**Thermal Conductivity Challenge.**

**Background**

Alchemists make gold with magic! They look to the amazing Earth where minerals and elements within the Earth’s crust are heated to incredible temperatures and put under immense pressure. These processes deep within the Earth, make the minerals and precious metals our society values so highly.

Imagine you are the Alchemist Assistant, and the chief Alchemist is unfortunately poorly with a cold. You are in charge of making gold – but you don’t really know how it is done! You know that you will need to use the heat and pressure inside the Volcano and decide that you must get a sample of the hot gasses from inside the volcano crater itself as that is what your Chief Alchemist would usually do. The Chief Alchemist is a grumpy old goat and refuses to talk to you to tell you how to stay cool inside the massive heat of the crater. Before you launch yourself into the abyss, you have decided to carry out an experiment to see what the best way of staying cool inside the volcano will be.

**Challenge**

Your challenge is to design and make a small vehicle/pod/vessel that will keep 3 ice cubes as ice for as long as possible. Quite tricky! You can use anything you have at home to insulate the ice cubes and keep them cold. When you’ve built your little capsule/pod whatever you want to call it, put three ice cubes into it and carry it around with you for as long as you possibly can without the ice melting. Time how long it takes and take photos of the vessel you build, the ice frozen inside and then the vessel when it has melted.

Finally do a little write up of what happened. Include-

* How long your ice lasted
* What went well
* What didn’t go so well
* What do you think was the best material to keep the ice cold and why.