

# Make an EP in 30 Days Ableton Course

## Day 10

Basic Sound Design

Sound design is a subject that goes incredibly deep. You can spend a decade exploring it and still barely tap the surface.

Today's lesson is going to teach you the essentials but I'm not going to take you all the way down the rabbit hole. It's far too easy to get lost there & we don't have any time to waste. So let's get to it!

## Waveforms

Waveforms are the basic sound forms that make up simple & complex sounds. Adding harmonics to a sine wave creates different waveform shapes. More harmonics create brighter sounds.

The order of the simplest to the most complex wave popular forms are:

Sine, Triangle, Square, Saw

By layering different waveforms & running them through envelopes, lfo's, filters & effects (which you will learn), there is no limit to what you can create.

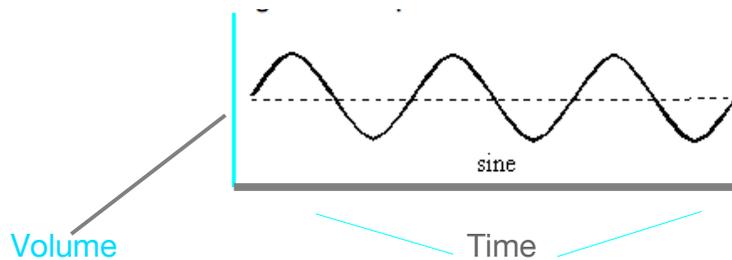
## Listening

The best way to get comfortable with how each waveform sounds, is to simply play them by themselves with no filter, fast attack & sustain all the way up. Each synth has slightly different basic tones, so this is also a good way to get used to your different synths as well.

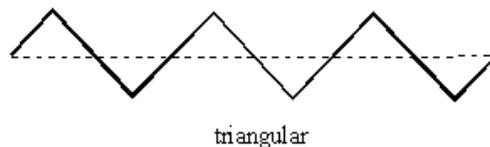
Once you start to grasp the sound of each basic tone, then you can experiment with layering a **sine & square wave** or **triangle & saw wave** etc.

# Waveforms

Sine - The most basic of all waveforms. Sine doesn't have added harmonics, this tone tends to be warmer & deeper. It's the fundamental of most Sub & Bass sounds. Also often used with kick drums.

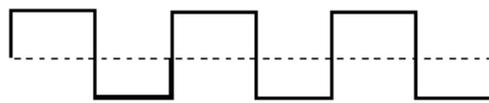


Triangle - Triangle waves add a few harmonics making it a bit brighter & more complex than a sine wave. Also good for bass tones with a bit more bite, & percussion.



## Waveforms

Square/Pulse – A Square wave is a waveform that is like an on/off switch. Its shape is created using every other harmonic. It can sound like a reed tone, hollow or wooden. It's a harsher sound which can be great for impact sounds. By changing the width of the wave, it becomes a pulse wave. Dubstep often uses a square wave as the basis for its heavy bass tones before adding filters & effects.

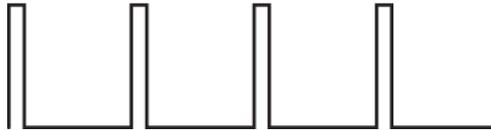


square

Pulse Width 50%

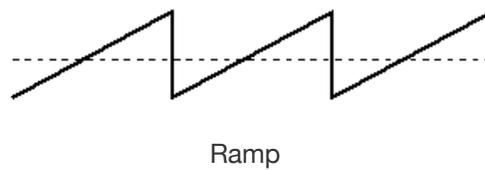
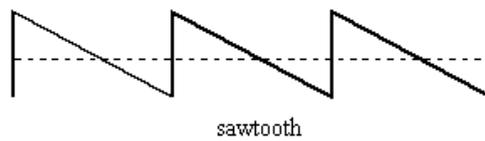


Pulse Width 12.5%



## Waveforms

Saw/Ramp – Shaped like a saw, it is the most harmonically rich of the waveforms. This is great for leads, stabs & rich pads as well as brassy tones. Notice the ramp waveform is just the opposite of the saw. Where the saw wave starts at a high volume & declines, the ramp goes from low to high volume.



## Noise

Noise is an essential part of sound, where by itself can be highly annoying. Adding a touch to your sounds creates a rich character or a bit of dirt to a sound. It can also help add impact to a sound & help it cut through the mix.

As a type of waveform, it randomly plays all harmonics creating a sound you might hear on an old radio when in between stations.

There are 2 popular types of noise:

### White

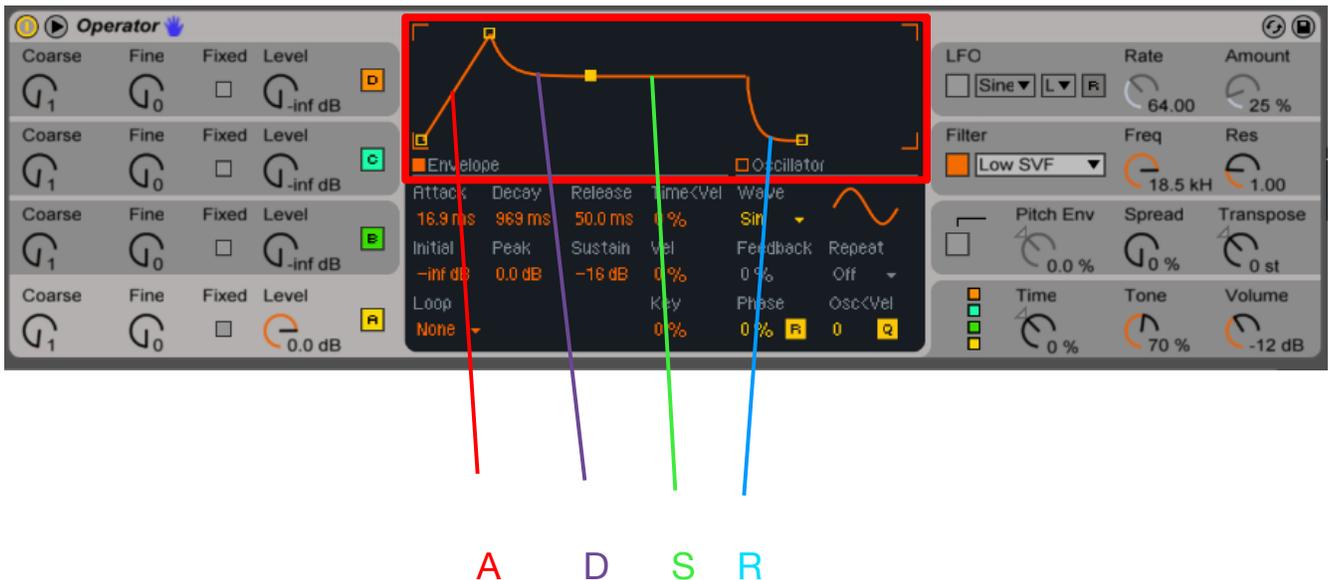
White noise is equal volume across all frequencies

### Pink

Pink noise is white noise that has been filtered to reduce the volume at each octave, creating a less harsh sound.

# Envelope

## Attack Decay Sustain Release



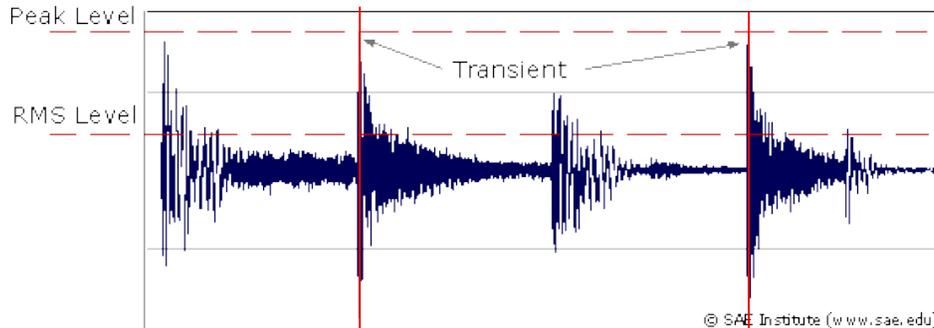
**Attack** – This is the time it takes a sound to reach its peak volume level. A fast attack would be like a drum sound, while a slow attack has more of a fading in sound, like pads.

**Decay** – This is how long after the attack it takes for sound to reach a certain volume level decided by the sustain.

**Sustain** – This is the level the sound will remain at after the decay for as long as a note is held. Sometimes the sustain can remain at the same volume as the attack peak. Other sounds have the sustain all the way down. When this happens release time doesn't matter because the volume is already silent.

**Release** – This is how long it takes for a sound to go from the sustain level to silence once the played note is released. For example, a piano has a long release time after the note is released while a trumpet has a very short release time, the sound stops when you stop blowing air into it.

# Transients



As shown above, a transient is the loud short spike usually at the beginning of a sound. It's the click of the kick drum or the crack of a snare.

This is very important to give a sound presence within a song. A sound without a transient, will be pushed to the back of your mix (think slow strings/pads).

Often times it makes sense to layer a sound with a really short sample to give it a bit more punch, pluck or click. This is a big secret to getting a better sounding mix.

## Synthesis

Included in today's lesson is a 5 video pack. This will describe additive, subtractive, fm synthesis and some basic sound design essentials. Make sure to watch those.

## Eyes on the goal

Although I encourage you to learn sound design over time, I know it can be frustrating when you first start. For the purpose of this course, I encourage you to mostly tweak presets & use samples instead of designing sounds from scratch.

I can attest that sound design can be rewarding, but can also be a huge time suck, often with little to show for the effort. Later I will show you a quick way to make great sounds with minimal sound design effort.

We have an EP to finish & time is of the essence!

# Homework

1. Create a new sound or tweak a preset. Make sure to save this preset as a new name so you can reuse it in the future (preferably with 000 in front of it, so it shows up at the top).