e.g. Mrs Booker has two didgeridoos, one produces 240 Hz, the other 243 Hz.

- *Which is longer?* 240 Hz
- *Describe (with numbers) the sound you hear if they are both played.*

You hear a note of 241.5 Hz varying in loudness (beating) at 3 Hz.

Applications:

This effect is used to tune instruments. A piano string is adjusted to vibrate a 256 Hz by changing the tension . A tuning fork of that frequency is sounded at the same time. If the frequency of the string is high or low, beats will be heard. The tension is adjusted so the beat frequency gets smaller and smaller .The frequencies are the same when the beat frequency is zero .

You learnt earlier that police speed traps use doppler shift to measure the speed of cars. A microwave signal is emitted, and reflects off a car, the return signal is doppler shifted by the motion of the car

The speed is calculated from the size of the doppler shift. This is measured using beats. The transmitted and return frequencies are added. Because they are different, frequencies are produced. Measuring the beat frequency gives the return frequency and then the speed of the car is calculated.