSecondary/Science/Physics/Safety

RISK ASSESSMENT **Ecosolve High School Students**

Properties of carbon dioxide

Written by: Bill Wilkins, Mary Newt, Christina Lee **Commenced on:** 28 Jan 2016 **Expires:** 28 Apr 2017

Classes for which experiment is required

Teacher: Phillip Crisp (training code 1) **Year Group:** 10 Chemistry

Room	Period	Date
611	3	Fri 6/7/18

Items to be prepared by laboratory technician (training code 1)

10 g marble chips
100 mL 5M HCl
large test tube
100 mL beaker
wooden splints
100 mL limewater
matches

Procedure or reference, including variations

S&B p67
In addition, pour carbon dioxide from test tube into beaker to extinguish burning splint.

Equipment to be used

beaker, small (<250 mL)

Potential hazards
Breakage of beaker. Cuts from chipped rims.

Standard handling procedures
Inspect and discard any chipped or cracked beakers, no matter how small the damage. Sweep up broken glass with brush and dustpan; do not use fingers.

test tube, ignition, large (~150 x 25 mm)

Potential hazards
Breakage of test tubes. Cuts from chipped test-tube rims. More fragile than smaller test tubes. Large test tubes preferred for exothermic reactions, since material less likely to be ejected.

Standard handling procedures
Inspect and discard any damaged test tubes. Sweep up broken glass with brush and dustpan; do not use fingers.

wooden splint

Potential hazards
When lit, it acts as an ignition source; may cause burns. Possibility of splinters, especially if damaged.

Standard handling procedures
Extinguish all tapers with water before disposal.

Chemicals to be used

calcium carbonate (calcite, chalk (rock), lime (limestone), limestone, marble chips) **$CaCO_3$**
CAS: 471-34-1

Class: nc PG: none Users: K-12* Training: 1-6

GHS data: Not classified as a hazardous chemical.

Potential hazards
Not toxic.

Standard handling procedures
Solubility ~0.6 mg/L at 20°C.

hydrochloric acid 3-8 M (10-25% wt/wt) **$HCl_{(aq)}$**
CAS: 7647-01-0

Class: nc PG: none Users: 7-12 Training: 1-5

GHS data:

WARNING

Causes serious eye irritation
Causes skin irritation

Potential hazards
Irritates eyes, lungs and skin.

Standard handling procedures
Avoid inhalation of vapour or skin contact.

Chemicals to be produced

carbon dioxide, gas generated during experiment **CO_2**
CAS: 124-38-9

Class: 2.2 PG: none Users: K-12 Training: 1-6

GHS data: Not classified as a hazardous chemical.

Potential hazards	*Standard handling procedures*
Harmless, in quantities generated during experiments. Toxic at high concentrations in air due to absorption through lungs into blood, lowering the pH.	DO NOT GENERATE CARBON DIOXIDE IN A CLOSED CONTAINER SINCE THE CONTAINER MAY EXPLODE. Magnesium burns in carbon dioxide to form magnesium oxide and carbon.

Knowledge

I/we have read and understood the potential hazards and standard handling procedures of all the equipment, chemicals and biological items, including living organisms.
I/we have read and understood the (Material) Safety Data Sheets for all chemicals used and produced.
I/we have copies of the (Material) Safety Data Sheets of all the chemicals available in or near the laboratory.

Agreement by student(s)

I/we, Bill Wilkins, Mary Newt, Christina Lee, agree to conduct this experiment safely in accordance with school rules and teacher instructions.

Risk assessment

I/we have considered the risks of:

fire	breakage of equipment	electrical shock	radiation
explosion	cuts from equipment	escape of pathogens	waste disposal
chemicals in eyes	sharp objects	heavy lifting	inappropriate behaviour
inhalation of gas/dust	rotating equipment	slipping, tripping, falling	allergies
chemicals on skin	vibration and noise	falling objects	special needs
runaway reaction	pressure	heat and cold	other risks

Assessment by Student(s)

I/we have assessed the risks associated with performing this experiment in the classroom on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2009.

I/we consider the inherent level of risk (risk level without control measures) to be:

Low risk **Medium risk** High risk Extreme risk

Control measures:

Always point test tube away from any person.
Add hydrochloric acid slowly and carefully to avoid vigorous reaction and projection of material from test tube.
Dip matches and tapers in water to ensure extinguished before disposal.
Additional measures: safety glasses, gloves

With the specified control measures in place, I/we have found that all the risks are "low risk". Risks will therefore be managed by routine procedures in the classroom, in combination with the specified control measures.

Certification by Teacher

I have assessed the risks associated with performing this experiment in the classroom on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2009. I confirm that the risk level and control measures entered by student(s) above are correct and appropriate.

Name: ..... **Signature:** ..... **Date:** .....

Certification by Laboratory Technician

I have assessed the risks associated with preparing the equipment, chemicals and and biological items, including living organisms, for this experiment and subsequently cleaning up after the experiment and disposing of wastes, on the basis of likelihood and consequences using the School's risk matrix, according to International Organization for Standardization Standard ISO 31000:2009.

I consider the inherent level of risk (risk level without control measures) to be:

Low risk Medium risk High risk Extreme risk

Risks will therefore be managed by routine procedures in the laboratory.

Name: ..... **Signature:** ..... **Date:** .....

Monitoring and review

This risk assessment will be monitored using comments below and will be reviewed within 15 months from the date of certification.