



## **TYPES OF WAVES & INTERFERENCE QUIZ**

OSUN Connected Learning Contest Winner

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**Course: Conceptual Physics**

In the quizzes I've assigned previously, many students were plagiarizing their peers' work despite having different versions. Additionally, when solving word problems, students followed a particular algorithm that resulted in illogical answers given the context of the problem. The plagiarism and incorrect responses to the quiz questions demonstrated that many of the students were not engaging with the material deeply and submitted work just to get it done. Additionally, through check-in surveys, many students shared that they found the assignments boring. In response, I changed the structure of the quiz to encourage students to make connections between what they have learned by applying the concepts to a real-world context.

The task was assigned in the last quarter of the school year on May 10th. Prior to school closure, I routinely assessed students' understanding of physics concepts via short open notebook quizzes. These short quizzes highlighted misconceptions that still persisted and informed my lesson planning for the future. This remote learning quiz was also open notebook and students were allowed to use any of the resources I've shared as well as the activities they completed prior to the quiz to form their responses.

The purpose of this quiz is to assess students' understanding of concepts they were previously taught in the unit on waves as well as apply their knowledge to solve problems (in this case, minimizing background noise). Students also used their knowledge to critically examine the information that the narrator in the video communicated.

## **Conceptual Physics**

Conceptual Physics is designed to introduce students to the Next Generation Science Standards (NGSS) Science and Engineering Practices through the study of physics and to investigate major concepts in the field of physics through a conceptual perspective.

### **Practical and pedagogical value**

Almost all students completed this quiz. Previously, only a little over half of the students were completing their quizzes. Furthermore, despite the class average being lower on this quiz than on previous assessments, some students reported that they enjoyed the activity. Some developed their responses on this quiz further in their final project.

This activity was successful for a variety of reasons. By being open notebook and asynchronous, students did not feel the pressure to cheat or submit nonsensical responses. The quiz was also easy to access - the document with the quiz instructions and questions and the link to the YouTube video could be found in the assignment link on google classroom. If students did not have access to google classroom, I could easily send them a pdf of the quiz and link to the video via text message or email. They could send me a picture of their written work.

Furthermore, because the questions cannot easily be googled or solved via an app like Photomath, students had to carefully craft their responses and more deeply reflect on the questions being asked (this may be why the average quiz score was lower than in previous assessments). Students also enjoyed the assignment and therefore were more willing to complete and submit it.

### **The assignment**

For the assignment, students were instructed to watch a 5 minute sci com video on noise cancelling headphones and respond to questions based on the video and what they have learned in the unit.