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### Descartes' Diver

Descartes' Diver is a relatively simple and easy experiment. There is a lot of variety that you can add to the experiment with different types and sizes of bottles. You may want to have a few bottles with eyedroppers and add a variety of divers like a soy sauce packet or plastic sea creatures that you can squeeze and vary the amount of water and air inside them. Be aware that some of your bottles may break or the diver might malfunction. Make sure the kids are careful with the bottles as they may drop them or unintentionally break them. Even fellow rio students may squeeze the bottle so hard that the top blows off, so be wary.

It is best to have around four to six bottles, varying in size and difficulty. Make sure to have bottles easy enough for everyone, even the smallest kids. Eyedroppers with more water in them will be easier to sink. Have one bottle that is very difficult to get the diver down, so that only a few can do it. An eyedropper with very little water in it (mostly air) will produce the difficulty needed. Make sure that you (the exhibitors) can do it to show others. Have a paper to make a list of "Descartes' hall of fame", so that whichever kids get the hardest diver to sink can write their name down. The kids love it and will keep trying to get their name on the list. A bottle to try is one that is rectangular, like an herbal essence bottle, where that if you squeeze the long sides the diver will sink and the short sides will make it rise (the diver must have enough water so that it just barely floats).

Decorated bottles will add a nice touch and add an attraction to your exhibit. Encourage kids to start with the easy bottles and work their way up. Also, encourage teamwork with the hardest bottle and feel free to pitch in if they can't get it on their own. Make sure the kids know what they are doing and tell them to squeeze as hard as they can (you may have to point out where to squeeze on the bottle if they can't get it).

Parents WILL ask how it works, so make you sure you understand the concepts and can explain it so that anyone can understand!