

Volcano (vinegar and baking soda)

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Classes for which experiment is required

Teacher: Eva Crisp (training code 6)

Year Group: 6

Room

Date

611

Sat 14/6/25

Procedure or reference, including variations

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http://www.riskassess.com.au/info/learning_resources**Equipment and cleaning to be used****plastic cup***Potential hazards*

Flammable. May release toxic fumes if burnt. Cup transmits heat of hot fluid, causing it to become uncomfortable to hold. Organic solvents may affect the plastic, causing leaks.

Standard handling procedures

Use insulating foam cups for hot liquids. Do not use plastic cups for organic solvents. Do not heat with Bunsen burner.

paint brush*Potential hazards*

May splash paint into eyes.

Standard handling procedures

Clean thoroughly with water (water-based paints) or mineral turpentine (oil-based paints) after use. Otherwise, the bristles stick together and the brush cannot be used again.

newspaper*Potential hazards*

Easily flammable.

Standard handling procedures

Avoid use near naked flames.

aluminium tray**dishwashing detergent***Potential hazards*

If drunk, may cause vomiting or diarrhoea.

Standard handling procedures

Do not drink.

children's water paint*Potential hazards*

Check label to ensure ingredients are not toxic. Do not ingest. May cause skin irritation.

Standard handling procedures

Consult the Safety Data Sheet from the manufacturer before use.

sand*Potential hazards*

Sand may be thrown around and cause eye injury. May be source of toxoplasmosis, if sand is outside and not covered. Hot sand retains heat for a long time and may cause burns.

Standard handling procedures

Children's sand pit, and other sand outside, should be covered when not in use, due to the possibility of a cat infected with toxoplasmosis defaecating in the sand.

Biologicals and food to be used**red food colouring** (red food dye)*Potential hazards*

ALLERGY ALERT. May cause an allergic reaction in some individuals. Do not drink.

plain flour*Potential hazards*

ALLERGY ALERT. Some individuals may be allergic to wheat flour.

Standard handling procedures

Do not eat in class, due to the possibility of contamination.

Chemicals to be used

acetic acid, vinegar (~0.7-1.3 M; ~4-8% wt/wt) (ethanoic acid)				CH₃COOH_(aq)
Class: nc	PG: none	Users: K-12	Training: 1-6	CAS: 64-19-7
GHS data: Not classified as a hazardous chemical.				
<i>Potential hazards</i> Irritant vapour.		<i>Disposal</i> Vinegar may be poured down the drain in a stream of water.		

sodium hydrogen carbonate, solid (baking soda, bicarbonate of soda, sodium bicarbonate)				NaHCO₃
Class: nc	PG: none	Users: K-12	Training: 1-6	CAS: 144-55-8
GHS data: Not classified as a hazardous chemical.				
<i>Potential hazards</i> Low toxicity.		<i>Standard handling procedures</i> DO NOT GENERATE CARBON DIOXIDE WITH SODIUM HYDROGEN CARBONATE IN A CLOSED CONTAINER SINCE THE CONTAINER MAY EXPLODE. Do not seal a container containing sodium hydrogen carbonate and an acid such as vinegar. Otherwise, mixing these chemicals makes harmless bubbles of carbon dioxide gas.		
		<i>Disposal</i> May be placed in the garbage.		

Chemicals to be produced

carbon dioxide, gas generated during experiment				CO₂
Class: 2.2	PG: none	Users: K-12	Training: 1-6	CAS: 124-38-9
GHS data: Not classified as a hazardous chemical.				
<i>Potential hazards</i> Harmless, in quantities generated during experiments. Toxic at high concentrations in air due to absorption through lungs into blood, lowering the pH.		<i>Standard handling procedures</i> 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.		
		<i>Disposal</i> Gas may be released to the atmosphere, provided it is not in an enclosed space.		

Knowledge

I have read and understood the potential hazards and standard handling procedures of all the equipment, chemicals and biological items, including living organisms.

I have read and understood the Safety Data Sheets for all hazardous chemicals used in the experiment.

I have copies of the Safety Data Sheets of all the hazardous chemicals available in or near the classroom.

Risk assessment

I have considered the risks of:

fire or explosion	injuries from equipment	biohazards	waste disposal
chemicals in eyes	rotating equipment	injuries from animals	improper labelling/storage
inhalation of gas/dust	electrical shock	environmental impact	inappropriate behaviour
chemicals on skin	vibration or noise	intense light/lasers	communication issues
ingestion of chemicals	sharp objects	UV, IR, nuclear radiation	allergies
runaway reaction	falling or flying objects	pressure inside equipment	special needs
heat or cold	contamination of area	heavy lifting	ethical issues
breakage of equipment	exposure to pathogens	slipping, tripping, falling	other risks

For **outdoor activities**, consider wind, temperature, rain/hail/snow, UV, air quality, fire danger, pollen, bites/stings etc

Certification by Teacher

I have assessed the risks associated with:

preparing the equipment, chemicals and biological items, including living organisms, for this experiment,
performing this experiment with students in the class room, and
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 31000:2018.

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

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

Control measures:

Ensure that students do not inhale vinegar fumes or get vinegar in eyes or in cuts on skin.
Don't let students drink the red "lava" fizz.

With the specified control measures in place, I 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.

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

Monitoring and review

This risk assessment will be monitored using electronic review notes or hand-written notes on a printout. It will be reviewed within 15 months as part of the regular review process.