

## Upper Key Stage 2 – Sound Works – Theme Guide

Children review how digital sound is used in the world and how it has developed over time. They create multi-track sound recordings for specific audiences, incorporating different content and demonstrating their understanding of the rules for copyright. They use programming languages to create their own sound clips.

Learning objectives for the term	
To understand digital sound has an important role to play in building atmosphere, presenting ideas and influencing audience mood.	
To investigate the history of sound recording and understand how the technology has developed.	
To understand that sound-editing and music creation software enables us to create, record and adapt sounds.	
To understand that sound recordings or broadcasts should be planned to improve their impact.	
To understand that there are complex rules around copyright, ownership and plagiarism which we should observe. 	
To understand that there are different types of sound files which computers and digital devices can handle.	
To understand that sound recordings can be exported and used in other applications. 	
To understand how sound files can be shared over the internet, and to consider the eSafety and copyright implications of doing this. 	
To understand simple sound and music compositions can be programmed.	
On-going learning objectives	
<i>To organise their work confidently in agreed locations, using appropriate file-naming conventions and folder structures.</i>	
<i>To save drafts of their work, using these to support critical review.</i>	
<i>To be proactive in keeping electronic and other data secure and protecting personal information when entering data online. </i>	
<i>To understand some of the methods they can use to report concerns about content and contact. </i>	

Vocabulary – see Glossary in main scheme document for definitions (for terms in blue)	
dynamics, pitch, tempo, timbre, looping (sounds)	multi-track, podcast, plagiarism, common file types, copyright

Possible resources for this theme (further resources are suggested with the explanatory notes below. Note that these are examples and not formal recommendations.)	
<p><b>Sound recording / editing software</b></p> <ul style="list-style-type: none"> <li>Audacity<sup>®</sup></li> <li>Garageband (app for iPad<sup>®</sup>)</li> <li>Wavepad Audio Editor (app for iPad<sup>®</sup> / Android)</li> <li>Twisted Wave (Chrome web app)</li> </ul> <p><b>Sources of free sounds and music</b></p> <ul style="list-style-type: none"> <li>See the sheet <b>Sources of free sounds and music</b> available from the downloads area.</li> </ul>	<p><b>Sound recording devices</b></p> <ul style="list-style-type: none"> <li>Easi Speak<sup>®</sup> Microphone</li> <li>Easi Speak Pro<sup>®</sup> Microphone</li> <li>Talk Tracker Group Audio Recorder</li> <li>External USB Microphones for improved recording quality when recording to computer.</li> </ul>

Please note that with any online platform it is essential that you review the privacy policy and terms and conditions of the service. The school is responsible for the protection of data it holds and compliance with current data protection legislation. Always assess both the data protection and safety of the service you are considering using, and ensure any necessary permissions are in place before using with pupils.

Primary Computing Scheme online materials that are referenced in this guide can be accessed from:  
<http://www.hertsforlearning.co.uk/user/login>

You will need to be logged into your school account and have a current subscription to the Primary Computing Scheme to gain access. The materials can be accessed from the *My Resources* link at the top/right of the screen, once you are logged in.

### Sound Works: Key learning objectives

(some objectives might be used for more than one lesson)

To understand that digital sound has an important role to play in building atmosphere, presenting ideas and influencing audience mood.

- Consider the role of digital sound in the world around us.
- Explore a range of sound recordings, including audio books, music tracks, weather forecasts, traffic information, advertisements, news reports and interviews etc., identifying the elements which make them effective.
- Show the class some film clips (e.g. adverts, comedy, action) paying attention to the music used to create atmosphere. Is the music appropriate to the mood of the programme? Why?
- Explore a creative commons or royalty-free music resources, such as [www.incompetech.com](http://www.incompetech.com) or [www.freeplaymusic.com](http://www.freeplaymusic.com) where clips can be searched by mood/feeling. **(Please read the terms and conditions of these or any other sites first to make sure your use complies.)** Choose some clips of different moods to play to the class using the online players embedded in the websites. What sort of film/programme would you use the different moods with? Why?
- Discuss how just by changing the music we can transform a scene from dramatic to funny, sad to happy etc. If possible, play a piece of music with a particular mood over a video/film clip where the mood is different, and discuss the effect this has. (E.g. comic music played over a serious news report.)
- See the accompanying sheet [[Links to sources of free sounds and music](#) ]

To investigate the history of sound recording and understand how the technology has developed.

- Research the history of recorded sounds, from phonograph cylinders, gramophone records, magnetic tape recording to CDs, MP3 recorders and streamed music etc.
- Gather creative-commons licenced images of old gramophone players, reel-to-reel tape recorders etc. to show to the class. If you have an old cassette recorder or suchlike, bring it in to show the pupils. An old Sony<sup>®</sup> Walkman<sup>®</sup> is interesting to compare alongside a modern MP3 player!
- If possible, gather some real examples of vinyl records, cassettes etc.
- Compare these to digital files (MP3s etc.) What are the differences, advantages / disadvantages etc.?
- Pupils create a digital resource (e.g.: Book Creator app, Microsoft<sup>®</sup> Powerpoint<sup>®</sup>, Microsoft<sup>®</sup> Word or safe online environment if available) to show the findings of their research into the history of recording/playback technology.

To understand that sound-editing and music creation software enables us to create, record and adapt sounds.

- Explore sound recording / editing software.
- Generate sound clips and/or musical compositions using tools and effects within the software, for example:
  - Exploring different instruments
  - Importing/recording audio
  - Adjusting dynamics, pitch, tempo and timbre
  - Sequencing
  - Repeating/looping
  - Trimming and adding silences
- Audacity<sup>®</sup> is probably the most functional free tool to use on Windows computers. You could also use iPad<sup>®</sup> apps such as Garageband<sup>®</sup> or Wavepad (iPad<sup>®</sup>) but these have less editing capability.
- See accompanying Audacity<sup>®</sup> getting started guide [[Audacity<sup>®</sup> 2-1-2 Quick Start Guide.pdf](#)]
- Perform, review and refine their compositions.
- Ideally use both music creation and sound-editing software and compare the advantages and disadvantages of each of them.

© Herts for Learning Ltd.

This content is provided as part of a subscription to the HfL Primary Computing Scheme. **Please do not share this material beyond your school.** The Herts for Learning Primary Computing Scheme disclaimer applies to use of this material. Always consider the online safety of children and young people when planning the use of any apps and web-based services etc. and ensure you are abiding by your school's eSafety and data protection policies, as well as current Data Protection regulations. Herts for Learning Ltd. is not responsible for the content of external websites.

<ul style="list-style-type: none"> <li>For music creation, consider Garageband® iPad® app if available. You may also have music creation software in school for use in music lessons. Online music creation tools are available but read the terms and conditions first as most require sign up and prohibit use to under 13s.</li> </ul>
<p>To understand that sound recordings or broadcasts should be planned to improve their impact.</p>
<ul style="list-style-type: none"> <li>Plan a simple sound recording involving sound elements layered in a timeline. Plan the recording in pairs or small groups. Consider what the story or message is, the sounds that will be needed, the order they will appear in etc.</li> <li>Use sound-editing software to create the planned recording, layering a series of sound elements to tell the story or communicate the message, modifying the sound levels as appropriate.</li> <li>The pupils could record sound effects themselves using a portable MP3 player.</li> <li>The teacher could download a selection of sound effects from a free sound effects website (read the terms and conditions first and only use public domain sounds) and make them available in a shared folder. Note many sound effect websites are not appropriate for children to explore, due to the presence of adult themes.</li> <li>As an additional project you could create a class-made sound effects bank. Pupils use portable recording devices to capture different sounds, and edit these using Audacity® or similar before adding them to a shared folder on the school network. These could then be used as sound effects in other recordings (below).</li> </ul>
<p>To understand that there are complex rules around copyright, ownership and plagiarism, which we should observe. ⚠</p>
<ul style="list-style-type: none"> <li>Discuss ownership, and that this applies to digital as well as physical items.</li> <li>As a class, investigate the copyright rules for frequently-used online resources and discuss Creative Commons and the importance of following the terms of the CC licence when using such materials.</li> <li>For teachers to find out more about creative commons, search online for 'common craft creative commons' and watch the video.</li> <li>Explore safe sites that share creative commons files, and find the licence information (e.g. look at <a href="http://www.incompetech.com">www.incompetech.com</a> and <a href="http://www.pics4learning.com">www.pics4learning.com</a> and read the copyright information included on the sites.)</li> <li>Recap on how to use advanced search tools, to be able to filter search results by licence. See the accompanying video guide: [<i>Using Advanced Search Tools</i>] if you have not used them before.</li> <li>Pupils Review their recordings (as made in the previous objective) and ensure they gain appropriate permissions and credit contributors as required.</li> </ul>
<p>To understand that there are different types of sound files which computers and digital devices can handle.</p>
<ul style="list-style-type: none"> <li>Research and compare the commonly found sound file formats, and their common uses. For example MP3 files are often used for the digital distribution and playing of music.</li> <li>MP3 is a compressed file format meaning it has smaller file sizes than uncompressed sound files, for example WAV files.</li> <li>This is one reason that MP3s became the popular format for distributing sound across the internet, as the smaller file sizes meant quicker download speeds and less storage space required.</li> <li>There is some sound quality loss between compressed MP3 files and uncompressed WAV or AIFF files. When creating digital recordings, these uncompressed file formats are usually used.</li> <li>Midi files (.mid) do not actually contain sounds. Instead they send a message to the computer's sound playback device (soundcard) or attached digital instrument, instructing it to play certain notes. Midi files are therefore not used to listen back to recording of our favourite music, but are used in creating and playing computer music.</li> <li>See the accompanying file types Powerpoint® quiz: [<i>File Extensions Quiz</i>]</li> </ul>
<p>To understand that sound recordings can be exported and used in other applications. ⚠</p>
<ul style="list-style-type: none"> <li>If using Audacity or similar, pupils export their recordings to MP3. The file can then be imported into different software or posted onto a safe online space if one is available.</li> <li>When exporting as an MP3, you are usually offered the chance to apply ID3 tags to the file. These embed additional information into the file which can be displayed when the file is played back on a phone, MP3 player, media player etc. The information usually includes artist name, song title etc.</li> <li>On an iPad®, recordings in Garageband® can be directly exported into iMovie® to become the soundtrack to a movie or slideshow.</li> <li>When embedding recordings in a different piece of software, pupils could apply a creative commons licence or other copyright information to their recordings, and credit any sounds they used, as necessary.</li> </ul>
<p>To understand how sound files can be shared over the internet, and to consider the eSafety and copyright implications of doing this. ⚠</p>
<ul style="list-style-type: none"> <li>What are advantages and disadvantages of sharing sound recordings online, considering eSafety, copyright</li> </ul>

© Herts for Learning Ltd.

This content is provided as part of a subscription to the HfL Primary Computing Scheme. **Please do not share this material beyond your school.** The Herts for Learning Primary Computing Scheme disclaimer applies to use of this material. Always consider the online safety of children and young people when planning the use of any apps and web-based services etc. and ensure you are abiding by your school's eSafety and data protection policies, as well as current Data Protection regulations. Herts for Learning Ltd. is not responsible for the content of external websites.

and ownership?

- Consider the size of the potential audience reached, the sort of content you should not share (in order to stay safe and be respectful to others) and also the complications of copyright and ownership, as covered above.
- Review how large organisations provide access to such recordings but protect and often time limit this access. Talk to pupils about how, for example the BBC, can limit how long you can access sound and TV recordings made available on iPlayer®.
- Talk about how some music and sound files cannot be downloaded or exported from the system which provides the file (e.g. Spotify®, which only allows the music to be streamed within the Spotify player) to limit illegal copying. Also note that other types of sound file can have copy protection embedded.
- If it is possible and safe to do so, with the necessary permissions in place, share recordings on the school website or safe educational blog or online space (if available to your school.)

To understand simple sound and music compositions can be programmed.

- As a class explore the sound programming element of such languages as Scratch and Logo.
- In pairs, create a simple music or sound composition or design a musical instrument in a selected programming language.
- See the accompanying sheet: [*Programming sounds in Logo*]
- Pupils could program simple tunes or Morse code messages in MSW Logo using repeat commands and procedures. Other suggested activities are available in the sheet above.
- For a beginners guide to Logo, see the sheet: [*MSW Logo, the basics*]
- Also see the accompanying video guides for an introduction to Logo.
- In Scratch, the Sound category contains many blocks for programming with sound. Pupils could, for example, program simple tunes, map sounds to the computer keyboard so it becomes a musical instrument, or design their own musical instrument by creating their own sprites and that play musical notes when interacted with.
- Pupils share their programs with the rest of the class.

**On-going Learning Objectives**

To organise their work confidently in agreed locations, using appropriate file-naming conventions and folder structures.

To save drafts of their work and use these to support critical review in which they evaluate and improve their work.

To be proactive in keeping electronic and other data secure and protecting personal information when entering data online. Use their understanding to encourage eSafe practice in others. 

To understand some of the methods they can use to report concerns about content and contact. 

To take an active role in promoting and implementing the school's eSafety protocol for safe use and to encourage others to act in an eSafe way. 

**Suggested independent task – any open-ended activity (2-3 sessions) enabling the children to demonstrate their computing capability around the knowledge and understanding provided in the term**

Task objectives:

- > Plan and create a multi-track sound recordings using sound editing software to communicate an idea or mood appropriately and safely for a specific audience.
- > Save / Upload the recording to a space that can be shared with others. (Upload to a safe online space if available.) 
- > Demonstrate that they have respected ownership and copyright. 
- > Share their work with others discussing the choices they made.
- > Review, refine and develop their work.
- > Evaluate their completed task, reflecting on their approach to the task and the resulting piece.

Other considerations:

- Does the task provide for children to work at different levels?
- Is there support available for children to select if they wish?
- Are there opportunities for the children to review and develop their work?
- Is there an opportunity for the children to evaluate the finished task?

Audacity® is probably the best free tool for this task, if you are using Windows computers.

© Herts for Learning Ltd.

This content is provided as part of a subscription to the HfL Primary Computing Scheme. **Please do not share this material beyond your school.** The Herts for Learning Primary Computing Scheme disclaimer applies to use of this material. Always consider the online safety of children and young people when planning the use of any apps and web-based services etc. and ensure you are abiding by your school's eSafety and data protection policies, as well as current Data Protection regulations. Herts for Learning Ltd. is not responsible for the content of external websites.

Consider linking to English – pupils record a poem they have written or a piece of creative writing, and add appropriate sound effects and music to give it more atmosphere and mood.

Pupils should credit correctly where creative commons sounds have been used, and apply their own copyright information to their recording.

Pupils should be able to talk about the sounds they used, their purpose and how effective they are in achieving this. If a safe online space is available, and it is appropriate to do so, the sounds could be posted online. Otherwise, pupils can export their recordings to a shared folder on the school network.

© Herts for Learning Ltd.

This content is provided as part of a subscription to the HfL Primary Computing Scheme. **Please do not share this material beyond your school.** The Herts for Learning Primary Computing Scheme disclaimer applies to use of this material. Always consider the online safety of children and young people when planning the use of any apps and web-based services etc. and ensure you are abiding by your school's eSafety and data protection policies, as well as current Data Protection regulations. Herts for Learning Ltd. is not responsible for the content of external websites.