

# Exemplar 23

Sound

third and fourth classes

**Initial problem:** Can you make a banjo from rubber bands?

## Background

The tightness, thickness and length of the rubber band will affect the pitch. Long, thick rubber bands produce low sounds. Thin, short rubber bands produce higher sounds.

**Assessment:** Among the techniques that may be used are

- teacher observation: willingness to try different ideas; willingness to work with others
- portfolio: annotated drawings of work
- concept maps.

## Resources

Rubber bands of varying length and thickness, a shoebox lid or biscuit tin lid.

## Starting points

experimenting

observing

comparing

experimenting

## Development of lesson

hypothesising

predicting

experimenting

fair testing

inferring

Children should consider the problem:

*Will stretching (tension) the rubber band affect the sound produced?*

Children stretch rubber bands of different lengths around the shoebox lid.

They should ensure that the rubber bands are of equal thickness and are placed evenly across the lid.

The children pluck the bands with their fingers or with a pencil.

Compare the sounds produced.

- *Which bands make the lower sounds?*

Consider:

- *How does tightening a short band affect the sound produced?*
- *Is the sound higher or lower than the sound produced by the other bands?*

Children consider the problem:

- *Does the thickness of the rubber band make a difference to the sound?*

Children undertake a similar experiment, but this time the variable is thickness.

Children should try thick and thin bands.

Predict the bands that will make the low and high sounds.

Compare the sounds made by the different bands.

- *Which bands, thick or thin, make the higher sounds?*

Children should now combine variables and compare the sounds produced by a long thin band, a long thick band, a short thick band and a short thin band.

The children should use their combination of bands to

- *explore different pitches that they will produce*
- *play some simple songs or nursery rhymes.*

Children should consider:

- *Which bands make the lower sounds?*
- *Which bands make the higher sounds?*
- *How can you change the sound produced by a long thick band?*