GLOWING PLANTS

In this activity, you will practice "cutting" DNA out of a firefly and inserting it into a plant. You should have two strips of DNA: one is the firefly DNA and the second is the plant DNA.

In the firefly DNA, we are looking for the following sequence, which is the gene for "glowing butt":

A T G G C T A C A G G C T C C C G G A C G
T A C C G A T G T C C G A G G G C C T G C

Find it and circle or highlight it on your Firefly DNA Strip.

Now that we have found it, how do we get it out?

We use a "cutting" enzyme, called HINDIII, which will separate the DNA at a specific combination of base pairs:

Find both places the enzyme will "cut" and mark them on your Firefly DNA strip. Carefully cut out the Glowing Butt Gene.

Now, how do we get the gene we just cut into our plant DNA?

Using the same enzyme, we can "open up" the plant DNA. Find the place the enzyme with "cut" in the plant DNA and mark it on your Plant DNA strip. Carefully cut open the Plant DNA at this spot.

Finally, all you have to do is reassemble the new Plant/Glowing Butt DNA!
Double check: do your base pairs match in your new DNA?

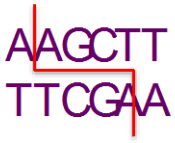
Firefly DNA:

CCCTGTATAAGCTTATGGCTACAGGCTCCCGGACGAAGCTTA
GGGACATATTCGAATACCGATGTCCGAGGGCCTGCTTCGAAT

Glowing Butt Gene:

ATGGCTACAGGCTCCCGGACG
TACCGATGTCCGAGGGCCTGC

Cutting Enzyme:



Plant DNA:

GGATCCTGACACCGGAACGTCAAGCTTCCC
CCTAGGACTGTGGCCTTGCAGTTCGAAGGG