

May

Exam 1 Worksheet

Brain dump: Evolution and the origin of species

Darwin - Published origin of species

Natural selection and evolution

Brain dump: Mendel and his pea plants

Used Pea plants to show how genes are

Passed from Parent to offspring

Describe the theory of chromosomal inheritance. How many chromosomes do humans have? What is diploid and haploid?

Inherited traits are controlled by genes on a chromosome.

-46

-diploid ($2n$) regular

-haploid (n) $1/2$

If a horse has 15% composition of cytosine in its DNA, what is the composition of all other bases?

$C = G$ 15% C and G

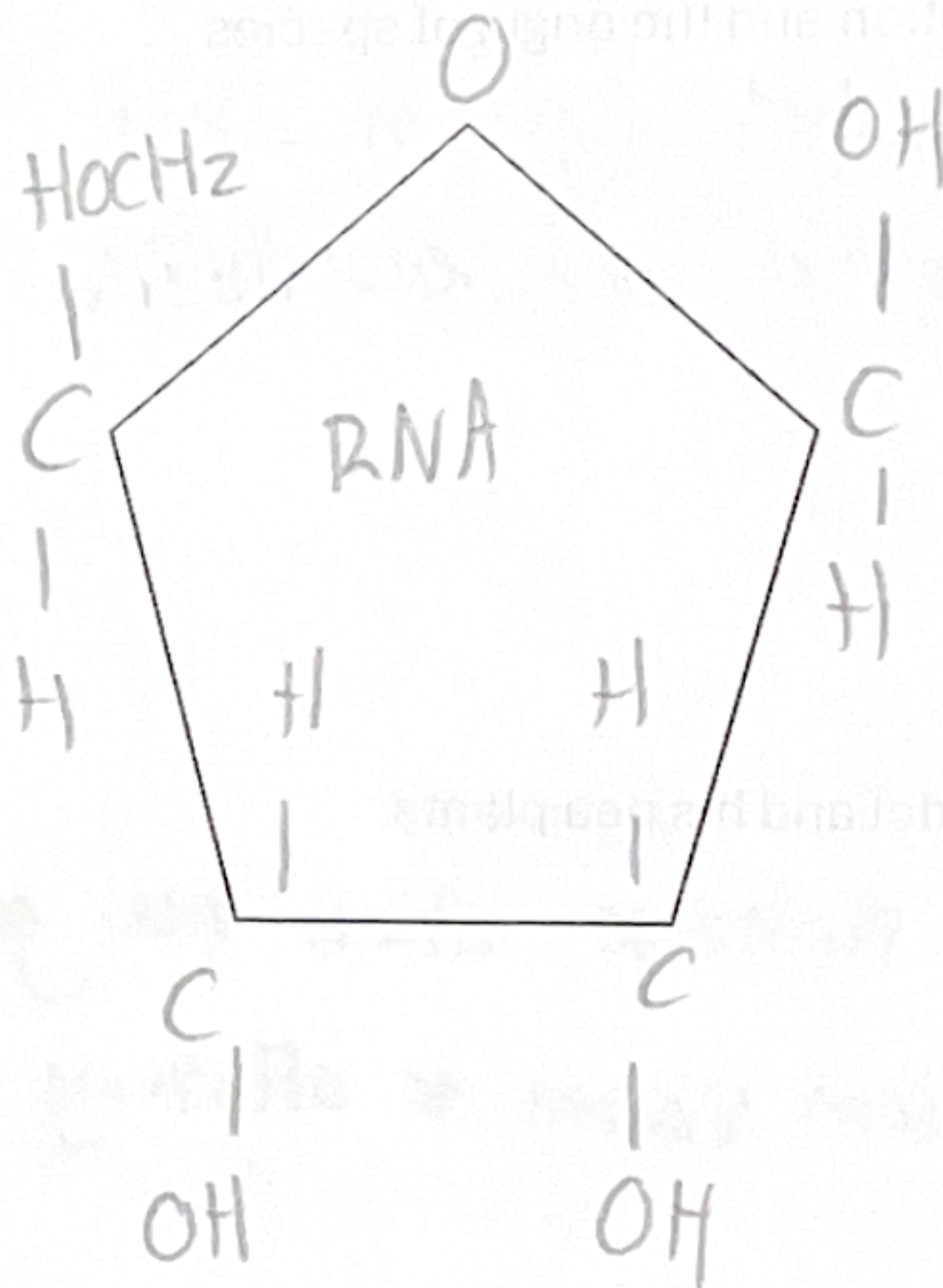
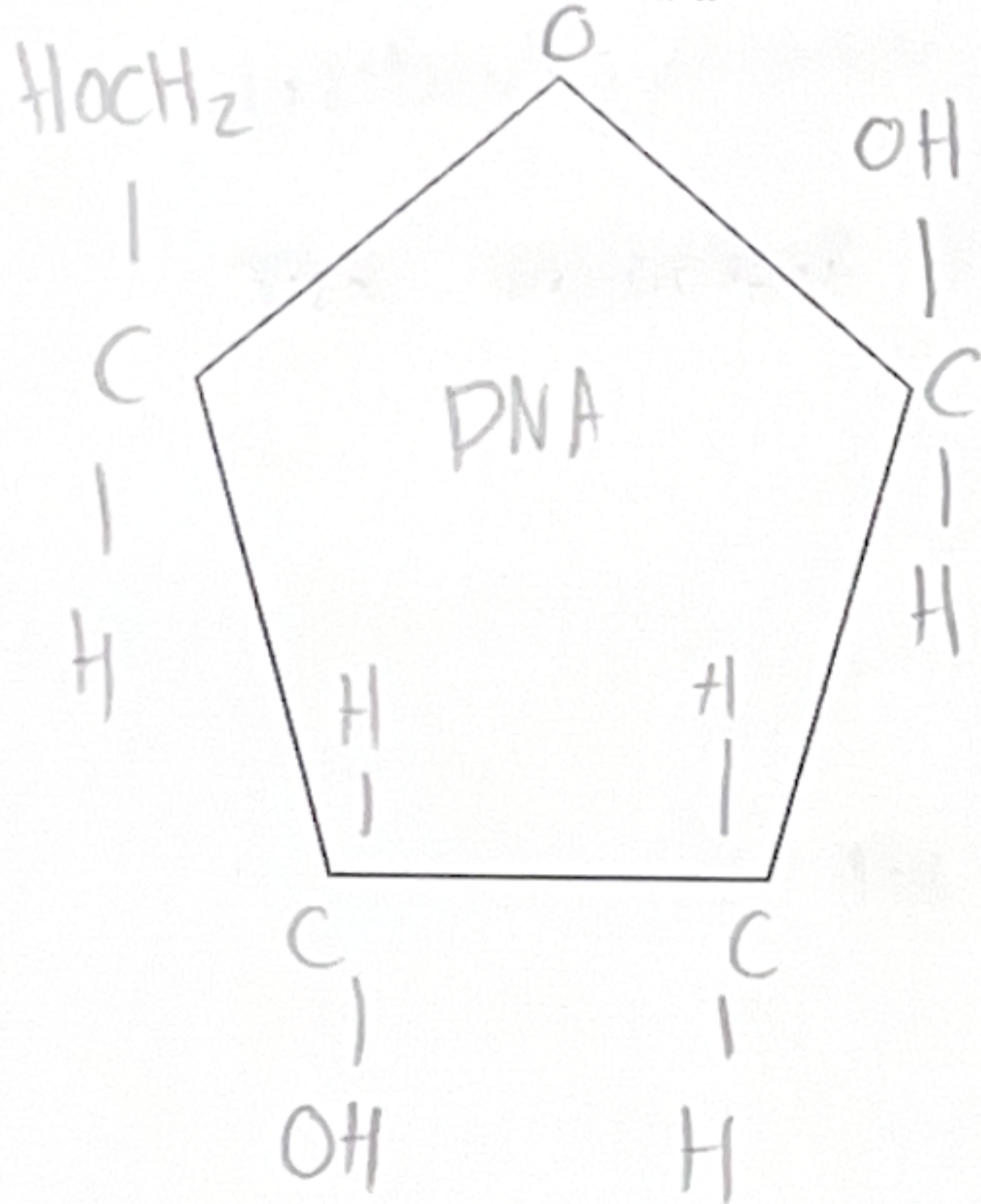
$A = T$

$$15 + 15 = 30$$

35% A and T

$$100 - 30 = 70 \div 2 = 35$$

Draw DNA and RNA:



What is the central dogma of biology? Proteins are the _____

DNA → RNA → Protein

— end product of gene expression

Give the following species their scientific names

Pea plants: *Pisum sativa*

Fruit fly: *Drosophila melanogaster*

Mouse: *Mus musculus*

To serve as genetic material, what 4 things must it be able to do?

- Replicate
- store genetic info
- express info
- Allow variation by mutation

Brain dump: The 4 important scientist we have talked about for this exam

Watson & crick \rightarrow semi conservative mode of replication and DNA

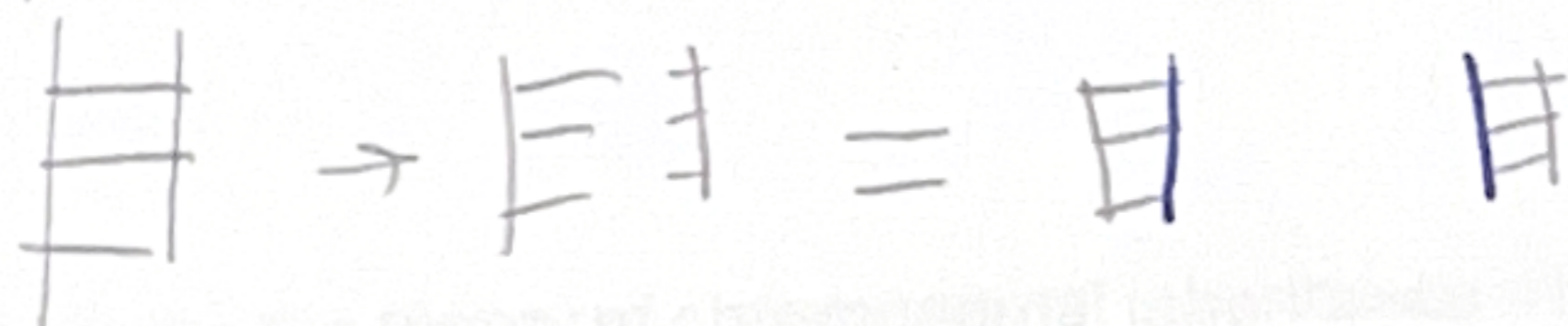
Chargaff- Base composition

Franklin \rightarrow DNA X-ray image

Describe the semiconservative model of replication:

How DNA is stored/replicated

Parent

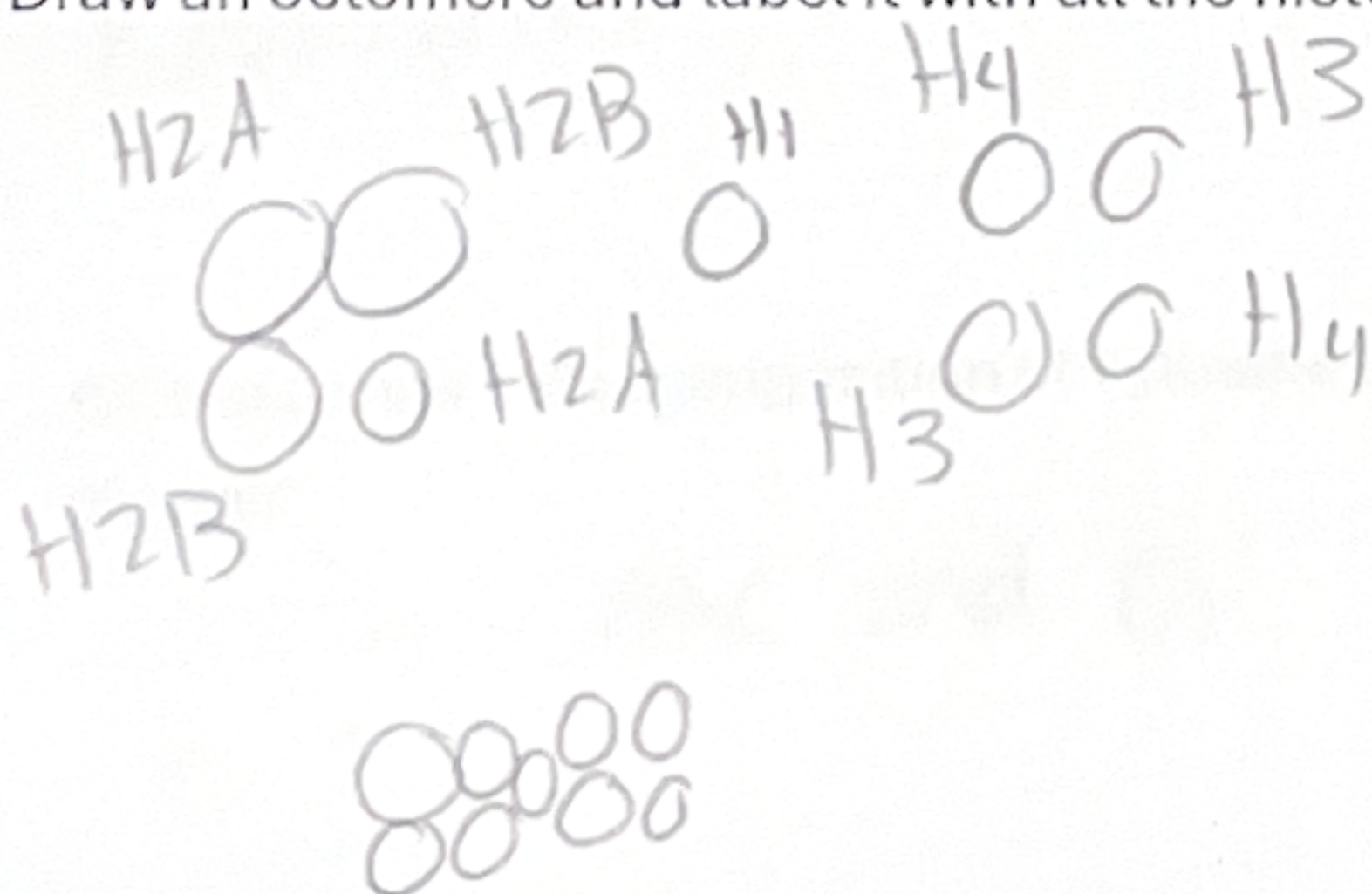


How long can human chromosomes stretch out? How wide is the human nucleus?

6.0 feet

5-10 μm

Draw an octomere and label it with all the histone proteins:



Describe what chromatin remodeling is and why histone tails are important for it.

Using histone tails to change DNA expression

Without altering DNA

The unpacked tails allow for the modifications