The use of sound to develop an understanding of environments

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Soundscapes

Sound is a dimension to work in geography that has several facets. Three of these are:

- **background music:** the use of to evoke the mood of an environment
- **planning issues:** the spatial dimensions of noise, e.g. aircraft or traffic noise
- **experiencing an environment:** sounds that are an essential part of an environment, e.g. in a rain forest (or during field work).

Sounds on video/DVD can add to the realism of a place. There are also sounds during field work, when the pupils can be made to listen! It is a dimension that the use of ICT can facilitate, either played directly through a player, or when embedded in a program such as PowerPoint, Opus or even in Word.

Although watching and listening can provide a more complete experience than just watching, perhaps there are times when the **sound itself** should be the focus of attention. Although we have a geographical language to describe the visual appearance of landscapes, perhaps a similar language is also needed to describe sounds in the environment (see below).

In the UK, a government project was begun in 2002 to create a **sound map for England**. The images (below) come from the Defra web site. They show the results of sound mapping for London. The map is interactive and can be searched by post code, street or grid reference. With minimal equipment (a sound meter), this could be the topic for local enquiry work.

**Sound words**

- loud, quiet, deafening, melodious, thundering, shrill, soft, piercing, thud, swish, clatter, noisy, reverberating, silence, din, racket, blare, blast, clamour, harmonious, background, whine, drone, gurgling
Classroom ideas for using sound

These ideas aim to provide a few starting points for geographical work that can be done using different types of sound. Files for these activities can be found on the workshop CD.

River sounds
Listen to recordings of rivers in different parts of their course.
- What words can be used to describe the sounds?
- How do the sounds differ at different sites along the river?
- What can explain the different sounds?

Weather sounds
Listen to different types of weather sounds.
- What types of weather might it be?
- Where might be a typical location for this type of weather?
- At what time of year might it be?
- What might be the effects of this type of weather?

Animal sounds
Different animals inhabit different types of environment.
- What can these sounds tell you about the ecosystem?
- Why do the animals make these sounds?
- Are any of these animals endangered species?

Traffic sounds
Listen to traffic noise from different parts of a city and in different cities.
- What types of traffic noise can you hear?
- What clues do they give you about where they might have been recorded?
- How can people be protected from traffic noise?

Aircraft noise
Aircraft noise is a particular issue near airports, though the effects can be experienced at considerable distances from an airport. Noise contours can be mapped and analysed to see how many people are exposed to different levels of noise.
- How do aircraft noises differ, between different types of aircraft (engines) and at different times during a flight, and how does aircraft noise compare to traffic noise?
- How might people’s lives and quality of life be affected by aircraft noise?
- How is an airport’s operations affected by controls on noise?

Sound CDs
A range of sound CDs can be bought from record shops. These can be, for example, of waves, different seasons, animals (dolphins). Some are intended for the ‘relaxation’ market, but may have some value for work in geography.

The ‘Spirit of the Forest’ (Terry Oldfield) is a CD that simulates the sounds of a tropical rain forest. Synthetic sounds and pan pipes are used to create a soundscape over a period of time during a typical day using sounds of a rainstorm, birds, animal calls and a flowing river. The effect could be appreciated either with or without accompanying images.
Web sites

These web sites provide sources for different kinds of sounds. Most can easily be downloaded. Some may require some editing. Basic editing software can be downloaded from the web. The Audacity program will allow you to edit sound files. This is a free download.

Audacity: sound editing software
http://audacity.sourceforge.net/

Partners in Rhyme: a source of sound files that are sold but can be downloaded and edited to remove an advertising voiceover.
http://www.partnersinrhyme.com/soundfx/citysounds.shtml

Rain forest sounds
http://www.christiananswers.net/kids/sounds.html

Rain forest sounds
http://tropicaltreefarms.com/

Find sounds
http://www.findsounds.com/types.html

WebPlaces

Antarctica sounds

The rivers of Guianas: expedition with video
http://www.worldwildlife.org/expeditions/rivers/sights.htm

A sound map of the Hudson river

Acoustic Ecology Institute (USA site)
http://www.acousticecology.org/urban.html

The British Library Sound collections
http://www.bl.uk/collections/sound-archive/wild.html

Cambridge Environmental Sound Consultants: maps of a noise study of Cambridge.
http://www.cerc.co.uk/services/noise.htm

DeFRA noise mapping: includes an interactive noise map of London
http://www.noisemapping.org/

DeFRA: general ideas about noise in the environment
http://www.defra.gov.uk/environment/noise/

EU Directives on noise
http://www.europa.eu.int/comm/environment/noise/home.htm

The RANCH project; effects of aircraft and traffic noise on children’s cognition and health.
http://www.ichs.qmul.ac.uk/RANCH_Project/index.html

Mobile Bristol
http://www.mobilebristol.com/flash.html
**Noisy neighbours**

This activity involves thinking about the kinds of sounds that can come from different types of land use. The idea is to locate the types of land use on different parts of the diagram. Labels on the axes could be changed to show different aspects of noise, such as length of duration etc. A diagram such as this could be used to work out the extent to which a type of land use is likely to cause annoyance or perhaps a noise that someone might like to live near. Natural sounds could also be added to the diagram.

**Activities**

- Think about the types of sounds that can come from these types of land use. Place the types of land use on the diagram in places where you think it is appropriate, e.g. the noise from a quarry can be loud and dull when there is blasting or when heavy lorries pass by.
- Change the labels on the axes, for example, one axis could be for continuous noise through to intermittent noise, then repeat the activity.
**Sounds around us**

**Activity**
Look at the photos. For each photo, choose no more than three words that describe the types of sound you would hear at each place. You can add your own words to the list.

**Sound words**
- loud
- quiet
- deafening
- melodic
- thundering
- shrill
- soft
- piercing
- thud
- swish
- clatter
- noisy
- reverberating
- silence
- din
- racket
- blare
- blast
- clamour
- harmonious
- background
- whine
- drone
- gurgling

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<td>Weir on a river</td>
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<td>Children’s playground</td>
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<td>Shopping mall</td>
<td>Waves on rocks</td>
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<td>A city tram</td>
<td>Wind turbines</td>
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Under the flight path

This activity makes use of the Google Earth web site by using its vertical air and 3-D images. The Smartboard recorder tool can be used to make a video clip (.avi file) to simulate an aircraft’s track along a flight path to an airport, both for take-off and landing. The images can then be used to map and analyse land use under the flight path to identify the number of people who may be affected by aircraft noise. Pupils can do the same activity at different airports. Places where there is detailed vertical air photo coverage are the best, though the less detailed satellite imagery could also be used.

Activities

- Study the oblique and vertical air photos for the land beneath the flight paths that lead to and from the main runway at Birmingham airport.
- Draw a map or line drawing to show the types of land use that would be affected by aircraft noise.
- What types of land use would you not allow beneath the flight paths?
Mobile Bristol

The notes below are taken from the Mobile Bristol web site. The project describes how mobile technologies are being used to help children engage more fully with their environment, including the use of sound.

http://www.mobilebristol.com/flash.html

The objectives of ‘A New Sense of Place?’ are:
• to understand the potential effect of new wireless technology on children’s spatial practices in the city, engagement with and access to their outdoor environment
• to investigate the relationship between physical and virtual geographies
• to understand children’s interpretations of space
• to understand the role of geographical information in soundscape geographies
• to develop a methodology for exploring the use of a technology that encourages children to reengage with their outdoor physical environment

“A New Sense of Place?” explores how the pervasive technology being developed by Mobile Bristol enables children’s imaginative engagement with their environment, and how the spatial practices of children and young people might change through the use of the technology.

The second phase of the project was a series of workshops in May-July 2003 with a class of 36 children (age 9-10) at Ashton Gate Primary School in south Bristol. We worked with them first to begin to uncover their thoughts and feelings about Old Chapel Park, a familiar outdoor space that is part of their school grounds, before giving them a set of hardware and software tools to create soundscapes in that space.

Apart from the soundscapes themselves, research outcomes so far include papers submitted to various 2004 conferences (IDC2004, CHI2004, social geography), and accepted at several in 2003 (see publications). We have been invited to participate in a workshop on using new technology to enable children’s participation in urban design processes. Team members are writing proposals for further funding for developing the project with the school. We plan to expand our work with this group of children into their local area, using Mobile Bristol technology to build mediascapes (i.e. soundscapes plus images) that can be accessed by other groups in the community.

The research themes that will be looked at during this next phase are:
• family use of pervasive technologies and the impact on family practice
• enabling children to influence the built environment through using Mobile Bristol technology to give feedback on their experiences
• how to make mapping more inclusive
• developing a soundscape management tool
• interface issues : personalised maps and icons
• theorising technology in the city; understanding new virtual spaces.