# A tour of basic genetics

This activity introduces you to the study of genetics.

**What is genetics?** Genetics is the study of heredity.

**What is heredity?** Follow the web links to animated videos to find out.

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In learning and communicating about genetics and inheritance you will come across important terms or words. Make sure you understand and are able to use them appropriately.

Define the following terms as you come across them.

|  |  |
| --- | --- |
| Term | Definition |
| Allele |  |
| Homozygous |  |
| Heterozygous |  |
| Dominant |  |
| Recessive |  |
| Incomplete dominance |  |
| Single-gene (monogenic) traits |  |
| Complex traits |  |

Use the information in the videos to answer the questions below.

1. **What is heredity?**

<http://learn.genetics.utah.edu/content/inheritance/intro/>

**The characteristics that make us who we are, are called traits. How do we get traits from our parents?**

Explain why it is that each individual ends up with a unique combination of traits.

1. **What is a trait?**

<http://learn.genetics.utah.edu/content/inheritance/traits/>

1. **What influences our traits?**

For each type of trait give an example of how genes and the environment can influence the trait.

|  |  |  |
| --- | --- | --- |
| Example of traits | Gene(s) | Environment |
|  |  |  |
|  |  |  |
|  |  |  |

1. **What is DNA?**

<http://learn.genetics.utah.edu/content/molecules/dna/>

**How do cells ‘know’ what to do?**

1. What controls what type of cell will develop? Where are the instructions found?
2. Represent the structure of this molecule.
3. **What is a gene?**

<http://learn.genetics.utah.edu/content/molecules/gene/>

1. What do genes consist of?
2. What is the function of genes?
3. What is the difference between a gene and a genome?
4. What does monogenetic inheritance refer to?
5. **What is a chromosome?**

<http://learn.genetics.utah.edu/content/chromosomes/intro/>

1. What is the relationship between DNA and chromosomes?
2. If you were able to stretch out a single human chromosome how long would it be?
3. How does something of that length fit into a cell?
4. How many chromosomes does each normal body cell of the following organisms hold?

|  |  |
| --- | --- |
| Organism | How many chromosomes does it have? |
| Humans |  |
| Mosquitos |  |
| Onions |  |
| Carp |  |