Puzzle #3

**Background**: The allele for the normal Huntington protein is recessive. Huntington’s disease is caused by a dominant allele (H) which codes for an abnormal form of the Huntington protein. Symptoms are more severe in homozygous individuals.

**Pedigree:** A normal man (Joseph) marries a woman (Rebecca) who is heterozygous for HD and they have 4 children. Two of their sons (Adam and Charles) are born healthy without HD. Charles marries a woman without HD and they have a normal daughter. Joseph and Rebecca’s daughter, Tasha, and their last son, James, both have HD. James marries a non-HD woman whose sister and parents also do not suffer from HD. James and his wife have three children, a normal boy, a normal girl, and a son with HD.

Use the gummy bears in bag 3 to create a pedigree for this family following the trait of Huntington’s disease.

* Yellow represents unaffected (do not have it) individuals.
* Orange represents affected individuals (with HD).

Draw this pedigree in your notebook (use squares for boys and circles for girls) then answer the following questions using complete sentences:

1. On your pedigree in your notebook, write the names of the people and genotypes (HH, Hh, hh) for each symbol on your diagram.
2. Is Huntington’s disease a dominant or recessive trait? How do you know?
3. How is it possible that there are so many more unaffected individuals for this disease?
4. Is Huntington’s disease sex-linked, how do you know?