WHY SEX?

Nearly every eukaryote on the planet has the capacity to reproduce sexually, and scientists still don't know why. Sex is extremely costly, and many of the proposed benefits do not seem to outweigh those costs.

COSTS:

- Investment of time and energy to find and woo a mate
- Sacrifice of half of the genetic contribution to the next generation, as compared with asexual cloning
- Reshuffling of genetic material can break apart favorable gene combinations

POSSIBLE BENEFITS:

- In a changing environment, the genetic diversity that sex bestows upon a lineage can be critical for adaptation (**Weismann's hypothesis**).
- Sexual recombination purges the genome of deleterious mutations, which can accumulate with devastating costs in asexual populations (**Muller's ratchet hypothesis**).
- Sex can also generate beneficial mutations and bring together new gene combinations (**the Fisher-Muller hypothesis**).
- The genetic diversity introduced by sexual reproduction can help species escape parasitic infection (**the Red Queen hypothesis**).