Gene Regulation – the lac and trp operon

1. **What is an operon? Look up the definition on your computer or in your book.**

_____

2. **Operons are mainly found in what type of organism? _____**

3. **The lac operon is found in which species? _____**

4. **What does the lac operon enable it to do? _____**

5. **Lactose is a di-_____.**

6. **Why must E. coli be able to switch the lac genes on and off?**

7. **The 4 parts of the operon are the** **P = _____**

R = _____

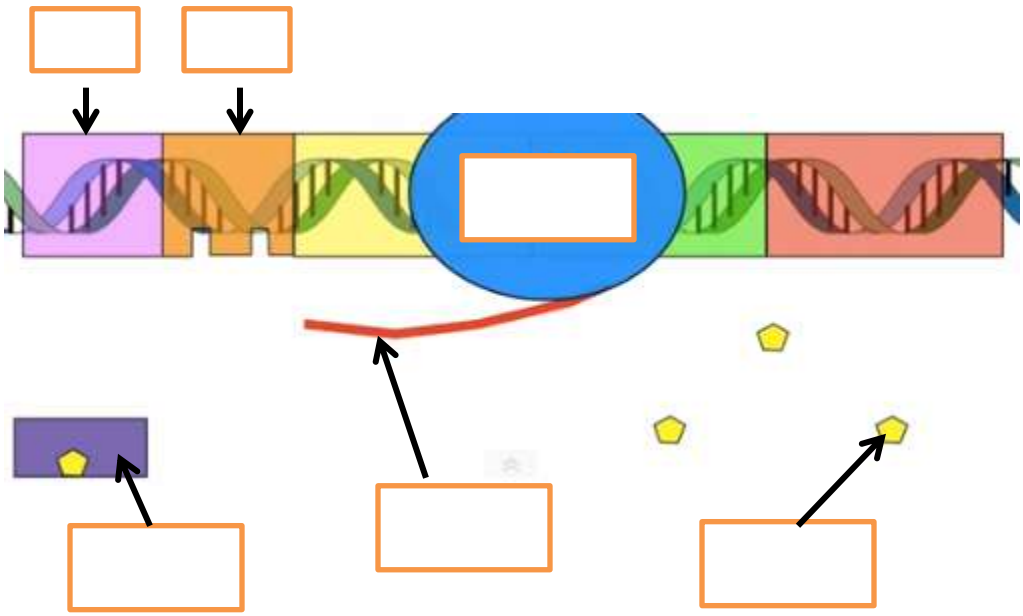
O = _____

G = _____

8. **How many genes are involved in the lac operon? _____**

9. **Label the following diagram by filling in the boxes.**

Choose from: RNA polymerase, lactose, repressor, promoter, operator.



10. **How is the repressor molecule different from the promoter, operator and genes? _____**

11. **What happens to the repressor when the lactose connects to it? _____**

12. **What happens if lactose is not present? _____**

13. **What is the trp operon? _____**

14. **What is tryptophan needed for? _____**

15. **How many genes are in the trp operon? _____**

16. **Watch the PHET simulation carefully.**

17. **How is the lac operon considered a feedback loop?**