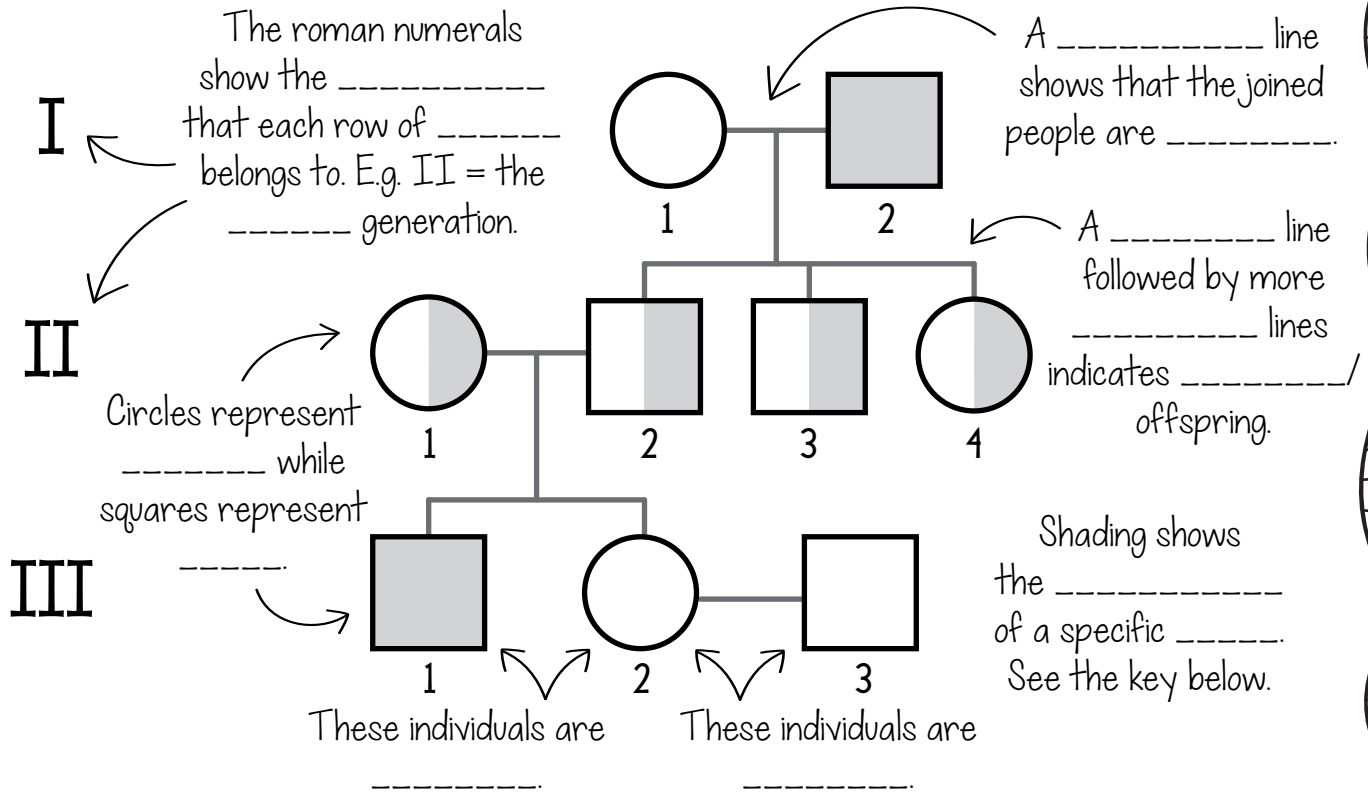


# PEDIGREES!

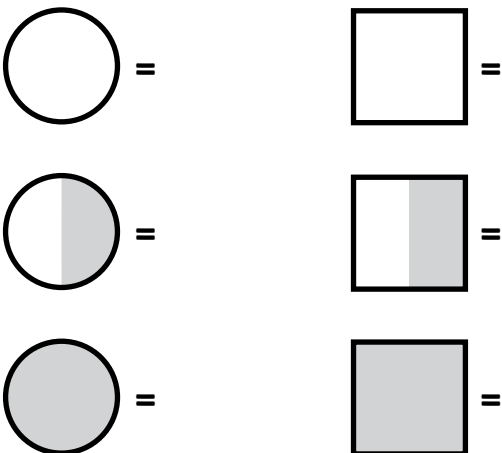
## What are they & how are they used?

Pedigrees are genetic \_\_\_\_\_ that are used to track specific traits in a \_\_\_\_\_, for example genetic \_\_\_\_\_. They can be used to work out the \_\_\_\_\_ of future offspring having the disorder.

Label this pedigree to show what each part tells us!



## PEDIGREE KEY



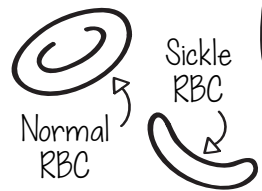
## GLOSSARY

**Unaffected:** This is when a person does not have a \_\_\_\_\_ disorder & has no \_\_\_\_\_ for it.

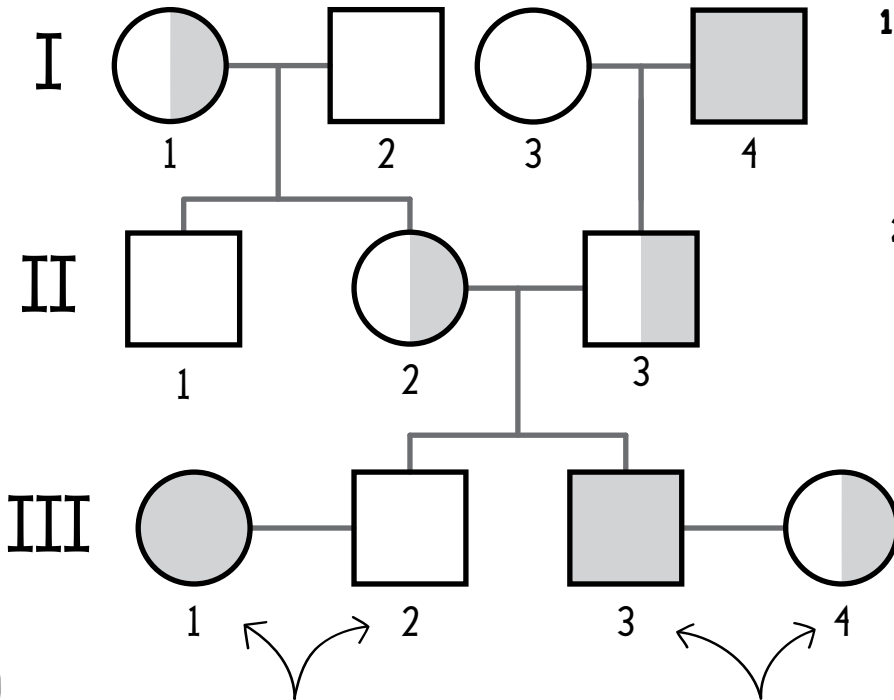
**Carrier:** This is when a person has \_\_\_\_\_ genetic disorder allele. They \_\_\_\_\_ have the disorder.

**Affected:** This is when a person has got the genetic \_\_\_\_\_.

# PROBLEM 1



Sickle cell anemia is a genetic disorder of the blood. The pedigree below shows its inheritance in one family.



1. What is the relationship between II-1 and II-2?

2. How many children do I-3 and I-4 have?

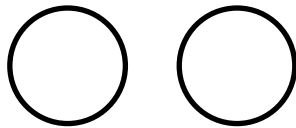
3. Is sickle cell anemia dominant or recessive? Explain how you know.

4. III-1 and III-2 are having a baby. Work out the probability of it having sickle cell anemia.

5. III-3 and III-4 are also having a baby. Work out the probability of it having sickle cell anemia.

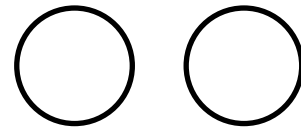
Use the letter "a" to represent the disease allele.

Individual III-1  
Genotype: \_\_

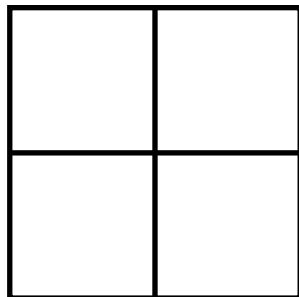
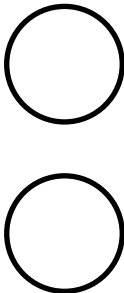


Use the letter "a" to represent the disease allele.

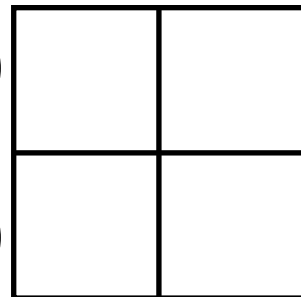
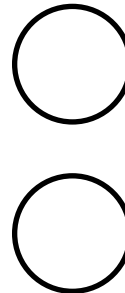
Individual III-3  
Genotype: \_\_



Individual III-2  
Genotype: \_\_



Individual III-4  
Genotype: \_\_



\* Star any offspring that would have the disease. \*

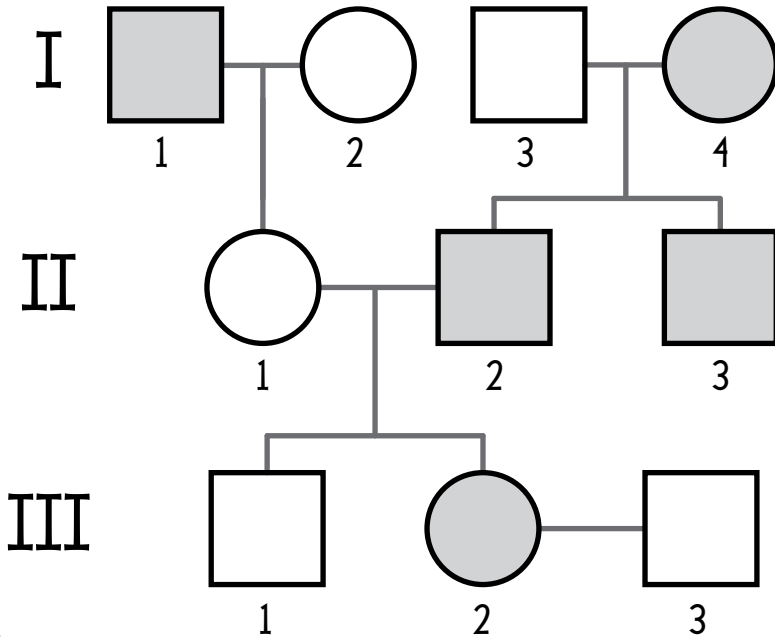
Probability of the child having sickle cell anemia:

Probability of the child having sickle cell anemia:



# PROBLEM 2

Polydactyly is a genetic disorder that causes extra digits. The pedigree below shows its inheritance in one family.



1. Who is III-2's maternal grandfather?

2. What is the relationship between III-1 and II-3?

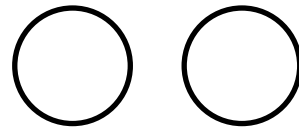
3. How many people in the third generation have Polydactyly?

4. Is Polydactyly a dominant or recessive disorder? Use evidence from the pedigree to support your answer.

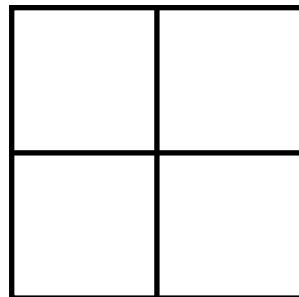
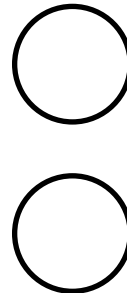
5. II-1 and II-2 are having a new baby. Work out the probability of it having Polydactyly.

Use the letter "D" to represent the disease allele.

Individual II-1  
Genotype: \_\_\_



Individual II-2  
Genotype: \_\_\_



\*Star any possible offspring with polydactyly

Probability of the child having Polydactyly:

# YOUR TURN!

Design a pedigree that shows the inheritance of a new **SUPERPOWER** ! Here's what you need to include:

Description/doodle of superpower:

Is it dominant or recessive?

If it's dominant, remember to give it a capital letter!

Pick a letter to represent the superpower allele:

= superpower

= normal

Create your pedigree in this space!

I

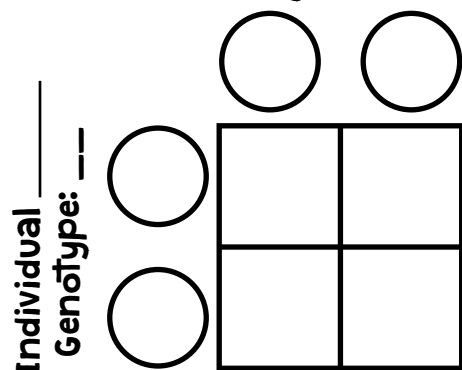
II

III

## QUESTIONS!

Write at least 3 questions, & answers including one Punnett Square question, to check your pedigree works!

Individual \_\_\_\_\_  
Genotype: \_\_\_



\*Star any possible offspring with super-powers!

Probability of the child having a superpower: