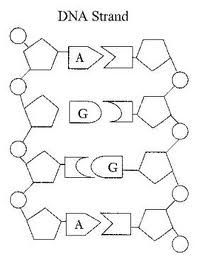
Year 10 Mini Test

DNA and Inheritance

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ score /32

1. Fill in the correct letter for the matching bases on the diagram below.

[](http://www.google.com.au/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=LrUXW_twbDKvrM&tbnid=sF0L20GrUnmpVM:&ved=0CAUQjRw&url=http://www.psd202.org/pshs/depts/science/Mezger/DNA%20STUDY%20GUIDE-biology.htm&ei=KgYbUcGWE6LwmAX0uYCIDw&bvm=bv.42261806,d.dGI&psig=AFQjCNGJR7wsixjE--42qoHAb7q2ZhsV3w&ust=1360811870892519)

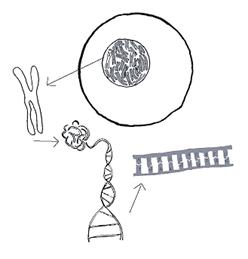
(2 marks)

1. Fill in this table

|  |  |
| --- | --- |
| Genotype. Combination of genes. | Homozygous or heterozygous |
| Aa |  |
| DD |  |
| dd |  |
| aa |  |
| Aa |  |
| CC |  |

(3 marks)

1. Onto the diagram below label the nucleus, Chromosome and DNA molecule.

[](http://www.google.com.au/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=t-qDr_ZowQECLM&tbnid=wQ1Gi_v61gurdM:&ved=0CAUQjRw&url=http://www.geneticalliance.org.uk/genesandyoudna.htm&ei=OgcbUePJCM2ikAWzrYGYCw&bvm=bv.42261806,d.dGI&psig=AFQjCNHD6EHFpc_Hpn2ALNEspVIxPkwm4g&ust=1360812171836144)

(3 marks)

1. Use a line to join the correct word to the correct definition.

|  |  |  |
| --- | --- | --- |
| Word | Draw a line to connect | Definition |
| Gene |  | Something about someone or something that you can describe. For example He has red hair. |
| Characteristic |  | A sex cell(sperm or egg) |
| Inheritance |  | The cell part that is the control centre of the cell. It contains the DNA. |
| Gamete |  | A gene that is always shown in the phenotype if it is present in the genotype. |
| Nucleus |  | A piece of DNA that stores information for one characteristic |
| Dominant gene |  | The study of how genes are passed from parents to children. |

(6 marks)

1. In humans the gene for big unattached earlobes(E) is a dominant gene. The gene for small attached earlobes(e) is recessive.

Use this information to answer the questions that follow.

1. A **man who is HOMOZYOGOUS** for big ear lobe genes marries a **woman who is HOMOZYGOUS** for small earlobe genes. Write the genotype for the man and woman below.

Man’s genotype[](http://www.google.com.au/url?sa=i&rct=j&q=mars%20symbol&source=images&cd=&cad=rja&docid=Jmx-KyLgic7yaM&tbnid=pe3Y-E6aAT4zsM:&ved=0CAUQjRw&url=http://gkbsolarsystem.wikispaces.com/A+Journey+to+Mars&ei=el8sUarmCMvYkgXX2oCAAQ&psig=AFQjCNGcaqJ-wQ-OolUP1BUUOeWtZx7WIQ&ust=1361948913299723) =

Woman’s genotype [](http://www.google.com.au/url?sa=i&rct=j&q=venus+symbol&source=images&cd=&cad=rja&docid=usZm47ZLA1ZoOM&tbnid=O8Ysfnqo-ouWmM:&ved=0CAUQjRw&url=http://www.newworldencyclopedia.org/entry/File:Venus_symbol.svg&ei=Nl8sUZf7Es2KmwX8pYEg&psig=AFQjCNECyxrRCwGTbNpjnhaXMRYqU7n7ew&ust=1361948847931960)=

(2 marks)

1. Gametes . In men the gametes are called the \_\_\_\_\_\_\_\_\_\_.

In woman the gametes are called the \_\_\_\_\_\_\_\_\_\_\_\_.

(2marks)

1. Draw the possible gametes for the man below. Finish drawing the gametes for the female.

Male gametes [](http://www.google.com.au/url?sa=i&rct=j&q=mars%20symbol&source=images&cd=&cad=rja&docid=Jmx-KyLgic7yaM&tbnid=pe3Y-E6aAT4zsM:&ved=0CAUQjRw&url=http://gkbsolarsystem.wikispaces.com/A+Journey+to+Mars&ei=el8sUarmCMvYkgXX2oCAAQ&psig=AFQjCNGcaqJ-wQ-OolUP1BUUOeWtZx7WIQ&ust=1361948913299723) =

Woman’s gamete [](http://www.google.com.au/url?sa=i&rct=j&q=venus+symbol&source=images&cd=&cad=rja&docid=usZm47ZLA1ZoOM&tbnid=O8Ysfnqo-ouWmM:&ved=0CAUQjRw&url=http://www.newworldencyclopedia.org/entry/File:Venus_symbol.svg&ei=Nl8sUZf7Es2KmwX8pYEg&psig=AFQjCNECyxrRCwGTbNpjnhaXMRYqU7n7ew&ust=1361948847931960)=

(2 marks)

1. Use the information from the part c above to complete this table.

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

(1 mark)

1. Use the information in part d above to answer fill in the spaces below.

**Offspring**

Genotypes.

EE=

Ee=

ee=

Phenotypes

Big earlobes =

Small earlobes =

(5 marks)

1. In humans the ability to roll the tongue(T) is dominant to the gene for not rolling the tongue(t). Use this information to fill in the table below.

|  |  |
| --- | --- |
| Genotype | Phenotype.  **Can** roll tongue  Or **Cannot** roll tongue |
| TT |  |
| Tt |  |
| tt |  |

(3 marks)

1. For most genes in the body we have \_\_\_\_\_\_\_\_\_\_ copies. The sex cells are different. For most genes in the sex cell we have \_\_\_\_\_\_\_\_ copy. When a sperm and egg fuse together we say \_\_\_\_\_\_\_\_\_\_\_\_\_ has occurred.

(3 marks)