



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Task Tuned-Tunes

Finalist's Name: Daniel Rey Duran

School and City: Rocky Ford Jr. Sr. High School

Sponsor's Name: Jason Bacolod

Category: Behavioral & Social Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

When I counted students in my school library, 8 out of 10 had headphones on while studying. While many studies examine classical music's effects on learning, almost none look at rap music - what most teens actually listen to. This gap led me to investigate how different types of music affect studying among high school students.

Using a within-subjects design, I tested 29 tenth-graders under three audio conditions: silence (control), classical music (Mozart Piano Sonatas, and rap music (clean top 40). In a temperature-controlled classroom ($72^{\circ}\text{F} \pm 2^{\circ}\text{F}$), participants completed standardized biology reading tasks in randomized sequences. Performance measures included reading comprehension and memory retention (scored 0-10), plus self-reported focus levels.

Statistical analysis revealed that both music types significantly improved reading comprehension versus silence (rap: $M=5.34$, $SD=3.52$; classical: $M=5.17$, $SD=3.13$; silence: $M=3.10$, $SD=3.88$; $p<.05$). However, silence produced better memory retention ($M=3.90$, $SD=2.96$) than either music condition. Focus levels increased similarly with both music types (classical: $M=7.66$, $SD=1.93$; rap: $M=7.59$, $SD=3.13$) compared to silence ($M=5.93$, $SD=2.63$). These findings suggest students should match their study environment to their task: use music for understanding new material but choose silence for memorization.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**