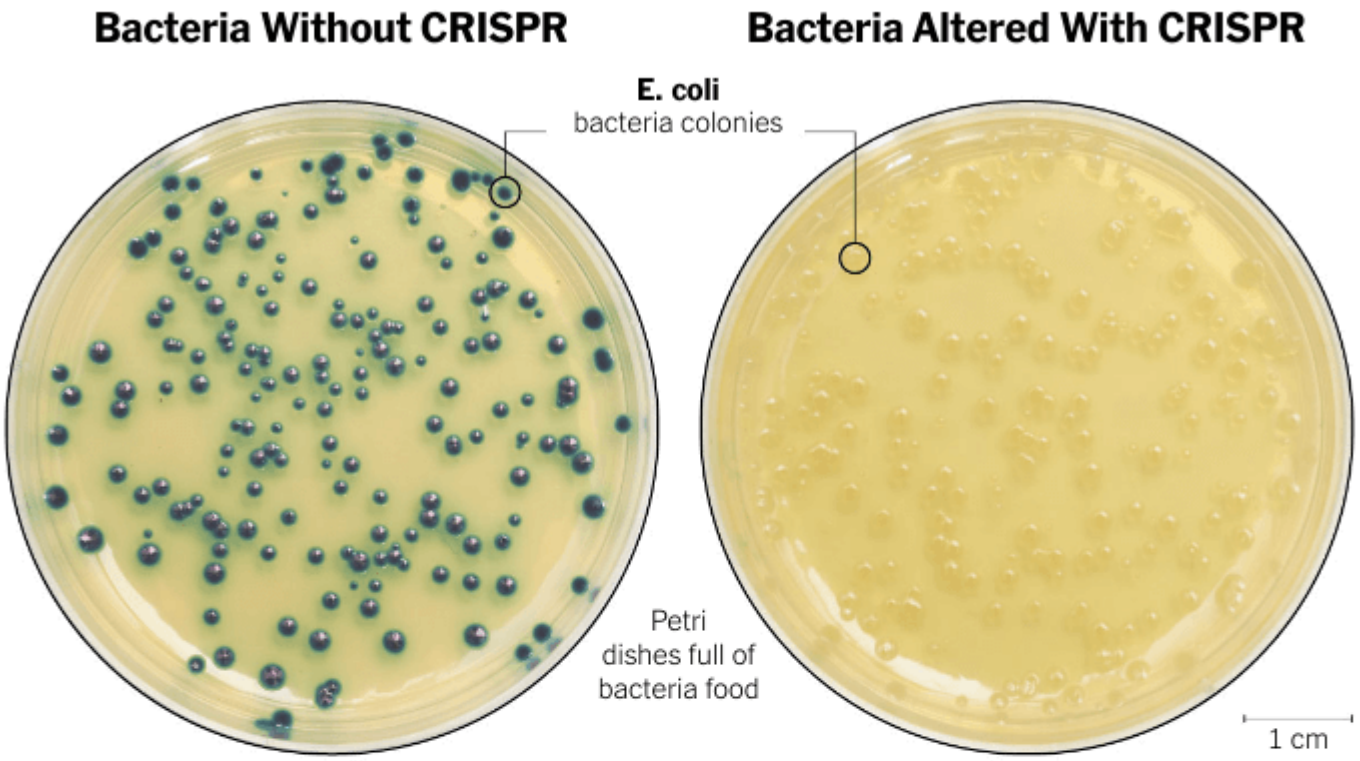
Just 10 years after its invention, CRISPR gene editing is taught in high schools

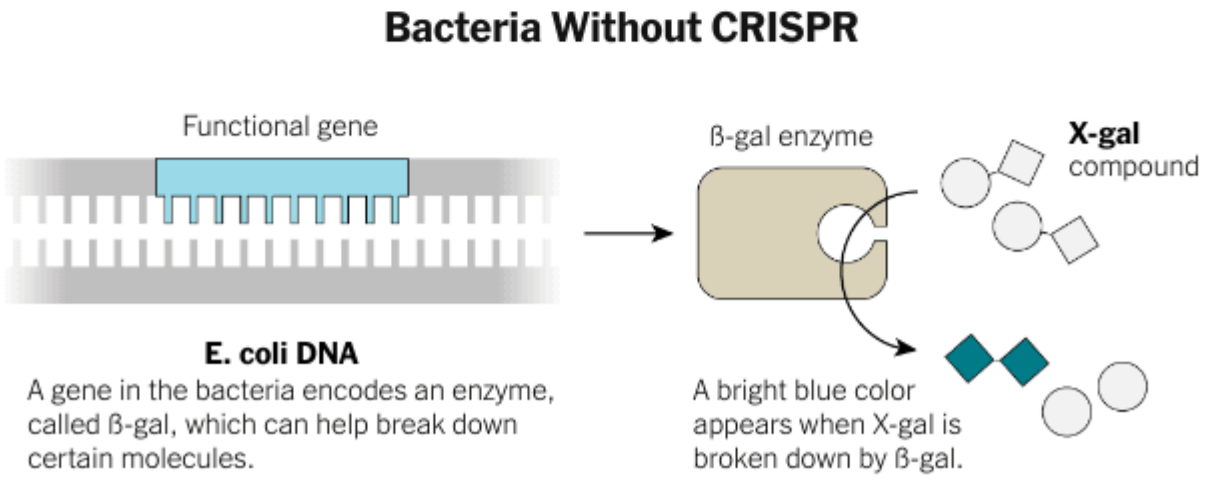
A decade after CRISPR started to become a major tool in genetic research, a new generation of scientists is growing up with the technology. Even high school students are able to run CRISPR experiments. Some specialized public high schools teach CRISPR as a hands-on lesson in biotechnology. These classes cover everything from molecular biology to pipetting to biomedical ethics and career options.

“Visualizing and comprehending what’s happening on the molecular level is usually always the challenge,” said Katy Gazda, a high school biotechnology teacher who taught CRISPR in her classroom last year. To help students better understand complex molecular movements, teachers use tools like paper models, 3-D printed models and online animations.

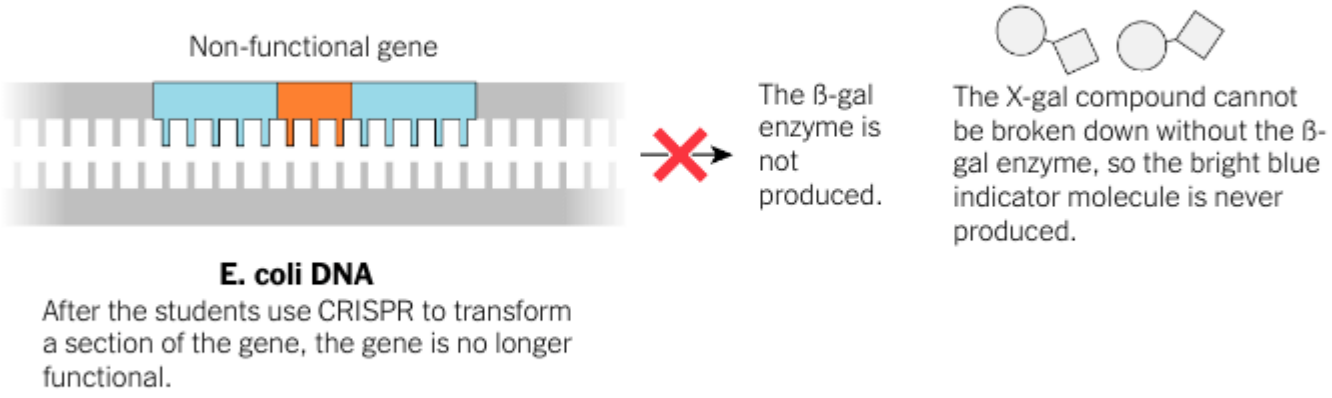
The process of altering E. coli DNA with CRISPR involves lab techniques like pipetting liquids and carefully moving bacteria colonies. Teaching a new lab class like CRISPR can be intimidating, says Gregory Jubulis, a high school science teacher who uses the Bio-Rad kit in his biotechnology class. “It takes you a few years before you’re real comfortable with teaching something,” he said.

But when classroom CRISPR lab kits first became available, he knew he wanted to teach it. “I just want my kids to be ready for the future of science,” he said.


Bacteria Without CRISPR
Bacteria Altered With CRISPR
E. coli
bacteria colonies
Petri
dishes full of
bacteria food
1 cm


Bacteria Without CRISPR
Functional gene
E. coli DNA
A gene in the bacteria encodes an enzyme, called ß-gal, which can help break down certain molecules.
ß-gal enzyme
X-gal
compound
A bright blue color appears when X-gal is broken down by ß-gal.

Bacteria Altered With CRISPR



E. coli DNA

After the students use CRISPR to transform a section of the gene, the gene is no longer functional.

Note: Diagrams and molecule names are simplified.

[This is an excerpt. Read the original post here]