

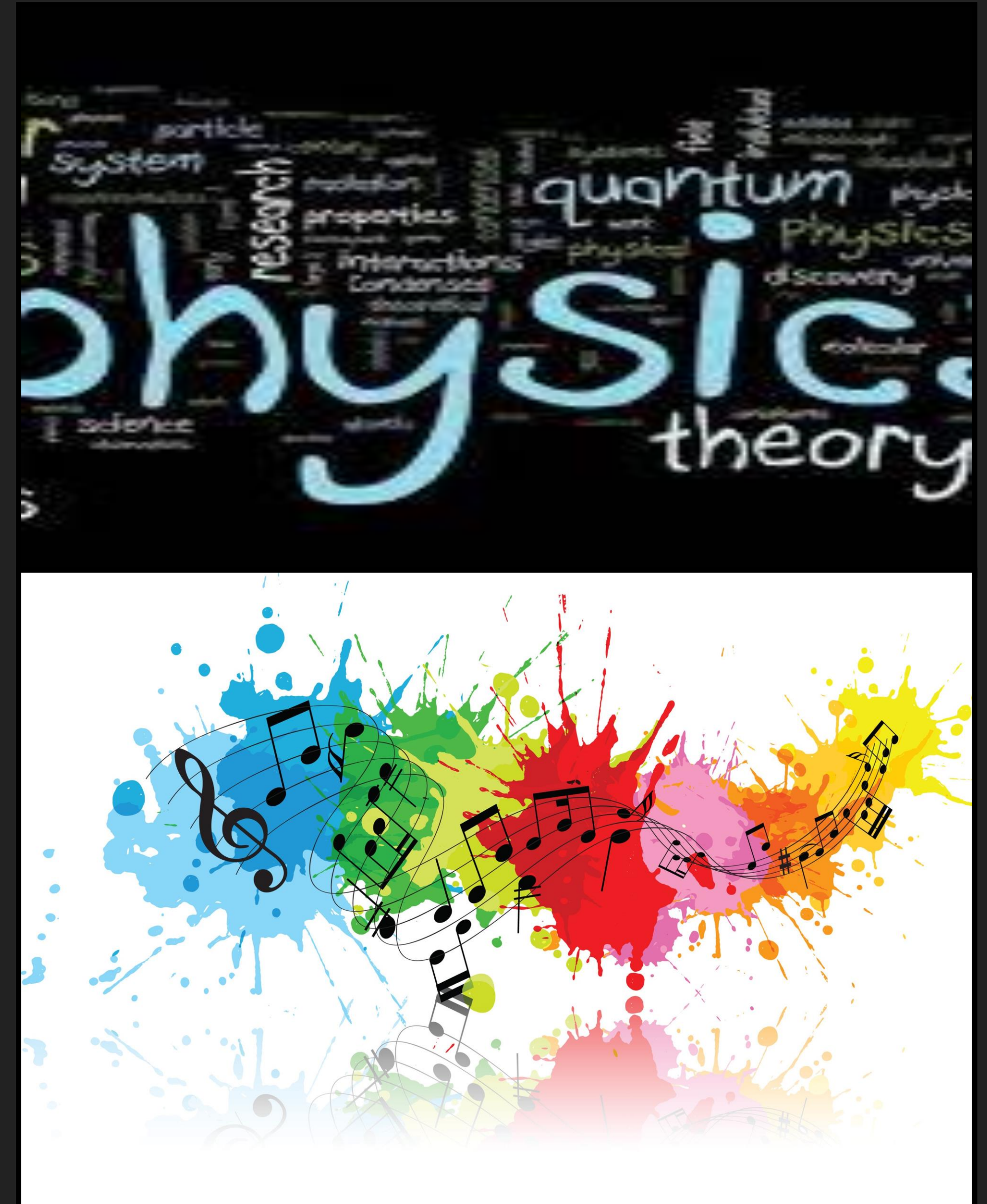
KIKS PROJECT
THE TEAM OF SZILÁGYI ERZSÉBET HIGH SCHOOL

SOUNDWAVE PAINTING

PHYSICS AND MUSIC

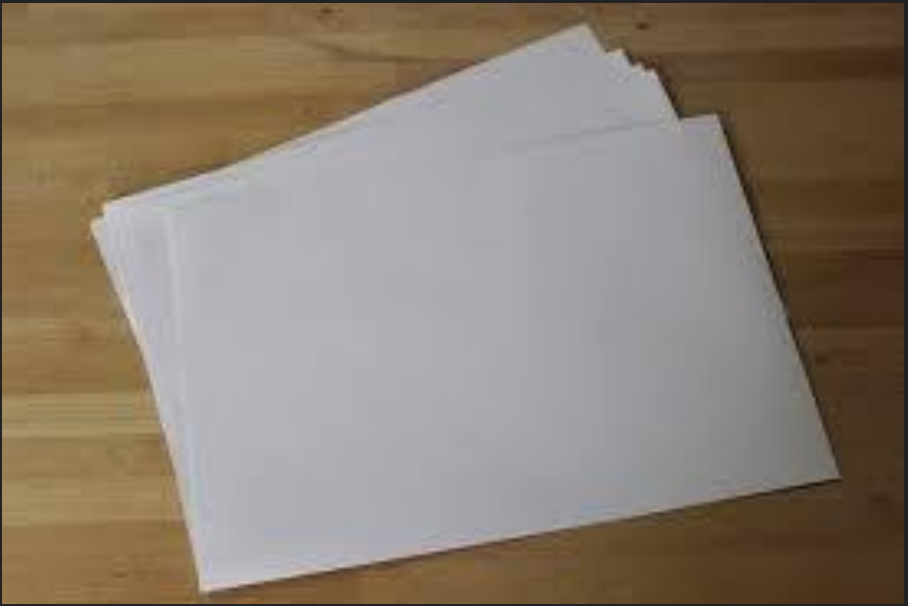
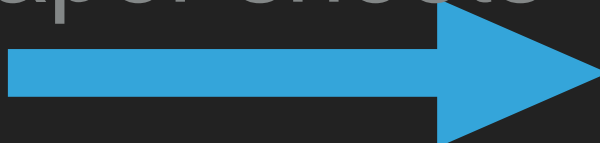
WHY THIS TWO SUBJECTS?

- ▶ Physics: everybody learns it – but don't like.
- ▶ Art, paintings: usually nobody learns it – but does like.
- ▶ It seems there is no connection between them but there is.

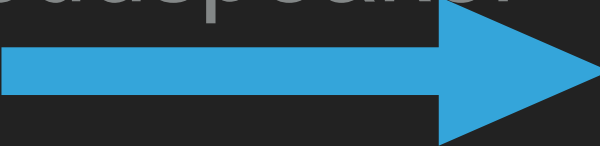


ACCESSORIES FOR THE TRIAL

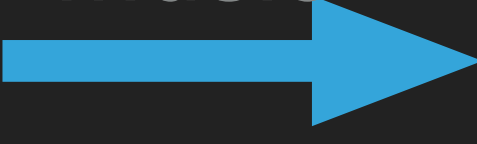
Paper sheets



Loudspeaker



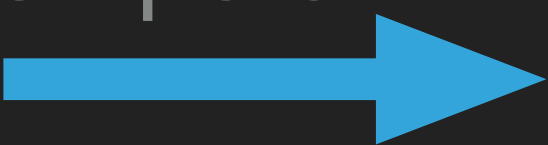
Music



Foil



Tempera

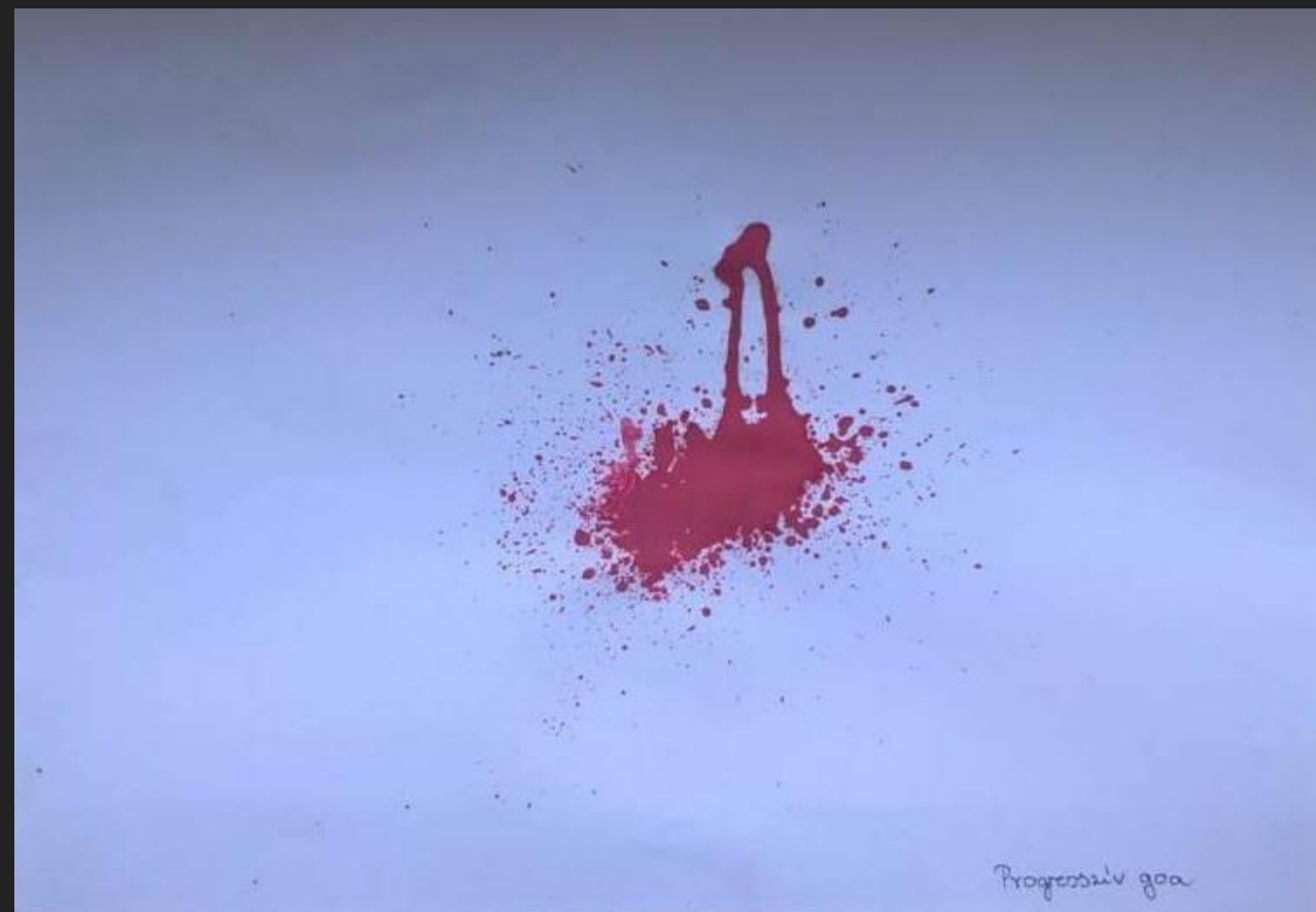


THE EXPERIMENTAL



WHAT HAPPENED?

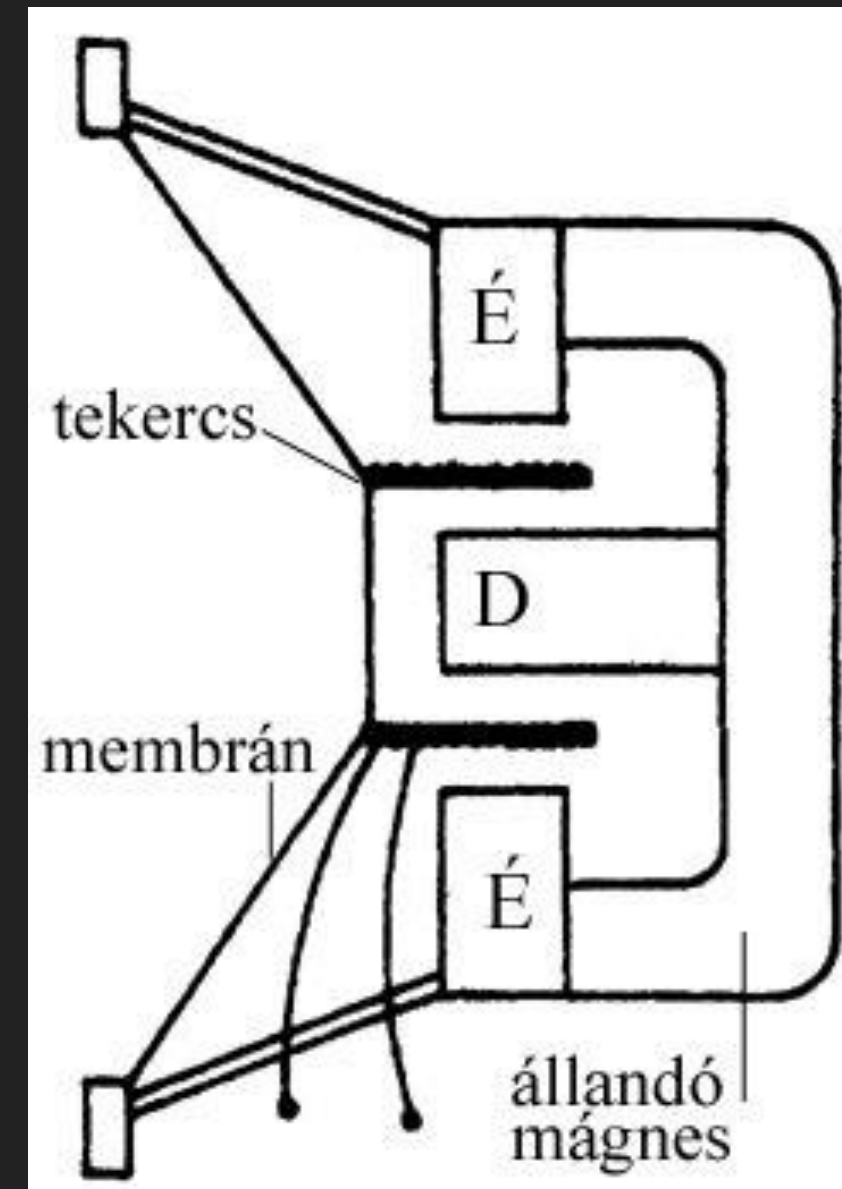
- ▶ The vibration of the membrane created multiform type of patterns, „paintings” under impact of different variation of music.



The circumstance of the experimental was the same at all types of music (same volume, same amount of ink) so these differences are negligible.

EXPLANATION

The operation of the loudspeaker: this tool transfer AC into sound. It is conducting AC into a small coil which is placed in constant magnetic field. This is where the membrane is fixed. The membrane makes the air to move. The least it capable of vibrating the bigger amount of current conducting into the coil.



Frequency: it means the occurrences of the recurrence. During the same time an event how many times are repeated. Hz-ben (hertz) m.



The sound also has got frequency: the sound is a mechanical vibration of an flexible organ which spreading through the air as a wave of sound. Reaching our ears these vibrating waves of air tremble our eardrums. And our brain accept is as a sound.



It depends of the frequency of the sound how we hear it. Humans can perceive between 20 Hz and 20 kHz)

The music in physics: is a serial of individual sounds vibrating of different frequensies (tune), combinatins of sounds, temporal sounds in a regular succession (rythem).

Mainly the higher violin voices are dominating is Vivaldi's Four Seasons's Winter movemnet. The adjacent stings of the violin are attuned in quint interval and it could be the reason of the patterns on the paper.



A psichedelic goa is an electronic type of music. The music is constracted for a hard sounding bass line, so the membran is vibrating relatively consistently. This could be the explonation of the points on the paper .



A Queen Bohemian Rhapsody song starts with a mix of a choir escorted by piano and a solo voice. Later a bass guitar joins in and a drum, as well. The guitar and the piano collective rhythmic, deep sound and soft beginning of the song makes this diversified spots on the paper.



Carl Orff Carmina Burana composition the step stone soft music are quite simple but besides the choir there are a lot of instruments: a big group of percussion which gives a rhythmic, solid pulsation of the membrane. And the violin, the piano and organs make softer the sound and the intensity of frequencies



WHAT WOULD BE GOOD LEARNING WITH THIS?

- ▶ For the students it would be really spectacular this art made by music.
- ▶ Mans physics amounts are expandable by this more experimental and it could be attached to a few phenomenal as well.
- ▶ Not just the knowledge of physics are expanding by this method but the education art and music also.

MORE OPTIONS

- ▶ There are a wide scale of options to improve this tool.
- ▶ One could make a piece of art by bigger and better loudspeaker and with different colours of ink.
- ▶ It could be used to illustrate the amounts in physics and an art /music classes as well.