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| http://compsci.appstate.edu/sites/compsci.appstate.edu/files/imagecache/slideshow/slideshow/ASU_compsci_logo.png**The CS4ALL NSF Supported Program** | https://encrypted-tbn3.gstatic.com/images?q=tbn:ANd9GcQGzOU-XT8XZWIBUwiPs2jjgixLO3CvrEyNq90lu1dbXJ0BQume[**https://cs.appstate.edu/cs4all/**](https://cs.appstate.edu/cs4all/) |

**Subject Area(s):** Biology

**Computer Science Tools:** Computers that can access SNAP from <https://snap.berkeley.edu/snap/snap.html>

**Activity Title:** “Genetic Inheritance”

**Grade Level:** 10th-12th

**Time Required:** Part 1: 30-45 minutes Part 2: 45-60 minutes

**Recommended Group Size:** 1-2 students

**Summary:** In this activity, students use SNAP to work through a series of questions in order to visualize Punnett squares, Inheritance, and genotype and phenotype ratios. The program gives examples of dominant vs recessive traits, incomplete dominance, and codominance. This activity is to supplement a worksheet once Mendelian Genetics has been introduced and modeled.

**Computer Science Connection:** Computer Science Connection: Students will analyze the code in the SNAP simulation and be inspired to create their own.

**Keywords:** Punnett squares, genetic inheritance, genotype, phenotype, ratio, dominance, recessive, trait, codominance, incomplete dominance, allele, hybrid, Mendelian Genetics, and heredity.

**Pre-Requisite Knowledge:** Students should be familiar with keywords, in addition to a basic understanding of Mendelian Genetics, and how to manipulate a Punnett square.

**Learning Objective:**

Bio.3.2.2 Predict offspring ratios based on a variety of inheritance patterns (including dominance, co-dominance, incomplete dominance, multiple alleles, and sex-linked traits).

**Materials List:**

Computer

Pens / Pencils

Paper.

**Teacher Answer Key:**

**\*SNAP Program is Case Sensitive\***

**\*\* ”*or” is not part of the command, but shows the two possible answer choices \*\****

1. AA
2. black
3. Parent 1: Tt Parent 2: Tt
4. TT Tt Tt tt ***\*\*(do not use commas nor “and.” Spaces only)\*\****
5. homo tall hetero tall hetero tall homo short
6. 75%
7. 75% t
8. Bb bb *or* bb Bb
9. not
10. grey *or* gray
11. BW *or* WB
12. BW BW BW
13. grey *or* gray
14. BW WW BW WW
15. 1:1
16. black grey grey white
17. 1:2:1
18. not
19. together
20. CC SS CS
21. mixed CS or CS mixed
22. hybrid
23. XX
24. XY
25. 50%
26. capital or uppercase
27. lowercase
28. incomplete dominance
29. pink or pink flowers
30. codominance