

## OCR A Science – Particulate pollution – Hackney Marshes

### Specification links

#### **C1.1 What chemicals make up air, and which ones are pollutants? How do I make sense of data about air pollution?**

##### **Specification Objectives:**

*6. When using their own and given data relating to measured concentrations of atmospheric pollutants, or the composition of the atmosphere:*

- uses data rather than opinion in justifying an explanation
- can suggest reasons why a measurement may be inaccurate
- can suggest reasons why several measurements of the same quantity may give different results
- when asked to evaluate data, makes reference to its reliability (i.e. is it repeatable?)
- can calculate the mean of a set of repeated measurements
- from a set of repeated measurements of a quantity, uses the mean as the best estimate of the true value
- can explain why repeating measurements leads to a better estimate of the quantity
- can make a sensible suggestion about the range within which the true value of a measured quantity probably lies
- can justify the claim that there is/is not a 'real difference' between two measurements of the same quantity
- can identify any outliers in a set of data, and give reasons for including or discarding them.

#### **C1.2 What chemical reactions produce air pollutants? Where do these pollutants come from?**

##### **Specification Objectives:**

*13. understand that atmospheric pollutants cannot just disappear, they have to go somewhere:*

- particulate carbon is deposited on surfaces, making them dirty
- sulphur dioxide and nitrogen dioxide react with water and oxygen to produce acid rain

#### **KS4 NC How Science Works link:**

##### **2. Practical and Enquiry Skills**

- a. Plan to test a scientific idea, answer a scientific question, or solve a scientific problem
- b. Collect data from primary or secondary sources
- c. Work accurately and safely, individually and with others, when collecting first hand data
- d. Evaluate methods of collection of data and consider their validity and reliability as evidence

##### **3. Communication skills**

- a. Recall, analyse, interpret, apply and question scientific information or ideas
- b. Use both qualitative and quantitative approaches
- c. Present information, develop an argument and draw conclusions using scientific, technical and mathematical language.

### **Key questions**

In London what are the main pollutants and what are the key sources?  
Where do the pollutants go?  
What affects do pollutants have on the environment?  
What is a bio monitor?  
Why do we sample areas studied?

### **How learning will be assessed**

Oral participation in small groups and whole class discussion.  
Individual skill development of reading and highlighting relevant information  
Identifying variables – independent and dependent.

### **Misconceptions**

The larger the sample the more accurate the results.  
Ozone is in decline throughout the atmosphere.

### **Websites and resources**

SKEES Project – <http://www.kcl.ac.uk/depsta/education/skees.html>  
Contact Rod Watson at King's College, London

For up-to-date statistics  
<http://www.londonnoisemap.com/>

<http://www.londonair.org.uk/london/asp/home.asp>

<http://www.airquality.co.uk/archive/index.php>

### **For news articles**

<http://www.research-tv.com/stories/health/airpollution/bb/>

<http://search.eurekalert.org/e3/query.html?col=ev3rel&ht=0&qp=&qz=&qc=ev3rel&pw=100%25&ws=0&la=&si=1&fs=&qt=air+pollution&ex=&rq=0&oq=&qm=0&ql=&st=1&nh=10&lk=1&rf=1>

Upd8 ASE website –  
<http://www.upd8.org.uk/activity/160/Acid-rain-Britain-recovers.html>

### Session 1: Pre-fieldwork activities in the classroom

**Aim:** To understand the key sources of pollution and the distribution of pollutants within an urban setting. To be able to collect and analysis data and evaluate a method which studies local pollution; and to compare primary with secondary data.

Time	Teacher Activity	Student Activity / Differentiation	Resources
<b>Starter</b> (10 min)	Picture of London projected on board; Q - Describe this picture. Record adjectives on board. Smoggy / dirty? Picture of cyclist. Q - Why do they wear a mask? <i>Thus it is this smog / haze / pollution that you are going to be thinking about.</i> <b>Lesson title:</b> Pollution – where does it come from, can we measure it and who is affected?	Describe picture to partner Recall to teacher	London smog 1-picture Cyclist 2 picture
<b>Activity One</b> (20 min)  Presenting new information	<b>Q:</b> In London what are the main pollutants and what are the key sources? Give out Sheet 1. Summarise and ask for key pollutants and sources. Use pictures to help Q&A. A second sheet is available to consolidate knowledge ( <i>this is on the formation of acid rain</i> ), and this can be modelled on the IWB  Q - Where do the pollutants go? Why do we hear about them so much in the news? > give out/ show on projector news headlines involving pollution cases.  List on board where pollutants go and differing affects they have. Be sure to mention lichens as air pollution bio-indicators here.	Read information sheet. Answer questions.  Read headline and short articles and highlight answers using to different colours of where pollutants go and what affect they have on life.  (Lots of other K&U standing sheets can be used here from the SKEES project – these would take up to an hour).	Sheet 1: Directed reading  Sheet 2: Formation of acid rain Power station. and car exhaust (picture 3 & 4)  Sheet 3: Newspaper headlines – Word and projector.
<b>Activity Two</b> (20min)  Constructing problem and a method	Speaking couple putting problem forward... (use projector) Draw on board a plan diagram of the neighbours' locations What do pupils think in pairs; whom do they most likely agree with and how could they gain evidence to support their opinion? Using line diagram. <b>Prediction</b> – The amount of pollution will decrease further from the road, into the middle of the park. <b>Method</b> – Transect of trees away from the road into the middle of the park. Sample collection of black particles at each site (why will we sample?) NB*	Discuss with partner opinions and how it could be tested.  Pupils could write in books Sampling is representative measurement.	PowerPoint - Air pollution argument
<b>Activity 3</b> (5 min)  Sense of place	PowerPoint to give an overview of the site that the method will be tested in. This should give pupils a sense of place, also some historic background to where they will visit.  Health and safety discussed at this point also.	Listen and watch PowerPoint. Note down any physical evidence or data that is stated in the talk.	Sense of Place PowerPoint. Background information for teachers
<b>Plenary</b> (5 min)  Pupil review	Set homework. Ask: Why will we <b>sample</b> the Hackney Marshes for pollution? What organisms can be used to monitor air pollution? Name 3 pollutants and there sources.	Record homework. Think and answer questions.	

**Homework** – *Using the internet find relevant sites that list pollution data for the borough. Note down for last year when the highest and lowest SO<sub>x</sub>, CO and NO<sub>x</sub> days were. Find out which is the most and least polluted parts of England. Record all this in your exercise books.*

This allows for differentiation by outcome.

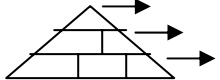
NB\* - The writing of methods could be developed into an individual lesson. If time permits, the class could be brought outside to a local site before designing the method to be shown how to identify a tree. Then Sellotape could be used on the tree and the particles could be looked at immediately after under the microscope. Discuss with the pupils how this method could then be used to sample all the way along a 'transect'.

**Session 2: Fieldwork****Aim:** To be able to collect evidence of air pollution in a consistent fashion.

<b>Time</b>	<b>Teacher Activity</b>	<b>Student Activity / Differentiation</b>	<b>Resources</b>
<b>Starter</b> (10 min)	Q - What is the prediction? How are we going to measure it? Note on boards Students to get into small groups. Each group to collect equipment and to distribute roles.  Review health and safety points again.	Read methods Pupils explain Pupils to form groups – key roles recorder, distance measurer, sampler, noise pollution monitor	Clipboard, recording sheet, long tape measure, selotape, slides, noise datalogger, tree id sheet, lichen key
<b>Activity One</b> Demo (20 min)	Model taking a sample on the bark using Sellotape. Use the data logger to measure sound and show what a transect is and how to measuring distances. Also discuss tree id and tree measurement (this might be too much for the groups to do?) Q; How are all these readings going to be kept consistent?  Split the class groups into 3 smaller groups. Start one group at bottom of transect one at top and one at middle. Walk groups to the furthest sample distance.	Listen  Think about keeping all readings consistent in the method	Teacher method sheet
<b>Activity Two</b> (20 min) Collecting data	Groups will the same tree more than once – why? Sample 12 sites, time permitting, in total along the transect. All groups will have some information along transect.  The distances between the stations could either be measured prior to the lesson and the trees marked using site numbers or by the pupils during the activity.	Pupils sample 12 sites.  Measure between the sites	Sheet 4: Individual results  Long measuring tape, trundle wheel
<b>Activity 3</b> (10 min)	Class to be brought together. Recording sheets need collecting and slides and particle sheets.	Return to school Give in recording sheets and equipment.	

Homework – *None set*

**Session 3: Post-fieldwork review in the classroom****Aim:** To be able to analysis class data and evaluate the experiment

Time	Teacher Activity	Student Activity / Differentiation	Resources
<b>Starter</b> (5 min)	<b>Lesson title:</b> <i>Is the air cleaner further away from the road?</i> Q - On board Where did we go? What did we do? What did you predict? If you have digital photos from previous session use these as a reminder, or in a story board.	Pupils explain answering these questions.	Digital photos
<b>Activity One</b> Demo and collecting data (15 min)	Have microscopes and hand lens distributed around the class. Using an OHP place slide onto and lay acetate with squares on top of it. Explain that we are going to sample the slides for the amount of black particles that we found. See method sheet on how to do this. Again this is a sampling technique. 'Sampling the sample' - Pupils attempt to do this using random numbers and working out an average % for each site (see more information on methods of this on teacher sheet). Pull class together. Note down on board problems with method.	Listen Observe  Go to apparatus and get a slide  Note down on sheet problems with method.	Microscope, hand lens, Slide with site sample, grid paper acetate, random number table.  Use worksheet
<b>Activity Two</b> (25 min)  Analysing Evidence	Distribute class results. Discuss. They are to find the average for each site. Ask pupils to draw graph for distance and particle percentage. Can a distance/ sound graph also be drawn? Could this be drawn on acetate to overlap? Would tree type and sound need to be added as extra columns on table? To analyse the graphs answer the questions on the 'analysis sheet' Discuss answers as a whole class	For lower attaining students the axis titles will need to be defined Draw graphs  Write answers on sheet	Sheet 5 - Class results and graph paper.  Sheet 6 – Analysis and Evaluation
<b>Activity Three Evaluation</b> (10 min)	Distribute evaluation sheet. Highlight the questions that will involve getting secondary data to back up your results by discussing the pollution monitors on the internet sites that have this information. Explain the task, found on the sheet. Pupils to discuss in pairs. Record answers and complete for homework.	Read questions and discuss in pairs	Sheet 6 – Analysis and Evaluation
<b>Plenary</b> (5 Min)	1) Review the objectives and 2) Ask pupils to review learning using follow pyramid-  What do I find difficult? What was new and okay? What did I already know?  Look at pyramids of pupils to get a feel for future lessons.	Pupils to complete triangle and to check homework	

**What might be taught next**

This website has a 10 minute video clip on monitoring pollution and the effects of air pollution on human health.

<http://www.research-tv.com/stories/health/airpollution/bb/>

## Air Pollution – Notes for Teachers

In this activity, pupils will analyse the pollution along a transect running away from a road into open space.

### Learning outcomes

Pupils will

Apply their understanding of air pollution sources to execute an investigation into the effect that black particulates have on a local environment and to consider the effect of other variables on these results.

Analyse and interpret individual and class data, to include evaluation of the data's validity and reliability

Evaluate their own methods

### 1) Planning

a) Introduction to the site

An introduction to the area and outline of the history and natural history of the site should precede the visit to the site. This research could be carried out and presented by pupils as a preparatory task.

If pupils are provided with knowledge of the basic techniques - choosing their sample sites, and sampling using sticky tape, the detailed planning of the investigation could be left to them. Planning would then involve planning investigations to be carried out in small groups or pairs, allowing a variety of methods to be discussed and evaluated later.

b) Choosing Sites along a transect running away from a road.

Collecting data along a transect is used to analyse changes along an environmental gradient such as going up a hill, or from the sea towards the shore. In this activity the environmental gradient is 'distance from the road'.

The ideal site for this activity is a road with some open space and trees close by, so the transect can run from the road into open space. A map of a suitable site could be downloaded from the Internet, or traced from a large-scale commercial map, and transects marked onto the map.

Line transects are marked e.g. with a long rope or tape-measure along the gradient. With line transects, samples are taken only along this line, at pre-determined intervals. Belt transects are similar, but are wider areas to be sampled along the gradient. In this case, trees will be sampled going back from the road across a wide area, so the sampling is more similar to a belt transect.

Sampling along the transect can be done by choosing similar species of trees along the transect (in this case at a range of different distances from the road). For example, one group could sample all the plane trees; another group could sample all the silver birch trees. Alternatively, mark sites to sample at equal distances along the transect. Both methods may be quite difficult; as trees at some sites may be widely spaced, a clear sequence of trees at regular intervals from the road along your transect may not be present. In this case it may be necessary to sample as many trees as possible in a wider sample area. This will introduce additional factors, such as proximity to other roads, which a straight transect attempts to eliminate. For this reason, pupils should collect as much data as possible about individual trees and their position within the site, so any anomalous results can refer to this data later.

c) Planning the investigation

Points for discussion during planning

Choosing the transect: which factors are changing along the transect (independent variable), and which factors are being kept the same as far as possible (controlled variables)? What will you be measuring (dependent variable)?

Sampling: How will you make sure your data is valid (repetition, standard procedure e.g. same height from ground, same aspect/ or take samples from all round circumference of tree), same type of sticky tape/ technique for applying same pressure each time you take a sample.

How will you keep your sticky tape samples safe, and in the correct order?

## 2) Suggested methods

### a) At the site

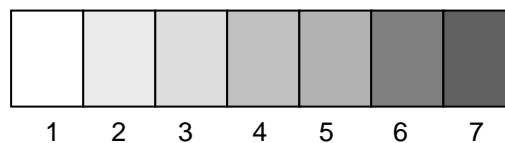
The species of the tree should be identified. A sample of particles is taken 2m from the base of the tree using sticky tape. A 2cm length of sticky tape is placed firmly onto the bark of the tree, and then removed. Soot and other particles from the air will have adhered to the sticky tape, along with debris such as loose bark and moss from the tree. Several samples should be taken (repetition), and discussion of how many repeats are needed is useful when planning.

One sample should be placed on a slide the others on the correct positioning of the results paper. Girth measurements of tree may be taken and recorded. Distance from road to first tree may be recorded Lichen may be observed and recorded noted down in the table. Lichens leads to a separate but linked investigation which is discussed in <http://www.nhm.ac.uk/jdsml/nature-online/lichen-id-guide/twig/pollution.html>. A data logger may be used to record the sound pollution.

### b) Measuring pollution back in the lab

To measure the pollution on the sticky tape, the sticky tape samples are stuck onto a slide, and examined under a microscope. Mini quadrats should be made by photocopying graph paper onto acetates. An acetate grid should be laid over the pollution sample (sticky tape) and by choosing random coordinates the percentage frequency of black particles should be noted in the results table. Soot particles should be recorded, but bark and moss should be ignored. Hand lens and/or junior microscopes may be of use. Samples could be taken on the leaves instead/ as well as the bark of the tree. Instead of the ACFOR scale a colour scale could be used. Numbers would be assigned to the scale similar to pH indicators (see example beneath).

#### Colour scale to measure particles within a sample



An average from the samples for each site should be found and recorded, thus the 'sample should be sampled'.

The quantifiable data that will be collated and distributed to the class could include; distance along transect, percentage cover/ colour scale and sound recording. Along side this would be the qualitative information that the pupils collected at the sites.

## 3) Data analysis

It is advised that the results should be brought together from each group outside lesson time, to give one picture along the transect to analyse. This may not be possible if individual investigations have been carried out. Alternatively, pupils can produce their own presentations of their data as a follow-up from the data collection activity, and these can be discussed and evaluated by the class.

The sites/ trees used may be different between the groups but a spread of data along the transect should be extracted. (The only way to know if groups use exactly the same tree is if GPS is available, to log coordinates at each station, or the trees are labelled prior to the session).

The data can be put into a spreadsheet to be analysed or can be plotted in a graph by hand having distance from road along the x-axis and average percentage of particulates along the y-axis see exemplar materials in field materials folder. Sound could be also place on the opposing y-axis. Analysis worksheet could be used as prompts for the pupils to analysis the data and consider the social/ environmental aspect.

## 4) Evaluation

This investigation has many interesting areas to consider and really highlights the real work of scientists in the 'real world'. Pupils can use the prompt questions (evaluation worksheet 4) to consider how appropriate the methods were and the difficulties of controlling variables.

## Hackney Marshes (Hackney) - Site background Information

### Location

Hackney Marshes can be most easily accessed from the Marshgate Bridge end of Homerton Road. Grid reference TQ367854

### History of site

Sited at the side of the River Lea, Hackney Marshes was historically vulnerable to flooding. The construction of the River Lea Navigation canal in 1794 helped to reduce this flooding risk. Before 1894, land at Hackney Marshes was Lammas fields. Local people had the right to graze livestock on the land after grass had been cut for hay.

After Hackney Marshes came into public ownership in 1894, the land was increasingly developed for recreation. Many trees were planted around the edges of the marshes, including a row of 40 plane trees along Lea Navigation and groups of native black poplars on Homerton Road (six to the north and six to the south). This collection of black poplars is unique in London. Football pitches and changing rooms were also constructed. At one time there were 120 football pitches laid out, although over a third of these have now been lost. Hackney Marshes was an early training ground for many famous footballers including Bobby Moore and David Beckham.

Another use for the marshes in the late nineteenth century was rubbish dumping. Pottery and china dating from this period are sometimes found when holes are dug to plant trees. Bomb rubble was dumped on the Main Marsh, but not Wick Field, after World War Two. This is one of the reasons why trees grow more quickly on Wick Field; they do not have to push their roots through rubble unlike the trees on the Main Marsh.

Wick Field, on the south side of Homerton Road, was planted as a Community Woodland between 1996 and 2000. A variety of species, including hazel, silver birch, ash and willow, were chosen for their value in attracting wildlife. Wide paths and the area at the centre of Wick Field were kept clear of trees to provide open space for birds, butterflies, squirrels and foxes. Keeping areas open encourages species of plants to grow which can better compete in the light, such as white dead-nettle and hedge mustard, as well as woodland plants.

Hackney Marshes has been affected by building throughout the twentieth century. For example, a row of ash trees at the edge of Wick Field was chopped down when the M11 Link Road (the A12) was built in the late 1990s.

The future of Hackney Marshes is uncertain. Plans for the development of buildings for the London Olympics in 2012 threaten several parts of the site.

Arena Field, to the south of Wick Field, is planned to be used as part of the Olympics Precinct. East Marsh, east of the River Lea, may be used as a car and coach park. A travellers' site at nearby at Waterden Road may be relocated to a site on Main Marsh between Homerton Road and the Tree Nursery.

## **Wildlife**

There are several distinct habitat areas for wildlife in Hackney Marshes. Open grassland and meadow is particularly important in the Main Marsh, where it is actively managed by mowing. The football pitches and paths are mown weekly in the summer. Longer grass areas which in some cases are only cut once a year is cut around the edges. Plants which can tolerate trampling and mowing, such as daisies and hawkweed, are found in the short grass. These support insects and small mammals such as rabbits. Birds such as geese, woodpigeons, gulls and kestrels use the football pitches for feeding. The longer grassland allows plants to grow taller and to form flowers and seeds. The seed heads of teasel and thistle attract birds such as goldfinches. Ants colonise the long grassland.

The most extensive area of woodland is in Wick Field. This was planted in the late 1990s as open woodland with a variety of species chosen. Along the paths and in the open areas grow taller plants, such as burdock (with sticky seeds) and rosebay willowherb. Butterflies move along the paths and magpies and green woodpeckers feed on the ground where the grass is shorter. The height of the understorey vegetation underneath the canopy depends on the tree species. Ash trees have limited undergrowth because the leaves do not allow much light to reach the woodland floor, while silver birch trees with smaller leaves allow more light through, and a greater amount of undergrowth.

## **Site web address**

[www.hackneyenvironment.org.uk](http://www.hackneyenvironment.org.uk)

No education officer on site.

## RISK ASSESSMENT PRO FORMA 2006

Activity/Situation <b>Particulates study. Hackney Marshes; Marshgate Bridge</b>							Date of Assessment: Tuesday 30 <sup>th</sup> May 2006											
HAZARDS IDENTIFIED Grouped by Outcomes		PERSONS AT RISK FROM EXPOSURE TO HAZARD					RISK RATING WITHOUT CONTROLS IN PLACE	WITH CONTROLS IN PLACE										RISK RATING WITH CONTROLS IN PLACE
								A					B					
								WORST CASE OUTCOME					LIKELIHOOD /PROBABILITY					
NO.		Employee	Students	Visiting staff	Public	ALL	Worst Case Outcome	1	2	3	4	5	1	2	3	4	5	(A x B)
1	Slips, trips and falls – walking to site Narrow footpath	x	x	x			4x3=12				4			2				8
2	Slips, trips and falls – doing activity Roots and tall grasses	x	x	x			2x3=12		2					2				4
3	Hazardous Substances – Soil Borne diseases	x	x	x			5x2=10					5	1					5
4	Hazardous Substances – Fungi	X	X	X			4X2=10				4		1					4
5	Hazardous Substances – Glass, litter, faeces, syringes					X	5x4=20					3		2				6
6	Harmful plants		x				5x3=15					5	1					5
7	Manual Handling - Carrying equipment	x	x	x			4x2=8				4			2				8
8	Weather – Extreme cold					x	5x2=10					5	1					5
9	Weather – Extreme sun/ hot					x	5X2=10					5	1					5

10	Weather – High wind Tree branches/ dead wood					x	5x2=10					5	1					5
11	Cyclists within park	x	x	x			5x3=15					5	1					5
12	Strangers		x				5x2=10					5	1					5
13	Getting Lost		x	x			5x3=15				4		1					4
14	Gardeners machinery – tools on path or adjacent to path	x	x	x			4 x 2 = 8			3			1					3

This pro forma does not replace school policy risk assessments. This can be used for guidance only. Site must be visited and assessed by teacher leading activity.



No	Risk Rating	THESE CONTROL MEASURES ARE TO BE IN PLACE. LEADING TEACHER TO ENSURE ACCOMPANYING STAFF AND ADULTS ARE CLEARLY BRIEFED, <b>BEFORE</b> THE START OF THE ACTIVITY REGARDING THEIR SUPERVISORY ROLE + ACTION TO TAKE IF ANY PROBLEMS OCCUR	Is additional action req'd <b>Yes / No</b>
1	8	Safety talk given previous to leaving; walk in no more than pairs and single lane if obstacle on footpath. Staying in pairs along path. No running. Suitable footwear worn.	No
2	4	Safety talk given previous to leaving school. Pupils to look where they are walking, especially in long grasses. No running and to walk with care. Suitable footwear worn.	No
3	5	Safety talk given and symptoms told to pupils. All are to wash hands at end of session. Pupils told not to touch faces or put fingers near mouths.	No
4	4	Safety talk given. All pupils told not to eat any fungi seen, or berries etc.	No
5	10	Site to be used to be surveyed by group leader prior to lesson. Items should be removed using gloves or activity re-sited. In safety talk pupils must be told that they must not touch any item found and to be careful when on site. Pupils told not to put fingers in mouth or to eat. All to wash hands after. Pupils to report any item found to adult. Adult should remove item using gloves or ask pupils to move.	No
6	5	Safety talk given on not eating berries etc. and being aware of nettles. Show nettles to pupils when on site.	No
7	8	Pupils shown how to use and carry quadrats, long tapes etc. Pupils supervised at all times.	No
8	5	Pupils to be told to bring appropriate clothing; waterproof and extra layers. Teacher to monitor weather conditions. Play warming games if necessary	No
9	5	Pupils to be told to bring sun cream, sun hats and bottled water. Teacher needs to monitor weather conditions. Shade should be sort to work in where appropriate.	No
10	5	Pupils to be made aware of risk. Teacher to monitor weather conditions and change locations as appropriate.	No
11	5	Tell pupils to be aware of others using park in safety talk.	No

12	5	Pupils to be advised that the park is a public space. Told not to talk to strangers and to stay with partner/ group. Report any incidents to members of staff.	No
13	4	Safety talk: group told to stay together. Pupils told to stay still if lost. Pupils and assistants to be told approx. length of activity. Mobile to be carried by lead teacher.	No
14	3	<b>Insist</b> that students do not touch any tools/machinery that they see.	No

**Assessment carried out by:** Melissa Glackin (FSC) and Andrew Turney (FSC) April 2006

This pro forma does not replace school policy risk assessments. This can be used for guidance only. Site must be visited and assessed by teacher leading activity.

**Teachers/ group leaders before taking a group should:**

1. Re-read school own 'off-site' policy
2. Carry a mobile that has reception at the site
3. Carry telephone numbers for the school office where pupil details are stored
4. Carry a basic first aid kit
5. Check the adult: pupil ratio is correct
6. Carry an up-to-date register


**First Aid kits should contain –**

- 1 first aid guidance leaflet
- 10 waterproof plasters
- 2 triangular calico bandages
- 1 large sterile dressing pad (18x18cm)
- 1 medium sterile dressing pad (12x12cm)
- 2 pairs of vinyl gloves (medium)
- 2 antiseptic wipes (alcohol free)
- 2 safety pins

## KEY TO ASSESSMENT FORM 2006

### PEOPLE AT RISK

KEY	DESCRIPTION
EMPLOYEE	EMPLOYEES INCLUDING VOLUNTEERS
STUDENTS	<u>ALL</u> students working with FSC
VISITING STAFF	All teachers / lecturers / adult helpers with groups
PUBLIC	When the general public have access to the area being Risk Assessed
ALL	All persons who are exposed to the hazard

### SEVERITY OF OUTCOME

KEY	DESCRIPTION	GUIDANCE
1	Slight inconvenience	Verbal reassurance given, able to continue with activity
2	Minor injury	Requires First Aid, may be able to continue with activity
3	Injury / Illness	Medical attention required, unable to continue with the activity
4	Major Injury	As defined by RIDDOR, hospitalisation required, use of emergency services
5	Fatality, Multiple Injury	As defined by RIDDOR, injury may lead to a disability

### LIKELIHOOD / PROBABILITY OF INJURY TAKING PLACE

KEY	DESCRIPTION	GUIDANCE ON DEFINITIONS
1	Highly unlikely to occur	
2	May occur	Rarely
3	Does occur	Not frequently
4	Occurs	From time to time
5	Likely to occur	Often

#### **NOTE**

**When the final risk rating score is 8 or 9 everyone must be made aware of the hazards and the activity should be modified to lower the risk. If the score is 10 or higher the activity must cease .**

The information given on the definitions can only be used as guidance and should not be referred to as the definitive version.