RECREATE A FACE

Activity overview

Age: 7 – 12 years old

Time: 30 min

Topics: DNA, variation, people from the past, Anglo Saxons

Learning objectives:

- DNA is the instructions that make someone who they are.
- DNA can be found in almost any part of the body.

BACKGROUND

A bit like a recipe book, all the biological instructions for making an organism are contained in a long molecule called DNA (deoxyribonucleic acid). All living things, from humans and mice to plants and bacteria, have a unique set of instructions written in the four chemical letters of DNA: A, C, G, and T.

All of the DNA in a cell is called the genome. Within the genome there are sections of DNA called genes. Genes provide specific instructions for our individual characteristics, like eye and hair colour. Sometimes there can be small differences in a gene, for example where there's an A in one person there may be a T in someone else. These changes can alter the outcome of the instruction, like giving some people brown eyes and other people blue eyes. These differences are known as genetic variation. It is this variation that makes us all unique, whether in terms of hair colour, skin colour or the shape of our faces. Looking at the DNA profile of people from the past can help us estimate what they might have looked like

In this activity we will learn how differences in the DNA code can have an impact on our appearance, from our eye colour to our hair colour. Participants will recreate the face of people from the past by looking at DNA profile cards and working out what they could have looked like using a decoder card.

Find out more

What is DNA:
www.yourgenome.org/facts/what-is-dna

What is a gene:
www.yourgenome.org/facts/what-is-a-gene

What is a genome:
www.yourgenome.org/facts/what-is-a-genome

What is genetic variation:
www.yourgenome.org/facts/what-is-genetic-variation

ACTIVITY PREPARATION

Materials

For each group of four participants you will need:

- ☐ DNA profile cards (one set per table)
- ☐ DNA key sheet (one per person)
- ☐ Worksheet (one per person)
- ☐ Colouring pens or pencils

Set up

1. Print all the profile cards, DNA key sheets and worksheets needed for the group.
2. Give each group a selection of profile cards to pick from as well as DNA key sheets and worksheets.
3. Make sure there are enough colouring pencils to go around for when the group draw the faces they decode.

ACTIVITY GUIDANCE

Warm up

1. Begin the activity by discussing with the group that DNA contains the instructions for making all living things. Made up of four chemical letters, A, C, G, and T, the sequence of DNA letters can influence our appearance such as our eye colour and hair colour. Use the PowerPoint slides provided if you like.
2. Ask the group: Why do they think some people look alike and some people look different? Do they share any features with members of their family, for example same hair colour or eye colour?
3. Eye colour, skin tone and face shape can all be determined by our DNA. We inherit our DNA from our parents so features such as eye colour, hair colour and even ear shape can be passed down from generation to generation.
4. Explain to the group that scientists can use archaeological remains and DNA evidence to more accurately work out what people from the past looked like. In this activity they will be looking at DNA clues that can help us work out what the skeletons could have looked like. You can use the PowerPoint file to support this.

Run the activity

1. Demonstrate how to use the **DNA key** sheet. Use the eye colour gene as an example.

2. Explain to the group that they need to work through the list of genes in their **DNA profile** and decode each one. When they know the characteristic, for example brown eyes, they should tick the box on their **worksheet**. They will need to refer to this when recreating their face!

3. Once they have decoded all their information, they can draw the face on the worksheet.

Reflect on it

Ask the group to compare the faces they drew. Can they link the differences they see in the pictures to differences in the DNA codes they were working from?

Encourage them to think about what features they couldn't work out from the DNA. Why might it have not been in the DNA codes? Was it just missing information or are there some things about people that you cannot tell by looking at their DNA (e.g. scars, injuries, etc).

Take it further

Did you know all living things have DNA? It's not just humans, even tiny microbes are what they are because of the DNA code they contain. Why not try making your own microbe by deciding DNA?

Microbe Maker: www.yourgenome.org/activities/microbe-maker

Want to see how all the information is stored in DNA? Why not make your own helix and see which part contains the letter codes seen here?

Yummy Gummy DNA: www.yourgenome.org/activities/yummy-gummy-dna