Procedure

Part 1: Decoding Genetic Traits

1. Randomly select 1 paper clip/tag from each of the five stations, place them in the Dixie cup, and return to your group (one student from each group will draw the clips and tag).
2. Create a chain of the tag and the paper clips in the following order:
   - Ovule or pollen tag
   - Height (large purple or small purple clip)
   - Leaf color (green or silver clip)
   - Seed color (yellow or white clip)
   - Seed texture (red or twisted red clip)
3. Refer to the laminated Trait Code Sheet to decode the trait represented by the purple paper clip (tall or short stalk?)
4. Circle that trait on the Genetic Traits worksheet (be sure to circle the trait in the correct table. For example, if you have an ovule tag at the top of your chain, use the ovule table).
5. Repeat steps 4 and 5 for the other three traits.

Part 2: Modeling Pollination

1. Each pollen group will join an ovule group with their trait chain and worksheets.
2. Place the chains on the correct cornstalks on the Cross-pollination Sheet.
3. Complete the top 2 tables of the worksheet.
4. Compare responses for accuracy.

Part 3: Analysis of Trait Expression

1. Start with the purple height clips and identify whether each clip represents a tall (dominant) or a short (recessive) stalk. Look at the headings at the top of the two columns on the laminated Trait Code sheet for guidance on dominant and recessive traits.
2. Read the Trait Expression bullets at the bottom of the laminated Trait Code sheet to guide you in   deciding which traits will be expressed in the offspring plant.
3. In Table 3, circle the height trait (phenotype) that will be expressed in the new offspring plant.
4. Repeat steps 1 - 3 for the other three traits.

Part 4: Phenotype Identification

1. View and compare the 16 phenotype cards.
2. Select the **ONE** phenotype card that exactly matches the traits from Table 3.
3. Have your teacher check your choice for accuracy.
4. Be prepared to present a justification of your phenotype choice.