Christ Church Grammar School
PERTH, WESTERN AUSTRALIA

Stop the Missiles – A Physics Lesson on Vectors

Reflections of a Physics teacher

This is a creative lesson I have designed to provide boys with an opportunity to practise their vector calculation and addition techniques. I presented boys with a scenario where the safety of the world is under attack. To save the world, they had to solve eight different clues which involved using vectors.

Learning stations were set up around the room and each station contained a separate clue. Boys work collaboratively throughout the lesson to solve the problems.

I designed this lesson with the intention of helping students to engage in a topic that can sometimes be considered quite abstract. Additionally, it provided students with an opportunity to practise their calculations in a manner that was active. I chose a scenario that would motivate students to engage with the content and see how their skills can apply to "real" situations.

I delivered this lesson towards the end of a series of lessons on vectors and began by recapping content they had learnt. This enabled me to clearly communicate the learning intention of the lesson. I used suspenseful loud music and enacted a dramatic scene to introduce the scenario. I was trying to tap into their curiosity about the task. During the introduction, I delivered explicit instructions both verbally and, on the whiteboard, using the overhead projector. These remained on screen while students completed the activity, providing them with a reference point if required.

The learning stations I set up had multiple purposes. Firstly, it allowed for differentiation as the clues on each station varied in difficulty. Secondly, boys worked in teams of two to solve the problems but could also choose to combine with other groups if they found the content challenging. They therefore had flexibility in how they could approach the task. Thirdly, it allowed me to easily circulate, providing specific assistance and feedback to small groups, and monitoring the students' progress closely.

Why it worked?
The use of a scenario enabled the boys to apply what they had learnt. The context was highly motivating and engaging. Through this task, the teacher created the structure for boys to enhance their own and each other's personal bests by working in small groups or combining groups. This also enabled the teacher to collect evidence of learning and deliver personalised and specific feedback to students.