

### Grading Rubric: Play Mendel Basic

ASSIGNMENT	UNSATISFACTORY (1 POINT)	SATISFACTORY (2 POINTS)	EXCELLENT (3 POINTS)
<b>#1: Observe growth &amp; record phenotypes</b>	<ul style="list-style-type: none"> <li>-Lab notebook does not include one or more of the outlined activities for this assignment</li> <li>-Completed activities include minimal detail or incorrect information</li> </ul>	Lab notebook includes: <ul style="list-style-type: none"> <li>-Entries for all four outlined activities for this assignment</li> <li>-At least one drawing of each strain of Arabidopsis with labels and notes</li> <li>-Definition of some of the growth stages associated with Arabidopsis as well as some terms related to the growing process</li> <li>-Description of trait includes drawings or notes, but the two components are either not integrated or one is missing.</li> </ul>	Lab notebook includes: <ul style="list-style-type: none"> <li>-Detailed entries for all four outlined activities for this assignment</li> <li>-Multiple accurate drawings of each strain of Arabidopsis throughout the assignment period with labels and notes integrated</li> <li>-Accurate description of the growth stage when the trait became visible</li> <li>-A comprehensive list of definitions of growth stages and terms related to the growing process</li> </ul>
<b>#2: Analyze inheritance</b>	<ul style="list-style-type: none"> <li>-Lab notebook and worksheet do not include one or more of the outlined activities for this assignment</li> <li>-Completed activities include minimal detail or incorrect information</li> </ul>	Lab notebook includes: <ul style="list-style-type: none"> <li>-Definition of some genetic terms</li> </ul> Student worksheet includes: <ul style="list-style-type: none"> <li>-Calculations necessary to determine the ratio of mutant phenotypes for group and combined classroom data</li> <li>-A prediction and basic explanation of how combining data may change the ratio</li> <li>-An accurate conclusion about the inheritance of the mutation</li> <li>-Punnett square and associated questions are complete</li> </ul>	Lab notebook includes: <ul style="list-style-type: none"> <li>-A comprehensive list of definitions of genetic terms</li> </ul> Student worksheet includes: <ul style="list-style-type: none"> <li>-Well organized data and complete calculations to determine the ratio of reference to mutant phenotypes</li> <li>-A prediction and thorough explanation of how combining data may change the ratio</li> <li>-An accurate conclusion about the inheritance of the mutation</li> <li>-An accurate Punnett square and correct answers to associated questions</li> </ul>
<b>#3: Formulate research questions</b>	<ul style="list-style-type: none"> <li>-Lab notebook does not include one or more of the outlined activities for this assignment</li> <li>-Completed activities include minimal detail or incorrect information</li> </ul>	Lab notebook includes: <ul style="list-style-type: none"> <li>-Entries for all three outlined activities for this assignment</li> <li>-A summary of student ideas that includes at least one well-thought out idea for a future investigation</li> <li>-A research question accompanied by a hypothesis that makes sense based on current student knowledge of the model system</li> </ul>	Lab notebook includes: <ul style="list-style-type: none"> <li>-Detailed entries for all three outlined activities for this assignment</li> <li>-A summary of student ideas that includes multiple well-thought out ideas for future investigations</li> <li>-A well written research question and hypothesis for multiple future investigations</li> </ul>