Patch:

* Grow back *sugarGrowBackRate* units of sugar every *sugarGrowBackInterval* ticks, up to the maximum capacity.

Agent:

* Eat and move
  + Select vacant patches which offer the highest welfare once consumed
  + If several patches exist with the same value, choose the closest
  + Move to this patch, and eat all of the sugar and spice
  + Subtract sugarMetabolism from sugar, and spiceMetabolism from spice. If the sugar or spice ≤ 0, the agent dies and is removed from the Sugarscape
* Reproduce
  + Select each neighbour in a random order
  + If the neighbour is fertile, of the opposite sex, and one of the agents is adjacent to an empty patch, both agents deplete their sugar by half of their initial endowment and a new agent is created in the empty patch
  + Repeat for each neighbour
* Might die
  + Check age
  + If dies, give sugar to children
  + Should either the lender or borrower die before the loan is repaid, the loan is cancelled so either the lender takes a loss or the borrower gets lucky.
* trade
  + Compare MRS to each neighbour in a random order
  + If the neighbour has a different MRS, spice is traded in the direction of high to low MRS
  + Determine the transaction rate p as the geometric mean of agents MRS
  + If p ≥ 1, 1 unit of sugar is traded for p units of spice, otherwise 1 / p units of sugar are traded for 1 unit of spice
  + If the trade is valid if it will increase welfare of both agents, and not cause their MRS values to cross over. If valid, the trade goes ahead
  + Repeat rule until no more trades with any neighbours are valid
* Loans
  + Identify agent as either being in need of borrowing, or being a potential lender. A borrower is a fertile agent with insufficient sugar to reproduce. A lender is either fertile with an excess of sugar, or infertile. As a borrower, the agent will ask for a maximum of the amount needed to reproduce. As a lender, if fertile, the agent can lend a maximum of the excess above the sugar needed to reproduce. Otherwise the agent can offer up to half of its current wealth
  + As a lender, identify any neighbours who are borrowers, or visa-versa
  + For each valid neighbour a loan is made for the lower of the amounts offered and asked for called debtAmount
  + After 10 ticks, the borrower repays debtAmount \* (1 + interest) to the lender and the loan is concluded
  + If the borrower does not have sufficient funds, half of its current wealth is repaid, and a new loan is issued for the remaining amount multiplied by (1 + interest)