

Risk Assessment for: Just One Spark			
Start date	08/08/2023	End date	14/08/2025
Contact	Robert Martin		
Phone	01913704066		
Location	Pit Village Chapel		
Description	<p>Activity and set up to be carried out by a trained demonstrator. Demonstrator sets up at the front of the chapel on the raised section and equipment inspected prior to activity. Large table top placed and covered with heat proof mats. Whoosh bottle/s stored outside rear of chapel in sunlight or in the mess room prior to activity to bring temperature of bottle slightly up. Fire blanket placed over 1st pew. Fire resistant gloves and safety glasses need to be placed on the table top. Warning tile to be placed on small table below the Large Table top- this must remain visible at all times. Other tiles to be placed on the easel. Balloon to be blown up and stuck to back of easel. Pin can be stored in back of easel.</p> <p>Demonstrator must ensure that long hair tied back and any loose jewellery or clothing is removed or tucked in. Necessary chemicals brought from fire cabinet in Lamp Cabin and placed on 2nd/3rd pews behind the demonstrating table. Gas canister to placed beneath the table and attached to Bunsen burner. Demonstrator to remain at the chapel once chemicals are brought from the fire cabinet.</p> <p>When group/class arrive demonstrator to inform supervising adult about risks caused by lycopodium powder and balloon popping. Children should be supervised in sitting in pews with bags underneath benches so as not to obstruct ability to exit.</p> <p>Demonstrations:</p> <p>1) FLASH COTTON above the CANDLE: Light long candle with match. Hold flash cotton in the flame. It will catch instantly.</p> <p>2)Burst the BALLOON: Volunteer to be dressed as the Penitent Man and crawl across the floor waving stick (direct child to ensure they do not knock anything over). Pop the balloon as the child waves stick and advances down.</p> <p>3) FLASH COTTON spark demo (Optional) Small piece of flash cotton, fluffed up, and placed on gauze on top of tripod. Best to wear Safety Glasses in case you jump when you manage to light flash cotton. Use Flint to create sparks and ignite flash cotton.</p> <p>4)WHOOSH BOTTLE demo Get a splint ready on the metre ruler – either clip into the peg or use masking tape (NOT Sellotape as we don't need the fumes from the plastic burning) Check the water cooler bottle that you are planning to use. It MUST NOT show signs of damage, frosting or cracking (as photo below) – if it does, notify the Learning Team and dispose of this bottle. Bottles MUST be allowed to dry completely before use. Put on safety glasses to pour liquid, as propan-2-ol causes serious eye irritation. Pour the propanol into the water cooler bottle and agitate the liquid inside until most liquid has evaporated. Put on gloves and safety glasses. Light the splint and hold the other end of the ruler so that the burning splint is over the neck of the bottle, with the ruler held at a slight downward angle. Your hand should never end up above the neck of the bottle. To put out the splint, hold it flat against a heat-proof mat at the far</p>		

end of the table.

5) Lump of COAL demo:
Put safety gloves on.
Hold large lump of coal over flame of candle or bunsen burner for a few seconds.

6) LYCOPODIUM POWDER on spoon demo
Take a spoonful of Lycopodium powder out of the powder bottle.
Replace lid on bottle immediately.
Put safety gloves and glasses on.
Hold the spoon into the Bunsen burner flame for a few seconds to show the powder does not burn. (Never use a match to ignite a burner.)
Lift spoon above the flame and sprinkle a small amount over the flame. It will ignite quickly.

7) LYCOPODIUM POWDER in tube demo:
Take a spoonful of Lycopodium powder out of the powder bottle.
Replace lid on bottle immediately.
Put safety gloves and glasses on. Light the tealight but have it just off to one side of the glass tube until completely ready, otherwise convection currents may stop the demo from working.
Push the tealight under the tube and sprinkle the Lycopodium powder into the top of the tube – half a spoonful is enough.

8) Glass over TEALIGHT demo
Light a tealight and put an upturned glass on it.

9) Gauzes in BUNSEN FLAME demo
Never use a match to ignite a burner.
Place lit Bunsen burner underneath a tripod.
Wear safety gloves when placing/removing gauzes on/off tripod.

10) Gauze cage and LYCOPODIUM POWDER
Light a tealight and repeat Lycopodium powder over tealight demo (see above)
Put lidded gauze cage over tealight
Ensure gloves and safety glasses are on, and powder bottle is lidded, on pew
Sprinkle Lycopodium powder over candle (through gauze)
Keep gloves on until you've taken the gauze off and/or the candle is out.

7) LYCOPODIUM POWDER in tube with gauze lid demo:
Take a spoonful of Lycopodium powder out of the powder bottle.
Replace lid on bottle immediately.
Put safety gloves and glasses on. Light the tealight but have it just off to one side of the glass tube until completely ready, otherwise convection currents may stop the demo from working.
Push the tealight under the tube and sprinkle the Lycopodium powder into the top of the tube with a gauze lid on – half a spoonful is enough.

Dust Exposure From Register: 'Learning Risk Register'

Hazard:	Dust Exposure			
	Rating Before Control Measures:		Rating After Control Measures:	
	15		5	
	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities
Likelihood	3 - May or may not happen	Likelihood	1 - Almost certain never to happen	

Description	Lycopodium Powder in air after demonstration or spill.
Who is harmed and how	Staff and visitors by inhaling and causing respiratory problems (e.g. asthma attack).
Current Controls (Dust Exposure)	Doors or/and windows kept open to ensure adequate ventilation. Container to be kept away from demonstration area. Lid on powder container when not in use. Minimum amount required to be used in demos. Excess powder cleared away between sessions.

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Additional Controls (Dust Exposure)	Audience (or teacher) warned when they come in the dust we use is a type of pollen, so they should watch any children with hayfever/asthma and audience to be instructed to sit at least 4 meters away. Supervising adults told to take children into fresh air if needed, and alert you to alert a first aider if required. If demonstrator displays hay fever or other symptoms, they are responsible to alert the Learning team at the soonest possibility.
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Building Fire From Register: 'Learning Risk Register'

Hazard:	Building Fire			
	Rating Before Control Measures:		Rating After Control Measures:	
	15		5	
	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities
Likelihood	3 - May or may not happen	Likelihood	1 - Almost certain never to happen	

Description	Fire in building.
Who is harmed and how	Children, supervising staff and museum staff get burns and smoke inhalation
Current Controls (Building Fire)	Fire exits kept clear at all times. In the event of fire Museum staff to evacuate building to muster area.
Additional Controls (Building Fire)	Children to be directed to place bag's/coats so as not to present trip hazards in the event that they must evacuate.

Sharp objects From Register: 'Learning Risk Register'

Hazard:	Sharp objects		
	Rating After Control Measures:		4
	Risk Level	2 = Requiring medical attention (burn, deep cut) / Illness requiring medical treatment or 1-3 days lost work time	
	Likelihood	2 - Unlikely to happen	

Description	Objects that may become sharp if they are broken e.g. glass beakers, pottery ware
Who is harmed and how	Staff and visitors may cut themselves on the broken remains
Current Controls (Sharp objects)	Handle objects above a table so they do not have as far to fall if dropped. Unwieldy objects like the Just One Spark glass tube should be moved straight from clamp stand to padded packaging and vice versa. Keep objects on the table and advise visitors they do not need to pick them up.
Additional Controls (Sharp objects)	Objects should be checked for any damage before being used in an activity. If damaged, it should not be used and should be disposed of. If object is dropped, examine for any damage. If object is broken, instruct visitors to step back from the scene whilst a member of staff retrieve cleaning equipment to tidy up. Alert the Learning Team so a replacement/alternative can be sourced.

Slip or Trip Hazard From Register: 'Learning Risk Register'

Hazard:	Slip or Trip Hazard			
	Rating Before Control Measures:		Rating After Control Measures:	
	9		6	
	Risk Level	3 = Major Injury (broken bone) / Illness requiring urgent medical treatment, >3 days lost work time or chronic illness	Risk Level	3 = Major Injury (broken bone) / Illness requiring urgent medical treatment, >3 days lost work time or chronic illness
Likelihood	3 - May or may not happen	Likelihood	2 - Unlikely to happen	

Description	In interior buildings during activities for school groups. Children fall in dim lighting, over dark furniture, when climbing, over wobbly
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	furniture, on stairs and over other hazards.
Who is harmed and how	Staff and children
Current Controls (Slip or Trip Hazard)	Effective briefing and instructions given, emphasising potential risks. Pre organise furniture, rugs and equipment to minimise risks. Monitor. Children are told not to climb on anything. Staff ensure furniture is secure. Monitor children when using the stairs.
Additional Controls (Slip or Trip Hazard)	Staff to stay vigilant and monitor that visitors or objects aren't unnecessarily blocking/hampering pathways, routes and entrances/exits. If children are based in one space for an activity then they should be informed where they can place their bags and possessions without causing a hazard.

Chemical		From Register: 'Learning Risk Register'		
Hazard:	Chemical			
	Rating Before Control Measures:	8	Rating After Control Measures:	4
	Risk Level	4 = Severe injury (loss of sight, loss of limb) / Illness with potential to cause permanent disability	Risk Level	4 = Severe injury (loss of sight, loss of limb) / Illness with potential to cause permanent disability
	Likelihood	2 - Unlikely to happen	Likelihood	1 - Almost certain never to happen
Description	Chemicals not kept in clearly/correctly labelled containers.			
Who is harmed and how	Staff unaware of risks can come to harm from incorrect use/misidentification of chemicals.			
Current Controls (Chemical)	All hazardous chemicals must be clearly labelled, including any hazard symbols.			
Additional Controls (Chemical)	Demonstrators should ensure that that chemicals are only kept in clearly labelled containers. The Learning Team should be notified immediately if containers develop worn out/unreadable labels so they can be replaced. Only a small amount of flash cotton should be prepared at a time (maximum 100g) in a clearly labelled container.			

Food contamination		From Register: 'Learning Risk Register'		
Hazard:	Food contamination			
	Rating Before Control Measures:	9	Rating After Control Measures:	3
	Risk Level	3 = Major Injury (broken bone) / Illness requiring urgent medical treatment, >3 days lost work time or chronic illness	Risk Level	3 = Major Injury (broken bone) / Illness requiring urgent medical treatment, >3 days lost work time or chronic illness
	Likelihood	3 - May or may not happen	Likelihood	1 - Almost certain never to happen
Description	Contamination of food as a result of carrying out Just One Spark			
Who is harmed and how	Staff and visitors			
Current Controls (Food contamination)	Food and drinks should not be kept near or on the demonstrating area during a Just One Spark activity. Chemicals should be kept in clearly labelled, closed containers when not immediately in use.			
Additional Controls (Food contamination)	Demonstrator should wash hands thoroughly before handling or consuming food.			

Dropping heavy objects		From Register: 'Learning Risk Register'		
Hazard:	Dropping heavy objects			
	Rating Before Control Measures:	12	Rating After Control Measures:	6
	Risk Level	3 = Major Injury (broken bone) / Illness requiring urgent medical	Risk Level	3 = Major Injury (broken bone) / Illness requiring urgent medical



	treatment, >3 days lost work time or chronic illness		treatment, >3 days lost work time or chronic illness
Likelihood	4 - Likely to happen	Likelihood	2 - Unlikely to happen

Description	Carrying, setting up and removing the lab table or other heavy object.
Who is harmed and how	Staff or visitors may be injured by falling table top or other heavy object. Staff may injure back when lifting/carrying table top/heavy object.
Current Controls (Dropping heavy objects)	Staff should lift with legs not back. Staff member should ensure that route is clear of all trip hazards before carrying table top/heavy object. Staff member needs to take extra care when moving table top/heavy object of their surroundings in case new trip hazards or visitors appear. Staff should set down heavy table top/object if they are concerned with grip or identify potential hazards.
Additional Controls (Dropping heavy objects)	If possible 2 staff members should move the table top/heavy object.

Fire From Register: 'Learning Risk Register'

Hazard:	Fire			
	Rating Before Control Measures:		Rating After Control Measures:	
	8		2	
	Risk Level	2 = Requiring medical attention (burn, deep cut) / Illness requiring medical treatment or 1-3 days lost work time	Risk Level	2 = Requiring medical attention (burn, deep cut) / Illness requiring medical treatment or 1-3 days lost work time
	Likelihood	4 - Likely to happen	Likelihood	1 - Almost certain never to happen

Description	Naked flame during demonstrations
Who is harmed and how	Demonstrator may be burned whilst carrying out demonstrations Audience may be burned whilst carrying out demonstrations
Current Controls (Fire)	Demonstrator must be trained by a member of the learning team experienced in delivering Just One Spark or science demonstrations. Demonstrator to be given up-to-date Teaching activity notes, risk assessment and hazard ID. Fire blanket & extinguisher must be to hand before any demonstration takes place. Safety equipment (heat proof mats, heat proof gloves and goggles) must be worn when carrying out any demonstrations that use flame or create a flame. Demonstrator must have long hair tied back and any loose clothing is removed or tucked away. Audience positioned at least 4 meters away from demonstration. Teachers/carers/parents are responsible for ensuring this, but demonstrator should ask for assistance from teacher if required. Flammable materials should be kept in their containers away from the lab bench. Only required amount of flammable materials to be used. Flammable materials to be measured out only at the point in the demonstration that they are required.
Additional Controls (Fire)	Safety equipment should be checked by demonstrator before delivery. Faulty equipment should be reported straight away to the learning team. If equipment is faulty then new safety equipment to be used otherwise the demonstration is cancelled/stopped. An annual check should be made on equipment. Sourcing and testing the lycopodium tube demonstration with a shorter tube and introducing this into the activity if viable.

Hazard:	Fire			
	Rating Before Control Measures:		Rating After Control Measures:	
	15		5	
	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities
	Likelihood	3 - May or may not happen	Likelihood	1 - Almost certain never to happen

Description	Uncontrolled fire / fire spreading as a result of Just One Spark
Who is harmed and how	Staff and/or visitors may suffer burns & smoke inhalation
Current Controls (Fire)	<p>Only get out of fire cupboard sufficient flammable materials for activity.</p> <p>Flammable materials are stored at least a metre away from the demonstration area.</p> <p>The trained demonstrator must never leave flammable materials or ignition sources unattended (e.g. even when waiting for a late school group or over lunch – a member of staff must always be present in the room or by the entrance to the room, or the flammables cleared away).</p> <p>Fire blanket & extinguisher must be readily accessible during the demonstration.</p> <p>Demonstration table must be covered in heat-proof mats.</p> <p>Instruct children to put bags underneath their bench so that they can easily exit the pews if needed.</p>
Additional Controls (Fire)	<p>Flammable materials must be stored in fire cabinet located in the Lamp Cabin.</p> <p>Dried out flash cotton to be stored in a separate metal locker on top of the fire cabinet. Only enough flash cotton to do 3 sessions should be dried at a time.</p> <p>Sources of ignition must be kept in a separate box which is located in the locked coal shed behind the chapel.</p>

Explosion From Register: 'Learning Risk Register'

Hazard:	Explosion			
	Rating Before Control Measures:		Rating After Control Measures:	
	10		5	
	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities	Risk Level	5 = Loss of life / Illness with potential to cause death or multiple disabilities
	Likelihood	2 - Unlikely to happen	Likelihood	1 - Almost certain never to happen

Description	Degradation in whoosh bottle, gas equipment or glass tube. Incorrect use/storage of flammable chemicals by demonstrator.
Who is harmed and how	Demonstrator and/or audience may be injured by shrapnel or fire caused by catastrophic failure of equipment or process.
Current Controls (Explosion)	<p>Demonstrator must be trained by a member of the Learning team. Demonstrator must visually inspect Bunsen, gas pipe and valve before every use and if defects found should not be used.</p> <p>Never use a bottle or glass tube that shows sign of damage, frosting or cracking.</p> <p>If any defects are found in equipment these must be reported to the Learning Team.</p> <p>Flammable chemicals containers must be kept closed and away from the lab table.</p>
Additional Controls (Explosion)	<p>Only 40ml of propanol to be used in the Whoosh bottle demonstration.</p> <p>Demonstrator must wear safety glasses and heat proof gloves and light using a burning splint attached at a 90 degree downward angle on the</p> <p>Audience must be 4m away.</p>

Loud noises From Register: 'Learning Risk Register'

Hazard:	Loud noises			
	Rating Before Control Measures:		Rating After Control Measures:	
	3		2	
	Risk Level	1 = Minor injury (Slight cut, scrape, bruise) / Short term illness or discomfort	Risk Level	1 = Minor injury (Slight cut, scrape, bruise) / Short term illness or discomfort
	Likelihood	3 - May or may not happen	Likelihood	2 - Unlikely to happen

Description	Loud noise when popping balloon or controlled explosion
Who is harmed and how	Visitors or children if they have sensitivity towards loud noises. May cause emotional upset.
Current Controls (Loud noises)	<p>Demonstrator to warn supervising adult that they will be popping a balloon during the lesson during the penitent man demonstration.</p> <p>Tell supervising adults to sit with anybody who may become distressed by a loud noise & to take them outside if necessary.</p>
Additional Controls (Loud noises)	

Mismanaging children during activities					From Register: 'Learning Risk Register'
Hazard:		Mismanaging children during activities			
	Rating Before Control Measures:		6	Rating After Control Measures:	
	Risk Level		2 = Requiring medical attention (burn, deep cut) / Illness requiring medical treatment or 1-3 days lost work time	Risk Level	
	Likelihood		3 - May or may not happen	Likelihood	
Description		Children pushing one another after no and/or poor instructions given			
Who is harmed and how		Children bumps and bruises			
Current Controls (Mismanaging children during activities)		Beamish Staff manage children effectively giving clear and concise instructions at all times			
Additional Controls (Mismanaging children during activities)		Children made to line up, take it in turns, go in lines, maintain a calm atmosphere, ensure all children can hear instructions given, ask supervising teachers to help.			

Emotional Upset					From Register: 'Learning Risk Register'
Hazard:		Emotional Upset			
	Rating Before Control Measures:		4	Rating After Control Measures:	
	Risk Level		1 = Minor injury (Slight cut, scrape, bruise) / Short term illness or discomfort	Risk Level	
	Likelihood		4 - Likely to happen	Likelihood	
Description		Children get emotionally affected by the experience offered.			
Who is harmed and how		Children - emotionally affected by experience.			
Current Controls (Emotional Upset)		Museum staff are careful to explain at the beginning of any session what will be involved and how the children might be affected. They will need to explain how they are pretending to be the characters from the past.			
Additional Controls (Emotional Upset)		Museum staff will need to move from 3rd person delivery to 1st person delivery through the introduction and not be in 1st person delivery from the offset. accompanying staff will be encouraged to monitor their individual children as the session progresses.			

Safeguarding					From Register: 'Learning Risk Register'
Hazard:		Safeguarding			
	Rating Before Control Measures:		6	Rating After Control Measures:	
	Risk Level		3 = Major Injury (broken bone) / Illness requiring urgent medical treatment, >3 days lost work time or chronic illness	Risk Level	
	Likelihood		2 - Unlikely to happen	Likelihood	
Description		Inappropriate conduct between children and other visitors or children and staff			
Who is harmed and how		Children being exposed to inappropriate behaviour be other visitors or staff			
Current Controls (Safeguarding)		Students to stay in Specific Area such as Town or Pit Village, to keep in their groups and not split up. Accompanying staff to supervise groups as closely as possible so they can step in if required. Leading staff member to be DBS checked.			
Additional Controls (Safeguarding)		Additional support from schools with younger children - 1 adult with each group. Children to be grouped according to the numbers of supporting adults available. Discussion with lead teacher before the groups are sent off. Training delivered to all Beamish Staff concerning safeguarding.			



