**Sample RAB Entry**

*NOTE: This is NOT perfect. This entry has both strengths and weaknesses.*

“Black Holes Explained – From Birth to Death.” *YouTube,*uploaded by Kurzgesagt – In a Nutshell, 15 December 2015*,*<https://www.youtube.com/watch?v=e-P5IFTqB98>

**Summary:**

The YouTube video goes through the process of a black hole, from its birth to its death. It begins by talking about how a star is constantly collapsing in on itself due to its own gravity. As this happens, in the star’s core nuclear fission crushes the hydrogen atoms into helium releasing a tremendous amount of energy. This energy is in the form of radiation and pushes against gravity, maintaining a delicate balance between the two forces. The heat and pressure in the core eventually allow them to fuse heavier elements until they reach iron. Iron doesn’t release any energy when made and builds up at the center of the star. Because of this, the balance between gravity and radiation is suddenly broken, and the core collapses. If the star is big enough, when the star collapses into a supernova explosion this will result in a black hole. The part of the black hole we see is the event horizon. Even light can’t escape the event horizon resulting in the black hole only reflecting as a black sphere. We don’t know anything about the inside of the black hole, but we call it the singularity where we hypothesize that all its mass is concentrated into a single point in space, with no surface or volume. Black holes evaporate through a process called Hawking radiation. Hawking radiation deals with virtual particles which constantly appear and collide with each other. When one particle is created inside the black hole and one outside, one of the particles will be drawn into the black hole, and the other will escape. This makes the black hole lose energy and eventually evaporate slowly until it goes out with a massive explosion at the end of its life.

**Key quotes:**

* “Moving at about a quarter of the speed of light, feeding even more mass into the core. It’s at this moment that all the heavier elements in the universe are created, as the star dies, in a supernova explosion. This produces either a neutron star, or if the star is massive enough, the entire mass of the core collapses into a black hole.”
* “As powerful as black holes are, they will eventually evaporate through a process called Hawking radiation. To understand how this works, we have to look at empty space. Empty space is not really empty but filled with virtual particles popping into existence and annihilating each other again. When this happens right on the edge of a black hole, one of the virtual particles will be drawn into the black hole, and the other will escape and become a real particle. So, the black hole is losing energy.”

**Rhetorical Analysis:**

The YouTube channel for all its videos uses animation to convey its topics into an easy-to-watch and digestible source of information. The art style is incredibly soft and kid-friendly, using fast-paced transitions and on-screen animals to convey what the narrator is saying in an easy-to-understand form. They use many colors and shades to keep your attention as well. The narrator is Steve Taylor, and he speaks in an exceptionally good informational discovery type documentary voice and cadence. It’s fun to listen to and keeps you captivated by how soothing it is. The information in their video isn’t too technical, meaning anyone even without a basic understanding of the topic previously, can still learn from their content. The captions are already set up in the video, meaning you can read subtitles as well when going through the video. The content in the channel is made by a team of people researching and getting expert testimonies from professionals. All the links and sources are put in the description of the videos. The videos are also relatively short. This provides for a less time-consuming way to learn about whatever scientific subject you want to.