Facilitator Card

1 – Hear the music

10 mins

5 mins – Wave Demo & Tibetan bells/signal generator

This activity will be run for the whole group (see group leader card for info).

5 mins – Explanation of terms.

When the group are together you can ask them what they thought of the bells/signal generator (depending which was used).

Find out if they noticed what the difference was between the people who could and couldn't hear the different frequencies. Older people (21+) start to lose the ability to hear higher frequencies.

Make sure they understand what is meant by frequency and what effect it has on a sound.

Option 1: Demonstrate using a plastic ruler.

Hang a large part of the ruler off the table and twang it. Then move the ruler so only a small part of the ruler is hanging off the table and twang it again. Ask the group to describe the difference in sounds. The frequency is how often it vibrates. A sound wave that vibrates more often has a higher frequency – ask them what effect this has on the sound.

In music a high frequency sound has a high pitch and vice versa.

Facilitator Card

1 – Hear the music

10 mins

Option 2: Demonstrate using a whirly tube

Hold one end of the tube and whirl it around. Now hold the tube whirl it faster. Ask the group to describe the difference in sounds. High speed whirling creates high pitch notes. As the tube is spun, the air particles inside it vibrate. Imagine if the tube was full of marbles, they would fly out the moving end. This is what happens to the air particles. The faster the tube spins the faster the air flows through it. The frequency of the wave increases and we hear a higher pitch sound.

In music a high frequency sound has a high pitch and vice versa.

High frequency = high pitch

Low frequency = low pitch

Facilitator Card

2–How do we hear sounds?

15 mins

Part 1

Make sure the group know that sound is measured in decibels. Take a couple of the sound cards (from either extreme) and ask them which sound they think is louder. Then ask them which sound would have the highest decibels. They should then know that a loud sound has more decibels.

Get them to match up the sounds to the decibels. If they are struggling you could suggest they start by ranking the sound cards from quietest to loudest.

Answers:

- A whisper (1.5 m away), leaves rustling (20 db)
- A quiet area (e.g. library), a fridge humming (40 db)
- Background music, normal conversation, noisy classroom or restaurant (60 db)
- Busy city traffic, hairdryer, loud shout, child screaming (85-90 db)
- A typical nightclub or rock concert (near the front) (110 db)
- Ambulance siren (15 m away) or shotgun (near ear) (120 db)
- Fireworks or a jet plane taking off (30 m away) (140 db)
- A rocket launching 3 miles away (180 db)

Point out to the group that the decibel scale is a bit weird. 40 decibels is not twice as loud as 20 decibels but 100 times as loud.

Facilitator Card

2–How do we hear sounds?

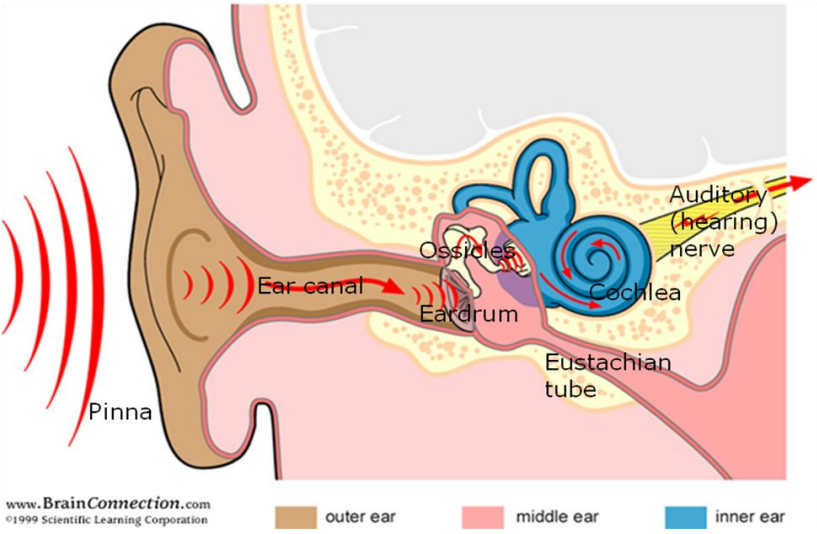
15 mins

Part 2

Tell the group they need to add all the labels to the picture of the ear.

After they have added the labels, ask them to tell you how sound travels from outside into our ears and to our brain.

Use the parts of the ear information to help them. You could give out the parts of the ear cards to different people in the group and get them to report back.



Suggestion:

Get half the group to do part 1, half the group to do part 2. Then swap half way through.

Facilitator Card

3 – Good and bad sounds

10 mins

This task will be carried out as a whole group.

You must be ready in time.

In this task the participants will listen to different sounds and vote on how much they liked the sounds. They will then find out what the sounds are.

You may like to discuss the sounds with your group further. The sounds are:

1) The dawn chorus
2) Trams and buses in Manchester city centre
3) Sounds in a busy café.

See the group leader information card "The Sounds" for more information about the recordings.

Facilitator Card

4 – What makes a noise dangerous?

10 mins

Share out the "Have I damaged my hearing?" cards - one card between two students.

Tell them to read the card. They should imagine this is a friend who is asking for advice.

Show them the information card showing how long it is safe to be exposed to different noise levels. There are two copies for the group.

Tell them they should be careful not to hurt their friend's feelings or make them feel worse about what has happened.

After a few minutes get each pair to read out their card to the rest of the group and what they decided to tell the person.

Recovery time

The initial effect of a high intensity sound is a loss in sensitivity of the hearing cells - a sound has to be louder to be able to hear it the same way before the damage occurred. Recovery occurs gradually over the following 14 hours. The speed and degree of recovery depends on the severity of damage and the time away from the noise. If excessive noise exposure is repeated (usually over a period of years), the damage can become permanent causing noise-induced hearing loss.

Facilitator Card

5 – What is hearing damage?

30 mins

Your group must be ready at the same time as everyone else for this task.

Ear Ear (5 minutes)

The group leader will give a short talk about how hearing can be damaged.

Which Platform? (10 minutes + 5 minutes debrief)

This activity will be run by the group leader. You may be asked to distribute instruction cards to your group.

After the activity spend 5 minutes with your group discussing the task and how they felt. Find out if anyone went to the wrong platform. Get someone from each "platform" to describe what they had to do and how easy it was. Ask students how they felt. Ask them how hearing loss might affect people in their everyday lives.

Protect Your Ears (10 minutes)

After the discussion above ask the group to come up with ways of preventing hearing damage. Get them to make a list of their ideas.

If not already mentioned talk about ear plugs and give each person a set. Discuss suitable and unsuitable places to wear them.

NB: tell the children that they can keep the earplugs if they want but they should be careful about using them. For example they should not wear them around traffic and they shouldn't share them as they might spread infection.

Facilitator Card

5a – Protect your hearing

15 mins

This follows on from task 5 and is an optional task.

Ask the students what they think of the ear plugs and how they would feel about wearing them to a concert or something similar.

Find out what the issues are.

Show them some of the different types of earplugs. Ask what they like or dislike about the different types.

In pairs ask them to design some ear plugs (or similar ear protection) that they would be happy to wear.

They can use colouring pens and plasticine to draw or model their design(s).

Get them to share their ideas with the rest of your group.

Facilitator Card

6 – Tell your friends

20 mins

Your group need to develop a public information service for their peer group.

Their public service announcement should warn people about a danger and tell them how they can protect their hearing.

Make sure they know what a public service announcement is:

> Advertisements or commercials inform the public about products they can buy (like cars, shoes or fireplaces) or services they can pay for (like lawyers, or cinemas). Public service announcements (PSAs) instead inform the public about a **message or an idea**. Some of the most famous PSAs that might be familiar to students involve campaigns encouraging people to stop smoking, or to vote for a certain political party. Public service announcements can be effective because they use traditional advertising techniques in a familiar format.

Make sure they know they have to present their work to the rest of the group. If they do something like a poster they should include why they chose what they did in their presentation.