

The Clock of the Long Now

About the unit

In this unit, pupils, explore the musical elements of pitch, pulse and timbre through traditional 'chiming clocks' and the visionary 'millennium' clock of the *Long Now*. They investigate musical clock chimes, and invent

- a. a series of clearly defined melodic phrases appropriate for a chiming clock
- b. melodies suitable for a 'millennium' clock

Pupils

- explore, select and evaluate appropriate and distinctive sounds for a single chime (timbre) including those created using technology
- explore and compose melodies using familiar and unfamiliar musical scales (pentatonic, whole tone, modal)
- explore, select, combine and organise these sounds and melodic material within musical structures
- Find out how composers have responded to musical commissions

Analogies of steadily ticking clocks, and clocks ticking at different rates, are used frequently with young children to develop concepts of pulse and tempo. Clock chimes present a further set of musical possibilities centring on

- Melody and pitch
- Musical phrases and structures
- Timbre
- Musical scales
- Variations

Chimes are a series of musical sounds or tunes played on a set of bells or electronically to mark the passing of time.

Effective clock chime have to be both functional and musical. A number of composers have been fascinated by chiming clocks and carillons, and have incorporated them in their compositions. Probably the best-know example is the chiming clock in Kodály's *Harry Janos* suite.

The *Clock of the Long Now* has been designed from the strongest materials available through current technology to survive hurricanes and earthquakes. The clock is extremely accurate, even taking into account the gradual slowing of the earth's spin.

The first prototype began functioning on New Years' day, 2000. On starting, it sounded a chime composed by the musician Brian Eno. For further information, visit the Longnow foundation website at

<http://www.longnow.com/>

Marking Time

Striking Clocks

Pupils consider how sounds can effectively mark the passage of time. The activity focuses on listening with attention to detail: exploring and comparing timbre (sound qualities) to select a very special sound, and executing it with maximum effectiveness (also reinforces instrumental technique) Explore vocal sounds, classroom and any orchestral instruments played by members of the class, keyboard sounds, etc.

The composer Brian Eno has imagined the sounds bells might make in a distant future and synthesised these. This activity presents opportunities for recording and altering sounds using sound editing programs like Audacity.

Cuckoo Clocks

I want to build a clock that ticks once a year. The century hand advances once every 100 years, and the cuckoo comes out on the millennium. I want the cuckoo to come out every millennium for the next 10,000 years. Danny Hillis

In traditional pendulum driven clocks, the Cuckoo call is sounded by two tiny pipes with bellows activated by the clock movement. Modern clocks often play digital recordings of real cuckoos.

The minor third (G-E) is the cu-coo of a cuckoo in Spring, and occurs in in classical music eg. *On Hearing the First Cuckoo in Spring: Frederick Delius*. However, during the spring and early summer the interval changes from the minor third to a major third (Gsharp-E). Play listening games to see if pupils can distinguish the two.

Cuckoo, cuckoo, what do you do?
In April I open my bill;
In May I sing all day;
In June I change my tune;
In July away I fly;
In August away I must.

From very early times, clocks have incorporated ingenious ways of producing sounds. There are interesting possibilities for technology. An early Greek water clock used water to make a carved owl move and sound a whistle.

Clocks have always been a great subject for animation. See Walt Disney's *The Clock Store* (1931) in the silly symphonies series. Pupils might describe ways in which the animation is enhanced by the musical score.

Kendal Town Hall Carillon

Sometimes, clockmakers altered tunes to match the number of bells in the chime. Obviously, it is better to:

a) Select tunes within the range of the chime

or:

b) Compose tunes to fit the number of bells and their pitches.

The activity suggested in the pupils' page involves children devising their own play list for a proposed carillon. Set the children the following challenge

- Only eight bells of different pitches are available in the carillon.
- These are the notes C D E F G A B C'.
- Can they think of *seven* tunes that may be played on these notes only?

Note: The exercise explores the diatonic scale (white notes only of the piano).

Westminster Chimes

These chimes, commonly known as Westminster quarters, lengthen as each successive quarter sounds: first, 4 then 8, 12 and finally 16 notes.

The activity

- develops a range of musical skills, including listening with attention to detail, and reproducing the musical sequences from memory
- provides practical opportunities for developing understanding of staff notation by writing these down for other pupils to play from

About the Westminster Chimes

Although associated with Big Ben, the chimes were first composed for St Mary's Church, Cambridge in 1794 by William Jowett. The first quarter is said to echo the first four notes of the fifth bar of Handel's *I know that my Redeemer Liveth.* from *The Messiah.*

Using only four different pitches, the chime explores variations of this in a clever and economical way.

In 1859-60 the chime was copied for the Big Ben, the great clock of the Houses of Parliament at Westminster. The chimes are recognised and copied worldwide. The hourly chime and striking of the clock introduce the BBC radio news at 6 o'clock. A number of composers have made reference to the chimes of Big Ben. These include:

- Ralph Vaughan Williams: *A London Symphony* second movement
- Louis Vierne: *Carillon de Westminster* in *Piece de fantasia*

The recording of the chimes heard on the BBC radio news were recorded in 1924 by a BBC engineer by climbing onto a roof opposite the Houses of Parliament .

Clock of the Long Now

1000 Year Chimes

Brian Eno is a musician and composer. He has worked extensively with musicians and artists including Talking Heads, David Bowie, Coldplay and Laurie Anderson. He has been involved from the beginning in the Long Now project with Danny Hillis.

His music explores new ways of working, and involves imaginative use of music technology. His album, *Bell Studies for the Clock of the Long Now*, explores how clock chimes of a distant future might sound

Previous activities have involved pupils deciding on a single sound to mark the passage of time, and a sequence of chimes to mark quarters. This time, they face the challenge of composing a melody special enough to mark a millennium .

Tempus Fugit

The activity brings together previous composing activities (Single 100 year chimes and 1000 year melody) with a number of new elements, including winding the clock.

The meshing of gears suggests ostinato patterns. See video of winding the clock on the Long Now site.

There are also many other imaginative possibilities, not least the journey to the clock itself.