# Lego Bricks Scenario

1. Trucks arrive with plastic granules of ABS material in different colours.
2. Giant hoses suck up the granules into large silos (14 silos), three stories high.
3. Each silo can hold up to 33 tonnes of granules. ABS Density is 1.03 grams/cubic centimetres.
4. From silos, granules are fed down to a molding machine.
5. Inside Molding Machines, the granules are heated to 230 degrees Celsius. Hundreds of tonnes of pressure are applied.
6. Cooled and ejected to a conveyor belt (10 seconds process required to cool).
7. Pieces roll down to conveyor belt and then are collected in boxes. When a box is full, an operator picks up the box and places them on another conveyor belt.
8. Each piece is then printed on.
9. Cassettes open and close to allow the right number of each piece to fall into place.
10. Packing operators then fold the boxes, add instructions, additional pieces and they are then shipped to the stores.

So how can the resource be managed in this case?

* Change colour of bricks.
* More lines (different pieces for a set).
* Speed of conveyor belt (cooling time).
* Speed of the truck’s delivery (initial and unloading of trucks).
* Temperature
* Pressure
* Change size and number of silos.
* Number of molding machines.
* Size of boxes.
* Size of storage area (preloading)
* Marketing team budget (how well the sets are sold in store affecting profit per sale).
* Number of packers.
* Supplier Team (Cost of imported materials)
* Time taken or number people loading a truck.
* Distance between warehouse and stores. Number of trucks. (Basic Dijkstra’s)
* Randomly breaks a machine. Time taken for engineer to arrive, repair.
* Employment costs.
* Choose between employees with robots (cost benefits)
* Option to buy a machine to recycle the material to use again or waste and dump it. (Affects company reputation, cost of buying material, cost of electricity – choosing coal or renewable installing solar panels and wind turbines on factory.)

Potential effects

* Spending too little on supplies and cost will affect the quality of the product, affecting sale rate.
* If they do not choose correct temperature and cooling time (230c and 10 seconds) this will affect the product quality again.
* Customer satisfaction – focuses on product quality and cost. Affecting sale rates and hence profit.
* Companies reputation – this is affected by the practices. Robots vs Employees, Wastage and unused material.