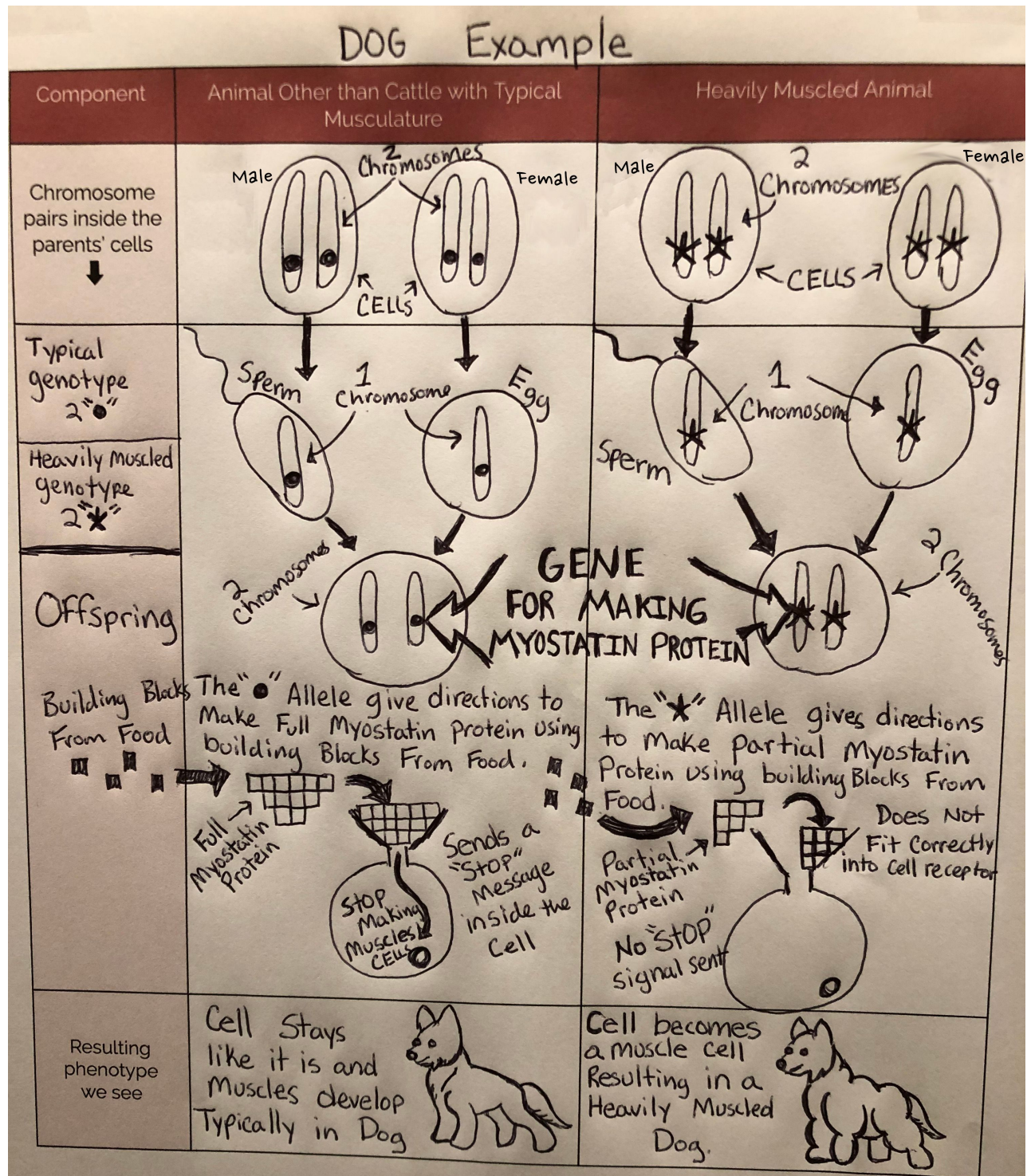


# Key for the "Revise Your Model" Assessment

Use the following examples to help guide your assessment of students' work.



Using your model explain why we see some organisms have extra-big muscles and others have typical muscles. Be sure to include the words genotype, sex cells, protein, variation and allele in your explanation.

**Possible student response for written explanation:**

On my model, it shows that the dogs have different muscles because of the chromosomes they got from their parents. For each dog, one allele came from that dog's male parent's sperm cell, and one allele came from that dog's female parent's egg cell. For each dog, the alleles they have give directions for rearranging the building blocks from the dog's food into the myostatin protein. But, the alleles are differently shaped versions of the gene, so they cause differently shaped myostatin to be produced. The dog with typical muscles has the genotype with two circle alleles, which cause the full myostatin protein to be produced. That full protein has the shape it needs to fit into the cells' receptors and send the "stop" message to those cells. So that dog does not make extra-big muscles. The heavily muscled dog has the genotype with two star alleles, which causes a partial myostatin protein. Since the partial myostatin does not fit into the cells' receptors correctly, it does not cause a "stop" message, so those cells turn into muscle cells. So that dog gets extra-big muscles because of having more extra-big muscle cells that are made.