

## Blues-Tooth Headphone

### A headphone for your mouth

#### Introduction:

Hear what's on a phonograph album via your teeth and bone conduction.

This activity is a mash up of two classic snacks:

[Groovy Sounds](#) and [Sound Bite](#).

#### Materials:

- A vinyl LP record
- A long pencil, stick, dowel or other long and light object (safe and clean enough to bite).
- A straight pin
- Tape
- A few coins
- Optional:
  - A partner
  - Record Player or Turntable

#### Assembly:

##### The Player:

If you want to make your own record player, see the article entitled “Groovy Sounds. This can be found at: <http://www.exo.net/~emuller/activities/Groovy Sounds.pdf> You can also use an actual electro/mechanical turntable. However, make sure the tone-arm (needle arm) does not engage.

##### The listening device:

There are many ways to make this device out of a long light object, such as a pencil, stick or dowel.

In short:

- Insert a pin into one end of the stick.
- Tape a coin or two to the pencil on or near the head of the pin for extra weight.

Note: Be careful with your listening device....don't poke your eye out!

#### To do and notice:

1. With the help of a turntable, a partner or by yourself, get your album spinning. Turn the record in a clockwise direction at a rate of 33  $\frac{1}{3}$  rpm.
2. Bite down onto the end of the listening device without the pin.
3. Orient the other end of the listening device (the end with the pin) over the album.
4. Carefully, lower the pin onto the spinning record album. Aim for the spiraling groove.
5. Allow the weight of the listening device to ride on the pin.
6. To enhance the sound entering your head, if possible, insert fingers into your ears.

#### What's going on?

Sound is encoded in the record. It is physically molded into the plastic. As the record turns, the pin rides in the groove and wiggles about. This wiggling is transferred up the listening device to the listener's teeth and bones. The vibrating of bones in the listener's skull (bone conduction) also vibrates the cochlea. The cochlea is where sound signals are generated and sent to the brain. There, they are interpreted into sounds we hear!

