Managing Me: Risk and Safety
Suggested Year: 8

This unit introduces the importance of risk and safety in our everyday lives. As pupils start to study Science, they will face risks in the laboratory. This unit explores risk and safety at home and in the laboratory. It encourages pupils to identify possible risks and the steps that can avoid or minimise these risks.

The unit is suitable for pupils at the start of Year 8 when they are unfamiliar with the laboratory and the associated risks. It will help to encourage safe practice as they move forward with Key Stage 3 Science.

Statutory topic covered in this unit

» Organisms and Health
» Chemical and Material Behaviour

Unit links to the Big Picture

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Classroom Activities

Activity 1: Risk

Activity 2: Risk in the Laboratory

Activity 3: Risk at Home

Activity 4: Poisons

Activity 5: Evaluation
Activity 1: Risk

Learning Intentions
Pupils are learning to identify differences in the types and levels of risk.

Suggested Activities
Ask the pupils to make a list of different things that could go wrong in various situations and write these on cards for sorting later. They could consider contexts such as:

» different kinds of accidents;
» dangerous weather conditions; and
» suffering from an illness.

Alternatively, give the pupils cards with different unfavourable events on them. Ask the pupils to sort these events and consider the following questions.

» What is the best way to order the events?
» What do we have to consider to know where they fit?
» How do we explain why we put them in this order?

In groups or as a whole class, discuss the risks that we can do something about (known as our zone of control) and those that are outside our control. A consequence wheel or art spiral activity (outlined in the Active Learning and Teaching Methods booklet) could be useful here.
Activity 2:
Risk in the Laboratory

Learning Intentions
Pupils are learning to:
» identify the safety precautions in the laboratory;
» understand why each rule is necessary;
» explain why hazard symbols are used;
» identify common hazard symbols and state their meaning; and
» explain what to do if an accident happens.

Suggested Activities
To structure pupil discussion and planning for safe working in the laboratory, you could use the following activities (outlined in the Active Learning and Teaching Methods booklet):
» five questions (starting with ‘Why do we need to work safely in the laboratory?’ and ‘How can we work safely in the laboratory?’); and
» hot air balloon.

Resulting from these discussions, the class decides on a top 10 list of safety precautions and safe ways of working. Discuss why the safety precautions are important and what can happen if they’re not followed. You might choose to highlight other risk factors that pupils haven’t mentioned.

Create contracts that set out laboratory safety rules. The pupils write and sign the safety contracts for working in the laboratory and take them home for their parents or guardians to sign.

Show the class a picture of pupils in a laboratory, like the one available at www.shonscience.com, and ask them to identify the incorrect laboratory procedures and safety hazards. Then explore warning signs in nature, such as the black and yellow colouring of bees and how this links to the colour of the hazards symbols.
Discuss with the pupils why warning or hazard symbols are needed. Ask them to look at hazards symbols, available at www.bbc.co.uk/schools/gcsebitesize, and work out what they mean and where they might be found. The pupils can then design safety posters to be displayed in the laboratory.

Explain to the pupils what they should do if an accident happens. This should include telling the teacher and following basic first aid procedures and fire-fighting measures.

The following websites include information and resources that you might find useful for this lesson.

» Lab Safety Rules for Students available at www.uft.org
» Mr Thackwray’s Lab Safety Rules available at nobel.scas.bcit.ca/debeck_pt/science/index1.htm
» Health and Safety Resources available at www.ase.org.uk
(You will need to become a member of the Association for Science Education to access all the resources on this website.)
Activity 3: Risk at Home

Learning Intentions
Pupils are learning to:
» understand that there are many hazards at home;
» stay safe at home;
» carry out a risk assessment at home; and
» identify measures to prevent accidents.

Key Stage 4 Link (Good introduction to writing a risk assessment)

For any of the following research activities that the pupils carry out at home, please emphasise that they must not leave containers open or within reach of young children.

Suggested Activities

Ask the pupils to find phrases like ‘allergy tested’, ‘hypoallergenic’ and ‘active ingredient’ on the labels of household products. Ask the pupils to discuss what these phrases mean. This will allow them to see that some products can have a potential health warning, while others do have a definite health risk indicated by hazard symbols.

Task the pupils with searching for hazard symbols at home and recording their findings, for example correction fluid has a highly flammable symbol on its packaging.

Pupils can then carry out a creative matrix activity (outlined in the Active Learning and Teaching Methods booklet) to discuss hazards at home.

<table>
<thead>
<tr>
<th>Where?</th>
<th>Kitchen</th>
<th>Bathroom</th>
<th>Garage</th>
<th>Garden</th>
<th>Stairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard?</td>
<td>Electrical</td>
<td>Poison</td>
<td>Fire</td>
<td>Fall</td>
<td>Water</td>
</tr>
<tr>
<td>Affecting?</td>
<td>Babies</td>
<td>Young children</td>
<td>Teenagers</td>
<td>Adults</td>
<td>Elderly people</td>
</tr>
</tbody>
</table>
Using the above matrix or one similar, ask the pupils to choose combinations of location, hazard and people affected. Then ask the pupils to give examples of the different combinations, for example a young child could access bleach in the bathroom or an adult could cause a chip pan fire in the kitchen.

For each combination, pupils list how the risk could be reduced. Before this activity, you could prepare some media sources (such as videos or newspaper articles) that report one of the above combinations. Pupils can then carry out a home safety inspection by creating a list of checks to make their home a safer place.

The following websites include information and resources that you might find useful for this lesson.

» www.safekids.org
» Preventing Accidents in the Home available at www.rospa.com
» Preventing accidents at home available at www.nhs.uk
» Home is where the greatest accident risk is, warns top A&E doctor available at www.theguardian.com

You could also invite a speaker from the Northern Ireland Fire and Rescue Service, Northern Ireland Electricity Networks or another similar organisation to talk about safety in the home.
Activity 4: Poisons

Learning Intentions
Pupils are learning to:
» understand what a poison is;
» identify some everyday poisons including carbon monoxide and radon; and
» explain what happens to our body when we absorb these poisons.

Suggested Activities
Ask the pupils to work in groups to discuss their answers to questions such as:
» What is a poison?
» What do you know about carbon monoxide?
» What do you know about radon?
» How does our body deal with poison?
» How can the same substance be used as both a poison and a medicine, for example warfarin and digitalis?

The pupils could carry out a carousel activity (outlined in the Active Learning and Teaching Methods booklet) to answer the questions.

As part of the debriefing, the pupils discuss what they already know and what they still want to find out. Rearrange the groups according to which of the above questions the pupils are most interested in.

Each group goes to a work area where a range of information (books, magazine and newspaper articles, and resources downloaded from the internet) is available for them to explore further their chosen area of expertise.
The pupils take time to plan their research by following these steps:

» clarifying what they want to find out;
» deciding which of the information sources provided are most appropriate;
» reading, viewing or listening to the information sources available;
» extracting the most relevant and interesting information; and
» deciding how to organise and present this information. (This could help them prepare for the hot seat activity that follows.)

Each group then makes a presentation to the class about their research. This could be done as a hot seat activity (outlined in the Active Learning and Teaching Methods booklet) where each group takes questions from the class. Alternatively, one pupil from the group could answer the questions, calling on their group’s expertise as needed.

The following websites include information and resources that you might find useful for this lesson.

» [www.carbonmonoxidekills.com](http://www.carbonmonoxidekills.com)
» [Radiation](http://www.hpa.org.uk) available at [www.hpa.org.uk](http://www.hpa.org.uk)  
  (This website would be more suited to your background research.)
» [Baby and toddler safety](http://www.nhs.uk) available at [www.nhs.uk](http://www.nhs.uk)
» [Radon](http://www.forensic-applications.com) available at [www.forensic-applications.com](http://www.forensic-applications.com)
Activity 5: Evaluation

Learning Intentions

Pupils are learning to reflect on the information they have learned and the changes they have made to their behaviour as a result.

The following suggested questions cover the Assessment for Learning strategies of self-assessment and effective questioning.

» What risks are you aware of now that you weren’t before?
» How do you ensure that you stay safe when working in the laboratory?
» Have you taken steps to make your home a safer place?

Pupils could take part in a revolving circle activity (outlined in the Active Learning and Teaching Methods booklet) to share their responses to the above questions with each other. You should chair a class debriefing to complete this topic. The pupils might have further questions that need to be explored.