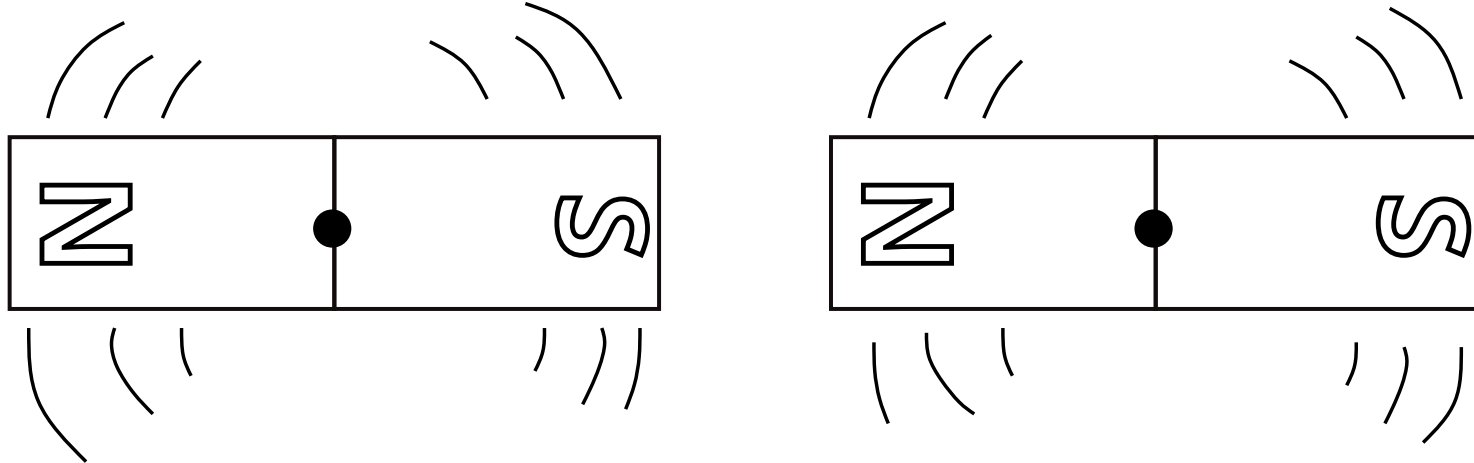


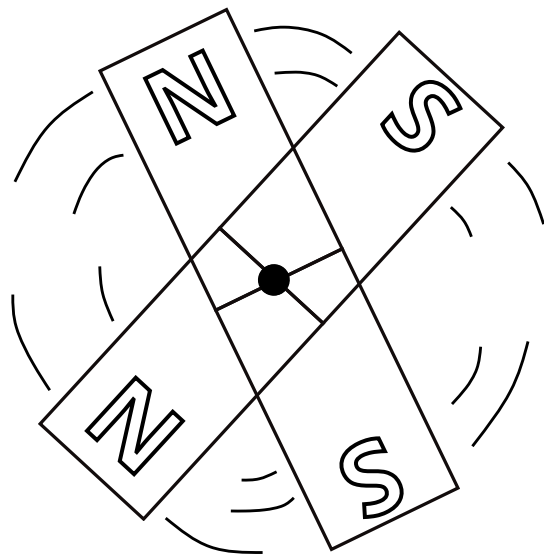
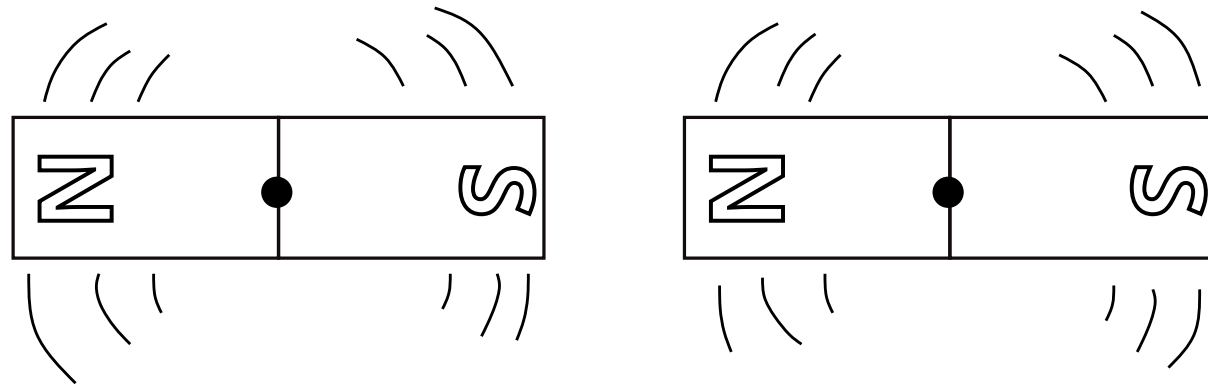
# Frustrated magnetism

Imagine two magnets that can't move anywhere but are free to spin around.

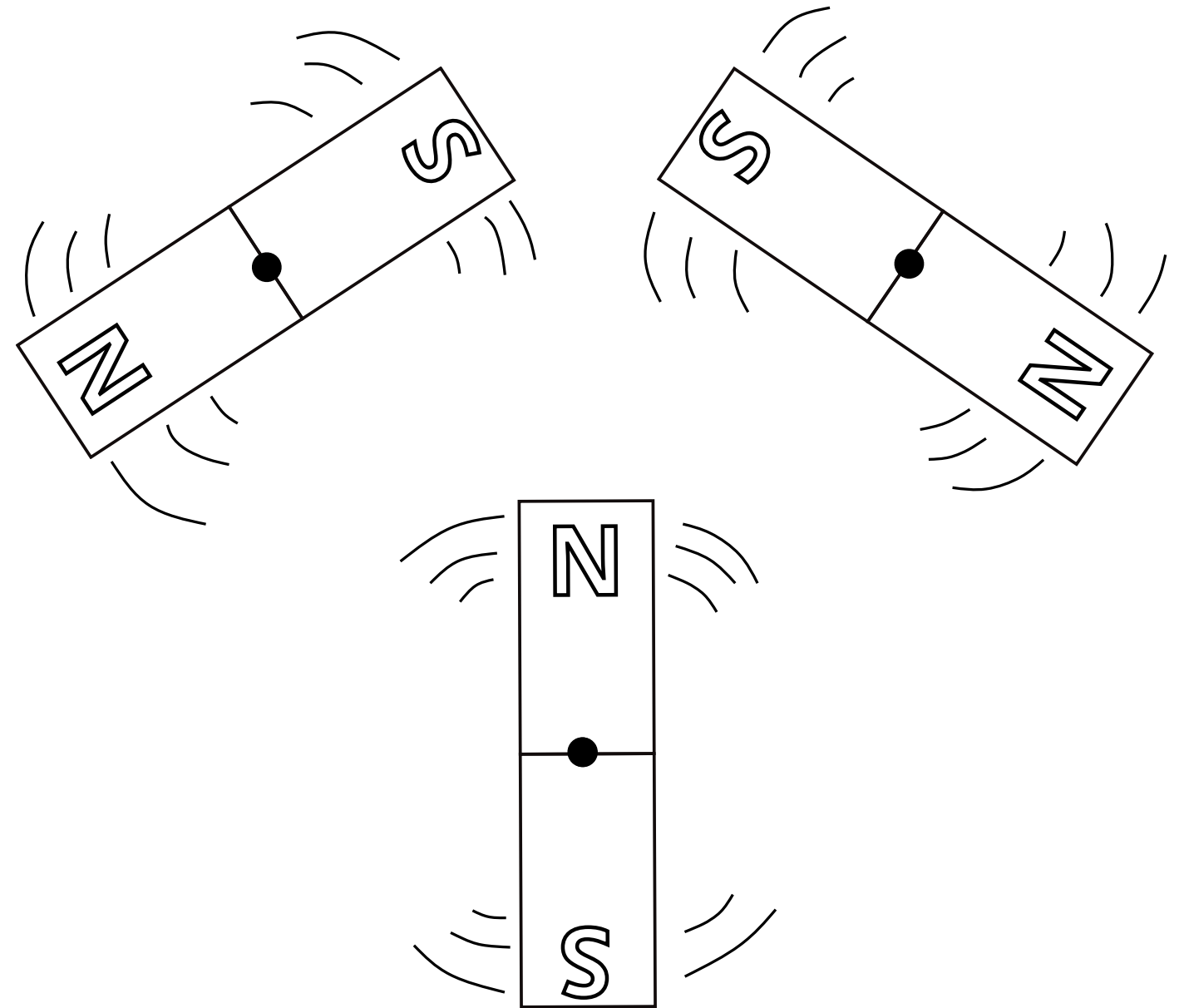


They will spin so that the North pole of one and the South pole of the other are pointing directly at each other.

But what if we add a third magnet? Which way will it point? The North pole is attracted to the nearby South pole, but the South pole is attracted to the nearby North pole!



In fact, the magnets will find a compromise, where they all share the attraction and repulsion. Because there isn't a way to make all the north poles be near only South poles, and the south poles be near only North poles, the magnets end up in this strange arrangement.



This is known as 'frustrated magnetism'.

You can do this with bar magnets, but the same can happen within magnetic materials - the tiny magnetic atoms can't find an orientation that makes them all happy, so they go with one that makes them all equally unhappy!