Authentic Data Integration

When one thinks about space exploration and NASA, I believe most people would associate it with the physical sciences of astronomy, meteorology, physics, geology, etc. One does not always consider that NASA missions and the data that is collected can also give us incredible insight into the biological and life sciences as well.

There is wonderful heart rate data available of Neil Armstrong on the Apollo 11 mission at different times during the voyage (eg. during the launch, sleeping and at moon landing). My goal in my 5E lesson plan is to explore heart rate with preschoolers and have them compare how it changes with activity. I think including this data from Neil Armstrong would make the lesson very exciting to very small children and provide the phenomena or "hook" to peak their interest.

DATA SOURCE

Grubb,S. and Khan,A. (2019, July 17). The Apollo 11 mission as measured by heartbeats. LA Times. https://www.latimes.com/projects/la-sci-apollo-11-mission-as-measured-by-heartbeats/.

LESSON ENHANCEMENT

As stated above, I believe the chosen data could help "hook" the children into the topic right from the beginning. Most children are fascinated by anything to do with space and astronauts. As well, this particular data is both auditory and visual, making it more concrete and relatable for the very young. They see and hear what is going on in the mission and have a pictoral representation of a heart beating in the corner of each picture, demonstrating the changing heat rate.

USING DATA

I feel that data and data collection is a very important aspect in any type of research. Firstly, its collection provides evidence that can later be analyzed and interpreted. There may be more than one way to interpret the data and demonstrating this can show even small children that there may not only be one answer to a particular question. This process may help build a better environment in the classroom where children will take more risks in their analysis and evaluation.

INTERDISCIPLINARY CONTEXT

This data can be used to integrate across STEM content areas in the following ways:

Science – investigating and asking questions about something that occurs in the natural world (ie. one's body) to learn more about how it functions

Technology – utilizing a real stethoscope to measure the children's heart rates at rest and after a short run and compare with the data obtained from the astronaut

Engineering – design a simple stethoscope that the children can make themselves to measure their own as well as others' heart rates and compare with those of the astronauts'

Math – measuring and comparing their heart rates at rest and after an intense activity as well as comparing this data with that of the astronaut at rest and after an exciting activity The data can be bar graphed using unifix blocks so the children can observe and compare easily.