

*The National Curriculum for UK, related to the  
IHWE Field Trip Experience*

The BOSE® IN HARMONY WITH EDUCATION® Programme's In Class Curriculum meets the following National Curriculum frameworks for Music, Science, and Mathematics:

**Music, Key Stage 1**

Knowledge, skills and understanding

**Controlling sounds through singing and playing – performing skills**

- 1 Pupils should be taught how to:
  - b play tuned and untuned instruments

**Creating and developing musical ideas – composing skills**

- 2 Pupils should be taught how to:
  - b explore, choose and organise sounds and musical ideas

**Listening, and applying knowledge and understanding**

- 4 Pupils should be taught:
  - a to listen with concentration and to internalise and recall sounds with increasing aural memory
  - b how the combined musical elements of pitch, duration, dynamics, tempo, timbre, texture and silence can be organised and used expressively within simple structures
  - c how sounds can be made in different ways and described using given and invented signs and symbols
  - d how music is used for particular purposes

**Breadth of study**

- 5 During the key stage, pupils should be taught the knowledge, skills and understanding through:
  - a range of musical activities that integrate performing, composing and appraising
  - b responding to a range of musical and non-musical starting points
  - c working on their own, in groups of different sizes and as a class
  - d a range of live and recorded music from different times and cultures

# The BOSE® IN HARMONY WITH EDUCATION® Programme

## Teaching Students About the Beauty and the Science of Music

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### Music, Key Stage 2

#### Knowledge, skills and understanding

#### Controlling sounds through singing and playing – performing skills

- 1 Pupils should be taught how to:
  - b play tuned and untuned instruments with control and rhythmic accuracy

#### Creating and developing musical ideas – composing skills

- 2 Pupils should be taught how to:
  - b explore, choose, combine and organise musical ideas within musical structures

#### Responding and reviewing – appraising skills

- 3 Pupils should be taught how to:
  - a analyse and compare sounds

#### Listening, and applying knowledge and understanding

- 4 Pupils should be taught:
  - a to listen with attention to detail and to internalise and recall sounds with increasing aural memory
  - b how the combined musical elements of pitch, duration, dynamics, tempo, timbre, texture and silence can be organised within musical structures and used to communicate different moods and effects
  - c how music is produced in different ways and described through relevant established and invented notations
  - d how time and place can influence the way music is created, performed and heard

#### Breadth of study

- 5 During the key stage, pupils should be taught the Knowledge, skills and understanding through:
  - a a range of musical activities that integrate performing, composing and appraising
  - b responding to a range of musical and non-musical starting points
  - c working on their own, in groups of different sizes and as a class
  - d using ICT to capture, change and combine sounds
  - e range of live and recorded music from different times and cultures

# The BOSE® IN HARMONY WITH EDUCATION® Programme

## Teaching Students About the Beauty and the Science of Music

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### Science, Key Stage 1

#### Sc1 Scientific enquiry

##### Ideas and evidence in science

- 1 Pupils should be taught that it is important to collect evidence by making observations and measurements when trying to answer a question

##### Investigative skills

- 2 Pupils should be taught to:

##### Planning

- a ask questions and decide how they might find answers to them
- b use first-hand experience and simple information sources to answer questions
- c think about what might happen before deciding what to do

##### Obtaining and presenting evidence

- f explore, using the senses of sight, hearing, smell, touch and taste as appropriate, and make and record observations and measurements
- g communicate what happened in a variety of ways, including using ICT

##### Considering evidence and evaluating

- h make simple comparisons and identify simple patterns or associations
- i compare what happened with what they expected would happen, and try to explain it, drawing on their knowledge and understanding

#### Sc4 Physical processes

##### Light and sound

- 3 Pupils should be taught:

- c that there are many kinds of sound and sources of sound
- d that sounds travel away from sources, getting fainter as they do so, and that they are heard when they enter the ear

##### Breadth of study

- 1 During the key stage, pupils should be taught the Knowledge, skills and understanding through:
  - a a range of domestic and environmental contexts that are familiar and of interest to them
  - c using a range of sources of information and data, including ICT-based sources
  - d using first-hand and secondary data to carry out a range of scientific investigations, including complete investigations

- 2 During the key stage, pupils should be taught to:

##### Communication

- a use appropriate scientific language and terms, including SI units of measurement, to communicate ideas and explain the behaviour of living things, materials, phenomena and processes

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## Teaching Students About the Beauty and the Science of Music

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### Science, Key Stage 2

#### Sc1 Scientific enquiry

##### Ideas and evidence in science

- 1 Pupils should be taught:
  - a that science is about thinking creatively to try to explain how living and non-living things work, and to establish links between causes and effects
  - b that it is important to test ideas using evidence from observation and measurement

##### Investigative skills

- 2 Pupils should be taught to:

##### Planning

- a ask questions that can be investigated scientifically and decide how to find answers
- b consider what sources of information, including first-hand experience and a range of other sources, they will use to answer questions
- c think about what might happen or try things out when deciding what to do, what kind of evidence to collect, and what equipment and materials to use
- d make a fair test or comparison by changing one factor and observing or measuring the effect while keeping other factors the same

##### Obtaining and presenting evidence

- f make systematic observations and measurements, including the use of ICT for datalogging
- g check observations and measurements by repeating them where appropriate
- h use a wide range of methods, including diagrams, drawings, tables, bar charts, line graphs and ICT, to communicate data in an appropriate and systematic manner

##### Considering evidence and evaluating

- i make comparisons and identify simple patterns or associations in their own observations and measurements or other data
- j use observations, measurements or other data to draw conclusions
- k decide whether these conclusions agree with any prediction made and/or whether they enable further predictions to be made
- l use their scientific knowledge and understanding to explain observations, measurements or other data or conclusions
- m review their work and the work of others and describe its significance and limitations

#### Sc4 Physical processes

##### Light and sound

- 3 Pupils should be taught:

##### Vibration and sound

- e that sounds are made when objects vibrate but that vibrations are not always directly visible
- f how to change the pitch and loudness of sounds produced by some vibrating objects
- g that vibrations from sound sources require a medium through which to travel to the ear

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## Teaching Students About the Beauty and the Science of Music

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### Breadth of study

- 1 During the key stage, pupils should be taught the Knowledge, skills and understanding through:
  - a a range of domestic and environmental contexts that are familiar and of interest to them
  - c using a range of sources of information and data, including ICT-based sources
  - d using first-hand and secondary data to carry out a range of scientific investigations, including complete investigations
  
- 2 During the key stage, pupils should be taught to:  
**Communication**
  - a use appropriate scientific language and terms, including SI units of measurement, to communicate ideas and explain the behaviour of living things, materials, phenomena and processes

### Science, Key Stage 3

#### Sc1 Scientific enquiry

##### Investigative skills

- 2 Pupils should be taught to:  
**Obtaining and presenting evidence**
  - g make observations and measurements, including the use of ICT for datalogging to an appropriate degree of precision
  - i use a wide range of methods, including diagrams, tables, charts, graphs and ICT, to represent and communicate qualitative and quantitative data

##### Considering evidence

- j use diagrams, tables, charts and graphs, including lines of best fit, to identify and describe patterns or relationships in data
- k use observations, measurements and other data to draw conclusions I decide to what extent these conclusions support a prediction or enable further predictions to be made
- m use their scientific knowledge and understanding to explain and interpret observations, measurements or other data, and conclusions

#### Sc4 Physical processes

##### Light and sound

- 3 Pupils should be taught:  
**Vibration and sound**
  - j the relationship between the loudness of a sound and the amplitude of the vibration causing it
  - k the relationship between the pitch of a sound and the frequency of the vibration causing it

### Breadth of study

- 1 During the key stage, pupils should be taught the Knowledge, skills and understanding through:
  - a a range of domestic and environmental contexts that are familiar and of interest to them
  - d using a range of sources of information and data, including ICT-based sources
  - e using first-hand and secondary data to carry out a range of scientific investigations, including complete investigations

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## Teaching Students About the Beauty and the Science of Music

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### Mathematics, Key Stage 2

#### Ma2 Number

#### Using and applying number

1 Pupils should be taught to:

##### Problem solving

- a make connections in mathematics and appreciate the need to use numerical skills and knowledge when solving problems in other parts of the mathematics curriculum
- c select and use appropriate mathematical equipment, including ICT
- e make mental estimates of the answers to calculations; check results

##### Communicating

- f organise work and refine ways of recording
- g use notation diagrams and symbols correctly within a given problem
- h present and interpret solutions in the context of the problem

##### Reasoning

- k search for pattern in their results; develop logical thinking and explain their reasoning

#### Solving numerical problems

4 Pupils should be taught to:

- e read and plot coordinates in the first quadrant, then in all four quadrants

#### Ma4 Handling data

#### Using and applying handling data

1 Pupils should be taught to:

##### Problem solving

- a select and use handling data skills when solving problems in other areas of the curriculum, in particular science
- c identify the data necessary to solve a given problem

##### Reasoning

- h explain and justify their methods and reasoning

#### Processing, representing and interpreting data

2 Pupils should be taught to:

- a solve problems involving data
- b interpret tables, lists and charts used in everyday life; construct and interpret frequency tables, including tables for grouped discrete data
- c represent and interpret discrete data using graphs and diagrams, including pictograms, bar charts and line graphs, then interpret a wider range of graphs and diagrams, using ICT where appropriate

#### Breadth of study

1 During the key stage, pupils should be taught the Knowledge, skills and understanding through:

- c using patterns and relationships to explore simple algebraic ideas
- e drawing inferences from data in practical activities, and recognizing the difference between meaningful and misleading representations of data
- f exploring and using a variety of resources and materials, including ICT
- h using mathematics in their work in other subjects