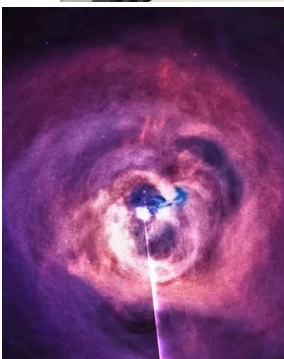
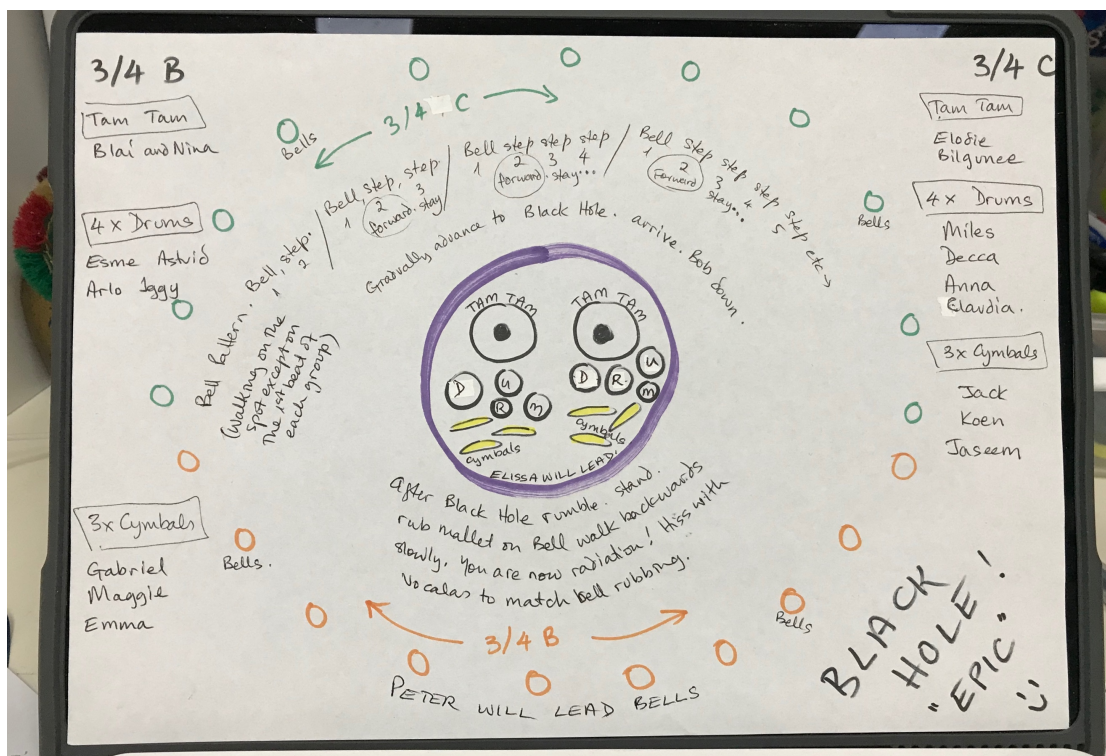


Yr 3/4 Ngh 1: The Black Hole from the Perseus Galaxy Cluster

Thanks to NASA releasing the sound of the Black Hole from the Perseus Galaxy Cluster, incredibly in August 2023 during our Bell workshops, 3/4 Ngh1 students were able to declare 'we sound just like the NASA recording'! This was an exciting revelation because until recently, it was accepted that as so much of space is a vacuum, there is no way for sound waves to travel. However, due to pressure waves causing ripples in hot gasses from the cluster, it was found that these could be measured and then transposed up hundreds of octaves so that a human ear can hear them!

We are lucky to have borrowed a tam-tam or two for our Bells Concert. The low rumble they create, and additional deep whale like groans from both the tam-tams and drums, really excited the students who then added sizzling cymbals, agitated by marbles and chains, to represent the hot gas which surrounds the black hole. Other students worked out a pattern for slowing down beats on the bells to illustrate the slowing of time as objects approach a black hole.

Diagram of the Black Hole performance plan.



An image of the Perseus Galaxy Black Hole as released by NASA. Students reproducing the black hole sound with tam-tams and drums. Students, as space objects and led by Pete, musically illustrate the stretching of time as objects are sucked into a black hole.

As the Black Hole ensemble began to rumble in the centre of the gym, students, as space objects orbiting nearby, were gradually sucked into the black hole. As objects get sucked in closer, time expands, so to illustrate this, for every big step forward towards the black hole, the silences in the beating pattern were extended by an extra beat's rest between sounds. Of course, we all collapsed when we arrived at the black hole, the volume of which increased as we approached! Once the black hole stopped sounding, we were released back into space as radiation! We gradually retreated away from the black hole and rubbed our mallet handles against the sides of the bells to make a wispy sound that we augmented by hissing through our seething 'toxic teeth'!