

AP Biology: Blizzard Bag 1: Gene Expression and Cell Differentiation

Name:

Period:

Instructions: Follow the URL to the website and watch the animation on gene expression and cell differentiation. After watching the animation answer the following questions.

URL: <http://outreach.mcb.harvard.edu/animations/preloaderstemcells.swf>

NOTE: Flash is needed to view this animation.

1. What is meant by gene-activation potential or “potency”?
2. What is the difference between a stem cells potency and a fat cells potency?
3. What do stem cells and fat cells have different potencies?
4. Define: Totipotent Stem Cells:
5. Define: Blastocyst:
6. Define: Pluripotent Stem Cells:
7. Define: Multipotent cells:
8. Define: Unipotent cells:
9. What is the unique about unipotent cells?



Chromosome

Totipotent



Chromosome

Pluripotent



Chromosome

Multipotent



Chromosome

Unipotent

10-20. Use colored pencils to complete each chromosome to demonstrate its gene-activation potential.

20-30. Relate the “potency” or gene-activation potential in different cells to the idea of speciation and the evolution of life on Earth. IE: There are ancient, “inactive” genes in our DNA. Why did we turn out as humans and not jellyfish?