

## The Evolution of Musical Instruments

Someone just asked me how to create unique musical instruments in his world where he has altered some of the rules of physics. I can't give a detailed response to that without knowing a great deal more about the physics and the world (hopefully he will post about this in our forum), but I do have a general suggestion to offer for anyone trying to come up with unique musical instruments.

The key to this, it seems to me, is in knowing that musical instruments evolve from what people have to hand. It is also in being aware that there is an **evolutionary process** with instruments, just as there is with so many man-made things, from the simple to the sophisticated.



Drums, for instance, may start as hollow logs that people bang on with sticks. They then think to stretch a skin membrane over a hollowed-out round of wood. Then the wood frame becomes smaller and more portable (even to the point of being a hand-held tambourine), and the makers learn that using different diameters of frame and thickness and tension of skin gives different pitch to the drum notes.

Wind instruments start with something simple like a notch cut into a woody reed, then differing lengths change the pitch of the note, then later, someone adds finger holes to change pitch further without altering length of the pipe--and so on.

Basically you need to understand how an instrument evolved in our world, and understand what elementary physics are in play with the device (wind whistling over an open hole, in the case of a pipe or flute); vibration of a flexible surface in the case of a drum). Then, depending on how you've changed your physics, decide if instruments had to evolve differently, and if so, what that might look like. Eventually when a society is technological the tones can be synthetically produced, but for instruments that exist before that level of development, you must pinpoint where they are in the evolutionary path of the physical instrument.

# Evolution of Early Drum Designs



Log Drum



Slit Drum



Hollowing out log  
for a drum



Hollow log drum  
covered with  
lizard skin



Shallow-framed  
hand drum



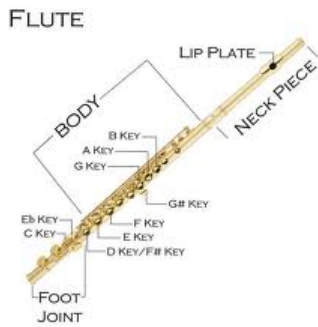
Oak barrel  
taiko drum



Pandora native with log drum  
(from James Cameron's Avatar;  
illo from Pandora: A Survival Handbook)

It's helpful in this process to read up on the history of musical instruments to see how they came into being and how they evolved in our societies. Note that the evolution of instruments does not just come about because people want to improve form or function: it also grows out of their culture and what music means to them and how it is used. When you have a more detailed understanding of these issues, then it will be much easier to make some informed choices about how instruments might have evolved differently in your own world.

**In Short:** watch the instrument grow from primitive to sophisticated, but growing as it must to conform to the physics and cultural practices of your world. Also, don't fall into the trap of only duplicating what we know and see here on Earth. You have to look around at the environment that exists on your world, and ask yourself what people might have turned to musical uses. These things will then evolve down a path into something more sophisticated. It is not unlikely that there will be parallel evolution (stringed instruments, bowed instruments, wind or percussion instruments, etc) -- all of these will share vaguely similar forms because of the functions they must perform. But the details, construction, and cultural use can be quite unique, based on the needs of your setting.



Here are some good sources for reading up on music history in order to spark your imagination about how instruments may develop.

[Inside Science: Exploring the Evolution of Musical Instruments](#)

[About.com: Inventing Musical Instruments](#)

[Book chapter \(pdf\): The Origins of Musical Instruments](#) (from "The Physical Basis of Music", E.T. Jaynes, 1996)

and if you *really* want to dig into this subject, here's an entire dissertation on it:

[The Evolutionary Origins and Archaeology of Music - Iain Morley, 2003 \(pdf\)](#).

## Alien Music

For an example of how musical instruments might be developed to fit an alien world, see this great material on music and instruments on Pandora, the world from James Cameron's *Avatar* movie. [This link is to the music theory section](#) of the Pandora wiki; see sidebar for more sub-sections on specific instrument types.