

Follow-up worksheets to the “Little Changes” story

This worksheet gets students thinking about the concepts introduced in the story, namely:

1. Variation
2. Selection
3. Adaptation
4. Heritability
5. Speciation

At the beginning of each section read through the relevant verses given on the worksheet. Start a discussion with the class about the verse and the main concept being introduced, for example variation. You might want to use this opportunity to introduce some new words to the class and get them to try and include them in their answers. There is a glossary provided below of some words you may want to introduce depending on the age of your class. After the discussion get the class to complete the questions and exercises on the worksheet.

N.B. Worksheets can be printed in black and white.

Glossary:

Variation – Small differences between individuals of the same type. For example, hair colour, eye colour, height.

Adaptation – The gradual change of a population to fit a new environment or different conditions. Make clear this is over a number of generations, not over the lifetime of an individual.

Heritability – Features which are passed down (inherited) from parent to offspring.

Speciation – Adaptations overtime add up, so one similar group of individuals can become two different distinct groups.

Evolution – Gradual change over time.

Genes – The basic unit of inheritance. Genes carry information about you, for example, your hair colour and your eye colour. Your genes are a mix of your mum and dad’s. That’s why families tend to look like each other.

Natural Selection – A change in the environment means certain individuals are better at surviving than others.

Survival of the fittest – A process whereby the individual’s best adapted to an environment will survive better, and/or leave more offspring.

Charles Darwin – The scientist which came up with the idea of evolution as a process for speciation.

There is a good horrible histories song about Charles Darwin here

<http://www.youtube.com/watch?v=Pt2gHpqfZNA>

There are many educational resources online related to evolution – here are some of my favourites:

Darwin’s evolution game, “Who Wants to Live a Million years?”

<http://science.discovery.com/interactives/literacy/darwin/darwin.html>

This is an interactive game where the player must control certain aspects of a population, such as variation and mutation, in order to give them the best chance of surviving in a changing environment.

The Natural History Museum presents “The evolution game”

<http://www.nhm.ac.uk/nature-online/evolution/what-is-evolution/natural-selection-game/the-evolution-experience.html>

This game is all about natural selection, the player plays the role of a young bird which must survive in order to reproduce. You must eat enough bugs to survive each season, but the colour of the bugs changes depending on which bugs are easiest to find.

The NHM also provides an ipad app (price £9.99) which gives a great and detailed insight into what we know about evolution and how we know it.

The rap guide to evolution

<http://bababrinkman.bandcamp.com/album/the-rap-guide-to-evolution-revised>

(Music videos also available on YouTube)

The infamous Baba Brinkman uses rap to explain the key concepts involved in evolution. His lyrics have all been “peer-reviewed” by scientists and he plays for all ages, from schools to conferences. Fantastically engaging and scientifically accurate.

The Big Picture on Evolution

http://www.wellcome.ac.uk/stellent/groups/corporatesite/@msh_publishing_group/documents/web_document/wtd026042.pdf

This teaching resource from the Wellcome Trust is a short issue all about evolution. It explains the research and applications of evolution as well as the history – great for older kids, or those interested in learning more.