Key Stage 3 – DNA Discoveries

Notes for teachers

At a glance

Researchers at the Oxford Genomics Centre are able to read DNA and have used this technology to investigate areas such as how cancer appears in our bodies, how malaria is carried by mosquitoes and how diabetes works. Their work would not be possible without that of the many scientists who went before them.

In this activity students work in groups to build a timeline of DNA discoveries and find out how our understanding of DNA has progressed from the 1800s to the present day.

Learning Outcomes

- Students learn the function of DNA
- Students research the work of scientists throughout history
- Students learn how scientists build on each other's work

Each group of students will need

- Copy of student worksheet page 1
- Copy of student worksheet page 2
- Cards cut from worksheet page 3
- Access to the internet

https://www.oxfordsparks.ox.ac.uk/content/how-read-dna
Possible Lesson Activities

1. Starter activity
   - Pass a £2 coin around the class or show them an image of the reverse of the coin. Ask the students to read out the inscription around the edge: 'If I have seen further it is by standing on the shoulders of giants'.
   - Explain that this is taken from a letter written in 1676 by Sir Isaac Newton to his fellow-scientist Robert Hooke, acknowledging the fact that he would not have been able to discover the things he did without the work of scientists before him.
   - Briefly discuss the fact that all the scientific research being done around the world today is building on work carried out by previous scientists.

2. Main activity: Creating the banner
   - Ask students to read through the information on page 1 of the student sheet.
   - Place students into groups of 2-4 (so there are 8 groups in total), and give each a copy of page 2 of the student sheet as well as one card cut from page 3.
   - Students use the URLs, plus their own internet searches, to research into the discoveries made by the scientist on their card. They write the information onto the box on page 2.

3. Main activity: Building the banner
   - Ask one student from each group to briefly read out the name of their scientist and what they discovered about DNA.
   - Help the class to place the sheets in the correct order, from earliest to latest discovery to build a long DNA banner. This can be placed on desks or on the wall as a display.

4. Plenary
   - Discuss that researchers are still building on this knowledge, such as those working at the Oxford Genomics Centre.
   - Play the class the animation 'How to Read DNA' as an example.
   - Ask students to work alone to write down how the work of the scientist they researched helps the researchers at the Centre.

Weblinks

How to Read DNA animation

https://www.oxfordsparks.ox.ac.uk/content/how-read-dna

DNA timeline A

https://www.dna-worldwide.com/resource/160/history-dna-timeline#1

DNA timeline B

http://www.dnai.org/timeline/