

Write one important fact from each paragraph in this space.

Science Shorts -6

Zero Gravity

You have probably seen the astronauts floating around in the space shuttle. It looks like there is no gravity there and even the astronauts call it “zero gravity” or sometimes “micro-gravity” meaning very little gravity.

This is hard to explain, but there is gravity everywhere in the universe! Without gravity everything would just fly apart - including the universe. Think of the moon. It is earth’s gravity that holds it there and prevents it from flying off. Obviously the earth’s gravity effects objects even as far away as the moon.

Of course the effect of earth’s gravity grows weaker the farther away you are. On the space shuttle, however, you are really not that far away so the pull of earth’s gravity is about the same as on earth. This is hard to understand and even many adults cannot explain it correctly. I bet even your teacher thinks there is no gravity in space. Go ahead and ask - we’ll wait.



So why then are the astronauts floating around? Basically, the shuttle is in a constant state of free fall - it is simply falling towards earth continuously. It’s kind of like skydiving but in this case the shuttle is moving forward so it keeps missing the ground. The astronauts in the shuttle are also falling with the shuttle so it is like sky diving inside the shuttle - you fly around like your are weightless and this give the illusion of zero gravity.

Being weightless, however, doesn’t mean you are mass-less (or without mass). A 100-kilogram person’s body still contains the same 100 kilograms of mass as on earth. If that person needed to move a 100 kilogram object they would not be able to unless they could anchor themselves to something much more massive - such as the space shuttle itself. To prove this to yourself, try throwing a really heavy object while on roller blades. Even with friction, you will roll backwards and the object will not go as far as if you were anchored to the ground- like not wearing roller blades!

