

→ X12 Finding the time

See page 39 in your textbook to find out how to use this file to help you manage your science learning time.

Programme for the week:							
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8–9 am							
9–10							
10–11							
11–12							
12–1 pm							
1–2							
2–3							
3–4							
4–5							
5–6							
6–7							
7–8							
8–9							
9–10							
Notes							

→ X13 Meeting the challenge

Use the first sheet to help you start the development of your challenge. After you have done your investigation, complete the second sheet. The question numbers correspond to those on page 59 of your textbook. If you work on screen, the boxes will expand to take your answers.

Challenge:	
1a What are the main issues involved in your challenge?	
1b List the <i>specific</i> questions we want to answer in relation to the investigation	
2a What are the expected outcomes for our programme?	
2b What do we expect to produce at the end of the activity?	
3a What needs to be done?	
3b What material resources do we need?	
3c What human resources do we need?	
3d Develop a timetable for action. Who does what, and by when?	

Now do the investigation. When you have finished this, complete the second sheet.

<p>5a What general conclusions can you draw from your investigation?</p>	
<p>5b What went well?</p>	
<p>5c What could have been done better?</p>	
<p>6a How does your investigation relate to the outside world?</p>	
<p>6b What job or career opportunities follow from your investigation?</p>	
<p>6c How can you find out more about these job or career opportunities?</p>	

You can now download activity sheet X5 'Presentation' to help you with question 7, presenting your report.

→ X14 Risk assessment

Before people begin to do anything that might be hazardous, they are expected to carry out a risk assessment. Identify something that you do in school that might be hazardous.

This activity sheet takes you through the initial steps outlined by the Health and Safety Executive. The question numbers correspond to the items on page 66 of your textbook.

If you work on screen, the boxes will expand to take your answers.

Activity:	
1 What hazards are there that might harm people?	
2a Who might be harmed?	
2b How might they be harmed?	
3a What precautions already exist?	
3b What is the risk under normal conditions (low, medium or high)?	
3c What more needs to be done?	
3d Who must do this, and by when?	

→ X15 Assessing reports

This sheet is based on the activity 'Assessing reports' on page 104 of your textbook. A report 'Power lines and childhood cancer' is provided below. Read the report.

The questions you might ask about this are listed on this sheet. Although you are unlikely to get answers to all of them, you may get enough information to decide whether the report is reliable or not.

Do the activity on your own first, then compare your answers with a partner, and come to an agreed response.

Power lines and childhood cancer

Children who live near overhead power lines have an increased risk of getting leukaemia, according to new research published in the British Medical Journal.

About one child in 2,000 in Britain will develop leukaemia before they're 15 years old.

But scientists still don't know exactly what causes the illness and the report has caused some confusion.

The latest study published in today's British Medical Journal, says that leukaemia rates are significantly higher among children who live close to power lines.

But the report's authors say more work is needed to prove that the link is not coincidental or affected by other factors.

This morning, Breakfast asked: what does the study mean?

First we spoke to Professor Gerald Draper of the University of Oxford Childhood Cancer Research Group who is one of the report's authors.

He told Breakfast 'We think it could be a coincidence, but it could mean something real. We really don't know, so it seemed that we ought to publish the results so that people could think about all possible explanations.'

He added that the report had only been published today because some of the results had been leaked.

However, he did confirm earlier research which establishes a 'possible' link between power lines and the very small number of leukaemia cases very close by.

But he said cases found further away, at distances of 600 m, could

NOT be linked because the magnetic field would be very weak.

The report

The Childhood Cancer Research Group looked at nearly 10 000 cases of childhood leukaemia, in those born from the early 1960s to the mid-1990s.

It found that children living within 200 m of high voltage overhead lines ran a 70% greater chance of developing leukaemia than other children.

No excess risk was found for other forms of childhood cancer.

Researchers found that 64 children who'd developed leukaemia lived within 200 m of an overhead power cable. That's around 5 cases more each year than they'd have expected.

Cause and effect

In the past, evidence suggested that low frequency magnetic fields, generated by high voltage cables, may be implicated in some way – a theory which hasn't been endorsed by the Childhood Cancer Research Group.

They point out there may be other factors at work, as overhead power lines are often found in less densely populated areas.

The social class of those involved is also higher than average in Britain.

It's possible that the findings are due to chance, or to other

environmental factors – including social class, pollution, diet or housing. A definitive link between magnetic field, power lines and cancer has not been proven.

Our reporter Sarah Campbell spoke to residents in Beckton, East London, who live close to overhead power lines.

Campaigner, Eddie Gorman's son Paul, died from leukaemia in 1987, at the age of 14. He blames the electricity sub station at the bottom of their garden for his son's death.

He said: 'We are saying to the government, don't add to problems that may be out there. Do not build homes – maybe hospitals – under these power lines.'

But we also spoke to Dr David Grant, director of the Leukaemia Research Fund. He told us he thought the higher incidence of leukaemia near pylons was a coincidence.

He said: 'If there is a link – and we think that there isn't – but if there is, it accounts for only one case in a hundred a year.'

He also said that research was now suggesting that some form of assault on the immune system when a child was very young was a more likely cause.

BBC News, 3 June 2006
<http://news.bbc.co.uk/go/pr/fr/-/1/hi/programmes/breakfast/4603043.stm>

8 How important is the report to me? To others in the local community? To people in Northern Ireland?

9 Any other comments?

→ X16 Famous scientist or engineer

Use books or a search engine to find out more about Frank Pantridge, or any other Northern Ireland scientist or engineer, such as those listed in Unit 11.6 on page 190 of your textbook. If you are using this file on screen, you may be able to copy a picture of the scientist onto the page. You will meet many other famous scientists and engineers in this book. If you work on screen, the boxes will expand to take your answers.

1 Name of the scientist or engineer		Picture
2 What is this person famous for?		
3 When was this person born?		
4 Where?		
5 What changes happened at the time as a result of this person's work?		
6 How has the work of this person changed our lives?		
7 Any other interesting information about this person.		
8 If you could meet this person, what question would you like to ask him/her?		

→ X17 Local scientist or engineer

Use a search engine to find out more about a present day Northern Ireland scientist or engineer. If you are using this file on screen, you may be able to copy a picture of the scientist or engineer at work on to the page. If you work on screen, the boxes will expand to take your answers.

1 Name of the scientist or engineer		Picture
2 What is this person famous for?		
3 When was this person born?		
4 Where?		
5 What changes happened at the time as a result of this person's work?		
6 How has the work of this person changed our lives?		
7 Any other interesting information about this person.		
8 If you could meet this person, what question would you like to ask him/her?		

→ X18 Using success criteria

At the beginning of every unit in this book is a box starting with the words *In this unit, we are learning...*. These are the aims – or learning intentions – for the unit. For example, in Unit 12.5 you should learn *the importance of staying safe in the sun*.

You obviously need to know what you are expected to learn – but how do you know if you have succeeded in learning this? You can usually break the aim down into a number of success criteria – what you can do to demonstrate that you have learned. For example, from Unit 12.5:

Aim / learning intention We are learning	Success criteria I can	tick
.... the importance of staying safe in the sun	<ul style="list-style-type: none"> – list the damage the sun can do to your skin (for example: burning, blistering (temporary damage), possibly skin cancer (permanent damage)) – say how to protect yourself from this damage (appropriate clothing, adequate level of sun screening) – say what to do if you get too much sun 	

Now choose an aim / learning intention from the unit you are studying now. Write the learning intention in the left column below. Decide what you think are the best success criteria, and write these in the centre column. Place a tick in the right column when you feel you have achieved each criterion.

Aim / learning intention We are learning	Success criteria I can	tick