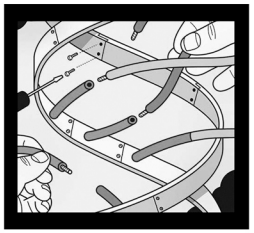


Genetic engineering is cutting and combining DNAs.

DNA is actually consisted of various genes.

one part

may be about eyesight,

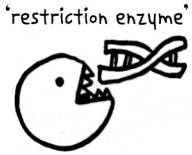
the other

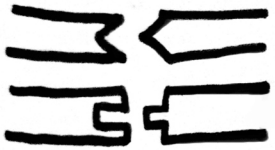
maybe about antibiotics.

Let's say that we need genes for antibiotics.

We use restriction enzyme to cut the part,

from DNA that we want,

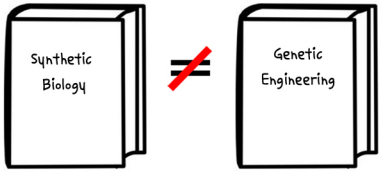




cut the other DNA, and

combine it together!

That would make the DNA that has antibiotics.



Synthetic biology is different study from genetic engineering.

Synthetic biology is study related to making a new life system with genetic engineering technology.

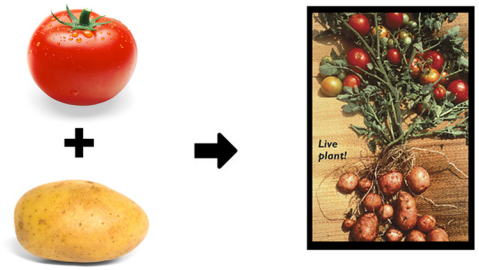
Using cutting and combining method,

we make organisms that

work as heavy metal sensor,

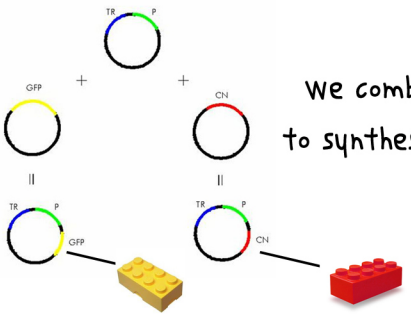
landmine sensor, or smell sensor.

In genetic engineering,



we make plants with both tomato and potatoes;

in synthetic biology,



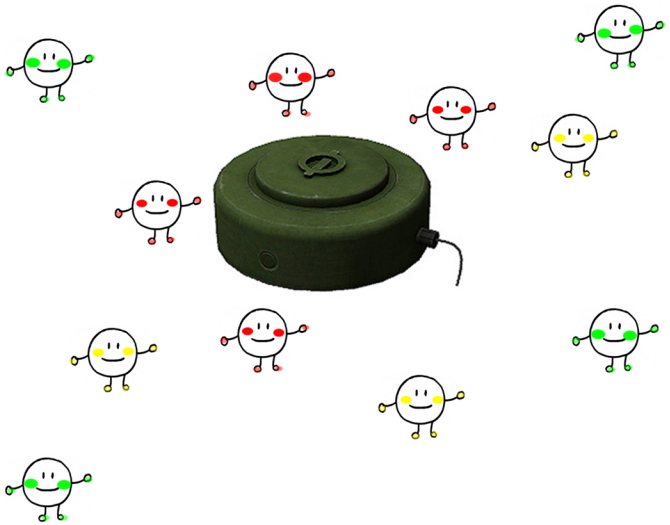
we combine "bio brick"

to synthesize new organism.

We can do a lot of things with synthetic biology.

For example, there is a landmine detecting sensor.

We insert "bio brick" into the DNA of an organism.



When organism's TNT concentration

is high it would show red,

when medium it would be yellow,

and when it is low it would be green.

This method enables us

to recognize the location of landmine.

"

To let many people learn and experience synthetic biology,

MIT (Massachusetts Institute of Technology) is hosting an

"international genetic engineering machine" (igem) annually.

In this competition, all the participants use the given "bio brick"

to design and synthesize an organism that has new functions.

Teams that make the most useful and delicate organism wins the award.

There are two divisions — college division and highschool division.

"