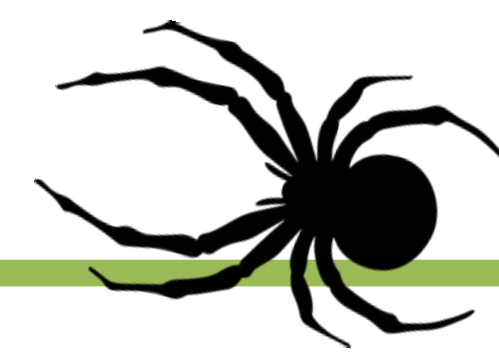


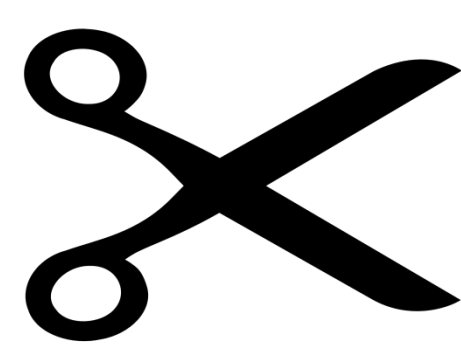
Learn Biological Engineering from Spidey!



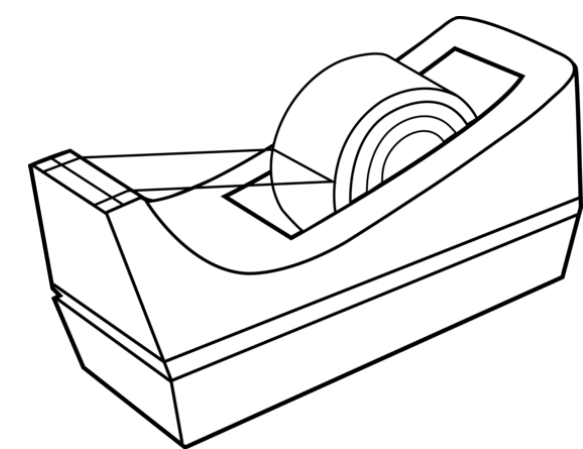
Let's get going!

Some background...

- DNA is what makes you who you are. Everyone is different!
- We can use special enzymes to cut and paste pieces of DNA.
- We can cut and paste different DNA together to make new things!



Scissors to cut DNA



Tape to paste DNA

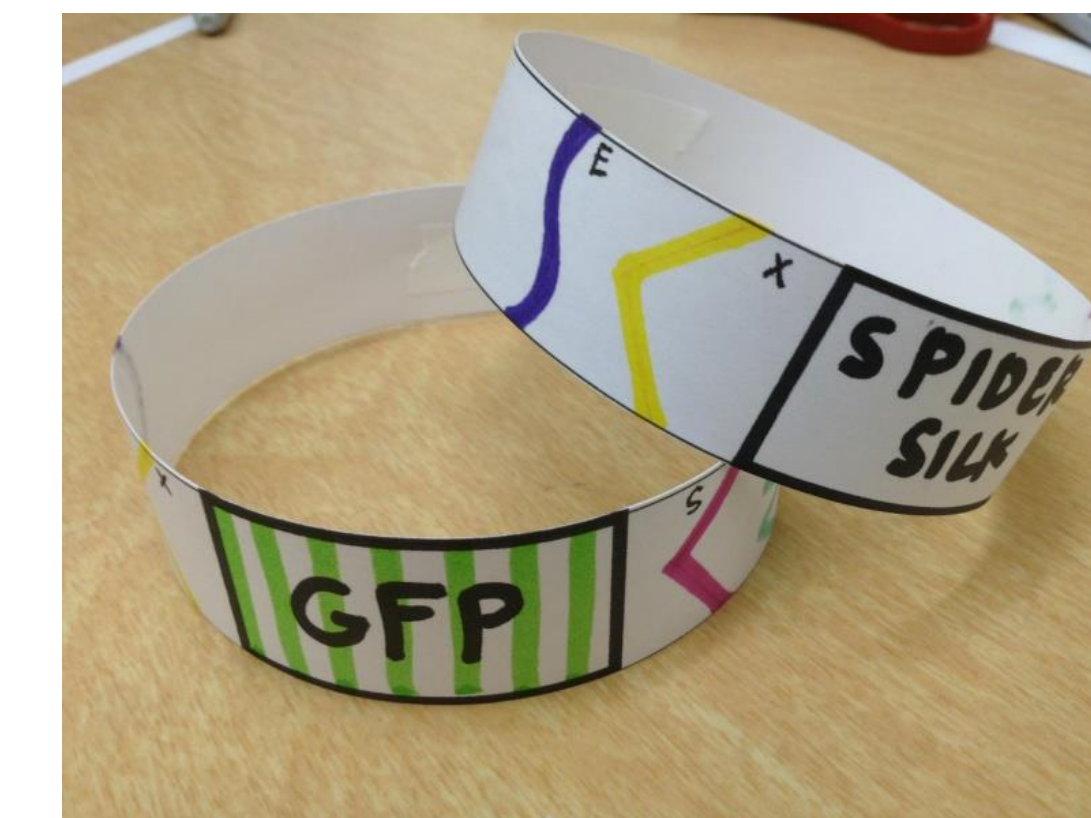
Some rules

1. Start with 2 bracelets.
2. You want to attach the GFP DNA with the spider silk DNA.
3. Cut colored patterns with scissors.
4. Tape two pieces of DNA together to finish with one bracelet.
5. Only same shape cut outs can be stuck together!



Step 1

Each bracelet = circular DNA
We want to put together two different genes to make glowing spider silk!



Cutting the DNA

Step 2

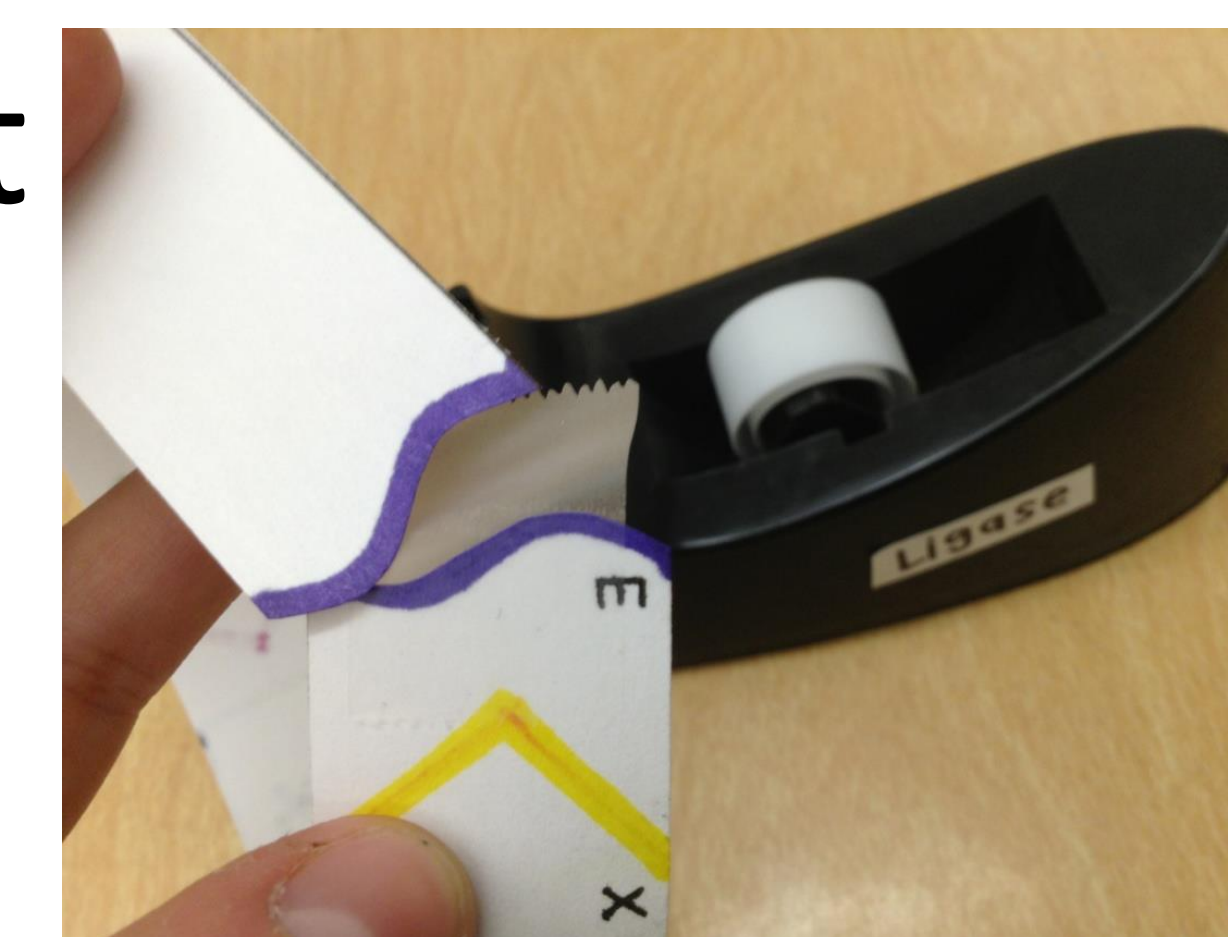


4 places to cut the DNA (E, X, S, and P).
Each must be cut with an enzyme (scissors).

Pasting the DNA pieces together

Step 3

Tape is another enzyme that "glues" the DNA together. Make sure the cut patterns match when taping!



New DNA!

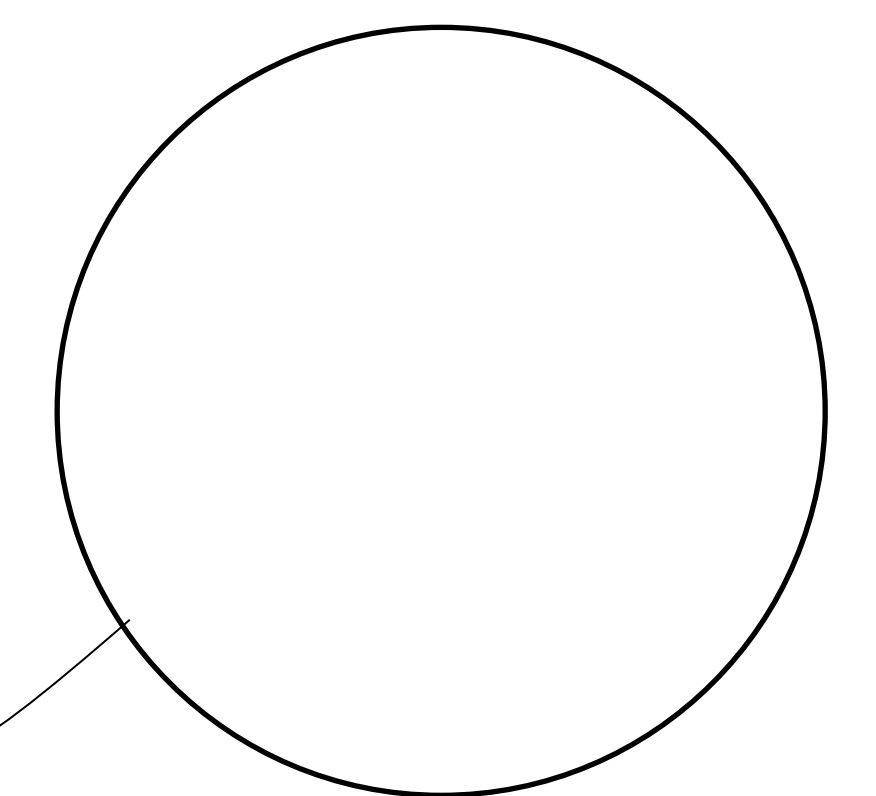
Step 4



Did you get your clone to work? Check with one of the experts!



*Spidey will be around for pictures!
Keep an eye out!*



Real spider silk made from Biological Engineering!

