Risk Assessment Form

Mark Rutherford School Harpur Trust

Mobile Planetarium for Outreach and classroom use

Location requirements:

The mobile planetarium needs to be sited indoors in a quiet, well-lit and clean environment. Flooring needs to be solid and unraised. Access to at least one power socket is required to power the fan, laptop, projector and sound system (two is preferred).

The area around the dome must be cordoned off or inaccessible from anyone passing by.

The dome can be quickly evacuated in an emergency.

Access requirements:

The packed-up Planetarium is very heavy and is moved in two cases and a large fan unit.

There must be step-free and near-level access between the vehicle and the area where the dome will be set up.

Parking for a medium-sized vehicle close by is required for unloading/reloading the equipment, again offering step-free access.

Dome capacity:

This 6m planetarium seats up to 25 adults or 35 young children or up to 10 wheelchair users (dependent on size of wheelchair).

People must not sit on the inside lip of the dome as this slows evacuation.

Space requirements

The dome is 6m in dismeter, and is ~3m tall. Minimum room size required is 6.4 x 6.4 m. School halls are ideal locations to set up in. Ideally there should be plugs sockets on a far wall from the door to avoid the use of too many extension leads or people tripping over cables, and the dome will be aligned so that the entrance tunnel faces the door. The dome can hold up to 27 people (including the operator), but a lower number may apply during shows for older/taller audiences

Supervision

During the talks there will be at least one operator inside the dome at the projector and if possible another member of staff by the door and a third outside of the dome. Staff inside the dome will have torches and access to the lights inside the dome.

The third person will be outside the entrance when people are going in and out to ensure order and prevent the dome deflating on the people inside.

Likelihood	Injury	Risk
1 = v. rare 2 = rare 3 = occasional 4 = likely 5 = certain	1 = trivial 2 = minor 3 = 1 -3 days off (visit to A&E) 4 = 3+ days off/ long term (Overnight stay) 5 = life changing/death	Low Moderate High (Unacceptable)

ACTIVITY	POTENTIAL HAZARD	Who is at risk from the hazard	Likelihood	Injury	Risk	PREVENTATIVE MEASURES	WHAT FURTHER ACTION IS NEEDED TO REDUCE THE RISK
General	Emergency procedure (e.g. Fire alarm)	All	1	3	L	In case of emergency the dome can be evacuated immediately by lifting up the edges/walls and escaping underneath. The air inside the dome will cause it to lift up above the audience and fold back on itself behind them, preventing anyone from being covered and trapped. Depending on the nature of the emergency the affected person or the whole audience can be evacuated through the normal entrance. Dome operator to make the decision. All equipment to be powered down (if safe to do so) by the operator. Staff to take participants to the appropriate assembly point.	
	Overcrowding crush injury	All	1	2+	L	Dome operator to ensure capacity isn't exceeded.	

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	Power Failure leading to lose of light and collapse of the dome	All	2	1	L	Dome material is light and would not cause impact injuries Dome design delays complete deflation (deflation naturally creates an air-lock), allowing plenty of time for safe evacuation – without opening the door the dome takes in excess of 20 minutes to deflate to a point that would be uncomfortable. Operator to organise a safe, calm and evacuation procedure through the normal exit. If necessary the operator can flip the dome over the heads of the audience Battery-powered torches are to be available for light in absence of mains power.	
Laser Pointer	Shone into an eye	Audience	1	3	L	Only pointers with Class 2 laser up to 1mW to be used*. Operator to stow pointer when not in use to reduce risk accidental exposure or of theft. Operator to halt the session if the pointer goes missing.	

ACTIVITY	POTENTIAL HAZARD	Who is at risk from the hazard	Likelihood	Injury	Risk	PREVENTATIVE MEASURES	WHAT FURTHER ACTION IS NEEDED TO REDUCE THE RISK
Outside the planetarium	Tripping over the planetarium, especially inflating and entrance tube	All	3	2	M	The planetarium will be sited so that there is no access around the back. Power cables will be taped to the floor, placed in conduit or cordoned off in such a way to avoid to avoid tripping Dome operator to supervise participants entering and leaving the dome holding doorway open and warning of the lip.	
Inside the planetarium	As it will be mostly dark inside, people might trip and fall	All	3	2	L	Use of house lights during entry and exit. Torches are available to the operator. Participants will be briefed do they know what to expect inside (e.g. boxes, projector All cables will be taped to the floor, in conduit or cordoned off, and will be trailed behind the projectionist to avoid tripping. Participants will be asked to sit on the floor and not to move about during the show, and to ask if they need to leave so lights can be provided. Dome operator to supervise participants entering and leaving the dome holding doorway open and warning of the lip.	

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Inside the planetarium	Claustrophobia (including panic attacks, anxiety etc.) or motion sickness	Audience	1	2	L	Due to the nature of the planetarium, with moving images being projected on the inside of the dome, motion sickness may be an issue. The audience will be warned of this in advance and asked to say if they begin to feel unwell, in which case the lights can be turned on to allow them to exit. Dome operator to pause or halt that part of the session and offer appropriate advice to the affected audience member. In the case of an emergency follow appropriate procedure detailed above. Similar measures can be taken for claustrophobia sufferers.	
	Inflation fan	Audience (during setup operator)	1	3	L	The tube to the fan is narrow and all but the smallest people can't access it. The tube will be covered by a net to prevent people wandering down there in the dark. The fan is also contained within a cage to prevent injuryThe inlet tube is 1.5m long so people can't reach the fan from within the dome.	

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Inside the planetarium	People stepping on each other	Audience	1	2	L	People will be advised they are sitting on the floor and to not move around. If movement is necessary people will be advise to move around under the direction of the operator.	
	Sitting on the edge of the dome	Audience	1	3	L	People will be asked not to lean against the edges of the dome as they are thin and will not support their weight. Children will be asked to come in and sit in rows before each session	
	Exiting the dome	Audience	1	2	L	At the end of the session the lights will slowly be turned up to allow people to adjust their eyes to the light and to see their way out. Dome operator to supervise participants entering and leaving the dome holding doorway open and warning of the lip.	
	Setting up the dome Back injury	Operator	1	3	L	The dome will be laid out on the floor first to make sure there is enough space and it will not block any doors or exits. Equipment will be placed under the dome before inflation, and plugged in and switched on after inflation. Portable lights/torches will be used while setting up the electrical equipment and switching them on. The planetarium is only to be set up indoors	

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Inside the planetarium	Electronics Shock Trip hazard	Operator Audience	2	3	L	Portable lights/torches will be used while setting up and packing up the electrical equipment. Where possible the electronics will be connected to the mains behind the dome where no-one should trip over them. All electrical equipment has been safety tested and has a valid certificate on the plugs	
Take down	Dome collapsing of someone	Operator	1	3	L	Dome material is light and would not cause impact injuries The dome will be cleared of people before deflation, and is collapsed by deflating the dome a bit then lifting up one side of it. It will then fall back onto the floor on the other side, from where is can be rolled up and returned to its' bag and case	
Transport	Transporting equipment to schools etc	Operator	3	3	L	Equipment will be transported to location by car. All equipment is stored in boxes and a bag for the dome, each of which can be carried or wheeled by one person. Access to the car park should be step free to avoid any unnecessary lifting. Operator to be trained in correct lifting techniques	

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*Class 2 (1mW) laser pointers are not a risk in normal use as blink reflexes are sufficient protection. However, it is possible that damage may occur from repeated, deliberate exposure

(https://www.gov.uk/government/publications/laser-radiation-safety-advice/laser-radiation-safety-advice)

Verbal safety instructions to be given at start of the session:
Groups will be told that:

• In the case of a fire, which will be signalled by the fire alarm, the Session Leader and Student Ambassadors (if available) will direct the group out of the dome and to the nearest fire exit.
Participants should follow instructions given at this time. In such a scenario the emergency exit is through the side of the dome- the operator will lift up the side of the dome while the audience stands in the middle, causing it to lift over their heads and fall behind them as the remaining air is expelled.
• In the case of an accident, the operator, or Student Ambassadors with the group at the time should be made aware of the situation. If First Aid is necessary, the operator or Student Ambassador will then contact the relevant First Aider. The lights in the dome can be switched on in this case by the projectionist.
• Participants should sit still in the dome and avoid moving around in the dark. If someone needs to leave or falls ill they should inform the operator, who will turn the lights on again and show them to the exit.

Emergency arrangements in place:

In the case of a fire, operator and Student Ambassadors will lead the group out of the dome, and the teacher will lead the group to the school assembly point.:

In the case of First Aid being necessary, the appropriate person to contact would be the class teacher

Date of Assessment: 10th Jan 2018

To be reviewed continuously and updated as required

Risk assessment completed by: N Betts, Mark Rutherford School