

The science of music

Introduction

Many people enjoy music and going to concerts, but most know very little about the science of music and how to protect their hearing at concerts.

In this activity you will use your research skills to find out:

- how to compare different sounds
- how different instruments produce notes
- how we can hear music
- how to protect your hearing.

You will be using your literacy skills to produce a leaflet for concert organisers to give to members of the public who want to know more about the science of music.

Brief

Produce a leaflet for a concert organiser to give to concert-goers who want to learn about the science of music.

Your leaflet should:

- explain what sound waves are and how to compare the loudness and pitch of different sounds
- describe how some different instruments produce vibrations to create sound
- explain how we hear
- explain why people should protect their hearing
- provide tips on how people can protect their hearing at a concert
- fit on one A4 sheet of paper
- use clear language that can be understood by the general public.

Step 1

Before starting, decide what type of concert you are going to write about (e.g. classical, rock, pop).

Step 2

Choose some instruments relevant to the type of concert you are writing about, and find out how these instruments produce vibrations to create sound.

Find out why people should protect their hearing and how they can do it.

Step 3 (extension)

Many people buy recorded music instead of going to concerts. Include information about what happens in a music-recording-studio in your leaflet.

Step 4

Plan the layout of your leaflet and the information you want to include. Most concert-goers want to enjoy themselves, so include images and small chunks of information rather than lots of text in your design.

Step 5

Create your leaflet.

Sources**What is sound?**

This website describes how sound is produced, what sound waves are, and how the ear works. Choose the 'What is Sound' option.

www.acoustics.salford.ac.uk/schools/index1.htm

How do instruments produce sounds?

This site describes how different musical instruments produce vibrations which produce sounds:

www.method-behind-the-music.com/mechanics/instruments

How do we hear things?

This website describes the structure of the ear and how we hear:

www.cyh.com/HealthTopics/HealthTopicDetailsKids.aspx?p=335&np=152&id=1463

How loud noises affect our ears and how to prevent harm

These sites explain how loud noises affect hearing, how to compare loudness, and some ways to prevent hearing damage:

www.dangerousdecibels.org/education/information-center/

www.actiononhearingloss.org.uk/your-hearing/about-deafness-and-hearing-loss/types-and-cause-of-hearing-loss/noise.aspx

How is music recorded? (extension)

Choose the Recording Studio option to find out what happens when music is recorded:

www.acoustics.salford.ac.uk/schools/index1.htm

Writing frame

Produce a leaflet for a concert organiser to give to concert-goers who want to learn about the science of music. Summarise your research findings on the key areas below.

Concert type: (e.g. classical, rock, pop)

What are sound waves, and how do they travel?

How can we compare loudness and pitch of different sounds?

How are sound waves produced by different instruments?

How do we hear, and how is hearing damaged by loud sounds?

How can you prevent hearing damage?

Plan for layout of leaflet

Important points

- Use interesting images and language that can be understood by people going to a concert.
- Make your leaflet useful and easy to read; you will need to summarise the information.

Your work

You have made a leaflet for concert-goers who want to learn about the science of music.

Look at the questions below and think about whether you have met the brief.

- Is your leaflet about a particular type of concert?
- Have you explained what sound waves are?
- Have you explained how to compare the loudness and pitch of different sounds?
- Have you described how some different instruments create sound?
- Have you explained how we hear?
- Does your leaflet help to convince people that they should protect their hearing?
- Have you provided tips on how people can protect their hearing at a concert?
- Does your leaflet fit on one A4 sheet of paper?
- Have you used clear language that can be understood by the general public?
- Is your leaflet interesting for people who are out having a good time?
- Does it contain some pictures?