

Sweet 16 *Drosophila* Tournament



With spring in the air, many students will soon be focusing on spring vacation adventures, sunshine, and the NCAA basketball tournament. This activity combines the popularity of the March Madness basketball pool with a review of the genetics of *Drosophila melanogaster*, including dominant vs. recessive mutations, chromosome number, sex-linked traits, and gene size. Your students will enjoy playing this March Madness-like tournament and learning about *Drosophila* genetics.

The rules for filling out the tournament bracket are simple. For the first round, identify whether the trait is dominant or recessive and move the recessive trait to round 2. In the second round students must figure out which chromosome carries the gene for that trait. The trait found on the lower numbered chromosome moves to the next round. The semifinal competition (round three) requires the identification of sex-linked traits. The trait that is not sex-linked moves on to the finals. The final round requires students to find the length of the gene that codes for each trait—the trait with the longer gene is the winner!

Tips

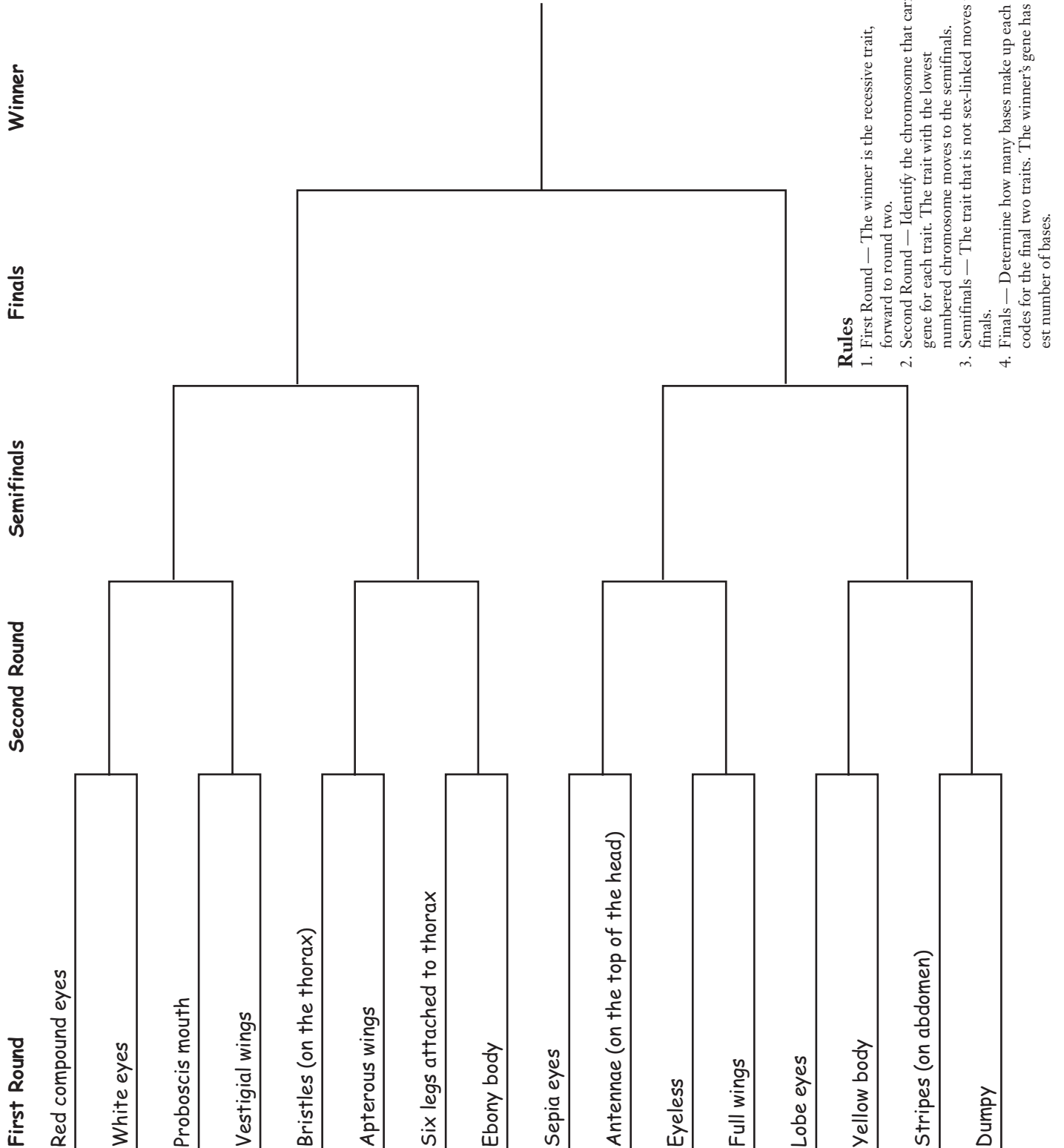
- Students will need to look up information online or in reference manuals for one or more of the rounds.
- This activity is useful as an introduction before studying *Drosophila melanogaster* or as a review near the end of the study
- The Flinn Scientific Catalog/Reference Manual (*Drosophila* product page) is an excellent resource to determine chromosome location of each gene.
- In order to find the gene length, the best resource to examine is <http://flybase.org>. Specifically—in the quick search box, select Data Class. Set the parameters to Species (do not check “include non-Dmel species”), Search (ID/Symbol/Name), Data Class (Gene). The specific trait being searched should be placed in the Enter Text box. Note: Not every trait listed in the first competition round will be easily located in FlyBase. This is a good indication that the trait may have mistakenly made it to the Finals. Next, select the “Polypeptide” button. in Genomic Location section. This page will contain excess information. Look for “length (aa)”.
- Students and teachers love this activity—and the best part is figuring out the answers! Please help us preserve the integrity of these activities. No part of any Flinn Scientific publication may be posted online.

References

A Database of Drosophila Genes & Genomes. < <http://flybase.org/> > Accessed January 2009.

Campbell, N. A. and Reece, J. B. *Biology*; Pearson Benjamin Cummings: San Francisco, CA; 2005, 7th Edition.

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Rules

1. First Round — The winner is the recessive trait, forward to round two.
2. Second Round — Identify the chromosome that carries the gene for each trait. The trait with the lowest numbered chromosome moves to the semifinals.
3. Semifinals — The trait that is not sex-linked moves to the finals.
4. Finals — Determine how many bases make up each gene that codes for the final two traits. The winner's gene has the greatest number of bases.