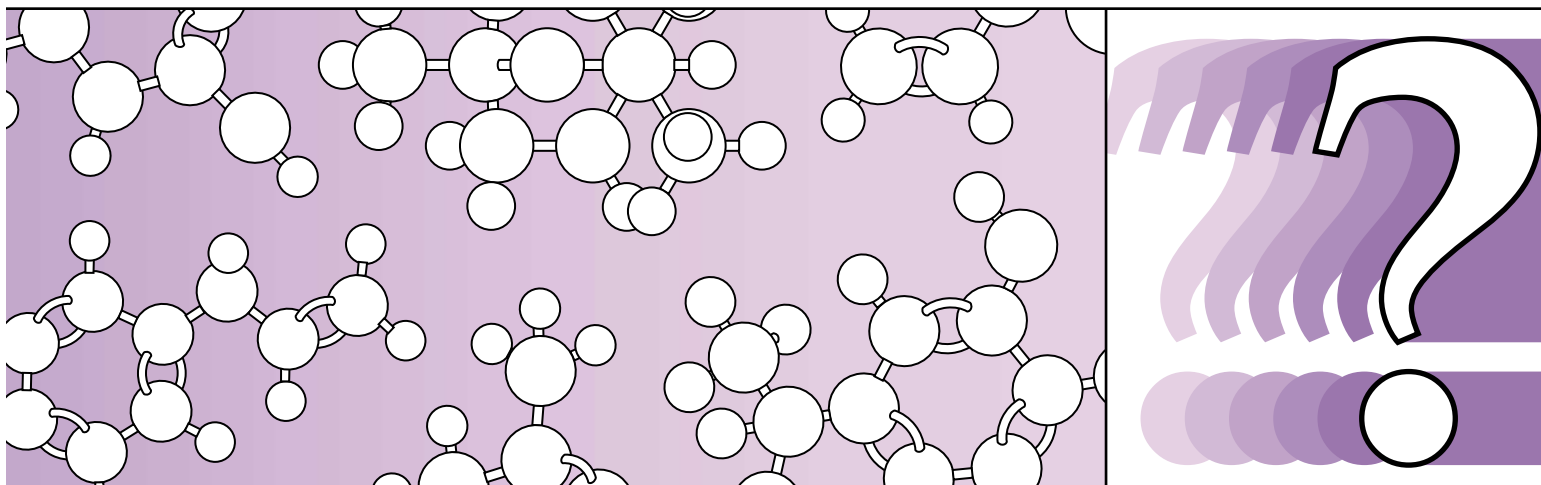


The Pfizer Foundation Biochemistry

Discovery Lab

**Build the molecules
that give flowers
their colors**



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Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation (NSF).

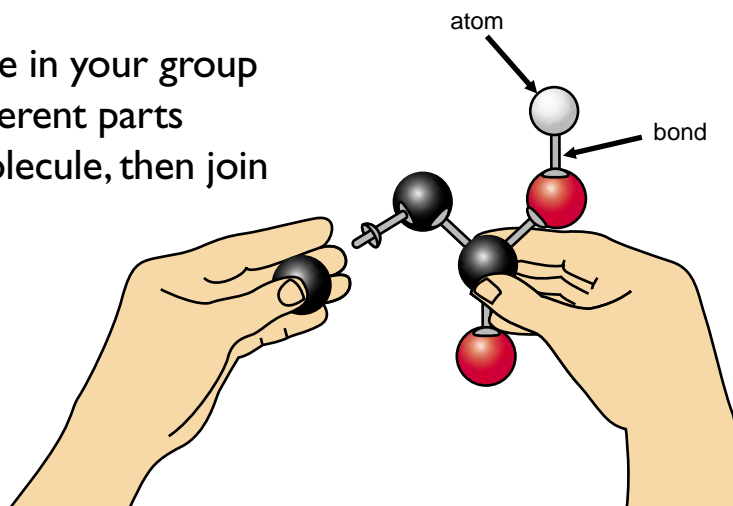
The Pfizer Foundation and the Camille and Henry Dreyfus Foundation, Inc.

Colored molecules give flower petals their color.

**Build models of colored
molecules in flowers.**

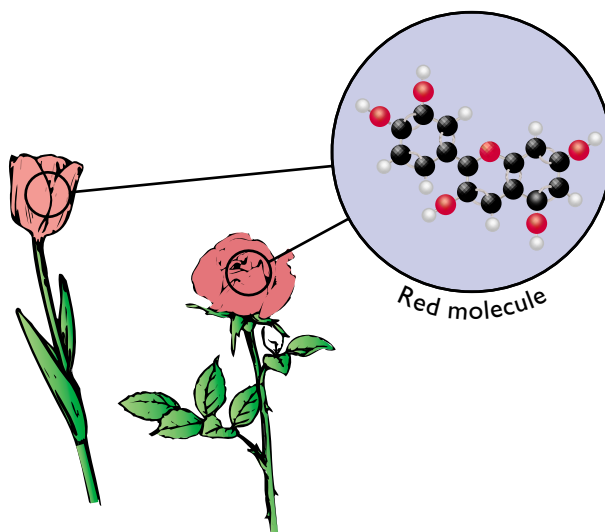
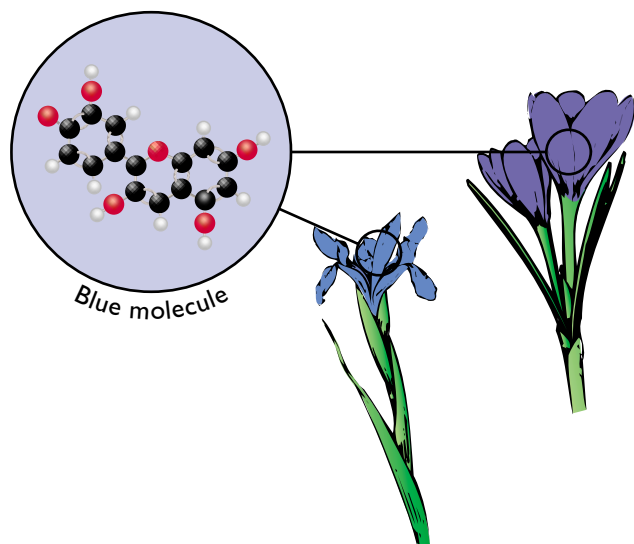
Use the atom pieces to build a model of either the blue molecule or the red molecule.
The model you are building is millions of times larger than a real molecule.

Different people in your group could make different parts of the same molecule, then join them together.

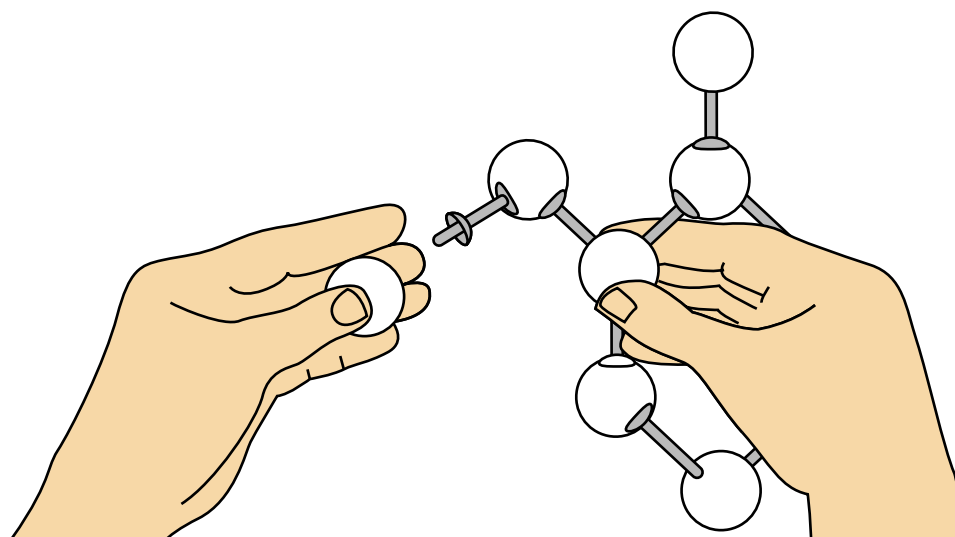


Blue molecules are in the petals of flowers that are blue or purple.

Red molecules are in the petals of flowers that are red, pink or orange.

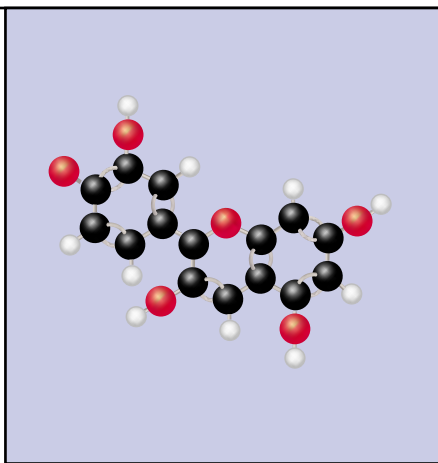


Now add or remove just one atom to change your molecule into the other color molecule.

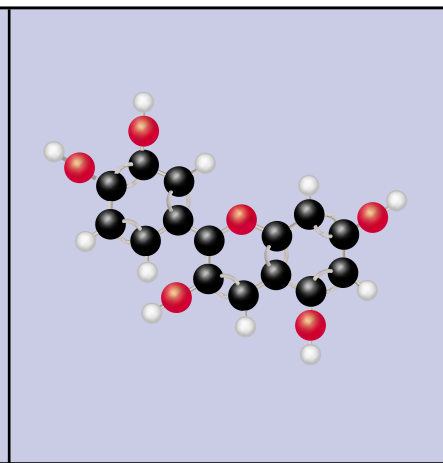


Clue:
You will need to add
or remove one white
hydrogen atom.

Even though you made only
a tiny change to the structure
of your molecule, it causes
a big change in color.



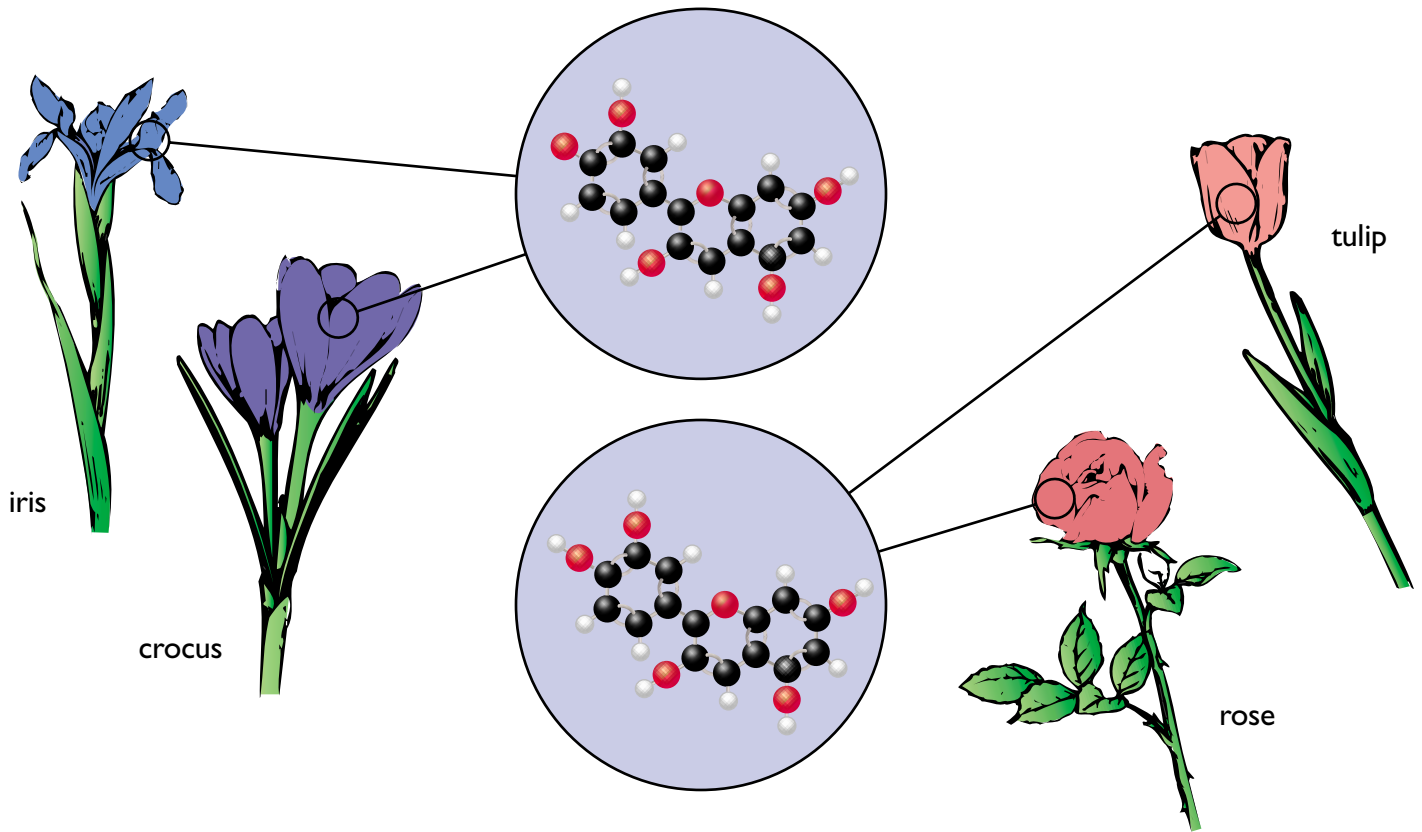
blue molecule



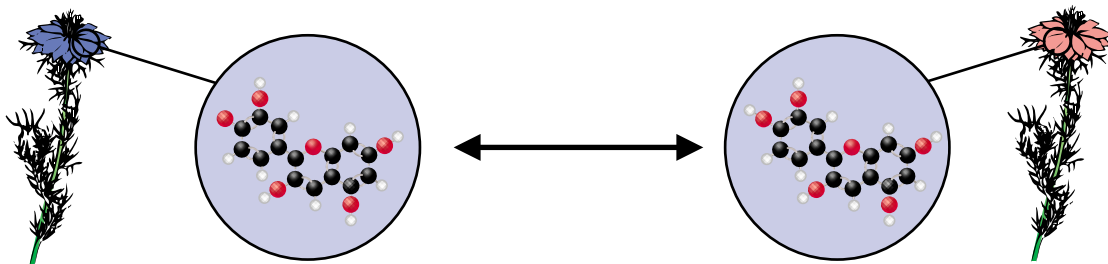
red molecule

How do these molecules give flowers different colors?

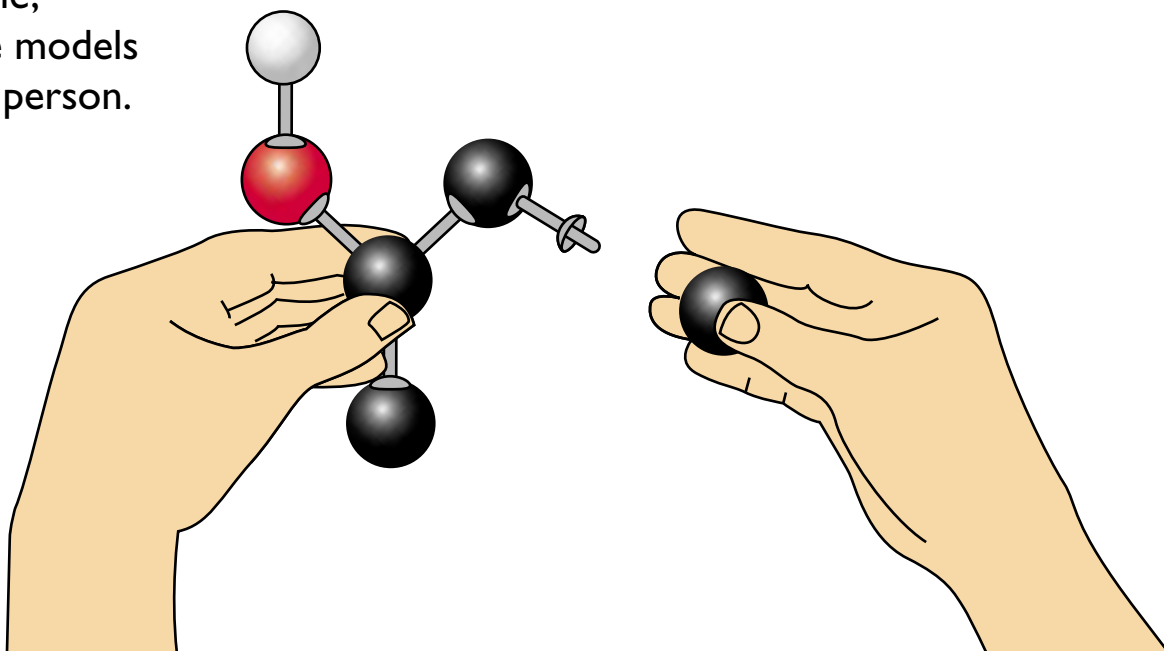
Colored molecules with just a small difference in structure give flowers different colors.



Some flowers can change color by changing the structure of the molecules in their petals.



When you are done,
pull your molecule models
apart for the next person.



At another table you can do an experiment
with real flower color molecules.

