

Journal of Physics Special Topics

An undergraduate physics journal

P5_9 Are Pokémon as Dangerous as they Seem?

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December 7, 2021

Abstract

This paper investigates which Pokémon move is the most dangerous and which has the worst affect on the human population. Five moves have been chosen to be used and this paper shows that the Black Hole Eclipse move is the most powerful.

Introduction

In order to find the most dangerous move, a limit will be placed in the sample size to one instance of a move. In addition to this, the Z-moves and all combinations of items are used. The top five moves are as follows, Aeroblast, Magnitude, Sheer Cold, Black Hole Eclipse and lastly Continental Crush. All stated moves are devastating and represents the most potentially lethal moves of their class and category. Stated below are brief descriptions of these moves.

Aeroblast: Aeroblast is a pressure blast based move. It causes physical damage to an opponent which must mean the pressure differential needs to be incredibly high and close together. An example of this would be a bomb going off to create an air pressure wave strong enough to injure the opponent [1].

Magnitude: As the name suggests, Magnitude is an earthquake type move. What is interesting about this move is that it has a listed randomly selected magnitude level, therefore different power levels [2].

Sheer Cold: Sheer Cold is a move that hits the opponent with a blast of absolute zero temperature at which molecular vibrations that are

known as heat ceases to move. This could have devastating affects when weaponized [3].

Black Hole Eclipse: As stated in its name, the Black Hole Eclipse creates a black hole. This can easily have devastating effects on the population, not only the opponent [4].

Continental Crush: Continental Crush is a move that pulls out bedrock from underground. Pushing this through the ground collectively and then dropping it on the opponent from a height [5].

Theory

To shorten the list, the first to be removed out of the five will be Sheer Cold. The reason for this is because there will be no lasting damage outside the immediate area of absolute zero temperature given that the medium of transmission is air. The cold molecules would disperse out and eventually warm up.

The second to be removed is Aeroblast. Having blast over pressure where the pressure difference is created by bombs going off. The data from the Department of Defence has several psi values tabled [6]. Since Aeroblast is not necessarily fatal, it is likely to have 3 psi, which would create

winds of over 100 *mph*. When a large explosion occurs, it pushes air molecules together near the blast radius faster than the speed of sound. This moves out as a wall of pressure from the blast which dissipates when it goes over objects. This increases the pressure in a body by surrounding air and then greatly dropping it down again, causing extreme stress on organs which would definitely lead to a fatality.

Continental Crush: The estimation of the width of the combined bedrock is 100 *m*, holding an internal volume of 524,000 cubic metres. Given that the density of bedrock is 2,630 *kg* per cubic metre, this obtains the combination of bedrock to hold a mass of over 1.38 billion kilograms. As it is dropped on the opponent, the assumed height of this is 50.0 *m* with the acceleration of 9.81 metres per second squared. This combined bedrock would hit at the energy of 676 billion joules from the formula provided below.

$$E = \frac{1}{2}(m \times v^2) = \frac{(1.38 \times 10^9) \times (31.3)^2}{2} \quad (1)$$

Where *m* is the mass of bedrock and *v* is the free fall velocity calculated to be 31.3 *ms*⁻¹.

This would be equivalent to 161,000 tons of TNT that is released in a fraction of a second, making this move one of the deadliest moves in Pokémon.

Magnitude: This move as previously stated in the introduction randomly selects a magnitude between 1 to 10, and it deals this damage scale from this random generation. The magnitude is used instead of the Richter scale as it is logarithmic. Meaning that a magnitude 10 earthquake is not ten times stronger than a magnitude 1 earthquake, it is 31.6 trillion times stronger. If the move randomly selects a magnitude value of 10, it can definitely contend with the Continental Crush move, exerting the energy of 1.23 billion gigajoules.

Black Hole Eclipse: The gravitational pull barely overpowers the local gravity as it lifts the

opponent gently upwards. This would be the result of a gravitational body of,

$$m = \frac{2 \times g}{G} \times r^2 = 3.55 \times 10^{13} \text{kg} \quad (2)$$

where *g* is the gravitational field strength, *G* is the gravitational constant and *r* is the height of Pokémon at 11 *m* [4].

Small black holes decay due to Hawking radiation, using the decay formula,

$$t = \frac{5120 \times \pi \times G^2}{h_{bar} \times c^4} \times m^3 \quad (3)$$

which obtains a value of 119 million years to decay.

Conclusion

To conclude, all five moves are dangerous and could cause significant injury or loss of life if used. The move Black Hole Eclipse, produces a black hole is clearly the most powerful and dangerous as the matter causes the Earth collapse in on itself, destroying everything including all life on the planet.

References

- [1] <https://pokemon.fandom.com/wiki/Aeroblast> [Accessed 27 November 2021]
- [2] <https://pokemon.fandom.com/wiki/Magnitude> [Accessed on 27 November]
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- [6] Karl Zipf, Jr, R. and L. Cashdollar, P., n.d. Effects of blast pressure on structures and the human body. [online] Cdc.gov. <https://www.cdc.gov/niosh/docket/archive/pdfs/niosh-125/125-explosionsandrefugechambers.pdf> [Accessed on 29 November 2021]