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Genetic Disorders UK

TEACHER'S NOTES

RANDOM STORIES

OVERVIEW

Aimed at **Key Stage 3 pupils 11 – 13 years** (Prep time 0 mins/Class time 40 mins)

A small group of learners listen to a story before retelling it to another learner, who also passes it on. The class compares how and why the stories 'mutate' as they are retold. This process is compared with the natural process of genetic mutation, and the class watch a video about a boy who has a genetic condition caused by a spontaneous mutation. They then discuss the impact that mutations can have on people – both positive and negative.

LEARNING OBJECTIVES

- To express and listen to opinions, contributing effectively to group discussions
- To recognise and respect differences between themselves and others
- To understand that mutations in living things lead to variation

CURRICULUM LINKS

- KS3 Science:** all living things show variation, can be classified and are interdependent, interacting with each other and their environment
- KS3 Citizenship:** engage with and reflect on different ideas, opinions, beliefs and values when exploring topical and controversial issues and problems
- KS3 Citizenship:** express and explain their own opinions to others through discussions, formal debates and voting

Activity

- Split the class into groups of four or five learners and ask one pupil from each group to join you in a corner of the room.
- Whispering so that the rest of the class cannot hear, read this story to the representatives from each group:

Once upon a time a boy called Ashley was born with a genetic disorder. His condition affected the bones in his head and neck before he was born. It made his face look different, and his ears were very small. He needed to wear hearing aids and sometimes found it difficult to hear when it was noisy in class. Ashley loved to sing and act, though. And most of all he loved to sing Frank Sinatra songs.
- Learners can ask to hear it again, but you should not explain anything they can't understand.
- Tell the representatives to return to their groups and whisper the story to one of the other learners. They then whisper the story to the next learner until it has worked its way around the group. The final learner writes down the story they heard.
- Ask each group to read out their final story to the class and discuss the results. Are they the same? Why not? Can they work out where the story went wrong? Are some stories 'better' than others? Did anyone deliberately change the story they heard?
- Explain that each of these stories has changed because of a 'mutation' – a change that was made when the story was retold to someone else. These mutations may have been entirely accidental, they may have been influenced by other factors (for instance a learner being distracted by someone else as they listened) or they may have been deliberate.



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Activity

continued

- This is exactly what can happen in living things. When cells divide they make a copy of the DNA in the original cell. Sometimes this copy is not quite the same; it has mutated. Some genetic mutations like this make no real difference to organisms, some can be harmful and some can be beneficial. Watch this video to find out more about Ashley and his genetic condition:

www.genesareus.org/filmlibrary/ashleysstory

As they watch, ask learners to think about what life is like for Ashley.

- Close the session with a discussion about the impact of genetic mutations. Prompt questions could include: Is the mutation that causes Treacher Collins syndrome harmful, beneficial or making no real difference to Ashley? If it was possible to prevent this mutation from occurring in humans, should we try to stop it happening? Why? Why not?

EXTENSION

- Ask each learner to draw an imaginary superhero, get another learner to copy it, another to copy the copy, and so on. How long does it take for serious mutations to appear? Are the mutated superheroes more or less suited to the world's environment? Should we be able to introduce mutations into animals to create real creatures with specific attributes?

FURTHER INFORMATION

- Use the Canadian Museum of Nature Mighty Mutation Maker game to mutate your name:
http://nature.ca/genome/04/0413_e.cfm
- This BBC Learning Zone video gets into the details of mutation and genetic disease:
<http://www.bbc.co.uk/learningzone/clips/mutations-and-genetic-diseases/10653.html>
- Play the Nova Online Evolution in action game to see how mutations and external influences affect populations:
<http://www.pbs.org/wgbh/nova/evolution/evolution-action.html>

FOR MORE RESOURCES GO TO WWW.GENESAREUS.ORG

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