

Flight Sergeant Alkemade leaps from his burning bomber at 18,000ft... Without a parachute.



Berlin, 1944

Alkemade achieved a terminal velocity of 130 m.p.h. He blacked out probably due to a lack of oxygen.



The Physics of terminal velocity

On 14th Oct 2014, Dr Alan Eustace set the world record for the highest freefall parachute. He leapt from 135,908 ft.

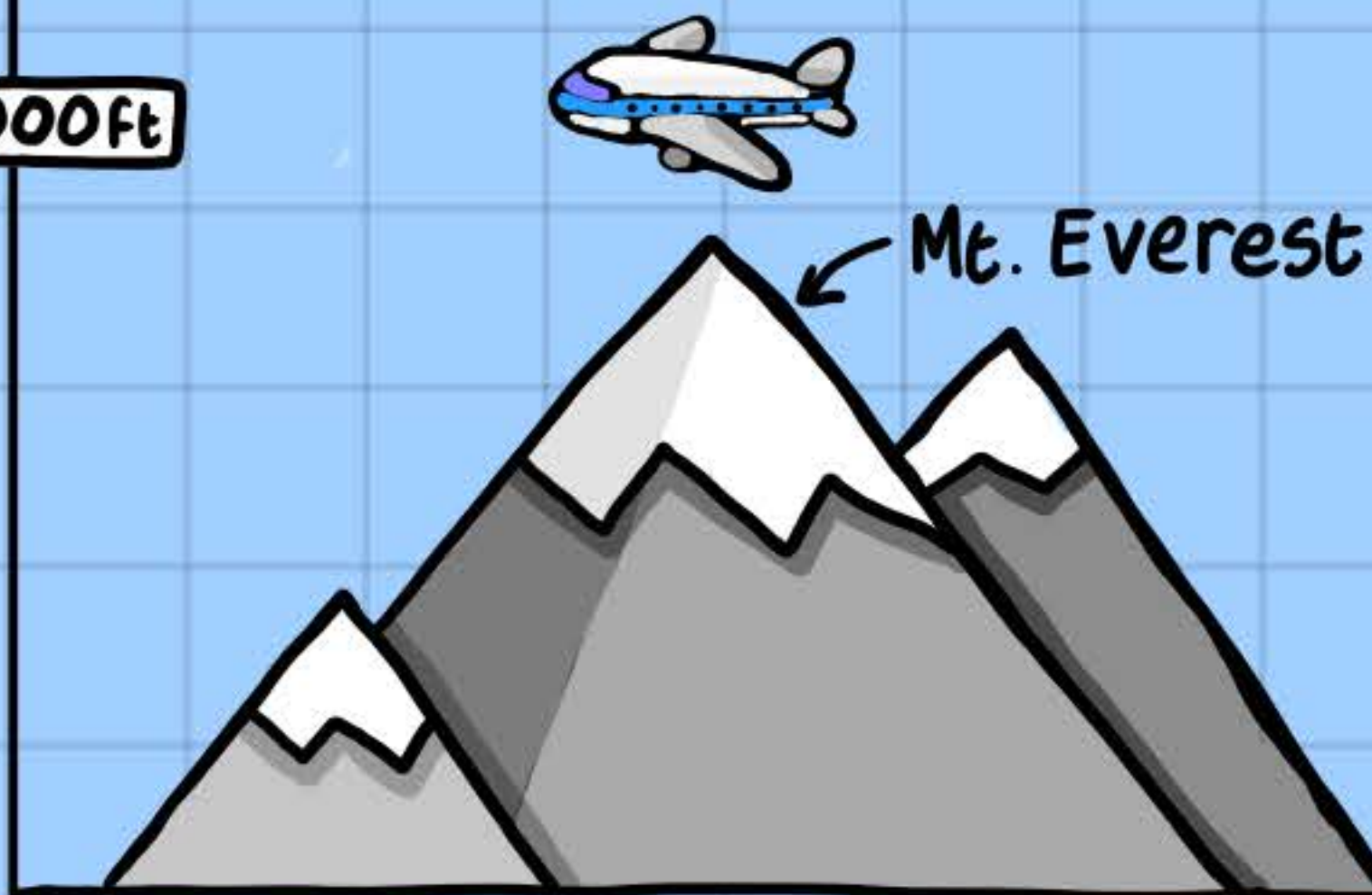


102000ft

68000ft

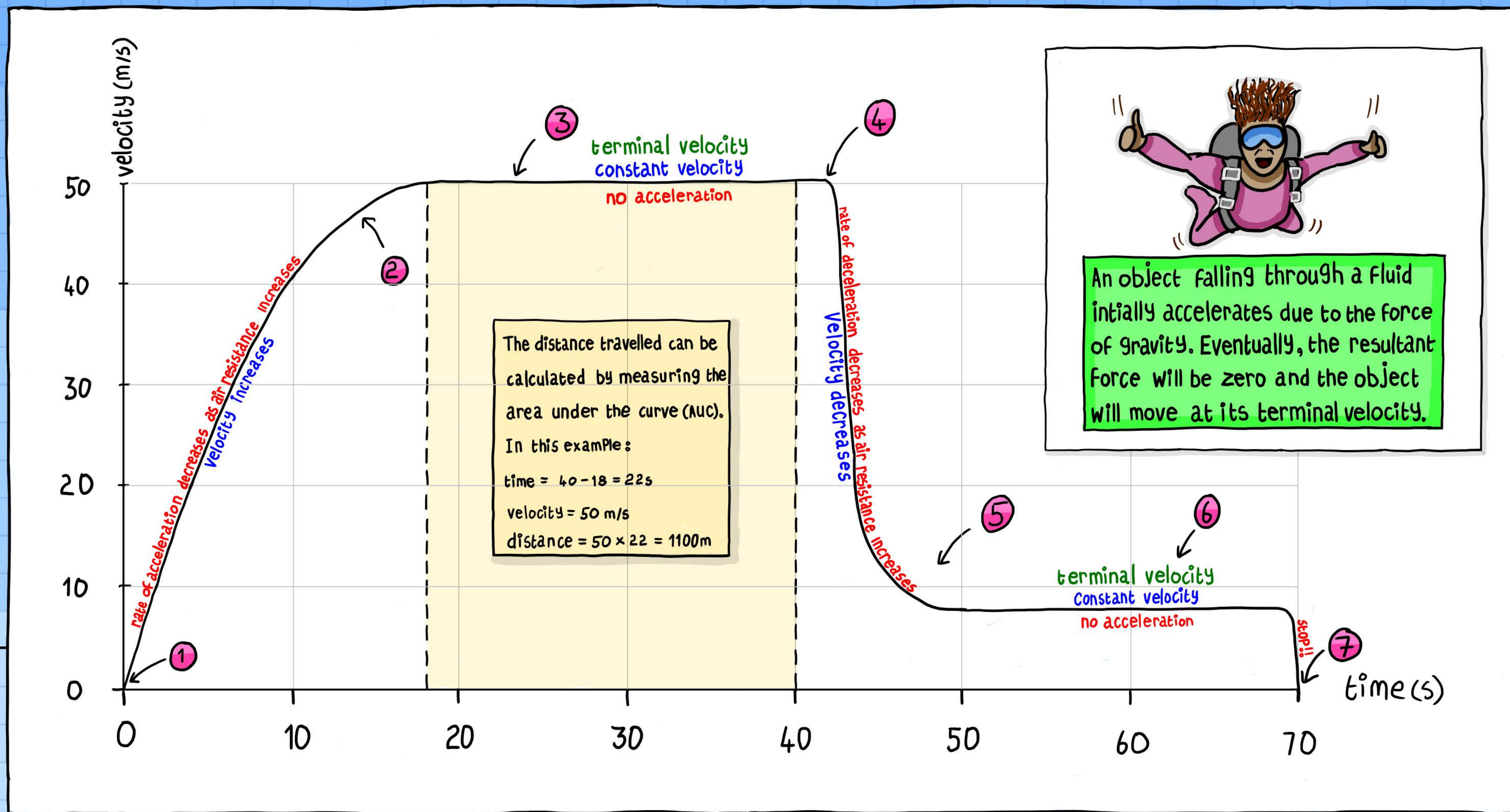
Max terminal velocity = 822 mph

34000ft

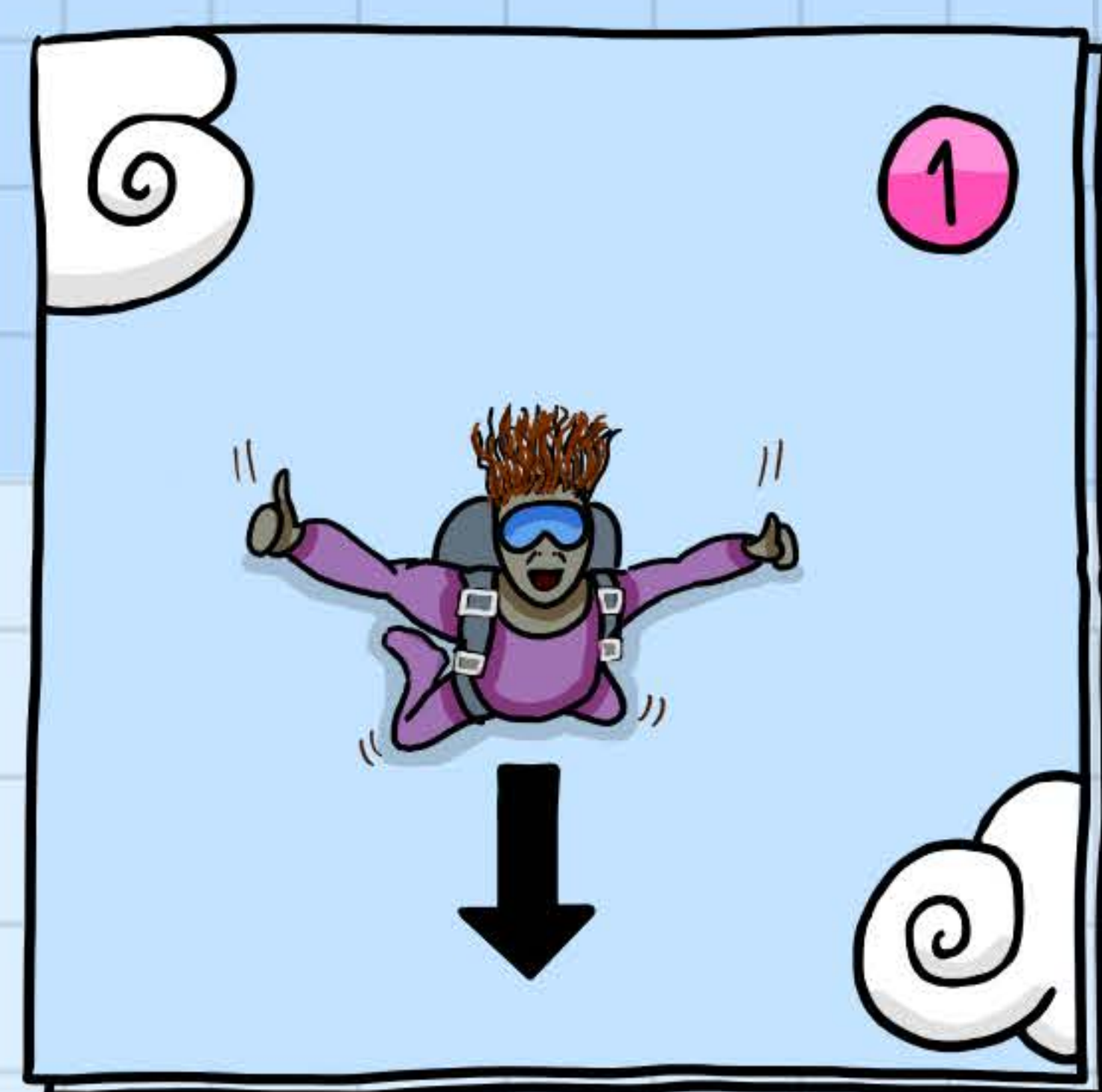


Mt. Everest

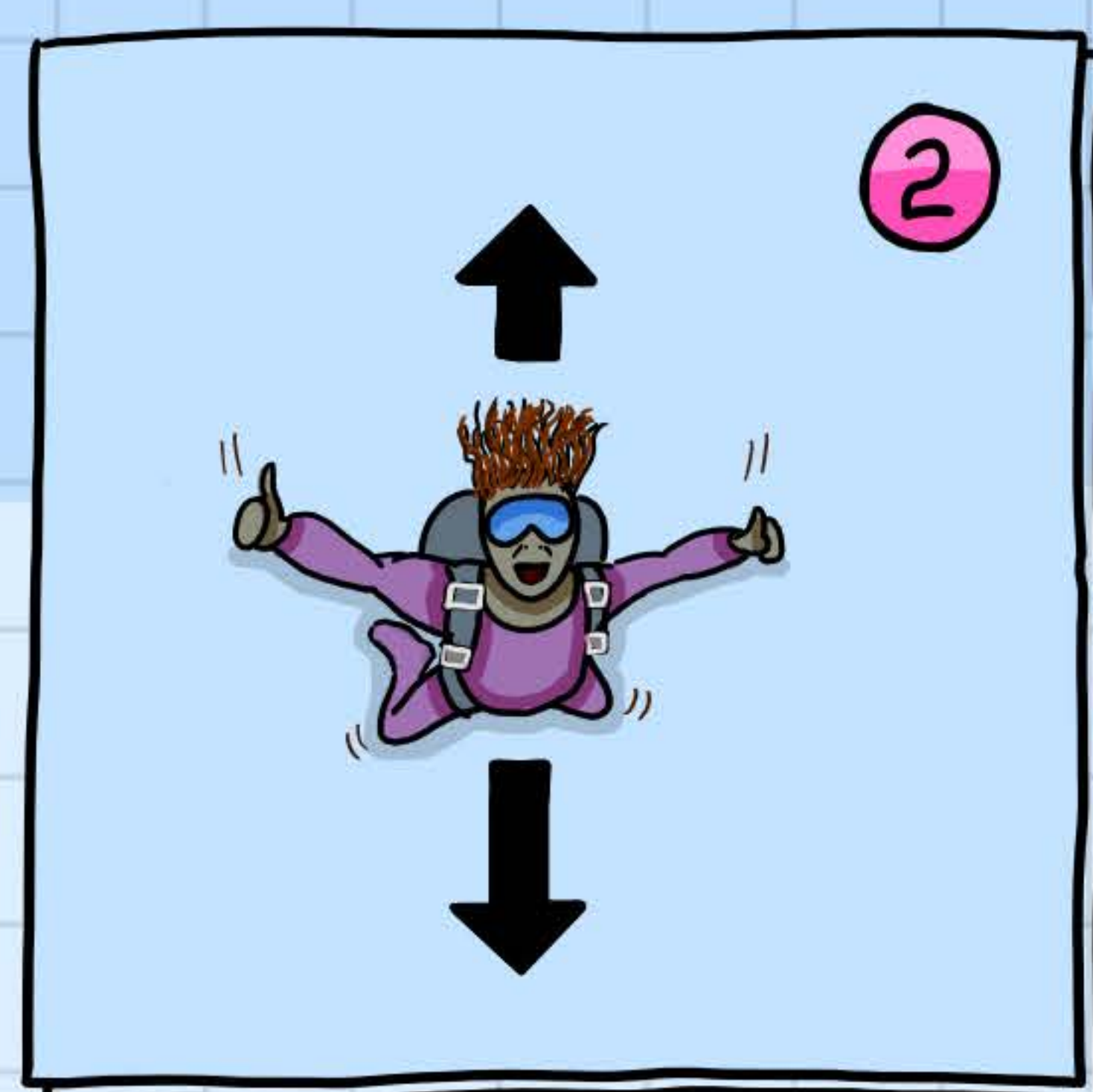
Dr Eustace fell in free fall for over 4½ minutes. At 8500 feet he deployed his main chute. 9½ minutes later he had landed and set the new world record.



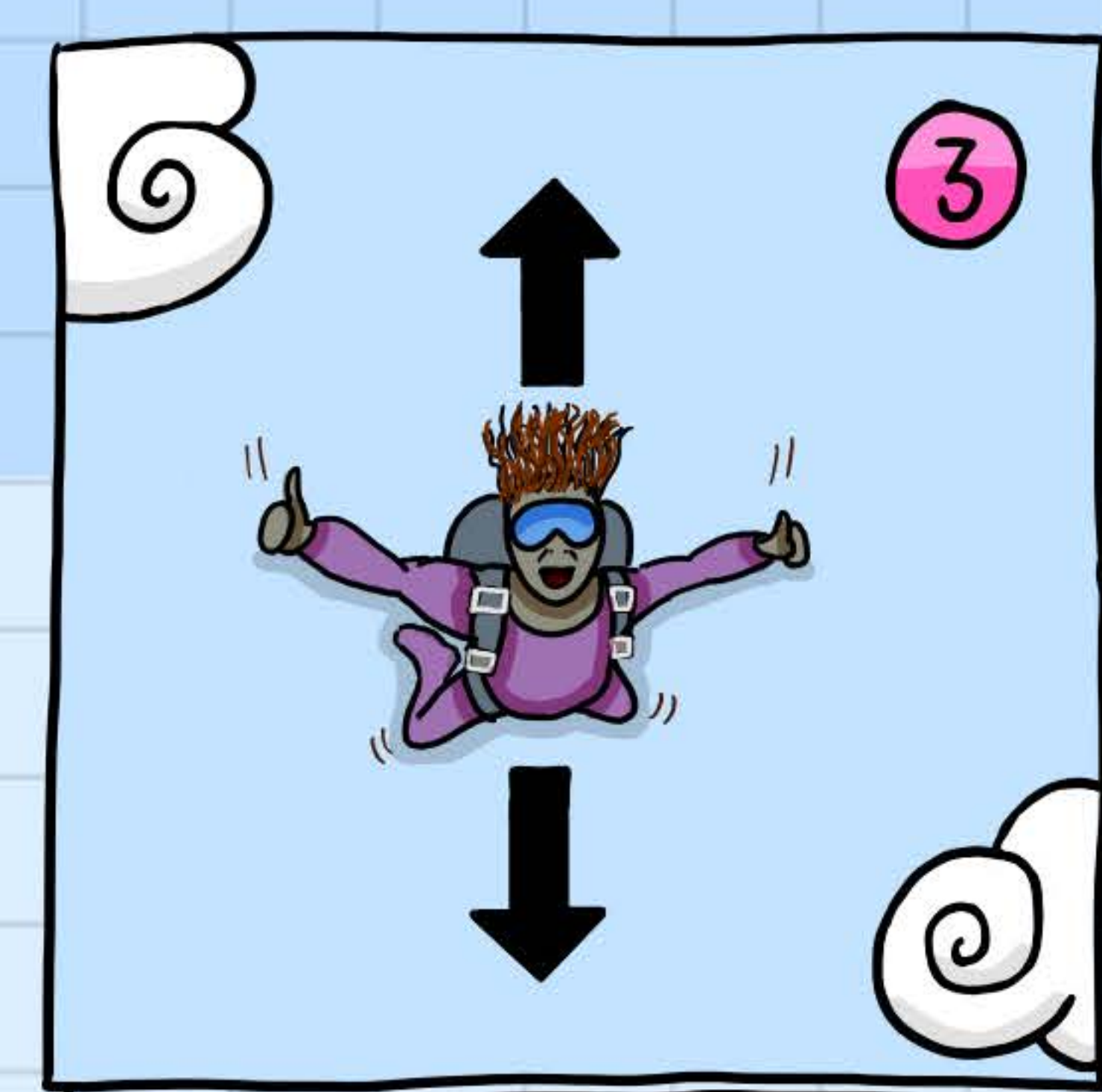
His fall is broken by pine trees and snow covered ground. His only injury is a sprained leg. Captured by Gestapo, he spends the war as a POW.



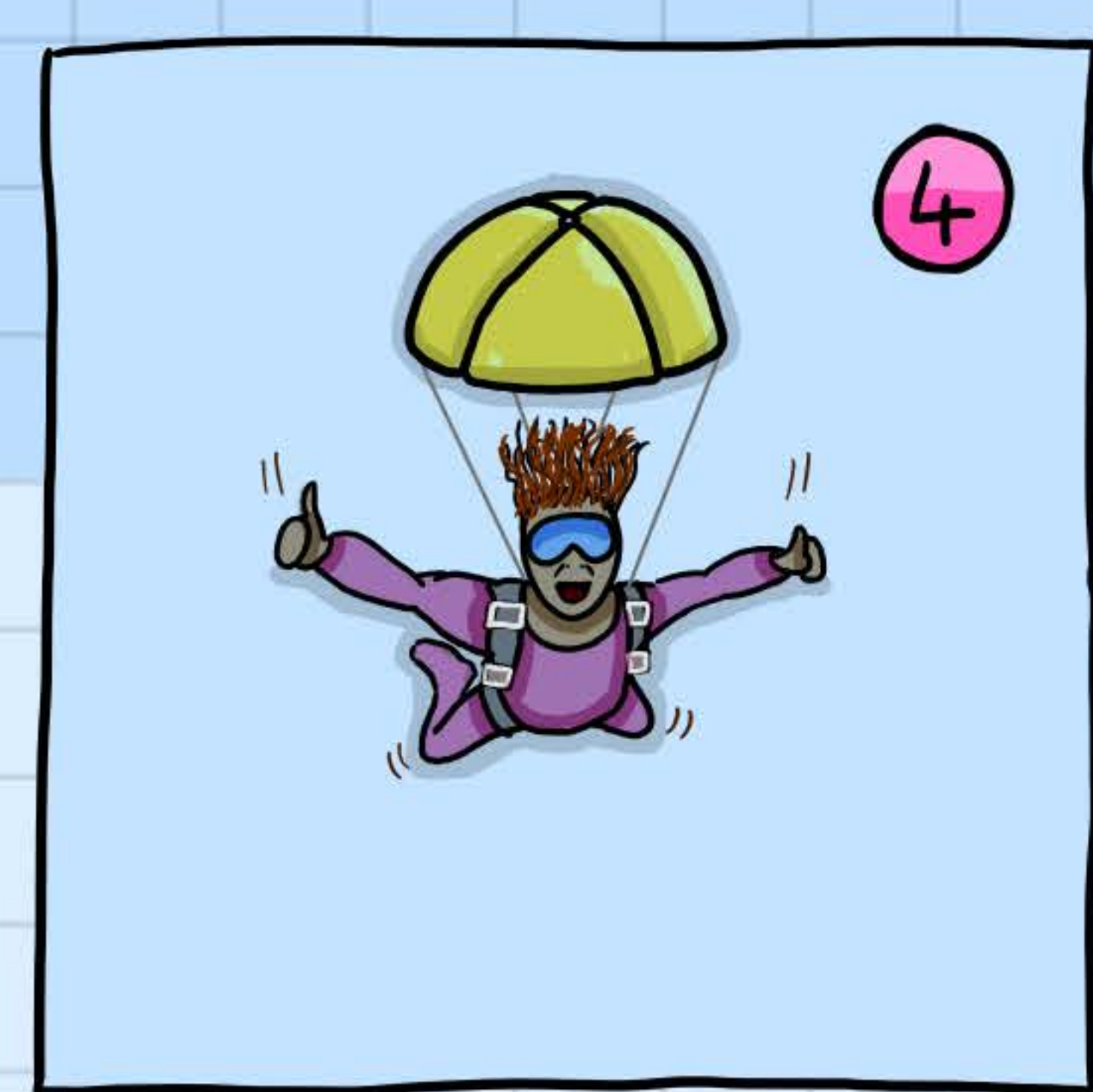
As the skydiver exits the plane, only the force of gravity is acting upon her. As a result her velocity increases rapidly. Her acceleration is due to gravity.



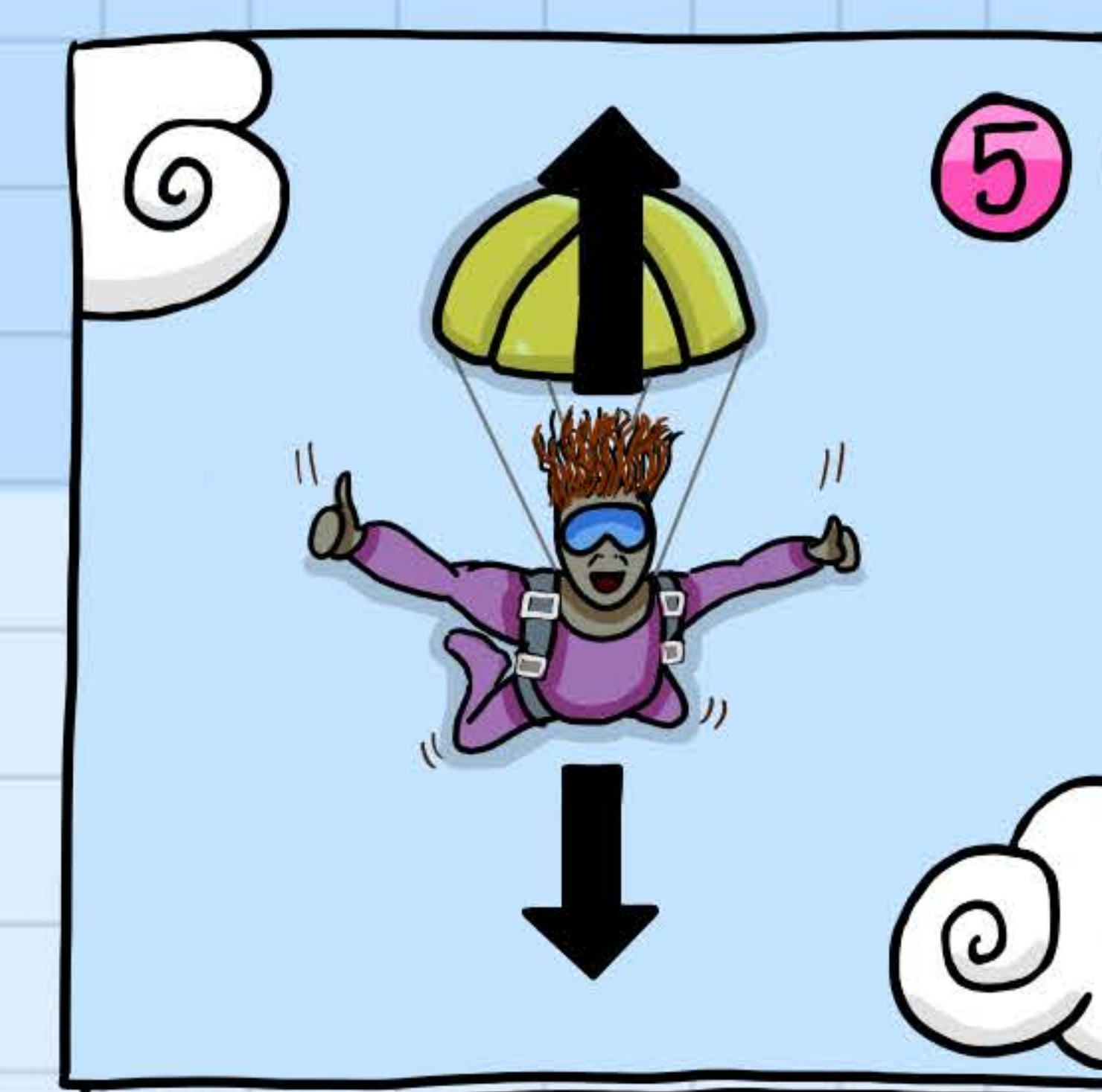
As the velocity of the skydiver increases so does the air resistance. As a result the rate of acceleration is decreasing. She is still increasing in velocity.



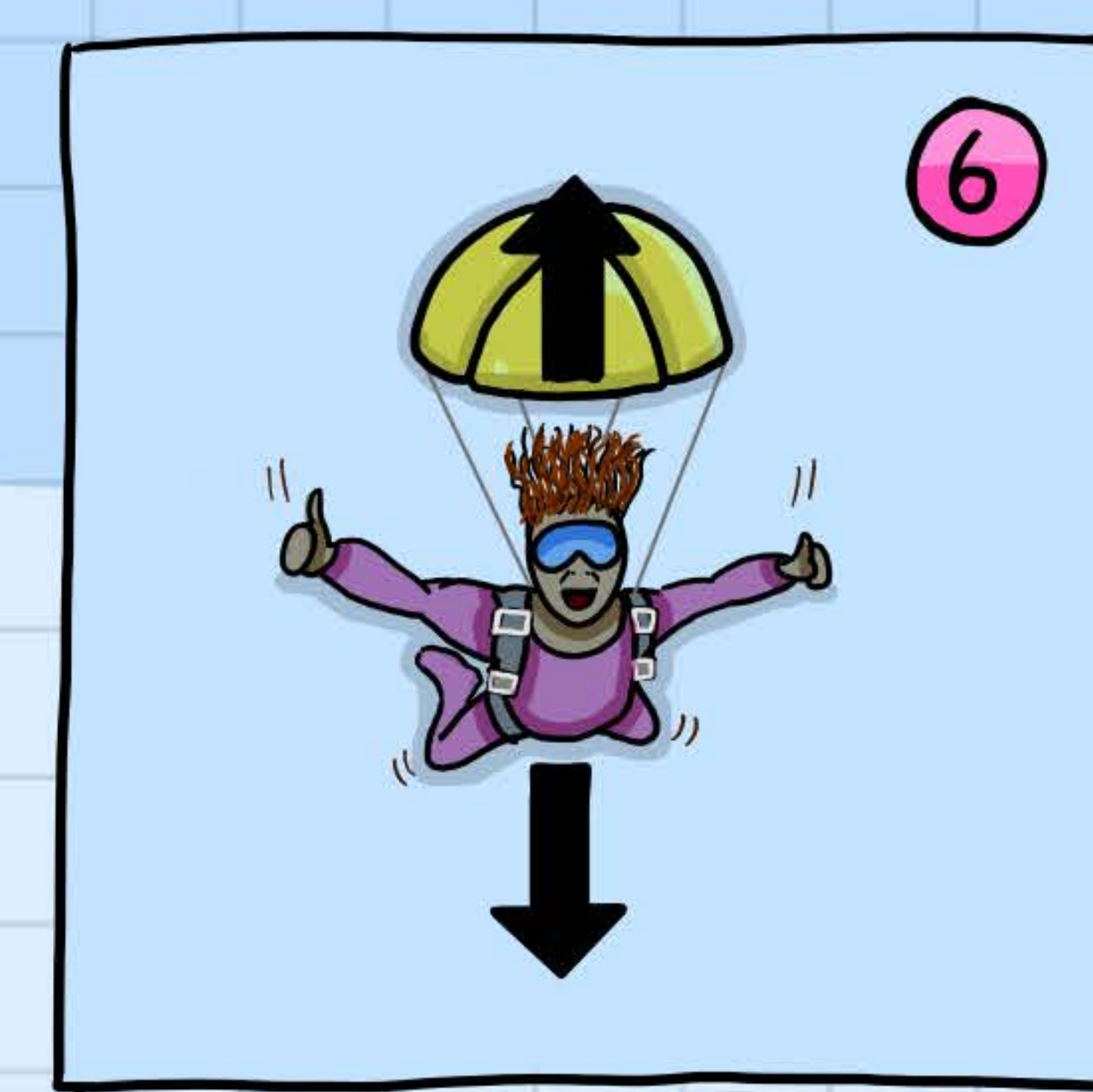
When the gradient of the graph is zero the force of gravity = air resistance. The velocity remains constant. This is the terminal velocity.



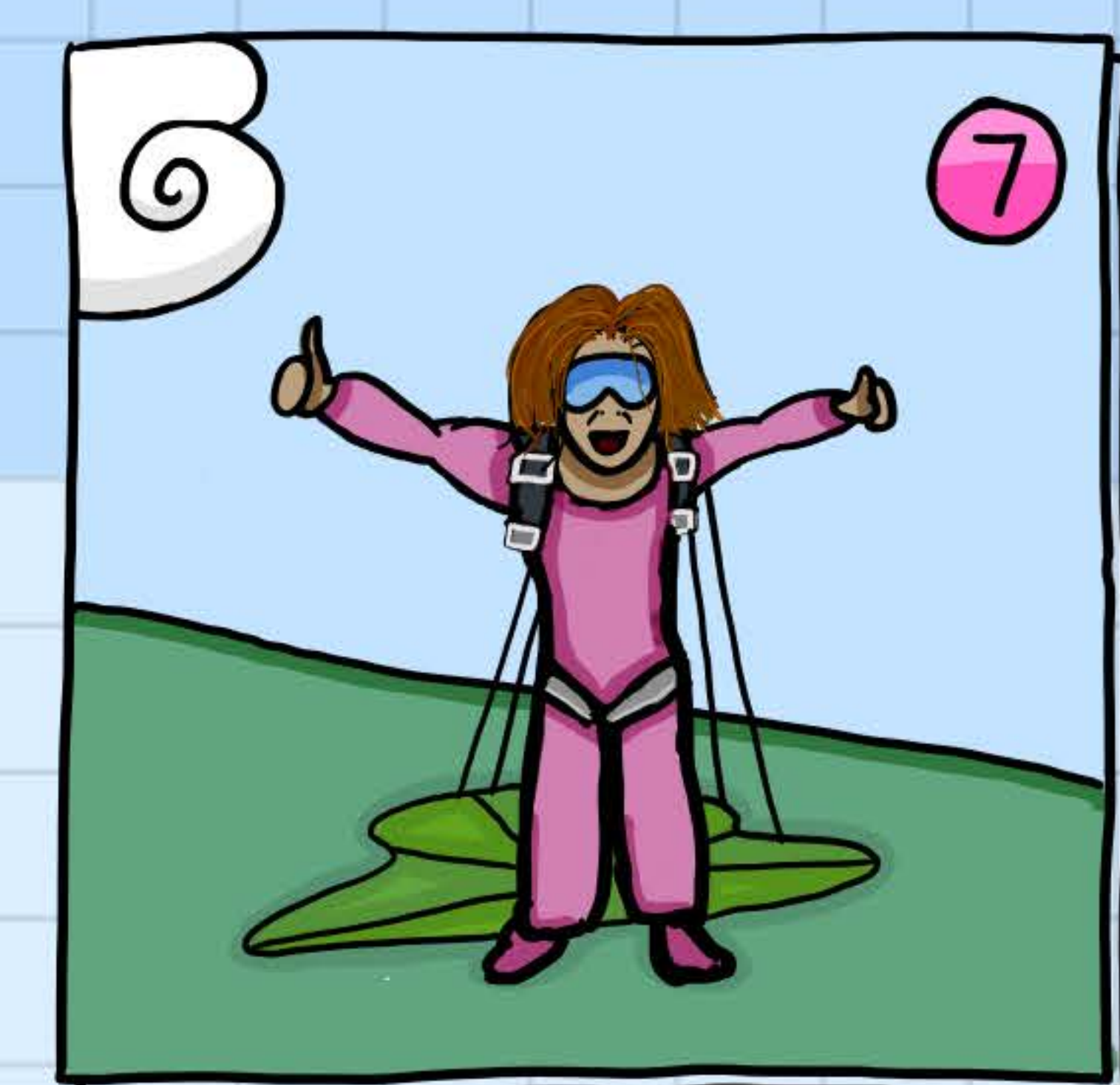
The parachute is opened!



The force of air resistance (from the Parachute) is much greater than the Gravity. The skydiver has negative acceleration (or deceleration) The skydivers velocity decreases



When the gradient of the graph is zero the force of gravity = air resistance. The velocity remains constant. This is the terminal velocity.



The eagle has landed!!!