

GENERAL RISK ASSESSMENT FORM

Faculty/Directorate

FACH (Greenwich Maths Centre)

Title of risk assessment/work being assessed

Investigating the mathematics of soap bubbles at Festival of Mathematics and its Applications, June 27 and 28 2017

Location of work being assessed (Campus, building, room)

Queen Anne Courtyard

Date of assessment

11/06/17

Brief description of work being assessed

Include brief details of stages of the process, numbers of people involved, scale of operation, duration, timing and frequency of work (attach protocol or method if preferred)

This risk assessment describes an activity that is taking place during the Festival. Risks that relate to the Festival as a whole (such as crowd control, emergency evacuation, safeguarding) are covered in the Risk Assessment for the Festival as a whole, which was approved on 6 April 2017.

Part of this activity (investigating minimal surfaces) is covered by the risk assessment regarding the IMA big equipment kit included in the main risk assessment.

The additional activity involves the use of 2ft garden canes and string to create giant bubbles. These will only be demonstrated.

The audience for this workshop will be school students, supervised by teachers, and a small number of members of the general public. The activity will be mainly demonstrated with audience members allowed to handle the ready-made 3D shapes and create shapes with pipe cleaners.

Things to consider within the assessment – this list may not be exhaustive

- **Personal safety** e.g. Physical or verbal attack; disability or health problems; delayed access to personal or medical assistance; failure of routine or emergency communications; security of accommodation and support; getting lost, or stranded by transport; cultural or legal differences - List aspects of the work with significant hazards, and give brief details of how foreseeable harm/injuries could occur
- **Equipment hazards - Storage, handling and use of equipment and materials** e.g. Tools; machinery; vehicles; manual handling; noise; work at height; electricity; fire; vacuum; high pressure; high temperature; ultra violet; laser; vibration - List equipment and materials with significant hazards, and give brief details of how foreseeable harm/injuries could occur
- **Biological hazards - Storage, handling, use, and disposal of biological agents, intermediates, products and waste, "any micro-organism, cell culture or human endoparasite including any which have been genetically modified, which may cause infection, allergy, toxicity and other hazards to human health". This includes bacteria, viruses, fungi and parasites. Include routes of exposure** e.g. Blood borne infection; skin contact, skin sensitisation; sensitisation by inhalation; toxic by ingestion or inhalation. List biological agents with significant hazards, and give brief details of hazard classification and foreseeable harm/injuries
- **Natural physical hazards - Effects of the natural environment, climate, landscape, plants, animals** e.g. Extreme weather; earthquakes and volcanoes; mountains, cliffs and rock falls; glaciers, crevasses and icefalls; caves, mines and quarries; forests including fire; marshes and quicksand; fresh or seawater, tidal surges
- **Environmental impact** e.g. Pollution and waste, deposition of rubbish, disturbance of eco-systems, trampling, harm to animals or plants
- **Chemical hazards - Storage, handling, use, and disposal of chemical reagents, intermediates, products and waste** e.g. Toxic by inhalation or ingestion; irritant; corrosive, flammable; explosive; oxidising; radioactive. Include routes of exposure e.g. skin contact; skin sensitisation; sensitisation by inhalation; toxic by ingestion or inhalation. ***If the chemical is a group 3 or 4 chemical (see RA guidance sheet) then a separate COSHH assessment MUST be carried out.***

Risk Assessment:

Description of Hazard <small>(only include significant hazards inherent within the task or the activity)</small>	Person(s) at risk <small>e.g. staff, students, visitors, new & expectant mothers etc.</small>	Current control measures in place	Current risk rating			Further control measures required and by whom <small>(usually only necessary where the risk rating is either high or medium)</small>	Final risk rating		
			Likelihood	Severity	Risk Rating		Likelihood	Severity	Risk Rating
Risk of injury from garden canes	visitors	Visitors will not be allowed to do the activity but will just be watching.	2	2	4	Ambassador and other staff member will make sure that visitors do not run around near the demonstration so do not get close to the canes. The demonstrator will ensure that they have plenty of space before demonstration starts.	1	2	2
Risk of injury from wire inside pipe-cleaners	visitors	Pipe-cleaners are especially fluffy and do not have metal poking out of them	2	1	2	Ambassador and staff members will ensure that pipe-cleaners are suitable before children use them. Any that become damaged will be thrown away.	1	1	1

Person(s) completing this assessment:

(Person carrying out or managing the activity day-to-day)

Name Noel-Ann Bradshaw Title Faculty Director Employability Signature _____ Date 15/5/17

Other person(s) commenting on this assessment (where required under Faculty/Directorate arrangements)

(Line Manager or Supervisor responsible for the activity, others involved in the decision-making process, others advising on the activity eg Health & Safety Manager, Health & Safety Local Officer)

Name Mary McAlinden Title Head, Department Mathematical Sciences Signature _____ Date _____

Person approving this assessment:

(Person with overall responsibility for the activity e.g. Faculty Operating Officer/Director of Professional Service, Senior Academic or Manager)

Name Tariq Effendi Title Faculty Safety Manager Signature _____ Date _____

Review of assessment, and revision if necessary

(For continuing work: the assessment must be reviewed for each visit in a series; when there are significant changes to work materials, equipment, methods, location or people involved; and if there are accidents, near misses or complaints associated with the work. If none of these apply, the assessment must be reviewed at least annually)

REVIEW DATE	--/--/----	--/--/----	--/--/----	--/--/----
Name of reviewer				
Signature				
No revisions made				
Changes to activity, hazards, precautions or risks noted in text.				

Appendix 1 – Risk Matrix

The hazards identified within the risk assessment should be assigned a risk rating – this should be assigned for any control measures which are currently in place and any further control measures which will be required.

You should assign a value for the likelihood of an incident occurring based on the hazard from 1 to 5 and a value for the severity / impact of the hazard from 1 to 5. These should then be multiplied together to give a final risk rating e.g. 3 x 2 = 6.

IMPACT	5 CATASTROPHIC	5	10	15	20	25
	4 MAJOR	4	8	12	16	20
	3 SERIOUS	3	6	9	12	15
	2 MODERATE	2	4	6	8	10
	1 MINOR	1	2	3	4	5
		1 RARE	2 UNLIKELY	3 POSSIBLE	4 LIKELY	5 ALMOST CERTAIN
LIKELIHOOD						

Risk score = likelihood of the hazard to cause harm x impact		
High	Medium	Low
Rating 15 or more Immediate action is required to control and/or lower the level of risk. Exposure to the identified hazard is prohibited or severely restricted.	Rating 8 - 12 Urgent review of the equipment, activities, system of work within the workplace with the aim of lowering the risk to the next level.	Rating 1 – 6 Usually, no further action will be required except for monitoring to ensure the risk does not change. However, if it is possible to reduce the risk levels still further, by using controls that are “reasonably practicable”, then this should be done.