

Make a model to demonstrate how particles behave at absolute zero.

1) Use marbles (or any round shaped objects) to demonstrate how the particles in water behave as they change from a gas to a liquid, then to a solid, and how they would behave when cooled down to absolute zero. You will need some marbles and a tray. Firstly, position the marbles in the tray as if they were the particles in water vapour, a gas. The marbles should be spread out all over the tray. Move the tray so that the marbles roll all over it and move a lot. This is how the particles in a gas behave. Draw a picture or take a photo of your demonstration of the particles in a gas, like water vapour.

1)



2) Imagine the temperature gets lower and cools down. Position the particles so that they are all grouped at one end of the tray. Move the tray so that the marbles still roll all around, but stay at the end of the tray. This is how the particles in a liquid behave. Draw a picture or take a photo of your demonstration of the particles in a liquid, like water.

2)



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3) The temperature falls even lower, and the water cools down even further. Position your marbles in rows at one end of your tray. Move the tray so that the marbles shake from side to side but stay in their rows. This is how the particles in a solid behave. Draw a picture or take a photo of your demonstration of the particles in a solid, like ice.



4) Now, the temperature falls much lower, as low as absolute zero! Try to move the tray very gently, so that the marbles hardly move at all. This is what happens to the particles in a material as they are cooled down towards absolute zero. Draw a picture or take a photo of your demonstration of the particles in a material at absolute zero.

