

In the **semi-conservative** model, the two parental strands separate and each makes a copy of itself. After one round of replication, the two daughter molecules each comprises one old and one new strand. Note that after two rounds, two of the **DNA** molecules consist only of new material, while the other two contain one old and one new strand.

In the **conservative** model, the parental molecule directs synthesis of an entirely new double-stranded molecule, such that after one round of replication, one molecule is conserved as two old strands. This is repeated in the second round.

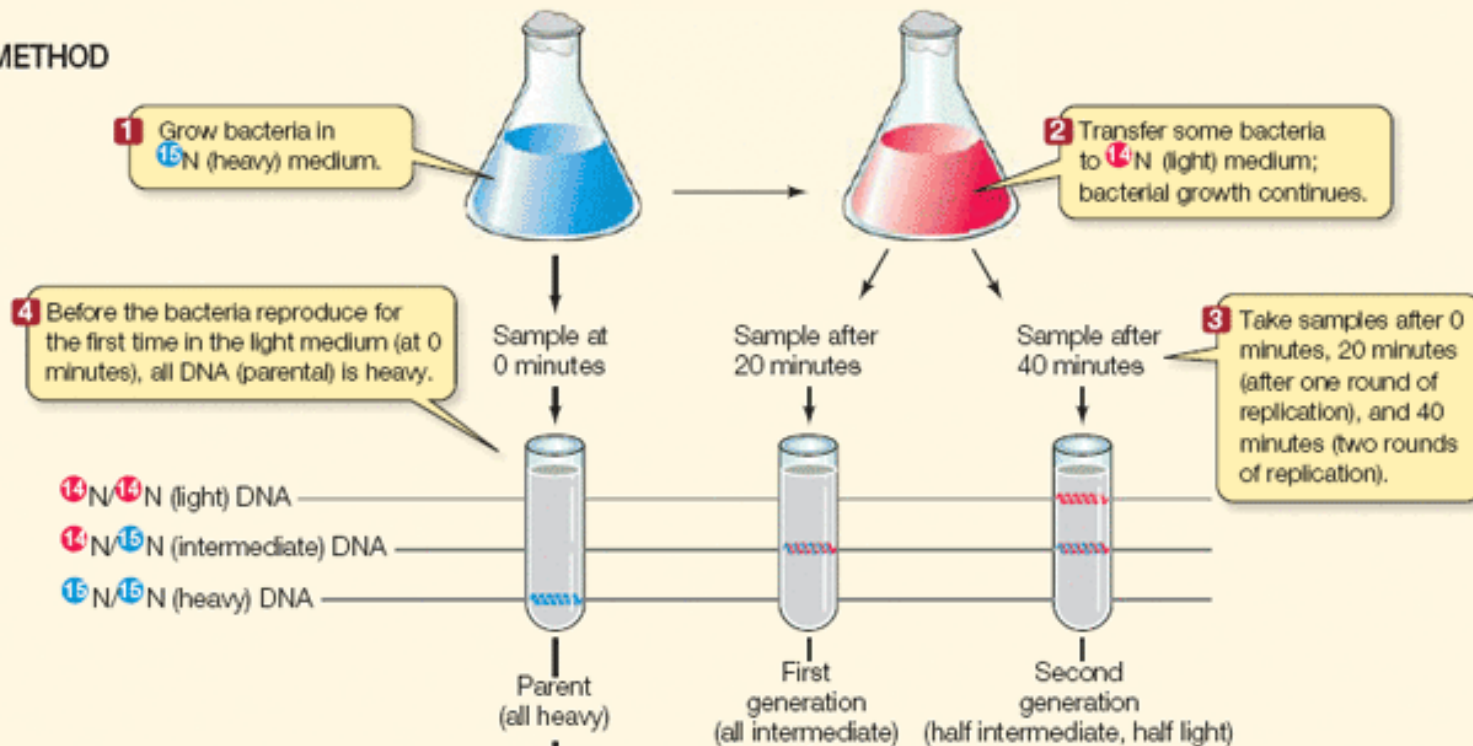
In the **dispersive** model, material in the two parental strands is distributed more or less randomly between two daughter molecules. In the model shown here, old material is distributed symmetrically between the two daughters molecules. Other distributions are possible.

The semi-conservative model is the intuitively appealing model, because separation of the two strands provides two templates, each of which carries all the information of the original molecule. It also turns out to be the correct one ([Meselson & Stahl 1958](#)).

EXPERIMENT

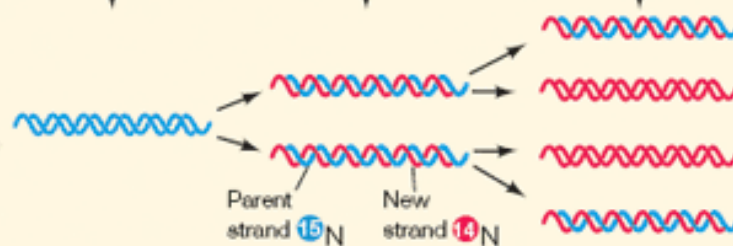
HYPOTHESIS: DNA replicates semiconservatively.

METHOD



RESULTS

After 2 generations, half the DNA was intermediate and half was light only; there was no heavy-only DNA.



CONCLUSION: This pattern could only have been observed if each DNA molecule contains a template strand from the parental DNA; thus DNA replication is semiconservative.

