

NAME: _____

Period: _____

Genetics Project

In this project, you will:

- Create a snowman using what you have learned about genetics and Punnett Squares.
- Identify **3 inherited traits** and **3 acquired traits** of your snowman offspring.
- Explain how inherited traits are passed from one generation to the next.

Version B

Part 1: Identify the PHENOTYPE of the parent elves.

1. Pick the traits that your Mother Snowperson has.
 - a. Short (2) / Tall (3)
 - b. Coal (Square) Nose / Carrot Nose
 - c. Button (Round) Eyes / Coal (Square) Eyes
 - d. Beanie Hat / Top Hat
2. Pick the traits that your Father Snowperson has.
 - a. Short (2) / Tall (3)
 - b. Coal (Square) Nose / Carrot Nose
 - c. Button (Round) Eyes / Coal (Square) Eyes
 - d. Beanie Hat / Top Hat

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Part 2: Identify the GENOTYPES of the parent snowpeople.

* When identifying the genotype, if you chose the dominant trait above, then you may PICK whether the genotype is homozygous or heterozygous.

** You may pick the letters used for each trait.

Mother Snowperson		
Dominance Information	Phenotype Chosen	Genotype Present
Short (2) is dominant over Tall (3).		
Coal (Square) Noses are dominant over Carrot Noses.		
Button (Round) Eyes are dominant over Coal (Square) Eyes.		
Top Hats are dominant over Beanie Hats.		
Father Snowperson		
Dominance Information	Phenotype Chosen	Genotype Present
Short (2) is dominant over Tall (3).		
Coal (Square) Noses are dominant over Carrot Noses.		
Button (Round) Eyes are dominant over Coal (Square) Eyes.		
Top Hats are dominant over Beanie Hats.		

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Part 3: Identify the traits in your snowperson offspring.

Use the following Punnett Squares to determine both the phenotype and genotype of your snowperson. Your snowperson has the phenotype and genotypes that are most likely to occur. If there is a 50/50 chance that a phenotype will occur, you may choose.

1. Height:

a. Your Snowperson Genotype

b. Your Snowperson Phenotype

2. Nose Type:

a. Your Snowperson Genotype

b. Your Snowperson Phenotype

3. Eye Type:

a. Your Snowperson Genotype

b. Your Snowperson Phenotype

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4. Hat Type:

a. Your Snowperson Genotype

b. Your Snowperson Phenotype

Part 4: Analysis & Results

1. Identify 3 of your Snowperson's inherited traits.

2. Identify 3 of your Snowperson's acquired traits.

3. **How are inherited traits passed from generation to the next?**

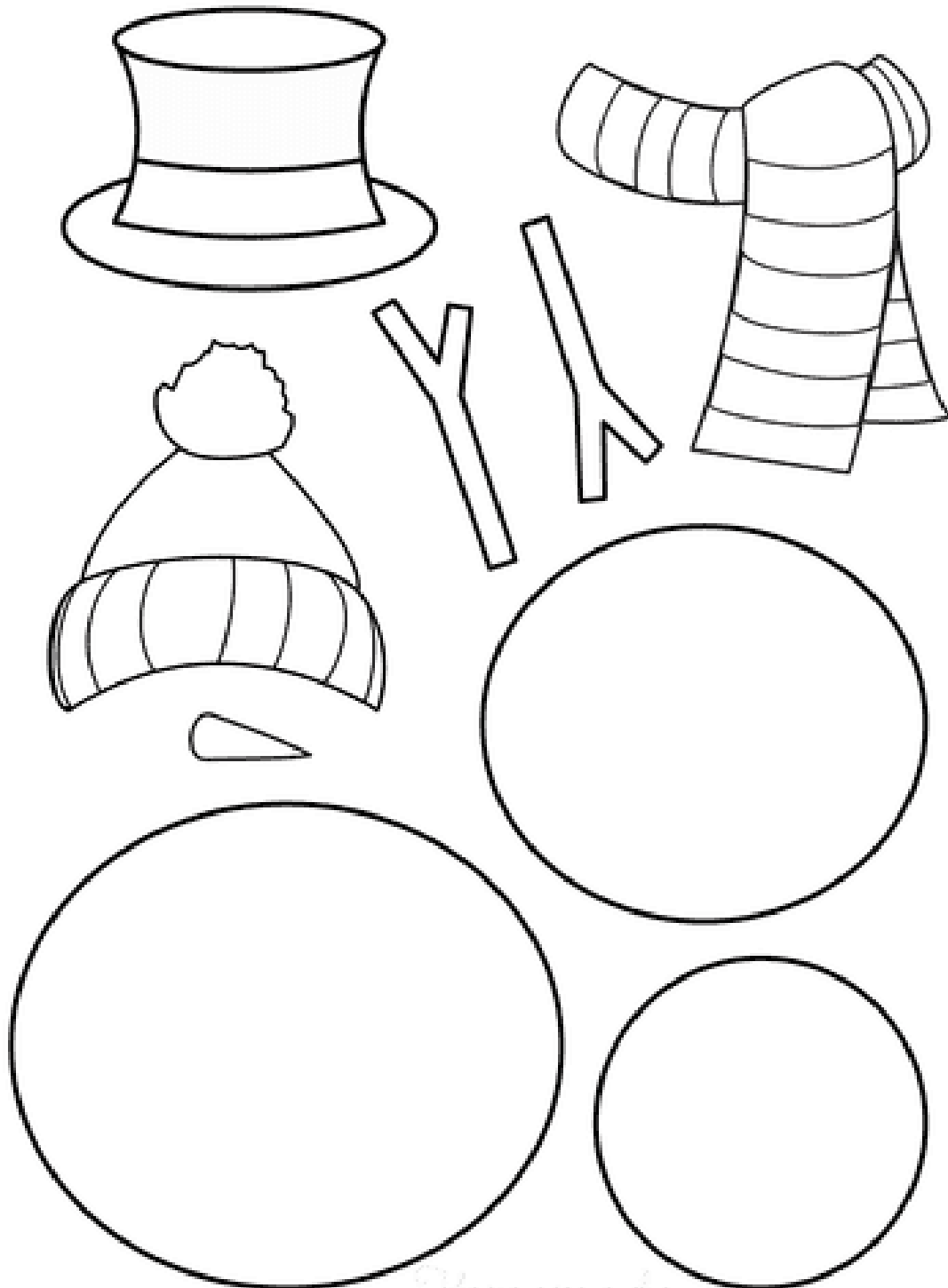
(Hint: Use the following words: inherited traits, gene, DNA, chromosome)

4. Use the provided Snowperson sheet to create your Snowperson based on the traits you found in Part 3.

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