# INFLUENTIAL BLACK BIOLOGISTS

Lesson Plan

SOCIETY FOR
EXPERIMENTAL
BIOLOGY

# *Adaptable for all ages and abilities*

## A NOTE TO EDUCATORS AND PARENTS

Please take care to review any content before sharing with your students, especially from the external links provided, to make sure it is age appropriate.

## OBJECTIVES

- To learn about influential Black biologists who advanced their field and added to scientific knowledge
- To understand the importance of diversity in science
- To provide inspiration for future biologists
- To provide links to careers advice and guidance

## WARM-UP

As a warm-up exercise, get your pupils to think about as many scientists as they can in one minute. Either have them write this down or do it as a group discussion.

How many Scientists on their lists are Black? Discuss with your pupils whether the scientists they came up with represents the make-up of society. Why do they think this is the case?

Depending on the age and level of your students, you may wish to draw on points raised in some of the following articles for this discussion:

- What is racism - and what can be done about it? (CBBC Newsround)
  White men still dominate in UK academic science (Nature)
- White men's voices still dominate public science. Here's how to change this (The Conversation)
- The Ideology of Racism: Misusing Science to Justify Racial Discrimination (United Nations)

Use the wordsearch (on page 5) provided to start a discussion around which of these Biologists your pupils have or have not heard about. What topics did these scientists research? Which scientific topics sound the most and least interesting to each of the pupil and why?

## RESEARCH

Using the “suggested list of people to research further” (on page 4) and the “wordsearch” (on page 5) as a starting point, get your students to select an interesting biologist who inspires them, or who has made a notable discovery.

Once the students have decided on one scientist, ask them to research this person in more detail. Depending on the level/age of the pupils, you may wish to supply them with the “research worksheet” (on page 6) as guidance for this task.

## WRITING

Get your students to write up a report in the style of a newspaper article about the scientist they have chosen to research.

They might like to write a general article about the person’s life. Alternatively, they may choose to focus the article on an interesting event, discovery, or piece of work that their scientist played a part in.

Depending on the level/age of the pupils, you may wish to supply them with the newspaper writing frame (on page 7).

## FOLLOW-UP

Get Pupils to consider what challenges were/are faced by Black scientists and how have these challenges changed from modern day, 50 years ago, more than 100 years ago?

Get the students to read each other’s articles and rank the impact of their scientists’ discoveries on society and justify their reasons. For example, think about what further scientific discoveries it led to, if it changed daily life in any way, or shaped government policy.

Start a discussion about careers in science. From all the biologists the students learnt about, which career or topic excites them most? Do they think this would make an interesting job? Why?

## ADDITIONAL ACTIVITIES

Create “Top Trump” cards for the scientists your class have researched. You could include categories like year born, number of discoveries, number of awards won, topics

of research. Perhaps they can share the game with other year groups, siblings, or extra-curricular clubs!

Create a social media profile for your chosen influential biologist. What would they say on Twitter if they lived in modern times?

Create a display or timeline featuring all the scientists the class have learnt about. Get younger students to draw pictures of their chosen biologists to make the display colourful and fun.

## CAREER GUIDANCE AND RESOURCES

We hope that learning about the lives and work of these biologists have inspired your pupils to explore their own career possibilities in science. Please share our list of recommended career and educational resources for more information on what opportunities are available to them, or contact the SEB's Outreach, Education and Diversity Manager (Dr Rebecca Ellerington) at r.ellerington@sebiology.org

- Biology Education Resources (SEB)
- Bioscience Careers Guide (SEB)
- Bioscience Career Resources (Royal Society of Biology)
- Inspiring Scientists Collection (Royal Society)

## DIVERSITY IN SCIENCE

This may be a good opportunity to discuss with your pupils the negative consequences of individual and systemic racism, and the benefits of diversity in all areas of life. You may like to read the following articles and draw on some of the points raised in a discussion with your students.

- The Science and Value of Diversity: Closing the Gaps in Our Understanding of Inclusion and Diversity (Oxford Academic)
- Science benefits from diversity (Nature)
- Diversity Matters (McKinsey Report)

## SUGGESTIONS OF PEOPLE TO RESEARCH FURTHER

**John Edmonstone** - John was a freed black slave from Guyana, South America, who made his living in Edinburgh teaching University students the art of taxidermy. One of his pupils was Charles Darwin who learnt from him skills that were indispensable during his voyage aboard H.M.S. Beagle in 1831.

**George Washington Carver** - George was an American agricultural scientist and inventor who promoted alternative crops to cotton, and methods to prevent soil depletion. He is commonly cited as one of the most prominent scientists of the early 20th century.

**Roger Arliner Young** - Roger was an American scientist of zoology and marine biology. She was the first African American woman to receive a PhD in zoology. Her scientific contributions include improved understanding of the effects of radiation on sea urchin eggs.

**Wangari Maathai** – Wangari was a biologist who studied animal anatomy. She was the first woman in East and Central Africa to earn a PhD, and later the first women in the region to became a chair of a university department and an associate professor. Her the knowledge of biology gave scientific underpinning to the environmental conservation charity work which she won a Nobel Peace Prize for.

**Ernest Everett Just** – Ernest was a prominent cell biologist of the early twentieth century. He conducted many experiments in marine animals, and showed how the surface of the egg cell plays an important role in fertilisation.

**Charles H. Turner** – Charles was a pioneer in the field of insect behaviour. He developed many different pieces of equipment and experiments to test insect behaviour and learning. Through his observations Turner was able to establish that insects can modify their behaviour as a result of experience.

**Paula Kahumbu** – For her PhD in ecology and evolutionary biology Paula studied elephants. She used this knowledge aid her conservation work for which she has won numerous awards. She is now CEO of Kenyan Conservation NGO Wildlife Direct and runs the “Hands Off Our Elephants Campaign”.